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The Implementation Paradox: Deconstructing The Gap Between Teacher Awareness And Strategic Utilization Of Loose Parts For Executive Function Development Among Pre-Schoolers In Oyo State

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Abstract: *Use of play materials is very important to optimal child development such that it has been recognized as right to every child as it gives them ample opportunity to learn the basic skills needed for immediate and later survival. Hence, when children engage in play activities with peers, they develop muscular, movement and cognitive skills. Premised on this, the government of Nigeria stipulated in the National Policy on Education (2004) that, most of the classroom activities which include the introduction of the rudiments of numbers, letters and shapes at the early years should be exposed to children through play-way method. Hence, the need for adequate provision of play materials and likewise the effective utilization among the preschool teachers becomes pertinent. The study employed descriptive survey research design. Five research questions were answered. 100 preschool teachers were randomly selected as sample. Two self-designed instruments (checklist/observation schedule and questionnaire) were used for data collection. The research instruments were validated and also tested for reliability using Cronbach alpha reliability technique. The reliability index of the questionnaire was calculated to be (α=0.82). Descriptive statistics (frequency count, simple percentage, mean and standard deviation) were used for data analysis. The findings of the study revealed that some of the required play materials at preschool level are available and the level of utilization of the play materials is fair, especially play materials for preschool children's enhanced creativity skills is available to a large extent in majority of the sampled schools (75.8%), preschool teachers to some extent utilize the available play materials* (68%) *and also, preschool teachers are aware of the basic requirements for play materials at the preschool level. It was recommended that more developmentally appropriate play materials be provided at preschools, the need for periodic training and re-training of preschool teachers on the appropriate use of available play materials is paramount, early childhood education stakeholders are to work harmoniously on the basic requirements for the provision of play materials at preschool and that proper and effective monitoring on the appropriate utilization of play materials should be emphasized by the government.*

Keywords: Play materials, Gross-motor, Preschool, Utilization, Awareness

Introduction

Play is one of the important components of a child's life and it is one of the major activities that promote children's imagination and creativity and also children learn the basic fundamental skills by having encounter with play materials, stimulating play-ground and peers, who are considered to have germane role in play. Children and young people determine and control the content and intent of their play by following their own instincts, ideas and interests, in their own way and for their own reasons. Studies have shown that playing is good for developing motor functioning and most infants and toddlers acquire fundamental movement skills through unstructured physical activity and play.

Play remains a primary vehicle for holistic development, serving as a 'natural incubator' for cognitive, social, and emotional growth (UNICEF, 2018; World Health Organization, 2019). Recent evidence suggests that as children mature, play particularly socio-dramatic and pretend play functions as a fertile context for the development of Executive Functions (EF), such as inhibitory control and cognitive flexibility (Eberhart et al., 2023; Veraksa et al., 2022). Through self-distancing a metacognitive process where children adopt a persona to better regulate their emotions and persistence play allows them to navigate complex themes and sustain focus on challenging tasks (Shachnai et al., 2022). In addition, Modern research reinforces that play is a fundamental driver of creative competence (Glăveanu et al., 2020). Specifically, play-based learning facilitates divergent thinking and cognitive flexibility, allowing children to mentally manipulate objects and ideas in transformative ways (Bautista et al., 2022).

Recent research confirms that children who have the freedom to play develop into 'creative thinkers' who can easily adapt to new situations and materials (Kaufman & Beghetto, 2021). Modern brain science shows that this type of play acts as a workout

for the brain's creative networks, improving how children solve problems and think outside the box (Beaty et al., 2021). In addition, because play allows children to explore open-ended materials like blocks, crafts, or digital tools it directly builds the executive functions and confidence they need to innovate throughout their lives.

Play is the primary social lab where children move from playing alone to working together. While classic toys like balls, dolls, and jump ropes are still essential for building physical coordination and basic sharing, modern research (Yogman et al., 2024) shows that Open-Ended materials (like blocks, tools, and household items) are actually better for social growth. Because these items don't have a right way to be used, children are forced to talk, negotiate, and solve problems together to decide what the object is in their game.

The American Academy of Pediatrics (2024) noted that through active play, children form social bonds, acquire different dominance ranks and learn what behaviours are acceptable, how to resolve conflicts and they learn right from wrong. Play is much more than just a fun activity; it is a natural atmosphere where children build their brains and learn how to be part of a community. Furthermore, active play is a biological necessity that helps children manage stress and bond with others, hence, through play, children don't just follow rules, they build Executive Functions. This means they learn how to control their impulses, stay focused, and understand the difference between right and wrong (Veraksa et al., 2022).

