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RESEARCH PAPER

Effect of Teachers' Instruction on Learners' Cognitive Skills, Attention, Perception and Memory in Early Childhood Education

[1]Ghazala Shaheen* [2] Dr. Naeem Ullah and [3] Dr. Jam Muhammad Zafar

1. PhD Scholar, Department of Education, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Punjab Pakistan.
2. Assistant Professor, Department of Education, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan Punjab Pakistan.
1. Assistant Professor, Department of Education, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan Punjab Pakistan

***Corresponding Author:** gshaheen791@gmail.com

ABSTRACT

The study aimed to investigate the hypotheses that there is no statistically significant difference between the experimental group and the control group mean scores of learners' cognitive skills, there is no statistically significant difference between the experimental group and the control group mean scores of learners' cognitive skills regarding attention utilizing by play-way and traditional method, there is no statistically significant difference between the experimental group and the control group mean scores of learners' cognitive skills regarding perception utilizing by play-way and traditional method and there is no statistically significant difference between experimental group and control group mean scores of learners' cognitive skills regarding memory utilizing by play-way and traditional method in early childhood education. This study was quantitative and experimental, utilizing a randomized pretest-post-test control group design. The sample size was selected from required population and consisted of seventy students of first-grade the data was obtained through researches self-made test and statistics analysis through independent sample t-test. The study recommends that teachers' instruction through play way method was remained significant and enhanced learners' cognitive skills as compared to traditional method.

KEYWORDS Teachers' Instruction, Play-Way Method, Cognitive Skills, Attention, Perception, Memory, Early Child Education

Introduction

The early stages of child's life are marked by rapid brain development, and early child education plays a pivotal role in nurturing cognitive and social skills. It facilitates the development of essential cognitive skills such as memory, attention, perception, information processing, language learning and problem-solving. It establishes a foundation for academic achievement by introducing early literacy, numeracy, language, cognitive and social skills. Interactions with instructors and peers within early childhood education settings enable children to learn emotional and social management, empathy, cooperative play, and the establishment of positive relationship, all which are essential for their overall well-being (Sobri, Soh et al. 2022). Early Childhood Education presents educational initiatives and tactics for a child's optimal growth from birth to eight years, according to the facts. This is the stage of a person's life when they are considered to be at their most vulnerable. A youngster adapts in a domain designed to facilitate development and learning in collaboration with adults and other children(Bejnö et al., 2021). Early childhood education is commonly seen to be focused with the physical care, cognitive and social skills development and young children learning start between the ages of birth and eight. ECE is viewed as a very new phenomenon in most Asian countries(Runions, Cahill, & Markham, 2022). Different theories, and approaches about teachers' instruction of early childhood education regarding learners' cognitive and social skills were also included in this review of literature. According to the research, early growth is concerned with successful school entry,

academic performance, and cognitive and social skills improvement ultimately evident success later in life(Burchinal et al., 2020).

Literature Review

Early childhood education ECE or nursery education encompasses the formal and informal instructing of children from birth to around 8 years of age, which corresponds to the equivalent of third grade This period is widely recognized as crucial for child development.(N. khan & khan, 2021).Children between conception and 6 years old undergo rapid mental and physical development, requiring support and encouragement from all. In Pakistan, the country is committed to achieving the Education for All (EFA) goals, with a primary focus on promoting early childhood education as the first EFA goal. Following the Dakar Framework of Action for EFA in 2000, Pakistan developed and launched the National Plan of Action for EFA (2001 - 2015). Early childhood education and preschool teachers have the responsibility of fostering and encouraging the learning and cognitive, social development of children. This requires a strong foundation in knowledge of child development, early childhood education, learning processes, teachers' instruction and pedagogical principals (Engdahl, Samuelsson et al. 2021). Early childhood education teachers have the primary responsibility of caring for, instructing and educating the children in their group and also play a crucial role in planning and assessing the activities of their group. In preschool settings, early childhood education instructors are responsible for implementing the local curriculum and potentially developing individualized education plans for specific children (Engdahl, Samuelsson et al. 2021).

