Cognitive Development Assessment of Pre-primary School Children in Pokhara

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Abstract

This study focused on evaluating cognitive development in urban pre-schoolers in Pokhara. It aimed to assess the socioeconomic and cognitive statuses of early childhood development (ECD), and explored influencing factors. The research involved 160 children aged 4-5 from eight ECD centers in Pokhara, with ECD facilitators, parents, and principals as respondents. It used Jean Piaget's and Lev Vygotsky's theories, employing mixed methods. The research tools involved observation checklist sand interview guidelines whereas the statistical analysis involved regression analysis-ANOVA. The findings showed that most kids were from Dalit and Janajati communities, relying on daily wage labor and lacking permanent homes. About two-thirds of them displayed cognitive progress. The influential factors included teacher training, home learning environment, family income, and housing ownership. Overall, their cognitive development was unsatisfactory in the researched context. The study suggests towards collaboration among stakeholders and policy changes for improvement.

Keywords: cognitive development, intellectual development, mean difference, multiple regression analysis

Introduction

Brain development is the major part of cognitive development. Early childhood care and development is a comprehensive approach to policies and programs for children from their conception to growth until eight years of age. It encompasses different factors such as early learning and stimulation, health, education, nutrition, hygiene, and sanitation. The early years of a child's life are very crucial for later health and development. One of the main reasons for this is how fast the brain grows starting before birth and continuing to early childhood. Although the brain continues developing and changing into adulthood, the first eight years can build a foundation for future learning, health and life success. A child can have a good start in life when he/she grows up in a nurturing and

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stimulating environment that meets his/her essential needs such as nutrition, health, and safety, as well as the psychological, social, spiritual, and intellectual needs (UNICEF, 2012).

The holistic development of children comprises cognitive, social, physical, emotional, language, spiritual and moral development. The early childhood period is the most dynamic developmental phase in human life in that, in this period, there is an essential need of good nutrition, protection, proper care and early stimulation such as positive social and emotional interaction with the care giver while playing, talking, reading and singing. World Health Organization regards ECD as the period of physical, cognitive, linguistic and socio-emotional development of a child from the pre-natal stage to the age of eight (WHO, 2016). Research has also shown that working memory, executive function, motor skills, cognition, language ability and social skills all develop at a rapid rate during the preschool period.

The Abecedarian Project exposed low income to high quality pre-school children and found positive impacts on their social and academic development. Another major pre-school cognitive development in the pre-school research project, the Perry Preschool Program, measured the rate of return on the investment of the program and found 7-10% rates of return on investment (James Heckman, 2010). Despite such strong evidence on the positive impact and high rate of return for investment in high quality preschool programs, children under the age of six have limited exposure to high quality preschools.

Most of the studies that examine the impact of preschool on disadvantaged children have taken a quantitative approach to assessment. In their longitudinal study of 141 preschool centers in England were able to demonstrate the impact of preschool on literacy and numeracy development, (Melhuish, 2008). They recommended qualitative case studies to fully understand the aspects of the preschool environment responsible for the observed impacts.

Children are assets and the future generation. Therefore, they are expected to grow and develop optimally and become adults who are physically, mentally, socially and emotionally healthy. Children with various potentials can develop optimally under these conditions. The pre-school period is a time of rapid growth along a number of developmental measures the list of which is children's cognition. Across this time period, children learn to use symbolic thought, the hallmarks of which are language and symbol use. Child focus is limited to one aspect of a situation or object. Memory abilities come in line with the child's own ways of categorizing, reasoning and problem solving.

Pre-scholars are firmly in the stage Piaget called pre-logic or pre-operational period from two to seven years. In this period, children begin to develop and learn new skills through play and encountering all the important areas of development like physical, mental, social, language and cognitive development.

Vygotsky's theory is a socio-cultural theory of cognitive development which emphasizes how culture and social interaction guide cognitive development. Vygotsky socio-cultural theory on cognitive development is based on the argument that cognitive abilities are socially guided and constructed as such where culture serves as a mediator.

