ENDLINE STUDY

International Development and Early Learning Assessment (IDELA)

May, 2018
Kathmandu

RIDA International
Research Inputs and Development Action

Save the Children

Contents

Acknowledgements

RIDA conducted baseline study of early development and learning of child in 2017 and had a great learning experience of employing International Development and Early Learning Assessment (IDELA) to assess the learning and development of children in Sindhupalchowk. Administering IDELA tools with Early Childhood Care and Development (ECCD) children was a huge learning opportunity as well as massive challenge for RIDA and its team during the baseline. We are thankful to Save the Children in Nepal for continuing to provide us with the opportunity to cooperate once again for the IDELA Endline Study. The technical support from Save the Children was instrumental in performing this task. We are thankful to Julee Allen, Director, Program Development and Quality; Jonathan Seiden, Learning Research Specialist; Sara Dang, Senior Specialist - Early Childhood Care and Development; and Matrika Sharma, Senior Monitoring and Evaluation Coordinator, Save the Children Nepal for their regular support and feedback. We are also thankful to rest of the education team in Save the Children, their field staff, and partner organizations for their regular support.

We also extend thanks to parents, schools and ECCD centers of Sindhupalchowk district who cooperated well during the data collection process. Last but not the least, the research enumerators and team leaders (Bikash Acharya and Paban Raj Lohani) deserve special appreciations.

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List of Acronyms

DOE	Department of Education
DEO	District Education Office
ECCD	Early Childhood Care and Development
ECCD	Early Childhood Development
ECED	Early Childhood Education and Development
EFA	Education for All
GoN	Government of Nepal
IDELA	International Development and Early Learning Assessment
MDG	Millennium Development Goal
NASA	National Assessment Student's Achievement
NER	Net Enrolment Rate
PPC	Pre-Primary Classes
RIDA	Research Inputs and Development Action
SSRP	School Sector Reform Program
STR	Student-Teacher Ratio
SCN	Save the Children Nepal
SMC	School Management Committee
UPE	Universal Primary Education
VDC	Village Development Committee

Executive Summary

Context. Save the Children began implementing ECCD programs in Nepal in 1997 to help children to learn and develop their full potential. In 2015, Save the Children had education programs in 18 districts and worked with 1402 ECCD centers and 1332 schools. Recently, Save the Children has developed a tool to measure ECCD children's developmental outcomes. This tool is commonly known as International Development and Early Learning Assessment (IDELA) and was developed to use for establishing a baseline of children's learning and development at beginning of the project and a final assessment of children at the end of the school year. Research Inputs and Development Action (RIDA) supported Save the Children to conduct the endline study using IDELA tool in Sindhupalchowk district during March, 2018.

Methodology and limitations. The study included three tools: IDELA test, survey with parents/caregivers, and ECCD information collection (with information related to ECCD centers). IDELA test was administered among 326 ECCD enrolled children from around 40 ECCD centers with 295 parents/caregivers included in the survey. The study used quasi experimental design in a setting where the sites were not identified randomly. There were some challenges during the study. The endline study could not reach to all the children that were included in the baseline study due to their unavailability. It was a major challenge to trace and reach to same cohort of children included in the baseline study.

Findings

Family environment. The average age of children in project area was 5. Out of total children tested in project area, 58.9 percent were girls (compared to 53.3% in control areas). Fathers were more literate compared to mothers. In project ECCD centers, around 67 percent mothers were literate compared to 98% fathers. There were more proportions of families in control (91.4% compared to 90 in treatment) with Nepali as a language spoken at home. On an average, the family size was around 5-6 members per household. There were around 1 child below 6 years, 1 child between 6 to 12 years, and 3 adult family members.

Home learning environment. Significant increase has taken place in the availability materials among the households in programs sites. The availability of key learning materials like storybooks, textbooks, coloring book, comic book, drawing book, hand-eye coordination materials and numbers was found significantly higher in the program areas. Similarly, engagement of children in various activities has improved in the endline as compared to the baseline status. There were significantly larger proportions of caregivers engaged in various learning activities with children in project area compared to the control area in the endline. Mothers were heavily engaged in conducting activities for children compared to father and other family members. Fathers and other members of non-program areas were highly engaged in hugging.

IDELA results.

Overall IDELA scores depict that the children from program implemented ECCD centers have improved in their learning. The average IDELA score is 31 percent for the project area. The maximum value is 90 percent and the standard deviation is 20 points for both treatment and control sites. In the aggregate score, there is significant difference by ECCD type (control and treatment) between the boys. The boys from control ECCD centers have better IDELA scores compared to those from program centers. The scores are higher for motor skills and literacy

compared to numeracy skills and socio-emotional development for both control and treatment groups. There is significant difference in the magnitude and percentage of change in literacy score, numeracy score, and total IDELA. Due to the project, the students in project intervention areas scored 38 percent higher than their baseline ideal score, significantly different compared to the gains among the children in control ECD centers/schools.

	Control			Treatment		
	Baseline score	Endline score	Score added	Baseline score	Endline score	Score added
Motor skills	13.9	33.4	12.3	20.9	40.1	25.8~
Early literacy	10.6*	24.9	14.2	10.1	30.5**	20.5**
Early numeracy	19.6	28.9	9.1	20.5	35.1**	14.5**
Socio-emotional development	8.8	15.0	6.2	9.7	17.9~	8.9~
Executive Functioning	8.6	18.8	9.9	7.7	22.1*	14.2**
IDELA	15.0	25.7	10.5	13.5	30.9**	17.4**

Factors associated with the IDELA scores. It was observed that the availability of learning resources and engagement in playful activities with children was associated with better IDELA score along with children's age. However, family level factors such as home language, caste/ethnicity of caregivers, socio-economic index, mother's Education, father's education, and number of adversities faced by family and children do not predict IDELA score.

Conclusion. The endline study confirms that the EQ LEARN initiatives of Save the Children in Sindhupalchowk has contributed to improve learning and development of the ECCD children and proves relevance of the early childhood development program to increase the learning scores. The project interventions have been successful to increase very low IDELA scores that were recorded in the baseline with overall increase of around 17.4 percent and project attributable increase of 7.5 percent. Besides, it was also evident that availability of learning resources including reading materials and other tools was positively associated with higher literacy score.

Recommendations RIDA recommends Save the Children and its partners to review the study findings, and have detailed discussions and brainstorming to generate possible inferences for the project. Nevertheless, some specific recommendations are as follows:

- Focus on learning activities to increase numeracy. It needs to promote learning activities more directed to numeracy so that the numeracy scores could be significantly improved.
- Playful resources to increase literacy scores. Ensure the availability of playful learning resources to children with purposive orientation to parents and other caretakers on how to utilize them for child's learning and development.
- Explore options and pilot initiatives to increase socio-emotional development. Since the scores related to socio-emotional development could not be increased significantly relative to the control group it is essential to explore options, and pilot some initiatives targeting for its improvement.

1. Introduction

1.1 Background

Nepal is undergoing a socio-political transition following the culmination of a constitution drafting process that passed through the constituent assembly in 2015. The state restructuring process, involving a transfer from unitary to federal structure, has gained momentum after the formation of local, provincial and central level government to be in power for next five years. After a long period of internal conflict and uncertainty there is a degree of cautious optimism as the country moves towards the fully-fledged implementation of the constitutional commitments and provisions that underlie state restructuring. The country has been restructured in 753 local governments and 7 provincial governments. As of March 2018, the newly elected governments have assumed office in all three layers of governments despite being at an embryonic stage in terms of their actual operational capacity. The constitution assumes primary responsibility on part of local government with regards to local development efforts including the large portion of responsibility related to school education.

Although the data may not be entirely reliable, socio-economic development indicators - especially the Human Development Index (HDI) – suggest that the country is on the verge of graduating from Least Developed Country (LDC) to Developing Country. However, given the on-going transition and instability in the aftermath of the earthquake that has demanded sizable financial resources; the Government of Nepal has decided to entreat the United Nations to delay the graduation of Nepal to the list of developing country[1]. Impressively, school education in Nepal is one of the most progressive development sectors.