Instruction

Instruction method is defined as a series of pattern of interactions either between instructor and learner or between learners and learning experiences determined to take change to the behavior of learners, also known as the learning outcomes. Instruction method is combination of all available material and human resources to promote efficient teachers' instruction and learners' performance(Ajayi, Okewole, & Salami, 2021). A method of instruction that a teacher select also determines whether a lesson successful or unsuccessful. As a teacher of early childhood education, you must be familiar with variety of instruction methods in order to choose the one that will help to achieve goals and objectives for assigning task effectively(Mujtaba Asad, Athar Ali, Churi, & Moreno-Guerrero, 2022).

Effective teachers' instruction

Effective instruction acknowledges that teaching is both an art and a science, and it involves a balance between the scientific principles of instruction and the artistry required for successful teaching. This balance required a comprehensive understanding of the instructional cycle. The instructional cycle begins with teachers assessing individual learners learning needs, interests, and strengths through observation and communication (Runions, Cahill, & Markham, 2022).Effective teachers determine the appropriate instructional approaches and deliver instruction in a manner that aligns with learners' abilities and learning styles. They then evaluate learner growth and understanding. They cycle concludes with teacher self-reflection and continued consultation with learners. Teachers' instructional practices are most effective when educators collaborate to develop, implement, and enhance their professional practices (Pettersson 2021).Effective teachers' instruction is an integral component of these qualifications, as it plays a crucial role in facilitating successful instruction and learning in the classroom. Various individuals, including parents, doctors, and auto mechanics, engage in actions that can be considered forms of teaching and instruction(Pellerone 2021).Effective teachers provide guidance, instructions, and demonstrations to others. In this sense, teachers' instruction occurs in everyday situations and anyone can assume the role of teachers, albeit an in informal or

amateur capacity. When it comes to professional instruction, there is distinction (Kukulska-Hulme, Beirne et al. 2020).

Cognitive Skills in ECE

Cognitive skills development involves the progression of mental processes such as attention perception and memory and other brain maturation facets that unfold as individual grow older. To promote the cognitive development of children during early childhood, it is crucial to consider the interaction between various cognitive skills element including attention, perception, memory, language learning, and problem-solving. Taking into account the interplay of these cognitive skills can effectively support the cognitive growth of young children (El Namaki 2023). Cognitive skills are fundamental abilities that the brain used for thinking, reading, learning, remaindering, reasoning, and paying attention. At an early age, cognitive skills such as attention, perception and memory enable children to learn, process, and connect knowledge. These skills allow them to analyze, reason, evaluate, and make decisions. The human brain uses these fundamental cognitive skills to observe, think, concentrate, study, learn, retain information, explore, analyze, and draw logical conclusions. When cognitive skills function together, they help absorb and store information in a knowledge repository that learners utilize in everyday life, educational settings, workplaces, and beyond. (El Namaki, 2023). Various theories, such as Piaget theory, Plowden's report, and Vygotsky's theory, support this concept. The research unfold that children amused by games with the involvement of attention, perception, memory, language learning, information processing, and problem-solving as well as others actions and puzzle games. Children performed better in games that they were more engaged in and had clear and concise instructions (El Namaki 2023).

Material and Methods

The study was examined the effect of teachers' instruction on learners' cognitive skills attention, perception and memory in early childhood education through experimental research. The research study was experimental in nature. The randomized pre-test and post-test control group design was applied according to the nature of study. The researcher was created a test of questions through traditional paper-pencil survey approach, based on learners' cognitive skills and equally distributed in two groups of learners to explore the variance between the control and experimental groups. The statistics of tests will be gained from the learners to analysis the data and interpretation of results. The data was collected in both quantitative forms. Quantitative data was collected by applying self-made learners' cognitive skills test (LCST) from selected school of early childhood education. The experimental research method, pre-test, post-test were conducted with treatment session.

Randomized Pretest-Post-Test Control Group Design

	R	***O***	***X***	***O***
70 students randomly selected	Random Assignment of 35 Learners to Experimental Group	Pre-test: Cognitive Skills Dependent Variable	Treatment will be given to Learners	Post-Test: Cognitive Skills Dependent Variable
	Random Assignment of 35 Learners To Control Group	Pre-test: Cognitive Skills Dependent Variable	Treatment will not be given to Control Group	Post-Test: Cognitive Skills Dependent Variable

Figure-1 Randomized Pretest-Post-Test Control Group Design

Population and Sample Size

"The population is defined as a set of individuals, data, or items from which a statistical sample is taken" (Younus et al., 2023). The population for this study encompassed all boys and girls pre-primary learners enrolled in grade one at Government elementary school located in Punjab, Pakistan. This research study was use random sampling method to select study participants because of randomizes pretest and post-test control group design same technique was used by Ahmad et al., (2023). In this experimental study, participants were randomly assigned to the control or treatment groups selected from one class. The propose sample was taken randomly seventy learners of one class at early childhood education school in district Rahim Yar Khan through random sampling technique. The students were separated into two equal groups. The one group with play-way teachers' instruction and other group with traditional teachers' instruction.