Developmental science has found that a brain can acquire a tremendous amount of information about language in the first year of life even before the infant cannot speak (K., 2010). There is a strong correlation between the early life development of the child and his/her future level of success. Everyday experience can impact a child's cognitive development. Cognitive development encompasses child working memory, attention as well as child ability to manage and respond to experiences. Cognitive development provides children with means of paying attention to thinking about the world. Hence, the cognitive development of a child up to five years is important as it predicts the child's future because of physical, mental, social and emotional development.

In human beings, the period from birth to two years of age is characterized by rapid and dynamic brain development, so it plays an important role in cognitive development during early childhood (3 to 6 years) in which the frontal lobes of the brain, which are associated with planning, reasoning, memory and impulse control, grow rapidly (Glimor, 2018). Most commonly, the development of various aspects including physical, intellectual, social, emotional and linguistic occur in this period. So, children should be able to improve their ability to focus, to remember information and think critically.

In Nepal, ECD programs have been conducted by Nepal Government itself and NGOs such as Save the Children, WHO and UNICEF. WHO has launched various ECD programs and services such as initiating nutritional programs, physical, mental and social development programs, but there is no significant physical, mental, social and cognitive improvements in the community pre-school children. Therefore, this Pokhara Metropolitan City-based study aims to explore the fact of the cognitive status and their affecting factors of ECD children.

The study was aimed at exploring the status of cognitive development of the pre-school children in Pokhara Metropolitan City. Underpinning the aim, the specific objectives of the study were to investigate the cognitive development status of preschool children in Pokhara and assess the affecting factors on cognitive development of the children.

A Glimpse at the Relevant Literature

The ECD program in various forms has long been institutionalized worldwide, as an organized form of learning and development under the public education system. The main purpose of such program is to develop children's full cognitive, emotional, social and physical potential augmenting in them school readiness skill

(UNICEF, 2014). A study conducted by Michal (1985) described that the environmental effects on IQ are relatively modest within the normal range of environment, but that the effect of markedly disadvantageous circumstances is very substantial cognitive development influence both by direct effects through alternations in self-concept, aspiration, attitude to learning and styles of interaction with other people. Studies have indicated that preschool education in young children in poverty can greatly increase their cognitive abilities and that it leads to a long-term increase in achievement and school success.

In a study early childhood development intervention and cognitive development of young children in rural Vietnam explored that early childhood development intervention added to a nutritional intervention during preschool age had lasting effects of cognitive development of school age children in rural Vietnam (Watanabe, 2005). In this study nutrition and early childhood development intervention from 1999 to 2003 and measurement of height and cognitive test scores were collected from the children (Koichiro Watanabe, 2005). Research findings drawing on interviews with mothers and the significant effects of the ECD intervention were compared with the nutritional intervention. The beneficial effect of ECD intervention on the cognitive test scores was large for the most nutritionally challenged children in rural Vietnam.

Similarly, according to another study, a three-year-old child's brain is twice as active as that of an adult, whereas neurons form the new connector at the rate of 700 to 1000 per second (Britto, 2014). These connections determine children physical and mental health, their lifelong learning and adoptability to change and also their psychological resilience.

Early childhood development and education means childhood development and education of the period of one year focusing on the overall development of the children, which is provided for the children who have completed the age of four years before stepping on to grade one. A constitutional provision in Nepal has recognized the right to early childhood development and participation of fundamental rights. The constitution guarantees the right to education, nurturing, adequate care and play. Amusement and holistic development of each child is to be ensured by the family and state. Article 31 of the Constitution mentions the right to education; Article 35 mentions health and sub- article 2 of article 39 mentions about the rights to education, health, nutrition, adequate care and play (The Constitution of Nepal, 2015).

Methodology

To attain the objectives of the study, the mixed methods research design was selected. In order to study the impact of socio- demographic practices of the parents of the pre-school children age 4 to 5 years was surveyed. A qualitative study was conducted through an in-depth interview with three ECD principals, three ECD

facilitators and three parents from different ECD centers in Pokhara. They were interviewed at their school and home as per their availability. Field observation was carried out to find the reality on the intellectual development, cognitive knowledge, classification and ordering skill and creativity and art.