The global recognition of Early Childhood Education (ECE) stems from its role as the foundational hallmark of all subsequent learning levels. Success during these formative years is a primary predictor of later life outcomes, making the promotion of optimal development a paramount responsibility for all stakeholders. In Nigeria, the government has demonstrated commitment to this sector through the provision of financial support, infrastructure, and qualified staffing. Critically, national policy stipulates that early years instruction must be delivered via the play-way method, acknowledging play as the central vehicle for learning.

Despite these policy frameworks, a significant gap exists between intent and outcomes in the Nigerian context. The holistic development of preschool children in Nigeria often lags behind international benchmarks, primarily due to deficiencies in the learning environment. Local observations suggest two critical deterrents: a widespread lack of age-appropriate play materials and the significant underutilization of the resources that do exist. Apparently, the learning environment lacks stimulating, culturally relevant, and age-appropriate materials, the total child cannot be fully realized. This developmental deficit has long-term societal implications, as under-stimulated children are less likely to make meaningful contributions to society in adulthood. Consequently, there is an urgent need to evaluate the physical and pedagogical infrastructure of preschools. To address this, the current study investigates the availability, utilization, and awareness of play material requirements as they relate to the optimal learning and development of preschool children within the Oyo Metropolis.

RESEARCH QUESTIONS

Research Question One: Are play materials available at preschools?
Research Question Two: Are the available play materials utilized by preschool teachers during classroom activities?
Research Question Three: Which category of equipment/materials is most available in preschool centres?
Research Question Four: Which category of equipment/materials is mostly used by preschool teachers?
Research Question Five: What are the requirements or major considerations for the provision of play materials for preschools?

METHODOLOGY

The study adopted descriptive survey research design. The population for the study comprises all preschool teachers in Ibadan North Local Government. Simple Random sampling was adopted to select 100 preschool teachers selected from 25 schools, by implication 4 respondents from each selected school participated in the study. Two researchers-designed instruments were used to elicit information from the respondents.

a. **Checklist on Availability and Use of Play Material towards optimal learning and development of preschool children** (CAUPMOLDPC)' comprises 2 sections, Section A reveals the demographic information of respondents (gender, qualification and teaching experience) while section B which was rated on 4 point likert scale (Available, Not Available, Utilized and Not Utilized) contains list of expected play equipment in preschool centres.
b. Questionnaire on Preschool Teachers Awareness of Play Materials Requirements at Preschool Centres (QPTAPMRPC)'. The instrument contains 10 statements that seek the awareness level of preschool teachers on the requirements to consider for the provision of preschool play materials. The questionnaire is rated on 4 points likert scare of (Fully aware, Aware, Fairly Aware, Not Aware).

The two instruments were subjected to validity through constructive criticism by some experts in the department of early childhood education and experts in test and measurement. All corrections were thoroughly effected and the instruments were adjudged valid. The reliability of the instruments was ascertained using cronbach alpha reliability technique. The reliability index of (α=0.79) and (α=0.80) were calculated for (PTQAUPMOLDPC) and (QPTAPMRPC) respectively. Descriptive statistics (frequency count, simple percentage, mean and standard deviation) was used for data analysis.

RESULTS

Table 1: Descriptive Table showing the Availability of Play materials and the extent of utilization Play Material towards Optimal learning and Development of Preschool Children

S/N	Developmental Domain/ Centre	Expected Play Materials	Available (Frequency)	Not Available (Frequency)	Utilized (Frequency)	Not Utilized (Frequency)
A	Fine Motor	Small and large beads,	73	27	60	40
		bead pattern, cards, bead, frames	80	20	40	60
		Small wooden blocks/Lego	70	30	32	68
		Plastic needles and wool,	11	89	16	84
		lacing cards with laces/string	26	74	10	90
		pegs and peg boards	68	32	23	76
		pounding boards with mallets	9	91	23	76
		straws/sticks with connectors	72	28	56	44
		Foam	81	19	76	23
Weighted Average Percentage			**61.3%**	**38.7%**	**42%**	**68%**
Decision			**Available**		**Not Utilized**	
B	Gross Motor:	balls of different sizes and materials,	86	14	56	44
		riding toys	11	89	12	88
		bean bags,	45	55	20	80
		bowling set,	6	94	2	98
		skipping ropes	34	66	11	89
Weighted Average Percentage			**36.4%**	**63.6%**	**20.2%**	**79.8%**
	Decision		**Not Available**		**Not Utilized**	
C	Water and Sand:	Hoses	46	54	28	82
		spray bottles	55	45	16	84
		paint brushes	63	37	78	22
		buckets, cups, and bowls	87	13	84	16
		funnels,	89	11	79	21
		Sponges	92	8	90	10
		Tins and squeeze bottles,	84	16	87	13
		containers of various sizes	88	12	88	12
Weighted Average Percentage			**75.5%**	**24.5%**	**68.8%**	**21.2%**
	Decision		**Available**		**Utilized**	
D	Dramatic Play	Boxes and blankets	80	20	76	24
		toy kitchen set,	87	13	50	50
		tool set	9	91	57	43
		clothes,	43	58	89	11
		dishes, play food	68	32	81	19
Weighted Average Percentage			**57.4%**	**42.6%**	**70.6%**	**29.4%**
	Decision		**Available to some Extent**		**Utilized**	