The Constitution of Nepal, 2015 guarantees universal and free school education for all children in Nepal with provision for specific support and priorities for girls, and children from disadvantaged groups. In its fundamental principles, the constitution has declared basic education as free and compulsory for all children in Nepal while maintaining that the state will assume the prime responsibility of financing basic school education. The constitution, vividly, states:

> *(1) Every citizen shall have the right to access to basic education.*
> *(2) Every citizen shall have the right to compulsory and free basic education, and free education up to the secondary level.*
> *(3) The physically impaired and citizens who are financially poor shall have the right to free higher education as provided for in law.*

School education in Nepal consists of primary level, from grade one to five, followed by three years of lower secondary, two years of secondary, and two years of higher secondary education (MOE, 2008). The School Sector Reform Programme (SSRP) (2009–2015) which transitioned to School Sector Development Plan (SSDP, 2016-22), has categorized school education into two levels: basic education (grades 1–8) and secondary education (grades 9–12) (MOE, 2008 & MOE, 2016).

The education sector in Nepal has substantially grown in recent years. The number of schools and student enrolment rates has jumped up impressively over the years. The school age

[1] https://thehimalayantimes.com/nepal/government-wants-nepal-remain-least-develooped-countries/

population (5-14 years for grades 1-10) is expected to be around 8 million (which is more than 25 per cent of the total population in Nepal) of which around 6.9 million are present in school (up to grade 12) and more than one million kids are out of school (CBS, 2011 & DOE, 2016). In 2015, the Net Enrolment Rate (NER) for the primary level (grades 1-5) was 97 per cent[2]. The rates declined in higher levels at 78 per cent for lower secondary and 58 per cent for secondary levels (DOE, 2015). From primary to secondary level, more than 25 per cent miss out the enrollment, and around 63 per cent do not manage to progress in succession. In another data compiled by CBS during National Living Standard Survey (NLSS), around 7 per cent children have never attended schools, and remain out of school.

Table 1. Educational outcomes at the lower secondary level by sex (2015)

Indicators	Primary		Lower Secondary		Secondary Education	
	Total	Girls	Total	Girls	Total	Girls
Enrollment	4,264,942	-	1,862,873	-	938,897	-
GER	135.4	140.8	120.1	124.1	75.1	74.7
NER	96.6	96.3	89.4	89.6	57.9	57.3
Promotion Rate	88.4	88.7	90.9	91.0	92.2	92.2
Repetition Rate	7.6	7.5	4.0	3.9	2.9	2.9
Drop Out Rate	3.9	3.8	4.4	4.3	4.9	4.9
Survival Rate (5, 8 & 10)	87.5	87.9	76.6	77.4	37.9	38.9

Source: DOE, 2015

Although it has already been three decades that the Early Childhood Care and Development (ECCD) was introduced in the education policy in Nepal, it has not received adequate policy attention in terms of resource allocations and priority within the Ministry of Education. The local government operation act classifies ECCD as a prime responsibility of the local government along with the entire school education. There are various forms of ECCD/PPCs - school-based ECCD centers, community-based ECCD centers and privately managed pre-primary classes. Schools give different names to these classes such as Nursery, Kindergarten, Montessori etc. There are 35,991 ECCD centers in the country which includes 30,034 (85%) community based or community schools based centers. The remaining 5,543 (15%) of the ECCD/PPCs are operating under institutional schools.

Table 2. ECD related details by eco-belts

Eco-belts	Community	Institutional	Total
Mountain	3,221	201	3,412
Hill	13,926	1,745	15,471
Valley	795	1,184	1,979
Terai	12,516	2,423	14,929
Total	30,448	5,543	35,991

Source: DOE (2015), Flash I Report, 2015-2016

In total, 977,365 children were enrolled in 35,991 ECCD/PPCs during academic year 2015-16. The ratio of total children enrolled in an ECCD center is 27 children percent. The number of

[2]The figure is believed to have been inflated due to wrong reporting by schools because the household surveys present completely different picture. The National Living Standards Survey (NLSS-III) published in 2011 reported that the actual NER observed in the household survey was only 68.8 percent which was a decrease of nearly 3 percent from the NLSS-II figures of 72 (CBS, 2007 & CBS, 2011b).

children enrolled in ECCD center as well as number of children per ECCD center has reduced slightly compared to previous years (DOE, 2015). The age-wise enrollment of children in ECCD center is improving compared to previous years. The overall percentage of 4-year old children enrolled in ECCD/PPCs is 81 percent (compared to total 77.7% during 2014/15). On the whole, the age appropriate enrollment rate (for children of age 3-4 years) is 91 percent (92% for boys and 90% for girls). The number of children enrolled in grade 1 with ECCD/PPC experience has also improved compared to 2014/15. Altogether 62 percent children enrolled in Grade 1 had previous ECCD/PPC experience during 2015/16, an increase of around 5% compared to previous years.

The focus of the government has been to increase proportion of children in Grade 1 with ECCD/PPC experience. While ECCD has clearly expanded over the years despite unclear resource priority of the government especially in terms of arranging ECCD facilitator and infrastructure, there is very limited known about the contribution of ECCD centers in children's learning and development. Government has recently introduced minimum quality standards for the ECCD centers in Nepal to ensure that certain performance targets are met and monitored for all ECCD centers.

1.2 Context

Save the Children has been operating in Nepal since 1976 to improve the lives of children in Nepal. In 2018, there are 12 education projects in 18 districts covering 1642 schools and 1586 ECCD centers as of April, 2018. Save the Children began implementing ECCD programs in Nepal in 1997 to help children to learn and develop their full potential. Save works in with over 100 partners (including the Government of Nepal) in 63 districts of Nepal in the areas of Child Rights Governance, Child Protection, Education, Health and Nutrition, Livelihoods, HIV and AIDS and Humanitarian Response.

Save the Children has developed a tool to measure ECCD children's developmental outcomes. The International Development and Early Learning Assessment (IDELA) is an easy-to-use, rigorous global tool that measures children’s early learning and development. IDELA provides ECCD programs, donors, and government partners with evidence on the status of children aged 3.5 to 6 years.

Save the Children Nepal adopted the IDELA tool for the assessment of children aged 3.5 –6.5 years. Testing and modifying the tool over multiple years across many countries (Bangladesh, Bhutan, Egypt, Ethiopia, India, Indonesia, Mali, Malawi, Mozambique, Pakistan, Rwanda, and Zambia) has resulted in a 24-item assessment that balances three key dimensions: psychometric rigor, feasibility, and international applicability. As a result, IDELA is easily translated and administered in varied cultural contexts, and has strong reliability and validity.

IDELA includes five domains focused on gross and fine motors skills, emergent literacy, emergent numeracy, socio-emotional development and approaches to learning. For Nepal, the tool was customized during 2016 after localizations, adaptations, and rigorous piloting. The pictures and terms were localized to serve the purpose. Table 2 displays the items that were included in this study’s IDELA.

Table 3. Core IDELA items

Gross and Fine Motor Skills	Emergent Literacy	Emergent Numeracy	Socio-emotional Development	Approaches to learning

Hopping	Print awareness	Size/length identification	Friends	Attention
Copying a shape	Expressive vocabulary	Sorting	Recognizing emotions in self	Confidence
Drawing a human figure	Letter identification	Number identification	Recognizing emotions in others	Concentration
Folding paper	Emergent writing	Shape identification	Conflict resolution	Diligence
	Phonemic awareness	One-to-one correspondence	Personal information	Motivation
	Oral comprehension	Simple operations		Curiosity
		Puzzle completion		

Save the Children implemented post disaster recovery program – EQ LEAN focusing on early childhood development and school education in Sindhupalchowk district during last two years (2016-2018). Based on Flash-I, 2015/16, there are 372 centers with 6,256 students (including 3151, 50% girls) currently enrolled in the ECCD center. The students included 644 (10%) dalits. A center catered around 17 children (DOE, 2015). There are 455 facilitators (including 87% female facilitators) currently working in these ECCD centers. Among the facilitators, around 390 (86%) were qualified and 406 (89%) were trained. Only around half of the children (52%) including 53 percent boys and 52 percent girls who newly entered in Grade 1 had previous ECCD/PPC experience (DOE, 2015).