The study was carried out in Ward Nos. 5,6,7,8.9.17 ,21 and 22 of Pokhara Metropolitan City. All the 4 to 5 years' children from each of the eight ECD centers in the core city area of Pokhara Municipality were selected for the study. The total study population of the children in 8 ECD centers was 226. Of this, 160 ECD children were of 4 and 5 years of age. Of them, eight centers from the city core area were selected using the purposive sampling method.

For collecting the quantitative data, a structured questionnaire and a student observation check list (Child Development Psychology 2019) were used. In-depth interview guidelines were used to get the qualitative data from 3 principals, 3 early childhood education facilitators and 3 parents. An in-depth interview was conducted. For the cognitive development measurement, developmental psychology checklist 2019 was used. The quantitative assessment of the socio-economic status and cognitive development measurements yielded numerical data which were statistically analyzed. Status and cognitive development measurements yielded the numerical data which were statistically analyzed using descriptive statistics regression analysis test applying the SPSS software. The in-depth interview and field observation were carried out to find out the reality on intellectual development, cognitive knowledge development, classification and ordering skill and creativity and art.

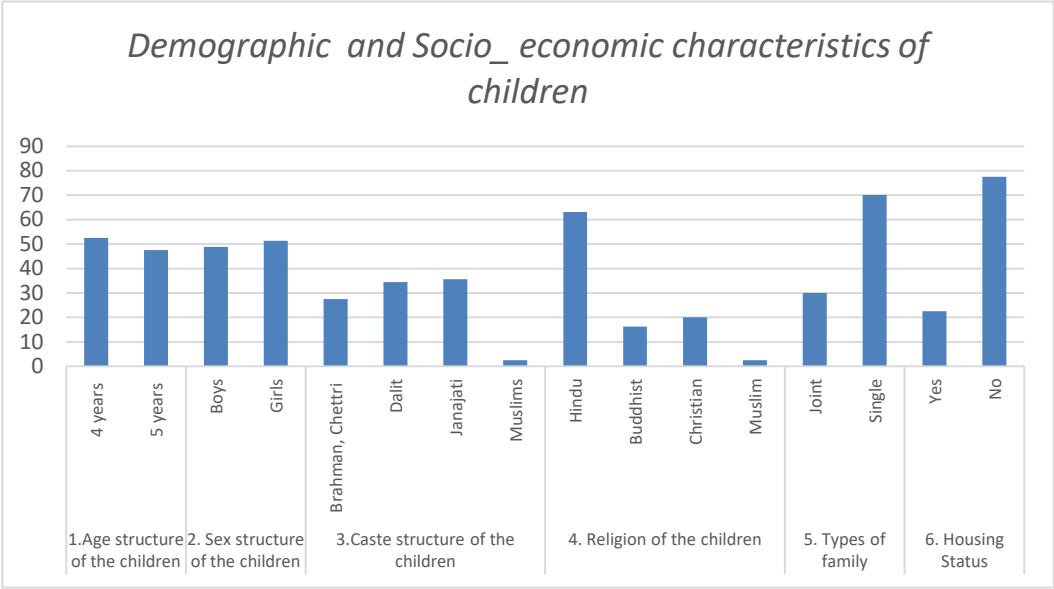
Results

Based on a close observation of the data, the analysis is presented under the sub- headings that follow.

Socioeconomic and Demographic Characteristics of the Children

Housing is a major indicator of socioeconomic status in Nepal. A child can have a positive impact on his/her growth and development if he/she is present in his own home. The housing condition is shown in Figure 1.

Figure 1 *Demographic and Socio-economic Characteristics of the Children*



These findings provide valuable insights into the socio-economic and demographic characteristics of the surveyed children, encompassing their age distribution, gender composition, caste representation, religious diversity, family types, and housing situations.

Figure 1 presents information about the demographic and socio-economic characteristics of children. The survey indicated that more than fifty percent of the children are 4 years old, and that girls are more than boys. When it comes to caste representation, the survey reveals that 27.5% of the children belong to the Brahman and Chettri castes, while 34.4% belong to the Dalit caste. Furthermore, 35.6% of the children are from the Janajati, and a minority (2.5%) come from the Muslim community. Regarding religious affiliation, the majority of children surveyed, accounting for 63.1%, were identified as the Hindus. Additionally, 16.2% followed Buddhism, 20.0% were Christians, and 2.5% adhered to Islam. Seventy percent of the children belonged to single families indicating that they lived with their immediate family members only, more than 3 fourth of the children did not have their own housing.