E	Creativity	big pieces of paper/Newspapers	70	30	91	9
		foam brushes,	87	13	88	12
		Pencil, eraser and crayon	91	9	90	10
		Rollers and sponges	56	44	67	33
		paint brushes and paint,	86	14	78	22
		Markers and chalk,	82	18	76	24
		Clay and water bowl	75	25	90	10
		Plastic scissors, tape	59	41	92	8
Weighted Average Percentage			**75.8%**	**24.2%**	**84%**	**16%**
Decision			**Available**		**Utilized**	
F	Music/Movement centre	Bells	60	40	69	31
		Rhythm sticks, drums, trumpet	32	68	19	81
		Dancing clothes and shoes, ribbons and scarves	65	35	56	44
		Tape/CD player/Radio	68	32	63	37
		Song books	86	14	84	16
	Weighted Average Percentage		**62.2%**	**37.8%**	**58.2%**	**41.8%**
Decision			**Available**		**Utilized**	

Research Question One: Are play materials available at preschools?
Answering Research Question One: The descriptive analysis on Table 1 below revealed that majority of the expected play materials for the optimal learning and development of preschool children are to some extent available; the percentile analysis and interpretation is presented as thus; play materials for preschool children's optimal fine motor skills development is available (61.3%), play materials for preschool children's optimal gross motor skills development is not available (63.3%) and play materials related to water and sand is to a large extent available (75.5%). The play materials for dramatic play are to some extent available (57.4%) in majority of the selected preschools, play materials for preschool children's enhanced creativity skills is available to a large extent in majority of the sampled schools (75.8%), and lastly, play materials expected to be available at the music/movement centres in a preschool setting is available in majority of the sampled schools (62.2%).
Research Question Two: Are the available play materials utilized by preschool teachers during classroom activities?
Answering Research Question Two: The descriptive analysis on Table 1 below revealed that majority of the expected play materials for the optimal learning and development of preschool children are to fairly Utilized; the percentile analysis and interpretation is presented as thus; play materials for preschool children's optimal fine motor skills development is available (68%), play materials for preschool children's optimal gross motor skills development is not available (79.8%), play materials related to water and sand is to a large extent available (21.2%), the play materials for dramatic play are to some extent available (29.4%) in majority of the selected preschools, play materials for preschool children's enhanced creativity skills is available to a large extent in majority of the sampled schools (16%), and lastly, play materials expected to be available at the music/movement centres in a preschool setting is available in majority of the sampled schools (41.8%).
Research Question Three: Which category of equipment/materials is most available in preschool centres.
Answering Research Question Three: The descriptive analysis on Table 1 below revealed the category of play equipment that is available in most schools are; Fine motor skill play materials (61.3%), Gross motor (36.4%), water and sand (75.5%), Dramatic play (57.4%), creativity (75.8%), Music/Movement centre (62.2%). Hence, the category of play materials that is most found in school based on the descriptive analysis on table 4.1 below is the play materials for Creativity (75.8%) skills development in children. The play materials that are under creativity skills development have the highest percentage **(75.8%).**
Research Question Four: Which category of equipment/materials is mostly utilized by preschool teachers?

Answering Research Question Four: The descriptive analysis on table 4.1 below revealed the category of play equipment that is most utilized among preschool teachers; Fine motor skill play materials (42%), Gross motor (20.2%), water and sand (68.8%), Dramatic play (70.6%), creativity (75.8%), Music/Movement centre (84%). Hence, the category of play materials that is most utilized in preschools based on the descriptive analysis on table 4.1 below is the play materials under music/movement category (84%). The play materials that are under music/movement category have the highest percentage **(84%).**