The EQ LEARN project aimed to promote children's development through the following objectives: (1) Improved availability and accessibility of ECCD services for children 0-5 years; (2) Improved quality of ECCD services to promote children's holistic development; (3) Increased capacity of parents to support young children's development at home; (4) ELM incorporated into the national ECCD curriculum. The project piloted a combination of both center-based ECCD and parenting education classes. Save the Children aimed to develop an ECCD in emergencies training package for facilitators, incorporating tested approaches, such as Early Literacy and Math (ELM) and Healing and Learning through the Arts (HEART), to provide psycho-social support to children and to improve their developmental outcomes. In addition, Save the Children also rolled out its tested Community Education Monitoring Information System (CEMIS) approach to identify and address access issues in the community. The project was implemented in Sindhupalchok District, the epicentre of the aftershock earthquake in May 2015. In total, the project reached 12,900 individuals directly, of which 4,800 are children between the age of 0-5 years.

Research Inputs and Development Action (RIDA) supported Save the Children to conduct endline study using IDELA tool in Sindhupalchowk district during March, 2018 in a follow up with the baseline study conducted during May, 2017. This is the endline study report.

1.3 Study Objectives

This final assessment study was expected to support Save the Children to identify whether or not its program had any effects or impacts and the size of impact (if any) it had on the program areas compared to the non-program sites.
The specific objectives of the final assessment are as follows:

- Identify the progress status of children on early learning and development outcomes in Save the Children working area disaggregated by geographical areas, program and non-program, sex (boy & girl), and caste/ethnic groups, and
- Identify the progress status of caregiving practices in Save the Children's working areas of Sindhupalchowk district.

1.4 Key Research Questions

The key research questions of the study were as follows:

1. What do the family environment and home learning environment look like for children in intervention and comparison ECCD centers?
    - What assets and gaps exist with regard to:

- types of books in the home	- types of learning activities that at least one household member is doing with the children
- types of toys in the home	- Amount of time spent engaging/stimulating children

2. What does children's development status look like in terms of their performance on IDELA domains, subtests, and overall IDELA score? (disaggregated by sex and age, similar to Afghan report)
3. How do the following correlate, if at all, with IDELA score? (controlling also for sex, age, ECCD experience and number of household members)

- Language	- Parental expectations
- Caste	- Parental education (use the one variable that has the most variation or is most strongly correlated with IDELA)
- Socio Economic Status	
- Home learning environment: resource index (either books, toys, or both) and activity index	

4. What are the most and least prevalent types of adversity?
    - What is the prevalence of spanking/hitting children and caregivers, and what is the prevalence of child neglect? (both of these we will report to the relevant local child board)
    - How does exposure to adversity correlate to IDELA scores in this context?

5. What protective factors correlate with resilience[3] in this context?

[3]The children with IDELA scores at least 1 standard deviation above the mean and with adversity index scores at least one standard deviation above the mean were considered to be resilient.

2. Study Design & Methodology

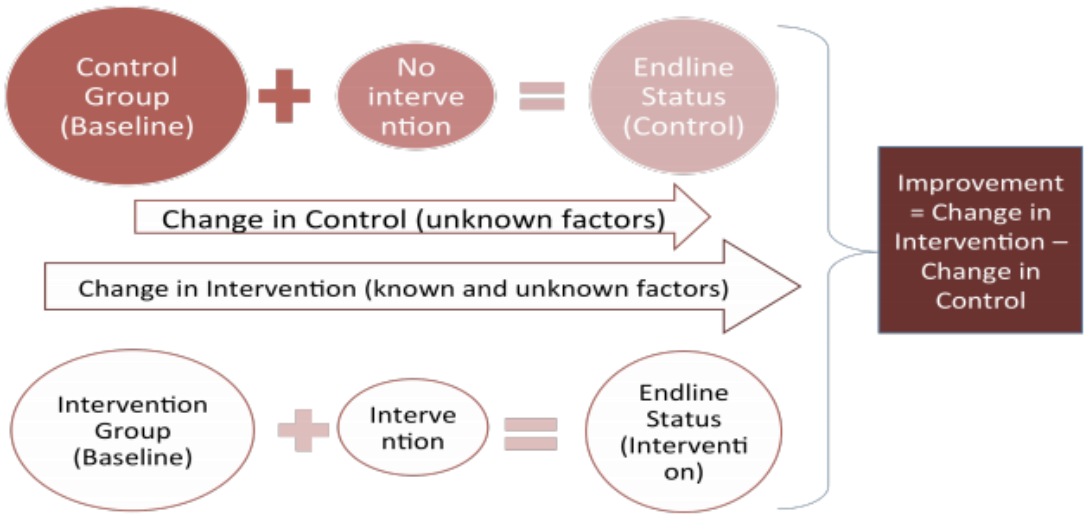
This sub-section describes overall study design and methodology.

2.1 Endline Study Design

Endline study design followed the same quasi-experimental design used for the baseline study creating a 'control' group for assessment of 'counterfactual'. Although this study does not meet all requirements for experimental design, the design was made to ensure that there is enough ground to have indicative comparison between 'project' and 'non-project' sites during the baseline conducted in 2017. The intervention individuals/areas were selected purposively (without any form of random assignment) by the implementers. The VDCs were considered as 'zone of influence'. For every project VDC, another non-project VDC was selected to enable comparison, based on discussion with the local education authority - District Education Office. The ECCD centers within non-project sites or VDCs were selected randomly. For this study, the study design including the sample size calculation was overseen by Save the Children Nepal.

The chart below provides graphical illustration of how quasi-experimental design will work illustrating the use of 'double difference' calculation during the endline study.

Chart 1. Quasi Experimental Design (Double Differences)



Based on the design, the baseline and endline tests and other forms of data collection were done with same cohort of ECCD centers and children. The baseline and endline figures were compared across treatment and control groups so as to determine whether ECCD related interventions had any influence on the children's learning and development. While making comparisons, the double difference approach was used to estimate whether there was any significant difference between the difference of values for different variables between treatment and control groups compared to their respective baseline scores.

3.2 Methodology

This section summarizes methods and tools used in the endline study. The endline study consisted of International Children Development and Early Learning Assessment - IDELA test with the same children that were included in the baseline study and survey with their parents.

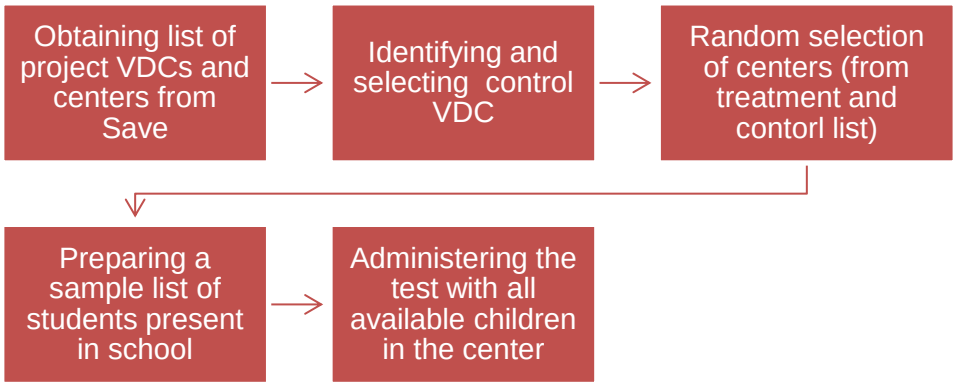
Tool 1: International Children Development and Early Learning Assessment - IDELA

Rationale. The objective of learning achievement assessment is to identify the change i.e. improvement in the learning achievement of the children in the program areas. The assessment will ascertain the change among children from Sindhupalchowk district of Save the children and Non-Save the Children program site.

Indicators: IDELA Score

Number and sampling. For IDELA test, 326 students were selected from more than 40 ECCD centers. Same sample identified during the baseline was used for the endline study. Sampling steps followed during the baseline is presented in the chart below.