Data Collection and Analysis

Data collection tools preforms significant part in research and helps to assemble accurate information from the research participants (Rao et al., 2023). The statistics were collected in both Qualitative and Quantitative forms. Quantitative data will be collected by applying self-made learners' cognitive skills test (LCST) from selected school of early childhood education. The experimental research method, pre-test, post-test were conducted with treatment session. Researcher was personally collected data in statistical from each and every respondent. Test scores and responses of both groups will be entered into a data file. SPSS software (version 27) was used to analyze the data and different operations were performed like mean, median, mode, standard deviation, t- test, t-value, p-value. The quantitative data was obtained through researches self-made test and statistics analysis through independent sample t-test.

Application of t-Test: In this study, the t-test for independent samples was utilized to determine if there is a significant difference between the means of two independent samples. The significance of the difference between the mean scores of control and experimental groups regarding pre-test, post-test variables were analyzed at a significance level of alpha (α) = 0.05. Data were evaluated using the t-test for independent samples, calculating the standard deviation using the following formula:

$$S = \sqrt{\frac{\sum (X_1 - \bar{X}_2)^2 + \sum (X_2 - \bar{X}_2)^2}{n_1 + n_2 - 2}}$$

By using this formula, it can be calculated the value of the independent sample t-test.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S} \cdot \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

Calculate the degree of freedom for independent sample t-test.

$$V = n_1 + n_2 - 2$$

V= degree of freedom
n= group population
x= mean score of group
S= standard deviation

Findings

SPSS version 27, a statistical software package, was employed to analyze the scores derived from the Learners' Cognitive Skills Test (LCST) conducted on Teachers' Instruction. The processed or computed scores are presented below:

a. Overall Gain Scores Learners' Cognitive Skills Test (LCST).

b. Gain scores on Learners' Cognitive Skills Test with reference to Attention.

c. Gain scores on Learners' Cognitive Skills with reference to Perception.

d. Gain scores on Learners' Cognitive Skills with reference to Memory Skill.

The null hypothesizes about subjects' areas and Cognitive Skills' themes at Early Childhood Education were tested through an independent sample t-test.

Hypothesis-1 There is no statistically significant difference in the mean scores of learners' cognitive skills between the experimental group taught through the play-way method and the control group taught through the traditional method in early childhood education.

Table 1
Mean Scores Difference Between the Control and Experimental Groups on Learners' Cognitive Skills in Early Child Education

Tests	Groups	N	Mean	S D	t-value	df	Sig.(2-tailed)
Pre-test	Experimental group	35	16.68	5.223	-0.95	34	.925
	Control group		16.57	4.888			
Post-test	Experimental group	35	25.65	5.489	-6.926	34	.001
	Control group		17.02	4.907			

Note: a=0.05 and n=35

Table.1 displays the outcomes of the learners' cognitive skills test. The statistics analysis conducted to assess the efficacy of two distinct interventions: the play-way method and the traditional method. Data analysis aimed to test the null hypothesis that there's no significant difference between the mean scores of experimental and control groups regarding cognitive skills taught through these methods in early childhood education. However, the null hypothesis was rejected due to a significant mean difference (M = 25.65; SD = 5.498), with t-value as -6.926 and degree of freedom (df) = 34, yielding a p-value of .001, which is less than the chosen level of significance as $\alpha = .05$. This indicates an improved performance attributed to the play-way method intervention. Consequently, it can be inferred that there is a statistically distinct variance between control and experimental groups' scores of mean in terms of learners' cognitive skills taught through the play-way method compared to the traditional method in early childhood education. These findings inferred that both groups attained different mean scores in the post-test. The null hypothesis was rejected and the alternative hypothesis was accepted that a significant difference between the control and experimental groups. Notably, learners exposed to the play-way method performed better, with a mean of M = 25.65 and SD = 5.498, compared to those taught using the traditional method, with a mean of M = 17.02 and SD = 4.90.