In addition, the result on the table above revealed the availability of play materials in preschools in the selected geographical scope. The table revealed that play materials for preschool children's optimal fine motor skills development is available (61.3%) but not Utilized (68%), specifically, majority of the selected preschool made provision for play materials that enhance the fine motor skills development of children, some of the available play materials are; Small and large beads, bead pattern cards, bead frames, Small wooden blocks/Lego, Plastic needles and wool, lacing cards with laces/string, pegs and peg boards, pounding boards with mallets, straws/sticks with connectors and Foam. However, result on the observation schedule revealed that majority of the available play materials for fine motor skill development of children are not utilized by teachers, this singular factor might have detrimental effect on the fine motor skill development of children and could also have later and long-term negative effect on children's academic achievement

Also, the table revealed that play materials for preschool children's optimal gross motor skills development are not available (63.3%) and not Utilized (79.8%), specifically, majority of the selected preschool did not provide play materials that enhance the gross motor skills development of children, some of the play materials for gross motor development of children that are expected to be found in schools are; balls of different sizes and materials, riding toys, bean bags, bowling set, skipping ropes. In support of this findings, the result on the observation schedule revealed that majority of the expected materials for gross motor skills development of children are not utilized by majority of the preschool teachers. By implication, the gross motor development is believed to be the hallmark and fundamental aspect of the physical development of children, hence, if the materials expected to foster such development of children are not provided, the extent to which the children would cope with school rigor could be largely undermined.

Moreover, the table revealed that play materials related to water and sand are available (75.5%) and Utilized (68.8%). Although, majority of the selected preschool make provision for play materials related to water and sand, some of the play materials are; Hoses, spray bottles, paint brushes, buckets, cups, and bowls, funnels, Sponges, Tins and squeeze bottles, containers of various sizes. Not all the listed play materials are utilized by the preschool teachers observed, such materials that are not fully utilized are (Hoses and spray bottles).

Furthermore, the table above revealed that although the materials for dramatic play are to some extent available (57.4%) in majority of the selected preschools, the few available ones are utilized (42.6%). The available materials for dramatic play found in schools are; Boxes and blankets, toy kitchen set, tool set, clothes, dishes and play food.

Also, the table revealed that play materials for preschool children's enhanced creativity skills is available in majority of the sampled schools (75.8%) and fully utilized (84%). Furthermore, majority of the selected preschool provide play materials that enhance children's creativity, some of the play materials for creativity skills development are; big pieces of paper/Newspapers, foam brushes, Pencil, eraser and crayon, Rollers and sponges, paint brushes and paint, Markers and chalk, Clay and water bowl, Plastic scissors and tape.

In addition, the table above revealed that play materials expected to be available at the music/movement centres in a preschool setting is available in majority of the sampled schools (62.2%) and to some extent utilized by preschool teachers as revealed on the observation schedule of the instrument (58.2%). Some of the materials available are Bells, Rhythm sticks, drums, trumpet, Dancing clothes and shoes, ribbons and scarves, Tape/CD player/Radio, Song books. By implication, the expected play materials at the music/movement centre in a preschool are to some extent available and are fairly utilized.

Research Question Four: What is the level of awareness of preschool teachers on the requirements/major considerations for the provision of play materials for preschools?

Table 4.2: Descriptive table showing the level of Awareness of Preschool Teachers on the Requirements of Play Materials for Preschool Children

S/N	Items	Fully Aware	Aware	Fairly Aware	Not Aware	Mean	SD
1	Play materials should be available in a quantity and variety to occupy all children in attendance	30 (30)	66 (66)	4 (4)	_	3.62	0.56
2	Play materials should be consistent with the developmental capabilities of children in attendance	45 (45)	42 (42)	12 (12)	1	3.28	0.71

3	Play materials should be available and accessible to children for much of the day	35 (35)	60 (60)	2 (2)	3 (3)	3.61	0.53
4	Play materials should offer many types of play choices, for blocks of time, to provide different opportunities for children to experiment, explore and learn	44 (44)	38 (38)	16 (16)	2 (2)	3.22	0.59
5	Play materials should be accessible to children where they can reach and use the materials by themselves with adaptations to furniture to meet all children's needs	24 (24)	66 (66)	5 (5)	5 (5)	3.78	0.44
6	Play materials should be organized into particular interest centres (may overlap into other centres)	39 (39)	50 (500	8 (8)	3 (3)	3.40	0.74
7	Play materials should be arranged so quiet and active centres do not interfere with one another	37 (37)	47 (47)	12 (12)	4 (4)	3.31	0.81
8	Play materials should represent and encourage acceptance of diversity (race, culture, age, abilities, gender) in all activity areas	46 (46)	27 (27)	21 (21)	6 (6)	2.97	0.81
9	Play materials should be rotated and changed frequently based on the children's interests	41 (41)	46 (46)	11 (11)	2 (2)	3.35	0.73
10	Play materials should be provided indoors and outdoors to broaden children's exploration and experiences	39 (39)	32 (32)	21 (21)	8 (8)	3.02	0.95
Weighted Average Mean= 3.4 (85%) Aware							