Chart – II: Sampling Steps



Considerations in facilitating IDELA test. Before taking the test, ECCD facilitators and school head teachers were informed and consulted about the test and its nature. After random sampling of children, the children appearing for test were clarified on what the test is about. The researchers tried to make them comfortable with seating arrangements and test venue maintaining privacy and peace to avoid disturbances from other children and assessors.

Contents. The IDELA Score is constructed based on scores obtained for motor development, literacy, numeracy, socio-emotional development, and executive control. Altogether 22 items were included in the test. From the international guidelines on IDELA, two items (copying a shape within fine motor, and hopping within gross motor) were removed considering difficulty in administering the test. The students were separately graded for each item before calculating a weighted IDELA score.

Tool 2: Parents/Caregivers survey

Rationale. The objective of parents/caregivers' survey was to identify existing care giving practices. The survey with parents/caregivers collected the information about parenting knowledge, care giving practices and various adversity and protective factors.

Number and sampling. The survey was conducted with 295 parents/caregivers of the children sampled and selected for IDELA test. Some parents who could manage time were invited to schools while others were reached at home. Some parents of the children who were included in the test could not be reached for the interview. Most of them were not available at home.

Contents. The survey with parents collected background information related to the family and the children. It included following information:

Table 4. IDELA Caregiver questionnaire

Section	Description
1. General family information	Sex of child, child age, number of children at home, parental literacy, parental education, languages spoken at home
2. ECCD experience and educational expectations	Child participation in ECCD programs, details of participation, parental expectation and aspirations of child's educational attainment
3. Access to early learning materials and resources at home	Types of reading materials at home, types of toys at home
4. Parenting practices and support for learning and development	Adults in the home engaging with children to promote learning and development
5. Inadequate care	Children left alone or in the care of another young child
6. Socioeconomic status	Housing materials, objects/appliances owned, land/animals owned
7. Adversity, protective factors & resilience	Adversity: Disasters, illness, shocks, conflicts, threats etc.; Protective factors: low adult-child ratio, remittances from migrant worker, accessible health facility

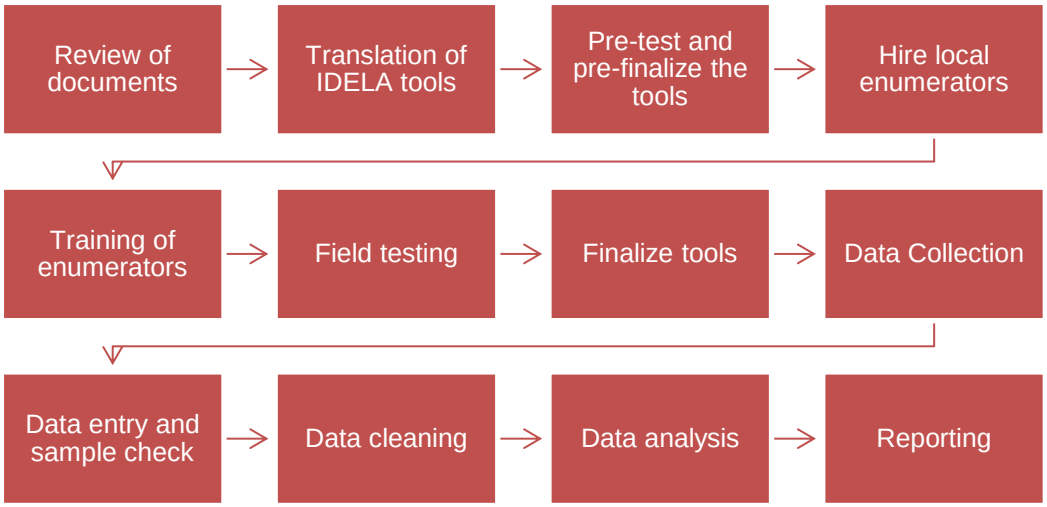
3.3 Study Procedure

The IDELA items were translated and contextualized by Save the Children's education and MEAL staff. RIDA worked on the tools and data collection guidelines received from SCN to further shape and develop to meet the local context.

An intensive five-day training conducted jointly by Save the Children and RIDA from February 20 – 23, 2018. The training was aimed at building capacity of the locally hired enumerators to administer the IDELA tools by fulfilling necessary ethical requirements. The pre-testing activity carried out during the training period provided the assessors a familiarity of the tools use and inputs for tools revisions.

The data collection in Sindhupalchowk started on March 4, 2018 and completed on March 25, 2016. Local enumerators/assessors hired for the data collection were regularly monitored and supervised by RIDA supervisors. The data collection was done using tablets and KoBo Toolbox

freeware. Upon completion of the field activity data were entered, checked and cleaned during April, 2018. RIDA conducted analysis of the data based on the agreed analysis framework.



3.4 Limitations

There were some limitations during the endline study. The endline study could only reach to around 326 unique children and 295 caregivers due to their unavailability. The attrition was around 20 percent in both control and treatment groups with final sample of 326 during endline compared to 400 during baseline. During baseline, the sample size was 200 children for both control and treatment schools while the sample size during endline was 158 for control and 168 for treatment school. The main challenge was to trace and reach to same cohort of children who were included in the baseline study. Some families could not be reached since they migrated for seasonal work or permanently to other areas. The families living in rent were the families particularly migrating away. During baseline, there was additional information collect from the ECCD centers. However, these observations could not be collected during endline since the centers were already closed and there were no classes on-going due to the final examination in the schools.

3. Study Results

This section presents key findings from the study with specific focus on the changes during endline compared to baseline, and also comparing treatment and control sites.

4.1 Home environment

Child characteristics

The average age of children in project area was around 5 years compared to 4 years during the baseline. The endline study was conducted after around 10 months of the baseline. Out of total children tested in project area, 58.9 percent were girls (compared to 53.3% in control areas). There was no difference in the average age and proportion of girls between the project and non-project sites.

Table 5. Child characteristics

	Control	Treatment
Child is Female	53.3	58.9
Child age	5.2	4.9

Source: IDELA test with children, 2018

Family characteristics

Fathers were more literate compared to mothers. In project ECCD centers, more than 98 percent fathers were literate compared to 67 percent mothers. There was no significant difference in age, educational attainment of parents, and other family characteristics in treatment and control sites. Similar to the baseline, there were slightly more proportions of families in control (91.4% compared to 90% in treatment) with Nepali as a language spoken at home.

Table 6. Family characteristics by intervention

	Control	Treatment
Mother age	28.4	28.5
Mother education	1.2	1.4
Mother is literate	65.1	67.4
Father age	30.9	30.7
Father education	1.7	1.9
Father is literate	95.9	98.2
Home language as Nepali	91.4	90.0

Source: Caregiver's survey, 2018

Number of children

On an average, the family size was around 5-6 members per household. There was around one child below 6 years, one child between 6 to 12 years, and 3 adult family members. There was no significant different between treatment and control areas in age wise distribution of family members. There has been no change as compared to the baseline figures.

Table 7. Family size

	Control	Treatment
Family size	5.6	5.5
# family members under 6 years	1.4	1.3
# family members of age group 6-12	0.9	0.8
# family members of age over 17	3.2	3.4

Source: Caregiver's survey, 2018

4.2 Home Learning Environments

The home learning environment includes availability of resources/tools that contribute to home learning and activities.

Resources

Significant increase has taken place in the availability materials among the households in programs sites. The availability of key learning materials like storybooks, textbooks, coloring book, comic book, drawing book, hand-eye coordination materials and numbers was found significantly higher in the program areas, and also compared to the baseline figures. Marginal difference was found in the availability of magazines, and puzzles with the families in the program areas being on the higher side. The increase in the tools related to shapes, drawing, puzzle, comic book, coloring book, textbook, and storybook increased significantly in program areas compared to the baseline, and also in comparison to the control groups. Surprisingly, the proportion of families with news papers available in home decreased.