The parents said that they sent their small siblings to school with their elder brother(s) and sister(s) because there was no one to take care of them at home. Therefore, the trend of sending siblings with preschool age has been practiced. Additionally, those children who had lost their mother, were also sent to ECD centers. Moreover, due to economic crisis they sent boys to Montessori or private schools and girls to community schools. Similarly, principals of ECD centers mentioned that the reason behind sending siblings from poor families to school

with elder sister and brother was the provision of school tiffin and child security at ECD centers.

These data show that most of the ECD children are from Dalit and Janajati communities. This pattern shows that a majority of the children who have a low socio- economic status are admitted to community ECD centers and a majority of the high caste family children are admitted to expensive private boarding schools.

The religious culture may also have an important role in child development, child caring, and education and learning process. In Hindu religion, priority is given to education but not in nutrition and health care. Similarly, Buddhists give priority to food, nutrition, child care but not in proper schooling and education. Most of the Dalits are not conscious about child nutrition, child care and education. Because the Muslims are strict to religion, they pray and have a strong belief and give less priority to health care.

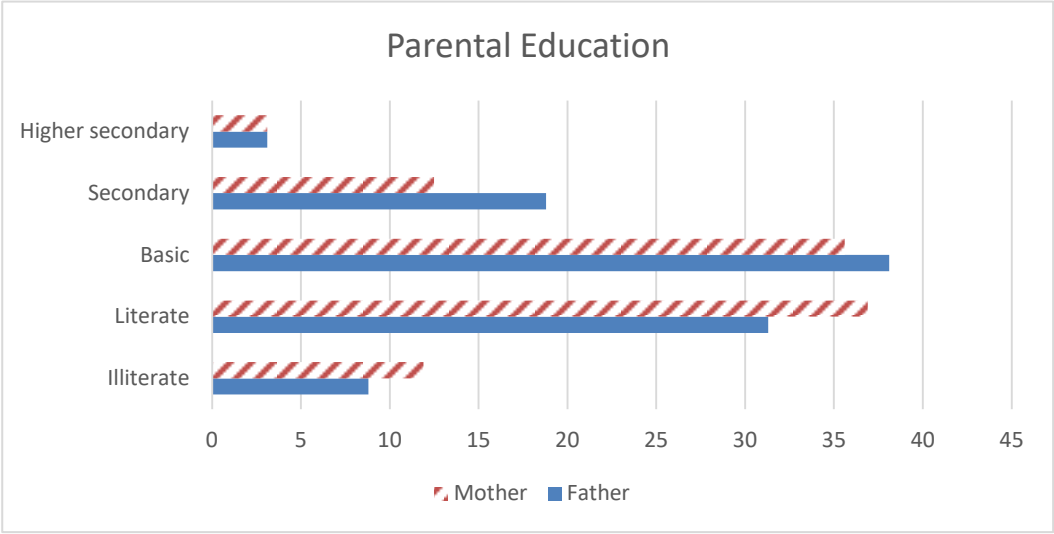
Family type plays a vital role in maintaining the nutritional status of children. The health of family members can be managed easily within the nuclear family than with a joint family since the additional number of members increases the load in household work and finance., the Population Census Report (2012) has reported that there is a growing number of single-family. Another study shows that there is a large number of nuclear families which have impacted on a positive cognitive development status. The family type plays a vital role for maintaining the nutritional status of children. The health of family members can be managed more easily within the nuclear family than with a joint family since the additional number of members increases the load in household work and finance.

A group of parents remarked, "We live in slum areas and practice early marriage and frequently migrate in search of jobs, so we are more interested in living in a nuclear family because of insufficient living space, and financial insecurity". A child having a good socio-economic status has good health and nutrition resulting in satisfactory child development but parents with a low socio-economic status are not able to fulfill the child's requirements. The socio-economic status is measured in the ways as mentioned under the following headings.