Hypothesis-2 There is no statistically significant variance found in the mean scores between two groups of learners' cognitive skills when comparing those taught through traditional methods versus play-based approaches in early childhood education.

Table-2
Mean Scores Difference between Control and Experimental Groups on Learners' Cognitive Skills at Early Childhood Education Regarding Attention

Tests	Groups	N	Mean	S D	t-value	df	Sig.(2-tailed)

Pre-test	Experimental group	35	4.17	2.490	-1.883	68	.064
	Control group		3.20	1.762			
Post-test	Experimental group	35	7.02	2.29	-5.963	68	.001
	Control group		4.00	1.940			

Note: a=0.05 and n=35

Table.2 presents the outcomes of the learners' cognitive skills test. The statistics analysis was conducted to compare the efficacy of two different interventions: traditional method and play-way method. Statistics analysis aimed to assess the null hypothesis that there is no statistically significant variance found in the mean scores between two groups of learners' cognitive skills when comparing those taught through traditional methods versus play-based approaches in early childhood education. The statistical values in Table 2 depict the comparison between both control and experimental groups scores of mean in pre-test and post-test. The findings indicated that the improved performance exhibited in post-test scores in first set of experimental groups (mean = 16.68, SD = 5.223) compared to pre-test scores (mean = 25.65, SD = 5.498). The independent samples t-test for repeated measures revealed a distinct variance between two experimental groups in pre-test and post-test performance with t-value of -6.926 and (df 34), resulting in p = .001, which is less than the significance level (α = .05). Conversely, the second pair concerning the control groups indicated a slight improvement in post-test mean scores (mean = 17.02, SD = 4.907) compared to pre-test mean scores (mean = 16.57, SD = 4.888). However, the repeated measures statistics showed an insignificant variance between the control groups in pre-test and post-test results with t-value of -.095 and (df 34), resulting in p = .925, which is greater than .05. This marginal improvement was attributed to chance.

Hypothesis-3 There is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education.

Table 3
Mean Scores Difference between Control and Experimental Groups on Learners' Cognitive Skills at Early Childhood Education Regarding Perception

Tests	Groups	N	Mean	S D	t-value	df	Sig.(2-tailed
Pre-test	Experimental grou	35	4.80	2.180	-.998	68	.327
	Control group		4.28	2.177			
Post-tes	Experimental grou	35	6.97	2.189	-5.146	68	.001
	Control group		4.70	2.180			

Note: a=0.05 and n=35

Table.3 illustrates the outcomes of the cognitive skills test focusing on attention. The statistics analysis was conducted to compare the efficacy of two interventions: the traditional method and play-way method. The statistics analysis indicated a minor gap between the mean scores of the control and experimental groups on learners' cognitive skills with reference to attention in the pre-test phase of early childhood education.

In pre-test, the control group mean scores = 3.20 and experimental group mean scores = 4.17 with df =68 have been calculated and the p value was as = .064 > a = .05 greater than alpha. In pre-test, the data analysis indicates that there is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education. In the pre-test analysis, it was found that the control group scores of mean were as 3.20, while scores of mean in experimental group were as 4.17. The statistical test with a degree of freedom of 68 yielded a p-value of .064, which is greater than the predetermined significance level of

.05. This suggests that there is no statistically significant difference between the experimental and control groups in terms of learners' cognitive skills related to attention when taught through either the play-way method or the traditional method in early childhood education. In the post-test analysis, the null hypothesis that there's no significant variance between the experimental and control groups in mean scores regarding learners' cognitive skills in attention, taught through the play-way versus traditional methods in early childhood education, was rejected. This was due to a significant t-value of -5.96, computed with 68 degrees of freedom, and a p-value of .001, which is less than the predetermined significance level of .05. Consequently, it's inferred that there is indeed a notable gap between the experimental and control groups in mean scores concerning learners' cognitive skills in attention when taught via the play-way and traditional methods in early childhood education. Additionally, early childhood learners who were taught through the play-way method demonstrated superior performance (mean = 7.02, standard deviation = 2.29) compared to those instructed through the traditional method (mean = 4.00, standard deviation = 1.94). The discrepancy in means between the two groups (mean difference = 3.02, 95% confidence interval) was substantial. Table 3 further illustrates that learners of control and experimental groups responded disparately to the two teaching methodologies.