Table 8. Materials and Resources useful for children

% of fmailies with the following resoruces	Baseline		Endline		Change & Direction
	Control	Treatment	Control	Treatment	
Storybook (%)	27.6	33.9	28.9	52.3**	↑ 18.4**
Textbook (%)	12.4	18.6	25.7	46.9**	↑ 28.3**
Magazine (%)	10.0	23.8**	11.8	20.0~	↓ 3.8
Daily Newspaper (%)	2.4	9.3**	1.9	1.5	↓ 7.8**
Religious book (%)	3.3	11.0**	19.7	26.9	↑ 15.9
Coloring book (%)	24.3	25.9	25.0	44.6**	↑18.7**
Comic book (%)	14.3	19.8	15.8	33.8**	↑14.0**
Homemade (%)	52.4	57.7	59.2	66.2	↑ 8.5
Store-bought (%)	56.7	60.8	61.2	71.1	↑ 10.3
Household objects (%)	63.3	68.3	61.8	70.0	↑ 1.7
Outside objects (%)	64.3	72.7~	67.8	73.8	↑ 1.8
Drawing (%)	19.1	28.6*	43.4	62.3**	↑ 33.7**
Puzzle (%)	2.9	6.6~	5.3	10.8~	↑ 4.2~
Hand-eye coordination (%)	5.2	7.1	5.9	13.1*	↑ 6.0*
Shapes (%)	6.2	11.5~	10.5	31.5**	↑ 20.0**
Numbers (%)	10.5	19.4**	14.5	25.4*	↑ 6.0*
Other (%)	5.2	8.4	16.4	18.8	↑ 10.4

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

Activities

The engagement of children in various activities has improved in the endline as compared to the baseline. The proportion of children engaged in various activities with parents, which was higher in control for some activities in the baseline, has reversed in the endline study. During endline, there are larger proportions of caregivers engaged in the activities like teaching numbers, teaching letters, teaching new things and drawing compared to the control group. The proportion of children engaged in various learning activities increased compared to the baseline with significant increase in proportion of caregivers teaching numbers, letters, new things, and also playing and drawing with children.

Table 9. Engagement of children in key learning activities

	Baseline		Endline		Change & Direction
	Control	Treatment	Control	Treatment	
Reads to child (%)	52.4	54.6	59.2	60.8	↑ 6.2
Tells stories (%)	31.9	33.5	42.1	42.3	↑ 8.8
Sings (%)	36.7	36.1	46.1	48.5	↑ 12.4
Takes child out (%)	45.7	44.5	65.8	63.1	↑18.6
Plays with child (%)	25.2	31.3	34.9	55.4**	↑ 24.1**
Draws with child (%)	20.0	29.1	42.1	56.9*	↑ 27.8*
Teaches new things (%)	21.9	33.5**	40.1	53.9*	↑ 20.4*
Teaches letters (%)	31.9	38.8	49.3	63.1*	↑ 24.3*
Teaches numbers (%)	19.5	26.9~	46.1	61.5**	↑ 34.6**

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

In general, mothers were heavily engaged in conducting activities for children compared to father and other family members (grandparents, brothers etc) in both program and non-program areas. In four activities, mothers in program areas were significantly more engaged in learning activities – playing with the child, drawing with the child, teaching new things, teaching letters, and teaching numbers. Fathers and other members of non-program areas were highly engaged in hugging. The engagement of father, though increases, was not significantly better than the control sites except for playing with children.

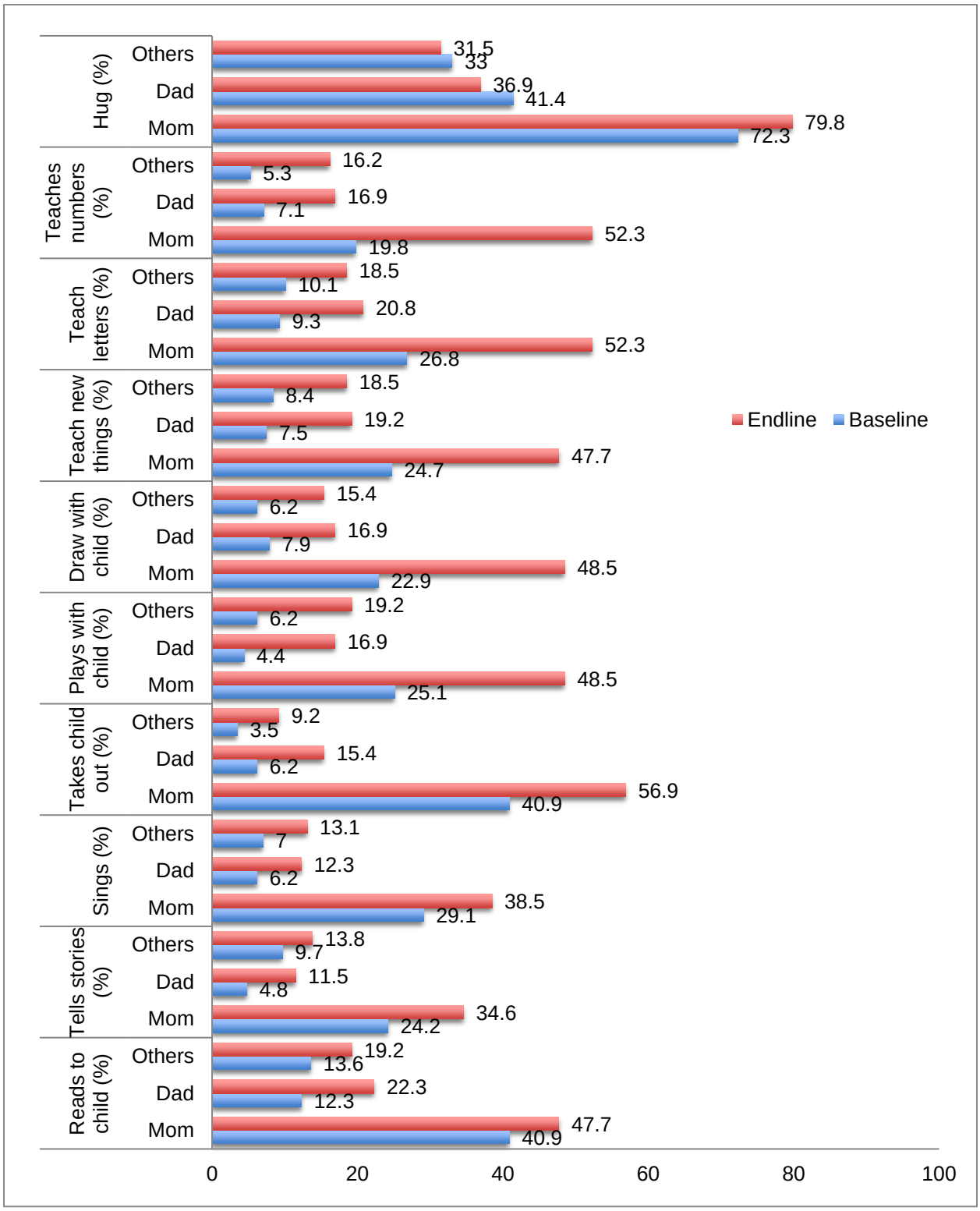
Table 10. Activities with children (by various family members – data only for endline)

	Mom		Dad		Others	
	Control	Treatment	Control	Treatment	Control	Treatment
Reads to child (%)	44.7	47.7	24.3	22.3	21.1	19.2
Tells stories (%)	34.2	34.6	11.2	11.5	15.1	13.9
Sings (%)	39.5	38.5	9.9	12.3	17.8	13.1
Takes child out (%)	60.5	56.9	18.4	15.4	6.6	9.2
Plays with child (%)	29.6	48.5**	8.6	16.9*	11.2	19.2~
Draws with child (%)	33.6	48.5*	13.8	16.9	15.1	15.4
Teaches new things (%)	32.2	47.8**	15.8	19.2	15.5	18.5
Teaches letters (%)	38.8	52.3*	18.4	20.8	19.7	18.5
Teaches numbers (%)	37.5	52.3*	19.2	16.9	14.5	16.2
Hug (%)	78.9	79.8	51.3*	36.9	42.8*	31.5

Source: Caregiver's survey, 2017/18 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

There was significant increase in the proportion of Mom, Dad, and other members of the family engaged in various learning activities. The chart below presents the figures.