The table above revealed that preschool teachers are aware of the requirements or major considerations for the provision of play materials for preschools (**WA=3.4**). The further explanation is presented based on the mean of each statement as revealed in table 2 above; Play materials should be accessible to children where they can reach and use the materials by themselves with adaptations to furniture to meet all children's needs (mean=3.78), Play materials should be available in a quantity and variety to occupy all children in attendance (mean =3.62), Play materials should be available and accessible to children for much of the day (mean =3.61), Play materials should be organized into particular interest centres (may overlap into other centres) (mean =3.40), Play materials should be rotated and changed frequently based on the children's interests (mean =3.35), Play materials should be arranged so quiet and active centres do not interfere with one another (mean =3.31), Play materials should be consistent with the developmental capabilities of children in attendance (mean =3.28), Play materials should offer many types of play choices, for blocks of time, to provide different for children to experiment, explore and learn (mean =3.22), Play materials should be provided indoors and outdoors to broaden children's exploration and experiences (mean =3.02), Play materials should represent and encourage acceptance of diversity (race, culture, age, abilities, gender) in all activity areas (mean =2.94).

Summary of Findings

- That majority of the expected play materials for the optimal learning and development of preschool children are to some extent available
- Majority of the expected play materials for the optimal learning and development of preschool children are fairly Utilized.
- The play materials that are under creativity skills development have the highest percentage on Availability
- The play materials that are under music/movement category have the highest percentage on Utilization
- Preschool teachers are aware of the requirements or major considerations for the provision of play materials for preschools

Discussion of Findings

The findings of this study reveal that while a majority of the expected play materials for preschool development are available to some extent within the Oyo Metropolis , their presence alone does not ensure effective educational practice. This observation aligns with recent research by Eberhart et al. (2023), who noted that the mere availability of objects is insufficient; rather, the

adequacy and variety of materials are what stimulate the prolonged, high-quality play necessary for robust social and emotional growth. Modern literature further emphasizes that "optimal" development requires a resource-rich environment where children can engage in sustained play, as limited or repetitive materials often fail to trigger the complex social negotiation and emotional regulation skills seen in higher-quality settings.

A significant gap was identified in the area of physical development, where materials for gross motor skills such as riding toys, bowling sets, and skipping ropes were found to be largely unavailable and underutilized. Chebutuk et al. (2019) suggested that children move through universal phases of motor skill acquisition, yet this progression relies heavily on adults providing the specific spaces and tools for movement. Active play is now recognized as a biological necessity that acts as a natural incubator for the brain. Without these materials, a child's ability to develop the physical coordination and body control required for later school rigor may be significantly undermined.

Regarding cognitive and creative growth, the study found that materials for creativity and music were the most accessible and frequently used. This is encouraging, as contemporary literature by Kaufman and Beghetto (2021) confirms that freedom to explore open-ended materials such as clay, blocks, and crafts helps children develop into creative thinkers who can adapt to new situations. Furthermore, recent neurobiological evidence shows that imaginative play activates the brain's Executive Function (EF) networks, improving inhibitory control and cognitive flexibility. Through self-distancing a process where children adopt a personal play allows them to navigate complex emotional themes and stay focused on challenging tasks.

Despite these benefits, the findings revealed that many available materials remain underutilized by teachers. This trend is often driven by a negative perception that playtime is a waste of time that could be better spent on formal academic lessons. However, the American Academy of Pediatrics (2024) and researchers such as Yogman et al. (2024) argue that reducing unstructured play is counterproductive. Modern evidence suggests that playful breaks actually improve, rather than hinder, cognitive performance and are essential for learning how to resolve conflicts and understand social boundaries. Therefore, to achieve the hallmark of holistic development, stakeholders must ensure that preschools are not just equipped with materials, but that teachers are trained to facilitate meaningful, child-led exploration.

Recommendations

It was recommended based on the findings that;

- More developmentally appropriate play materials should be provided at preschools and this should be done considering age, individual, and culture of the children.
- The need for periodic training and re-training of preschool teachers on the appropriate use of available play materials is should be considered paramount
- Early childhood education stakeholders are advised to synergize and work harmoniously on the basic requirements for the provision of play materials at preschools,
- Proper and effective monitoring on the appropriate utilization of play materials by the preschool teachers should be emphasized by the government.

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