Hypothesis No. 4 There is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on perception, where one group was instructed through play-based methods and the other through traditional methods in early childhood education.

Table 4
Mean Scores Difference Between Control and Experimental Groups on Learners' Cognitive Skills at Early Childhood Education Regarding Memory

Tests	Groups	N	Mean	S D	t-value	df	Sig.(2-tailed)
Pre-test	Experimental group	35	4.40	1.928	-1.851	68	.068
	Control group		3.54	1.945			
Post-test	Experimental group	35	3.57	1.96	-6.92	68	.001
	Control group		6.97	2.189			

Note: a=0.05 and n=35

Table.4 presents the outcomes of a cognitive skills test focusing on perception. The statistics analysis was conducted to assess the effectiveness of two interventions: the play-way method and the traditional method. The data analysis revealed that in the pre-test, there was a minimal distinction between the control and experimental groups' scores of mean concerning learners' cognitive skills in perception in early childhood education.

In the pre-test, the control group scores of mean were as 4.28, and for the experimental group scores of mean were as 4.80 with t-value of -.988 and 68 degrees of freedom, the calculated p-value was .327, which exceeds the alpha level of .05. Consequently, the analysis of statistics revealed no statistically significant variance between the control and experimental groups in scores of mean regarding learners' cognitive skills test in perception, whether taught through the play-way method or traditional method, in early childhood education. In the post-test, the null hypothesis was rejected that there is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on perception, where one group was instructed through play-based methods and the other through traditional methods in early childhood education. This decision was made due to a significant t-value of -5.14, calculated with 68 degrees of freedom, and a p-value of .001, which is less than the alpha level of .05. Thus, it can be inferred that there is a significant difference between the control and experimental groups scores of mean concerning learners' cognitive skills in perception,

whether taught through the play-way method or traditional method in early childhood education. Additionally, learners instructed through the play-way method by teachers exhibited superior performance (M = 6.97, SD = 2.18) compared to those taught through the traditional method (M = 4.70, SD = 2.18). The difference in means (mean difference = 2.27, 95% confidence interval) was considerable. Table 4 also demonstrates that learners of control and experimental groups responded differently to the two teaching methods.

Hypothesis-5 There is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education.

Table-5
Mean Scores Variance between Control and Experimental Groups on Learners' Cognitive Skills with Reference to Memory

Tests	Groups	N	Mean	S D	t-value	df	Sig.(2-tailed)
Pre-test	Experimental group	35	4.40	1.928	-1.851	68	.068
	Control group		3.54	1.945			
Post-test	Experimental group	35	3.57	1.96	-6.92	68	.001
	Control group		6.97	2.189			

Table.5 displays the outcomes of a cognitive skills test concerning memory. The statistics analysis was conducted to compare the effectiveness of two interventions: the play-way method and the traditional method. The data analysis revealed that in the pre-test, there was a slight difference between the control and experimental groups' scores of mean regarding learners' cognitive skills in memory in early childhood education.

In the pre-test, the control group scores of mean were as 3.54, and for the experimental group scores of mean were as 4.40 with 68 degrees of freedom, the calculated p-value was .068, which exceeds the alpha level of .05. Consequently, the data analysis suggests that there is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education.

In the post-test, the null hypothesis was rejected that there is no statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education. This decision was based on a significant t-value of -6.92, calculated with 68 degrees of freedom, and a p-value of .001, which is less than level of alpha as .01. Therefore, it can be inferred that there is statistically significance variance found in mean scores between the experimental and control groups regarding cognitive skills tests on attention, where one group was instructed through play-based methods and the other through traditional methods in early childhood education. Additionally, learners instructed through the play-way method by teachers demonstrated superior performance (M = 6.97, SD = 2.18) compared to those taught through the traditional method (M = 3.57, SD = 1.96). The difference in means (mean difference = 3.4, 95% confidence interval) was substantial. Table 5 also highlights that learners of control and experimental groups responded differently to the two types of teaching methods.