Chart 2. Engagement in activities (change from baseline to endline)



Source: Caregiver's survey, 2017/18

Protective factors

As in the baseline mothers were spending more time with their children than the fathers. In the endline, average time spent with child by both mothers and fathers has slightly decreased though not significantly different for treatment and control centers. The decrease in time might be due to the fact that the children have slightly grown up, and have started to attend more hours in ECCD centers. There was no significant difference in the hours of time spent by father with children between baseline and endline, and for control and treatment schools. The time spent by another child to take care of the child in ECD center has slightly increased, though not significantly while the time spent alone by the children has also decreased compared to the baseline with no significant difference in proportion for treatment and control schools. Including 'hug' as one of the factors contributing to protection, it was very common, and has increased to almost 8-9 in 10 children receiving such care from their family members, with no significant difference between the children in treatment and control schools.

Table 11. Difference between amount of time spent engaging kids

	Baseline		Endline	
	Control	Treatment	Control	Treatment
Mother time with child	4.9	4.9	3.2	3.2
Father time with child	1.4	1.7	1.5~	1.3
Child care of child	1.9	2.0	2.6	2.2
Child alone	0.9	1.0	0.3	0.4
Hug	74.3	79.3	85.5	89.2

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

Child adversity

The ECCD children had to face number of adversities. Unlike the expectation, the prevalence of yelling and hitting has marginally increased in the endline with no significant difference in treatment and control areas. Around 5 in 10 children were hit or yelled at by the family members (both at baseline and endline for project area). The increase, though small, was surprising. Although there was no qualitative data to verify the findings, it can be possibly due to increase in age. The proportionate increase in control and no significant difference between control and treatment indicates that the slight increase cannot be attributed to the project. Moms, compared to other family members, were punishing children, similar to the baseline figures. On an average, the households in treatment and control areas faced around 5 and 6 adversities respectively. There was no difference in the child neglect index for children in treatment and control areas.

Table 12. Prevalence of yelling at, hitting children, and child neglect

	Baseline		Endline	
	Control	Treatment	Control	Treatment
Yells (%)	34.3	35.2	52.1	49.0
Hits (%)	39.5	45.4	44.6	50.3
Mom Yells (%)	30.9	33.5	38.1	44.5
Mom Hits (%)	38.1	43.2	42.1	53.5
Dad Yells (%)	11.4*	4.9	16.7	11.6
Dad Hits (%)	9.5*	4.4	10.7	16.8
Others Yell (%)	5.2~	2.2	8.3	8.4
Others Hit (%)	4.3	6.2	7.7	8.4
Frequency of adversity faced by family	4.2	4.0	5.2	5.6

Child Neglect Index	2.5	2.5	2.6	2.6

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

Family support linked indexes

For simplicity of analysis, the study team created five different indexes to assess the status of learning resources, learning activities, socio-economic status, and protection as well as adversities. While the families in project area had significantly better access to learning resources and activities for children (as signified by resource index[4] and activity index[5]), the families were identical in terms of values for socio-economic status index[6], protective index[7], and adversity index[8].

Table 13. Indexes

Index	Baseline		Endline	
	Control	Treatment	Control	Treatment
Social Economic Status	5.3	5.2	5.2	5.2
Resource Index	5.2**	4.1	3.9	5.0**
Activity Index	1.1	1.1	1.0	1.1*
Protective Index	3.8	3.7	3.7	3.7
Adversity Index	9.3	9.3	7.7	8.3

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

4.3 ECCD participation and expectations

All children included in the study during baseline were new children enrolled in the ECCD center without any previous ECCD experience. All students had experience of up to 12 months of engagement in ECD center.

ECCD attendance

In project area, around 9 in 10 children were reported to have attended the ECCD centers on regular basis after their enrollment compared to 83 percent children in control area. By endine, it was reported that the tendency to attend ECCD center on regular basic has decreased with only 7 in 10 students in project area, and 6 in 10 students in non-project area attending the center. As reported by parents/caregivers, similar to the baseline, the children in project area also spent significantly more hours in ECCD center compared to children in control areas.

[4]The resource index was calculated based on the materials and resources to support learning available for the children's home.
[5]The activity index was calculated based on the activities conducted to children by father, mother, and others.
[6]The socio-economic status index was calculated by adding key socio-economic details such as availability of separate room to sleep for children, separate kitchen, living room, toilet, electricity facility, television, refrigerator, computer, motorbike, and improved breed of cow/buffalo.
[7]Protective index is calculated of availability of clinic nearby, participation in support groups, remittance during last 3 months, adult to children ratio, prevalence of practice of hugging and hitting children, and time spent by child with mother and father.
[8]The adversity index is calculated by using variables such as occurrence of earthquake, fire, landslide, flood, living outside home, loss of job, loss of livestock, family members in prison, food security, punishment to children, and depression.

Table 14. Attendance

	Baseline		Endline	
	Control	Treatment	Control	Treatment
% of children who were reported to have attended centers daily	82.9	89.9~	58.5	65.4
% children who are irregular to ECCD center	17.1~	10.1	17.7	11.5
Average hours spend in ECCD center	5.0	5.4**	4.5	4.9**

Source: Caregiver's survey, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01)

4.4 Child Results

This section describes children's performance on the direct child assessment, with a focus on differences between the skills of children in the two study groups. Total domain scores are calculated by adding the weighted score of each item in the domain so that all items contribute equally to the domain score[9]. The total IDELA score is calculated by adding the weighted score of each item and dividing by the total number of items in a way that all items contribute equally to the total score[10]. Therefore, the analyses presented below display the proportion of IDELA questions answered correctly out of all possible correct answers.

Motor skills

Overall motor skills score shows an increase in the endline in program areas. The average scores have increased highly. Boys from program areas were significantly better in folding paper (39.9% compared to 26.1%). Total motor skills scores were identical in both program non-program areas.

Table 15. IDELA motor skills

	Baseline				Endline			
	Control		Treatment		Control		Treatment	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Draw a person (%)	9.4	4.7	7.3	8.6~	29.3	36.5	33.1	41.0
Fold paper (%)	38.3	18.3	20.7	18.1	26.1	34.7	39.9*	41.4
Total Motor Score (% Correct)	23.7	11.5	14.0	13.4	36.1	28.7	41.5	36.9

Source: IDELA Study Data, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01 for the difference by sex as well as difference by control and treatment)[11]

Emergent Numeracy

The emergent numeracy tests included seven different sub-tests to assess the basic numeracy skills among children. Total average numeracy skills score has increased in the endline. The

[9]For Nepal, the IDELA test was revised for motor skills. Two tests: copying a shape (related to direct motor skills), and hopping (related to gross motor skills) were dropped.

[10] Due to the difference in administration style between the direct child assessment items and the enumerator reported learning approaches items, the learning approaches items are not included in the total IDELA score.

[11] The only significant differences were between treatment and control sites.

average numeracy score for treatment was 36.4 percent for boys and 32.4 percent for girls (compared to 28.8% for boys, and 29.6% for girls in control ECCD centers). The children scored highest on measurement (identifying which one is larger and smaller), and lowest in identifying numbers. The scores of children in the program areas have significantly improved for majority of the numeracy skills including sorting, number identification and puzzle completion (boys). In overall, boys from program areas had significant higher numeracy scores in the endline.