Education and Occupation of the Parents

As stated above, a child from a good socio-economic status has good health and nutrition resulting in good child development but low socio-economic status is not able to fulfill the child's requirements. The socio-economic status is measured in the following ways:

Figure 2 *Parental Education*



The figure 2 illustrates the distribution of parents' education and occupation. In terms of parental education, the highest percentage of fathers' education falls on the "Basic" category (38.1%), while for mothers, it is the "Literate" category (36.9%). The most common occupation among fathers is a "Private Job" (38.8%), whereas for mothers, it is as "H/wife" (51.9%). Additionally, a significant number of fathers and mothers have attained basic education. These findings highlight the prevalence of private jobs and the importance of basic education in the parental demographic structure.

The low literacy rate reflects a deep-rooted socio-economic cultural basis and practices in any country. The educational status of parents plays a vital role for maintaining the cognitive development status of children. Educated families are conscious of their socio-economic status and manage their family health, which helps the child's holistic development.

A majority of the parents have only basic educational status; some are illiterate. Some stated, "We need to go for economic earning from early ages to run the day-to-day life of our family. Because of this, we couldn't pursue higher studies." People came from remote areas and some migrated to urban and suburban areas. But they didn't focus and prioritize education. Some came from India as laborers without education and are working here. A low economic status and ignorance about education are the main causes of illiteracy. The field visit also verified that the majority of mothers are either illiterate or are below class 10.

A mother also stated "We had to start working from early age and indulge in household chores and stop our study and there is a practice of early marriage and teenage pregnancy; our society does not give priority to

girls' education", whereas another mother remarked, "Thirteen years old girls are married with 16 years' males and they give birth to a child at the age of 15". She continued, "We don't have enough awareness, environment and culture towards education, so we are uneducated."

Figure 3 *Parental Occupation*

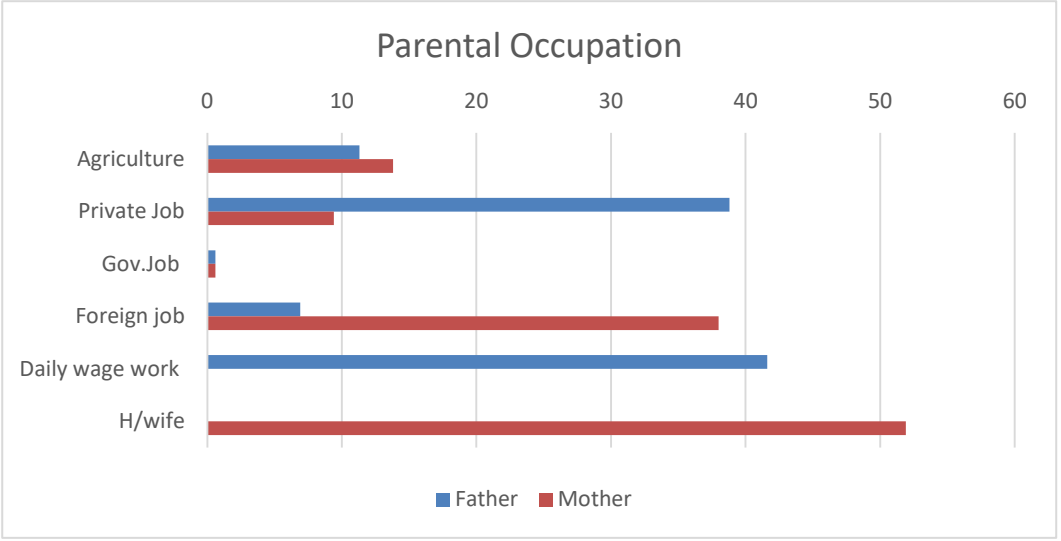


Figure 3 shows that a majority of the fathers are private service holders (38.8 %) and unemployed or jobless (25.6 percent). The remaining 11.3 percent are engaged in agriculture; 16 percent have daily wage work; 6.9 percent are in foreign employment and 0.6 percent hold government services. A majority of the mothers are housewives (51.9 %) and the remaining do daily wage work (20.6 %), agriculture (13.8 %) and some also do private and government jobs and foreign jobs.