Discussion

In This research, it is discussed that implementing the play-way method of instruction in early childhood education positively effects on learners cognitive skills at early childhood education. This discussion is supported by the evidence of conclusion that indicating the attention mechanism, perceptional motor skills, memory skills, language

learning skills, improved problem-solving abilities, creativity, social interaction, and communication skills among children exposed to this approach. It is discussed that the play-way method captures children attention through hands-on interactive activities. Such as James, puzzles and role-playing scenarios naturally engage children, fostering sustained focus and attention by incorporating elements of fun and exploration, children are more likely to remain attentive and actively participate in learning experiences through sensory-rich play experiences children develop their perception skills by exploring different texture, colors , shapes and sound .activities that involve sorting objects, matching patterns, and identifying similarities and difference enhance children's ability to perceive and categorize information effectively. Play-based learning allows children to engage with their environment meaningful ways leading to a deeper understanding of the world around. Engaging in playful activities that require recalling sequence, instruction, or storyline strengthens children's memory retention. Repetition through play helps reinforce learning and memory formation. Associating learning concepts with enjoyable experiences during play enhances children's ability to remember and recall information more effectively. Play provides a natural context for language development, as children engage in conversation, storytelling, and role-playing scenarios. Through pretend play, children experiment with language, vocabulary and grammar in supportive and immersive environment. Activities like puppet shows, dramatic play and storytelling encourage language exploration and communication skills development. Overall, the play-way method appears to be effective in fostering holistic especially, cognitive development in young learners.

Conclusions

The research findings concluded that implementing the play-way method of instruction in early childhood education positively effects on learners cognitive and social skill. This conclusion is supported by the evidence indicating, attention mechanism, perceptional motor skills, memory skills, language learning skills, improved problem-solving abilities, creativity, social interaction, and communication skills among children exposed to this approach. The play-way method captures children attention through hands-on interactive activities. Such as James, puzzles and role-playing scenarios naturally engage children, fostering sustained focus and attention by incorporating elements of fun and exploration, children are more likely to remain attentive and actively participate in learning experiences through sensory-rich play experiences children develop their perception skills by exploring different texture, colors , shapes and sound .activities that involve sorting objects, matching patterns, and identifying similarities and difference enhance children's ability to perceive and categorize information effectively.

Play-based learning allows children to engage with their environment meaningful ways leading to a deeper understanding of the world around. Engaging in playful activities that require recalling sequence, instruction, or storyline strengthens children's memory retention. Repetition through play helps reinforce learning and memory formation. Associating learning concepts with enjoyable experiences during play enhances children's ability to remember and recall information more effectively. Play provides a natural context for language development, as children engage in conversation, storytelling, and role-playing scenarios. Through pretend play, children experiment with language, vocabulary and grammar in supportive and immersive environment. Activities like puppet shows, dramatic play and storytelling encourage language exploration and communication skills development.

Play-based learning encourages children to approach challenges and problem in creative and flexible manner. Through trial and error in play scenarios, children learn to think critically, strategize, and find solution in dependently. Collaborative play activities promote team work and cooperation, allowing children to brainstorm ideas and solve problem together, fostering a sense of achievement and self-efficacy. Overall, the play-way method appears to be effective in fostering holistic development in young learners.

The play-way method enhanced cognitive development in early childhood and promotes active learning and engagement among young learners. Children exposed to this method exhibit improved problem-solving skills. Cognitive skills are nurtured through role-playing and group interactions and creativity flourishes as a result of incorporating play into instruction. social skills, including communication, interaction and collaboration, are developed through interactive play activities. **T**he play-way approach fosters a positive attitude towards learning. Learners develop resilience and adaptability through experiential learning parental involvement in play-based activities further enriches. The play-way significantly enhances cognitive skills, including attention perception, memory, and language learning and problem-solving, in early childhood education.

Recommendations

- Based on the study's findings and conclusions, it is recommended that the play-way method used by teacher in early childhood education due to its effectiveness in fostering learners' cognitive skills as compared to traditional instructional methods.
- As a recommendation, it is advised that curriculum developers incorporate the play-way method of teacher instruction for enhancing learners' cognitive skills in all public schools at the early childhood education level.
- Teachers' professional development Institutions and centers should include the play-way method of teachers' instruction and training modules in curriculum as a part of the course content.
- It is also recommended that highlight the importance of professional development opportunities for teachers to enhance their cognitive skills in implementing play-based instruction effectively.
- The recommendation at pre-primary level is that educators encourage integrating play-based methods into their instructional practices to enhance learners' cognitive skills development in early childhood education.
- It is advocated for the inclusion of play-based learning approaches in early childhood education curricula and instructional guidelines for both the local and social level.

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