Table 16. IDELA numeracy skills

	Baseline				Endline			
	Control		Treatment		Control		Treatment	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Measurement	52.6	45.7	53.4	50.2	73.8	75.6	79.9	85.0
Sorting	8.6	5.2	10.6	11.4*	7.8	8.9	23.5**	19.3**
Shape ID	25.0	22.9	24.3	22.4	33.6	33.4	34.3	32.0
Number ID	4.0	2.5	6.1	3.3	6.2	4.8	18.6**	10.9**
One-to-one correspondence	6.9	5.1	8.9	9.2~	18.2	19.6	26.8	20.4
Simple operations	15.9	11.1	18.9	15.7	29.2	32.5	30.7	27.8
Puzzle completion	29.5	27.6	30.5	27.8	30.9	32.4	39.6*	33.2
Total Emergent Numeracy (% Correct)	20.4	17.2	21.8	20.0~	28.8	29.6	36.4*	32.4

Source: IDELA Study Data, 2017/2018(~ for p<0.1, * for p<0.5, and ** for p<0.01)

Emergent Literacy

Overall emergent literacy skills have improved in the endline in contrast to the baseline scores. Scores of boys from program areas are on the higher side with marginal significance. Same was the case for print awareness (44% for the program boys compared to 32% for non-program). Huge improvement is found in the scores for letter identification skills. The difference is significant for boys with score of 31.4 percent in program areas (15% in control). The scores of girls were also high with marginal significance. Among the test items, the score was higher for writing, and lowest for phonemic awareness.

Table 17. IDELA literacy skills

	Baseline				Endline			
	Control		Treatment		Control		Treatment	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Expressive vocabulary	9.6	8.9	10.2	9.1	15.4	18.3	20.6	18.3
Print awareness	20.0	20.9	21.8	21.9	32.3	40.0	43.8~	47.1
Letter ID	2.7	4.7	5.2	5.9	15.0	23.0	31.4**	32.4~
Phonemic awareness	0.3	2.2	2.2	2.4	2.1	1.0	3.1	5.2
Writing	16.2	17.1	15.9	15.2	43.2	48.4	44.2	54.2
Oral comprehension	6.7	8.9	8.7	9.1	28.1	28.5	30.6	26.7
Total Emergent Literacy (% Correct)	**9.3**	**10.5**	**10.7**	**10.6**	**23.2**	**27.3**	**29.6~**	**29.8**

Source: IDELA Study Data, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01 for the difference by sex as well as difference by control and treatment)[12]

Socio-emotional development

The social-emotional development involved five test items. The scores remained on the lowest side compared to motor skills, emergent numeracy, and emergent literacy. The boys in project area scored 18.4 percent and girls scored 17.5 percent (compared to 14% and 16% percent for control areas). Boys from program areas were significantly better than those from non-program ECCD centers in self-awareness tests. Other test items under socio-emotional skills were identical for both the comparison areas.

Table 18. IDELA socio-emotional skills

	Baseline (2017)				Endline (2018)			
	Control		Treatment		Control		Treatment	
Items & Scores	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Self-awareness (%)	29.1	21.9	28.3	27.6	41.8	45.3	52.7~	48.1
Social connections (%)	10.1	9.0	12.4	12.0	16.5	22.1	20.7	21.4
Emotional awareness (%)	2.8~	0.9	1.9	2.0	5.6	6.2	8.8	7.7
Empathy (%)	0.6	0.9	2.8	1.1	1.6	2.5	1.3	3.1
Conflict resolution (%)	1.9	0.9	4.3	2.4	4.6	4.4	6.8	7.3
Total Socio-emotional (% Correct)	**8.9**	**6.7**	**9.9**	**9.0**	**14.2**	**16.1**	**18.4**	**17.5**

Source: IDELA Study Data, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01 for the difference by sex as well as difference by control and treatment)[13]

Executive functioning

In addition to the core domains, the child assessment also included items related to executive functioning. These items focused on how children process information as opposed to learned skills like letter or number identification, and underlie children's ability to learn new information. The test included sub-tests on short-term memory, and inhibitory control. The students scored higher on short term memory, and lower on inhibitory control. The average in executive functioning in the endline has increased. Total executive function scores were 21.3 percent for boys and 21.4 percent for girls in the program areas. Total executive functioning skills score has significantly increased in the endline by 14.2 percentage points.

Table 19. IDELA executive functioning skills, by group and gender

Items & Scores	Baseline (2017)				Endline (2018)			
	Control		Treatment		Control		Treatment	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Short-term memory (%)	26.9	24.7	25.0	24.2	45.3	43.7	48.5	50.0
Inhibitory Control (%)	4.5	5.6	8.3	5.8	26.5	32.9	35.5	35.3
Total Executive Function (% Correct)	**7.8**	**7.6**	**8.3**	**7.5**	**18.7**	**19.4**	**21.3**	**21.4**

Source: IDELA Study Data, 2017/2018 (~ for p<0.1, * for p<0.5, and ** for p<0.01 for the difference by sex as well as difference by control and treatment)[14]

[12] The only significant differences were between treatment and control sites.
[13] The only significant differences were between treatment and control sites.
[14] The only significant differences were between treatment and control sites.

In order to measure children's learning approaches (i.e., the way they approach complicated problems) assessors were asked to rate children on a number of dimensions immediately after the assessment was completed. Children were rated on a scale from 1=Almost never; 4=Almost always. The 'approaches to learning' is not included in of aggregate IDELA score. The aggregate score on approach to learning has increased and reached to 57 percent for girls and 58 percent for boys in project ECCD centers (compared to 53% for boys, and 58% for girls in control ECCD centers). There was no significant difference between treatment and control, and girls and boys in terms of score on approaches to learning. The students in both control and treatment areas were almost identical in terms of approaches to learning.

Table 20. IDELA Approaches to learning skills

Approaches to learning	Control		Treatment	
	Boys	Girls	Boys	Girls
Child pays attention to the instructions and demonstrations throughout the assessment.	19.7	33.3	30.2	25.0
Child shows confidence when completing activities; did not show hesitation.	16.9	25.9	30.2	28.9
Child stays concentrated and on task during the activities and was not easily distracted?	15.5	24.7	24.5	22.4
Child is careful and diligent on tasks. Child is interested in accuracy.	12.7	23.5	22.6	22.4
Child shows pleasure in accomplishing specific tasks.	16.7	20.9	20.8	23.7
Child is motivated to complete tasks. Child did not give up quickly and did not want to stop the task.	22.5	22.2	22.6	25.0
Child was interested and curious about the tasks throughout the assessment.	15.5	20.9	20.8	21.1
Total Approaches to Learning (% Total)	52.9	58.3	56.9	57.8

Source: IDELA Baseline Study Data, 2017

Total IDELA

The total IDELA score is calculated by combining scores on motor skills, early literacy, early numeracy, socio-emotional development, and executive functioning[15]. Overall IDELA scores depict that the children from program implemented ECCD centers have improved in their learning. The average IDELA score is 31 percent for the project area. The maximum value is 90 percent and the standard deviation is 20 points for both treatment and control sites. In the aggregate score, there is significant difference by ECCD type (control and treatment) between the boys. The boys from control ECCD centers have better IDELA scores compared to those from program centers. The scores are higher for motor skills and literacy compared to numeracy skills and socio-emotional development for both control and treatment groups. While it is clear that the children could score up to 90 percent, the fact that many children are scoring low even after completion of a year in ECCD center is an issue to consider and explore further. The graph below indicates that there are more children scoring less than the mean value during endline with notable number of children scoring between 0-10 percent.

[15] To calculate a total IDELA proportion correct for each direct child assessment item was added together and divided by the total number of items. Given that the learning approaches score was obtained through assessor observation, it is not included in the total IDELA score.

Change compared to the baseline[16]

There is significant difference in the magnitude and percentage of change in literacy score, numeracy score, and total IDELA. Due to the project, the students in project intervention areas scored 38 percent higher than their baseline ideal score, significantly different compared to the gains among the children in control ECD centers/schools.