Parents' occupation is one of the important regulating factors of child development. Parents having a good occupation or income also get the opportunity to learn how to read and write. During the field visits the parents were asked about their employment statuses. Regarding the employment statuses, a group of them opined in the following way:

> Most of us are involved in tourism related part-time services. Due to the COVID-19 pandemic, all hotels and restaurants and tourism related businesses are closed. Factories and private companies are also closed. The foreign employment opportunity was also lost. As a result, we lost employment and income which pushed us to severe poverty and created difficulties in running day-to-day life.

Learning Environment at Home

A positive learning environment plays an important role in child's mental health. In this study, 70 percent of the children do not have learning environment

at home. Hence, most of the children are unable to get a favorable learning environment.

In this regard, an ECD facilitator remarked:

> There is no regular grade-wise training facility to the teachers and classes are to be conducted with a high student -teacher ratio. They have a minimum level of salary which is not sufficient to run their day-to-day life. Due to frequent and untimely admission, there is greater variation in student number in classes. Moreover, there is no learning environment for the ECD children at home. Therefore, ECD classes are ineffective.

Teachers' Qualification and Training

This section includes the training status and qualifications of the teachers and the number of children taught by trained teachers.

Teacher qualifications and trainings are an important component of the cognitive development of children. A qualified teacher has sufficient experience and can give the children practical knowledge and skills based on sound theories. They also have good understanding about child growth, child learning, child psychology and child development theory. A trained teacher has skills required for teaching and learning processes. Doubtlessly, training plays an important role for teaching and learning as desired.

Table 1 *Teachers' Qualifications and Training*

Qualification	Class 10	SLC above	+ 2	B. Ed. and above
	11.3%	35.6%	19.4%	33.8%
Training status	Trained	63%		
	Untrained	36.4%		

In this study, majority of the teachers' academic qualification is SLC and above. Only 11.3 percent of the teachers' qualification is class ten. A majority of the teachers are equipped with short-term and long-term trainings managed by the government. The teachers get trainings organized by the governmental and non-governmental agencies such as UNICEF and *Seto Gurans*. In this study, 63.1 percent of the students get opportunities to be taught by trained teachers and the remaining 36.9 percent students do not get opportunities to learn from trained teachers.

The ECD facilitators said that there was no regular training facility to the teachers and the classes were to be conducted with a high student-teacher ratio.

Status of the Cognitive Development of the Children

The status of cognitive development was explored under four domains: intellectual development, cognitive knowledge development, classification and ordering and creativity and art skill development. Each domain was further sub-

divided into five to six categories. The detail analysis of achievement was measured using the percentage of student achievements.

Table 2 *Number and Percentage of Successful and Unsuccessful Students in Achieving Cognitive Development*

Domains of cognitive development	**Measurement of students' achievements**	
A. Intellectual development	Successful	Unsuccessful
i. Designing structure, patterns and arrangements	111 (69.4)	49 (30.6)
ii. Constructive capacity	107 (66.9)	53 (33.1)
iii. Making pictures with dots	114 (71.3)	46 (28.8)
iv. Recalling daily events	114 (71.3)	46 (28.8)
v. Completing stories	108 (67.5)	52 (32.5)
Average achievement	**69.28**	**30.72**
B. Cognitive knowledge development		
i. Drawing pictures and coloring	113(70.6)	47 (29.4)
ii. Explaining body organs and their functions	113 (70.6)	47 (29.4)
iii. Describing living habitats	104 (65)	56 (35)
iv. Recognizing directions	107 (66.9)	53 (33.1)
v. Naming months and days	109 (68.1)	51(31.9)
vi. Counting 0 to 10	112 (70)	48(30)
Average achievement	**68.53**	**31.46**
C. Classification and ordering		
i. Arranging shapes and objects	111(69.4)	49(30.6)
ii. Differentiating geometric shapes	107 (66.9)	53 (33.1)
iii. Differentiating colors	112 (70)	48 (30)
iv. Copying the given patterns	110 (68.8)	50 (31.3)
v. Putting pictures in a sequential order	107(66.9)	53(33.1)
Average achievement	**68.4**	**31.6**
D. Creativity and art skill development		
i. Creating pictures with different materials	106 (66.3)	54 (33.8)
ii. Creating objects and patterns	110 (68.8)	50(31.3)
iii. Playing character roles after hearing stories	105 (65.6)	55 (34.4)
iv. Creating and playing drama	104 (65)	56 (35)
v. Composing music with different instruments	107 (66.9)	53 (33.1)
Average achievement	**66.52**	**33.48**