Table 21. Comparison of change

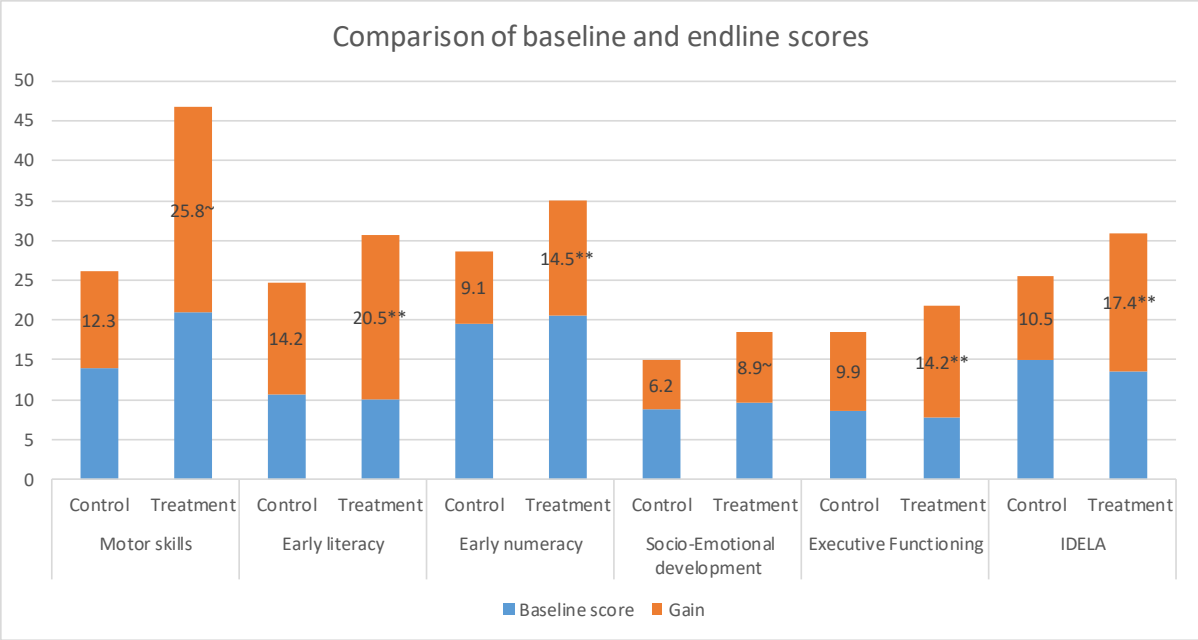
	Control			Treatment		
	Baseline score	Endline score	Score added	Baseline score	Endline score	Score added
Motor skills	13.9	33.4	12.3	20.9	40.1	25.8~
Early literacy	10.6*	24.9	14.2	10.1	30.5**	20.5**
Early numeracy	19.6	28.9	9.1	20.5	35.1**	14.5**
Socio-Emotional development	8.8	15.0	6.2	9.7	17.9~	8.9~
Executive Functioning	8.6	18.8	9.9	7.7	22.1*	14.2**
IDELA	15.0	25.7	10.5	13.5	30.9**	17.4**

Source: IDELA Study Data, 2017/2018 (** refers to p<0.01, * refers to p<0.05, ~ refers to p<0.1)

The chart below presents the scores for baseline, and scores added from baseline to endline. The highest increases are for motor skills and literacy skills.

Chart 3. Comparision between baseline and endline IDELA scores

[16] N for the calculation of the changes is same for both baseline and endline which is 326. Baseline scores of only those children who were available and included during the endline have been considered for the calculation of the change.



4.5 Connection between home environments and children's development

This section tries to analyze possible connection between various factors (including child's characteristics, home environment, and learning environment) and children's learning and development scores. The IDELA score is compared with other factors using multivariate regression controlling for previous ECCD experience, child sex, child's age, and family size. While it was observed that the availability of learning resources and engagement in playful activities with children was associated with better IDELA score along with children's age. The family level factors such as home language, caste/ethnicity of caregivers, socio-economic index, mother's Education, father's education, and number of adversities faced by family and children do not predict IDELA score.

Table 22. Connections between IDELA and home environment

Factors	Is there any connection?	Influence of controlled factors	Statistical values
IDELA			
Activity Index	Activity index marginally predicts IDELA score. It is positively associated.	Children's age significantly predicts IDELA score	Activity Index (b = .047, *p* =.091) Age (b = .01, *p* = .002)
Availbility of coloring books and tools	Availability of coloring books and tools at home significantly predicts IDELA score.	Children's age significantly predicts IDELA score	b=0.050, p=0.013
Availbility of comics	Availability of comics at home significantly predicts IDELA score.	Children's age significantly predicts IDELA score	b=0.053, p=0.017
Literacy			
Resource index	The resource index marginally predicts literacy skills.	Children's age significantly predicts literacy score	b=0.006, p=0.056
Story book	The availability of storybook significantly predicts literacy skills.	Children's age significantly predicts literacy score	b=0.054, p=0.021

Factors	Is there any connection?	Influence of controlled factors	Statistical values
Color book	The availability of color book significantly predicts literacy skills.	Children's age significantly predicts literacy score	b=0.068, p=0.005
Availability of comics book	The availability of comic books significantly predicts literacy skills.	Children's age significantly predicts literacy score	b=0.065, p=0.016
Reading story to the child	The practice of reading stories to the child marginally predicts literacy skills.	Children's age significantly predicts literacy score	b=0.039, p=0.091
Teaching you letters	The practice of teaching letters to children marginally predicts literacy skills.	Children's age significantly predicts literacy score	b=0.046, p=0.05
Playing with children	The practice of playing with children marginally predicts literacy skills	Children's age significantly predicts literacy score.	b=0.043, p=0.069
Numeracy Activity index	The practice of playing with children marginally predicts literacy skills	Children's age significantly predicts literacy score.	b=0.049, p=0.055

Based on the analysis table presented above, the factors that are associated with higher IDELA score are as follows:

Table 22. Factors associated with IDELA score

Factors that are positively associated (factors with p<0.05)	What that explains?
Children's age	An unit increase in months in the child's age is associated with 1.1 percentage points increase in the IDELA score.
Activity Index	An unit increase in activity index (learning resources) for a family of a child is associated with 0.5 percentage points increase in IDELA score.
Availability of coloring books and tools	The availability of coloring book is associated with 0.5 percentage points increase in IDELA score
Availbility of comics	The availability of comics book is associated with 0.5 percentage point increase in IDELA score.

4. Conclusion& Recommendations

4.1 Conclusion

The endline study confirms that the EQ LEARN initiatives conducted by Save the Children and its partners in Sindhupalchowk has contributed to significantly increase the learning and development scores among the children of age 3-4 years who are enrolled in ECCD center. The study also proves relevance of the early childhood development program to increase the learning scores. During baseline, the IDELA score of the children in the project area was very low (13 percent). The project contributed to increase it to 31 percent compared to significantly lower score of 25 percent for control areas. The overall increase was around 17.4 percent with project attributable increase of 7.5 percent. The increase in numeracy and literacy scores were significantly higher for children attending ECCD centers supported by the project. However, the scores had high variance from 1 to 75 points with standard deviation close to 17 percent. The endline scores on socio-emotional development were not only low, the increase in the scores were also low.

The study indicates that the availability of learning resources including reading materials and other tools was positively associated with higher literacy score. Interestingly, the engagement of children in various learning activities was positively associated with higher numeracy score. The availability of storybook, comic book, coloring book, and the practice of telling stories to children was associated with higher literacy score. The baseline and endline studies prove that the availability of learning resources and increased engagement in activities could lead to increased learning and development among children.

4.2 Recommendations

RIDA recommends Save the Children and its partners to review the study findings, and have detailed discussions and brainstorming to generate possible inferences for the project. The efforts of the project are worth replication and expansion in wider areas. Save is also recommended to share the findings with the government, and other non-state actors active in promotion and development of ECCD. The following are the recommendations for future:

- **Focus on learning activities to increase numeracy**
  Based on the findings of the study, it makes sense to promote learning activities more directed to numeracy so that the numeracy scores could be significantly improved.
- **Playful resources to increase literacy scores**
  Make playful learning resources available to children with purposive orientation to parents and other caretakers on how to utilize them for child's learning and development. The resources such as storybook, comics, color books could be promoted to have increased literacy scores
- **Explore options and pilot initiatives to increase socio-emotional development**
  Despite the efforts made by the project, the scores related to socio-emotional development could not be increased significantly relative to the control group. In the context, it is essential to explore options, and pilot some initiatives to increase socio-emotional development with stronger evaluation in place to measure it.

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