The above table shows that the achievement in cognitive development was measured using observation checklist by the help of ECD facilitators. The overall status of cognitive development was measured in four domains, namely; intellectual development, cognitive knowledge development, classification and ordering and creativity and art skill development. The achievements on intellectual development, cognitive knowledge development, classification and ordering and creativity and art skill development are in average of 69.28 percent, 68.53 percent, 68.4 percent, 66.52 percent respectively.

However, in each domain, at least 30.72 percent to 34.4 percent failure was explored. So, proper attention is to be given to address this level of failure indifferent domains of cognitive development. The details of achievement and failure in each domain are given in above Table. .

Factors Affecting Cognitive Development of the Children

In order to explore the factors affecting cognitive development, five regression models were developed and were empirically tested by the survey data. For this, multiple regression analysis was conducted in each of the five models.

Table 3 *Overall Performance of Cognitive Development of the Children (Regression Analysis*)

Models	Training statuses of teachers (p-value)	Learning environment at home (p-value)	Income sufficiency (p-value)	Having own home (p-value)
Model I (intellectual development)	.000	.046	.024	-
Model II (cognitive knowledge development)	.000	.048	.014	-
Model III (classification and ordering)	.000	.018	.019	-
Model lV (creativity and art)	.000	-	.049	.046

Independent variables (facilitator's training status, age and sex of the children, father's education, mother's education, types of family, having own house, learning environment at home, income sufficiency)

The regression effect of the training statuses of the teacher, age of the children, sex of the children, father's education, mother's education, types of family, housing statuses, learning environment at home and income sufficiency on the total score of intellectual development, cognitive knowledge development and classifying and ordering skill development have been tested. The proposed Model I is found significant at 0.01 level of confidence. There is a significant effect of the total score of intellectual development on the children because the statistics are significant with less than 0.05 for these variables. However, the rest of the independent variables were not found significant.

Similarly, the regression effect of training status of the teacher, age of the children, sex of the children, fathers, education, mother's education, types of family, housing status, learning environment at home and income sufficiency on creativity and art skill development have been tested. The proposed model IV is found significant at 0.01 level of confidence. There is significant effect of teachers

training, income sufficiency of the family of the children, having own home of the children on the total score of the creativity and art skill development. Because the t statistics are significant with less than 0.05 for these variables. But rest of the other independent variables were not found significant.

Discussion

The result of the descriptive and regression analysis of the cognitive development of pre-school children shows that more than two third of the respondents were found studying from nuclear families. The educational statuses of some parents were not satisfactory: nearly ten percent of the parents were illiterate. A majority of the parents had from basic education to secondary level education. Only 3.1 percent of the parents had up to higher education.

Even though children from 3 to 5 years are to be admitted in ECD centers by the rule of the government of Nepal, children below 3 years were also enrolled. It was because of the parents' active involvement in work, attraction of the mid-day meal and free school dress and stationery. Some children below three years of age go to school with their elder sibling(s) because the parents do not remain at home in the day time. The children above 5 years have another reason that the chronological age of the children is above the ECD age (3 to 5 years) but they cannot read and write. So, these group of children are admitted it the ECD class by school administration so that they would be better prepared for class one.

In this study, more children were of four years than five years. There was no big difference between the boys and the girls. A majority of the ethnic group of children were Dalit and Janajati (34.4 and 35.6 percent). Th Hindus (61.3%) were more than the Buddhists, the Christians and the Muslims. Most of the parent respondents had got basic education, some were illiterate. Very few parents were highly educated. The parents were engaged in different professions. Yet, 25.6 percent of the fathers and 51.9 percent of the mothers were unemployed or housewives respectively. The remaining fathers and mothers were engaged in private as well as low waged labor work. Of the parents, 6.9 percent of fathers and 3.8 percent of mothers were foreign employed. A majority of the parents had no house of their own (77.5 percent), so lived as the *Sukumbasis* (homeless) near the river and Fewa lake. Some stayed in rented rooms with no/few facilities.

According to the parents, 70 percent of the children had no learning environment due to crowed, unhealthy and unhygienic practice at home. Due to the lack of enough rooms all the family members lived in a single with room, sleeping, cooking etc. with no care and attention to the child. The main sources of income of the parents were daily wages work (61.9%). These types of work were not sure and regular. While asking the parents about the income sufficiency, almost all of the parents (81.3 %) said that there was no sufficient income but problems related to the hand to mouth journey. After the COVID-19 pandemic, big crises of

job and income generation occurred because many factories, hotels, restaurants, and so on got closed.

The findings on cognitive development statuses of the children indicates that the average performance of the children (above 66%) was found satisfactory with achievements on intellectual development, cognitive knowledge development and ordering skill development and creativity and art skill development. The effectiveness of trained teachers and income sufficiency were also found significant in all domains of cognitive development.

The study on cognitive development conducted in Lalitpur Metropolitan City by Nepal (2021) explored that ECD facilitators in community schools are relatively more experienced but less educated. This study also has similar findings that community ECD teachers were more trained and qualified. Likewise, socio-economic statuses of the children were found lower than that in private ECD centers. Children from better socio-economic households showed a significantly higher degree of development in language and cognitive skills, moderately better in social-emotional skills, but little advantage in physical skills.

The study conducted by Nepal (2021) explored that in-service training and pre-service training could not show a positive association with child development. Opposite to this, this study explored that training has a significant impact on cognitive development of the children. The educational background of the facilitators is positively associated with child development. In an issue of learning environment at home also the findings are similar to that of Nepal (2021) that the availability of learning environment at home positively associates with child development.

The majority of findings of this study is also in line with the previous findings. However, there is a significant difference in the findings on the role of teachers' training. Contrary to the previous findings, this study found that teacher training plays a significant role in cognitive development of the children.

In a study by Ranjitkar et al. (2019), it was found that owning a house is linked to motor development and reflects an economic status in Nepal. The study also revealed that children from the Tamang group had lower language development scores compared to those from the Newar ethnic group. Additionally, father's alcohol consumption was associated with lower cognitive scores, similar to the variable studied as "home environment," which was significant for determining the children's cognitive development levels.

Five regression models were run to see the effect of different independent variables on the overall score of cognitive development and also with each of the four domains of cognitive development.

The result concludes that in Model I, Model II and Model III, there exist significant effects of teacher training, learning environment at home and income sufficiency of the family on the overall score of cognitive development. Moreover, in Model IV there exists significant effects of teacher training, availability of ones' own houses and income sufficiency of the family on the total score of classifying skill development. In a similar way, there exist a significant effect of teacher training on the total score of the creativity and art skill development.

In my own observation also, there is no discrimination in school facilities among the students from the different categories of income status because of the provision of free mid-day meal and free education and school dress provision. Moreover, in spite of the differences in income status, parents provide a minimum of the required facilities to their children by any means and most of the children in the ECD centers are from the poor and marginalized families of the community.

Conclusion

The study found that a significant proportion of pre-school children (4 to 5 years old) in community ECD centers come from marginalized, and lack a basic learning environment at home. Most fathers have completed basic education but faced difficulties due to migration, hindering their ability to prioritize education. Many employed fathers work for private services or as daily wage laborers, while the majority of the mothers are housewives residing in the slum dwellings or hold junior positions. The COVID-19 pandemic further worsened their economic statuses, leading to job and income crises. The parents' insufficient income and the need for part-time jobs prevent them from adequately caring for their children. In conclusion, the children attending the community ECD centers lack a conducive learning environment at home.

The study highlights the importance of teacher training for effective ECD classes and emphasize the role of a supportive learning home environment for the children's cognitive development. Motivating parents and caretakers in this regard is crucial. Factors such as parents' income sufficiency, housing ownership, and income sources also significantly affect children's cognitive development. To address these challenges, parents' efforts alone are insufficient, and the government needs to prioritize employment opportunities and poverty reduction. The study suggests providing educational allowances or establishing free care centers and school hostels for children from poor and marginalized families. Additionally, the study identifies significant differences in cognitive development based on caste and religion.

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