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Holistic Development of Grade-Skipped and Non-Grade-Skipped Pupils in Kogi State, Nigeria

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Highlights:

Grade-skipped pupils demonstrated significantly higher cognitive and language development than non-grade-skipped pupils.

Non-grade-skipped pupils demonstrated significantly higher social, emotional, and physical development than grade-skipped pupils.

The findings indicate that developmental advantages associated with academic acceleration may not extend equally across all domains of child development.

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Abstract: This study compared the holistic development of grade-skipped and non-grade-skipped Primary Five pupils in Kogi State, Nigeria. The study was motivated by concerns that decisions concerning academic acceleration may emphasise cognitive achievement without sufficiently considering children's social, emotional, physical, and language development. A cross-sectional causal-comparative (ex post facto) research design was adopted. The population comprised Primary Five pupils enrolled in public primary schools in Kogi State during the 2024/2025 academic session. A sample of 400 pupils, consisting of 200 grade-skipped and 200 non-grade-skipped pupils, was selected through a multistage sampling procedure. Data were collected using the Holistic Cognitive Development Battery (HCDB) and the Holistic Development Skills Rating Scale (HDSRS). Mean and standard deviation were used to answer the research questions, while independent-samples *t*-tests were used to test the hypotheses at the 0.05 level of significance. Grade-skipped pupils recorded higher mean scores in cognitive development (M = 4.28, SD = 0.47) and language development (M = 4.18, SD = 0.43), whereas non-grade-skipped pupils recorded higher mean scores in social development (M = 4.16, SD = 0.49), emotional development (M = 4.21, SD = 0.44), and physical development (M = 4.14, SD = 0.46). The differences were statistically significant in all five domains. The study concludes that grade-skipped pupils may demonstrate advantages in development closely related to academic learning, whereas non-grade-skipped pupils may demonstrate stronger development in social, emotional, and physical domains. The findings suggest that grade-skipping decisions should be based on multidimensional developmental readiness rather than academic performance alone.

Keywords: Academic acceleration; Grade-skipping; Holistic development; Primary education; Child development

Introduction

Education is expected to promote the development of the whole child rather than academic achievement alone. Primary education provides opportunities for children to develop cognitive abilities, language competencies, social relationships, emotional regulation, physical skills, and the capacity to participate effectively in their school and community environments. These dimensions of development are interconnected, and weakness or strength in one domain does not necessarily imply similar development in another. Consequently, educational decisions that alter the normal progression of a child through school require consideration of the child's broader developmental profile.

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Holistic development refers to the balanced development of the major dimensions of a child's functioning, including cognitive, social, emotional, physical, and language development. Cognitive development involves reasoning, memory, comprehension, problem-solving, and related intellectual processes. Social development concerns children's ability to interact, cooperate, communicate and establish relationships with others. Emotional development involves emotional awareness, regulation, resilience and the ability to respond appropriately to challenging situations. Physical development includes motor coordination, physical participation, strength and other age-related physical competencies, while language development encompasses vocabulary, comprehension, communication and the effective use of language for learning and social interaction. A holistic approach therefore recognises that educational success involves more than examination performance.

This perspective is particularly important in the consideration of grade-skipping. Grade-skipping, or whole-grade acceleration, involves moving a pupil to a higher grade without requiring the pupil to complete the conventional sequence of grades. The practice is generally intended for pupils whose academic or intellectual development is considered substantially ahead of that of their age peers. The rationale is that academically advanced pupils may require more challenging instruction and may become disengaged when they remain in a classroom that does not adequately correspond with their level of readiness. Research on acceleration has generally found favourable academic outcomes. Steenbergen-Hu et al. (2016), in a second-order meta-analysis, reported positive effects of acceleration on academic achievement. Miravete (2023), in a review of research on grade-skipping, similarly concluded that the accumulated evidence provides support for acceleration, although he cautioned that professionals should consider potential confounding factors and avoid treating grade-skipping as an automatically beneficial intervention.

The cognitive dimension is consequently central to the argument for grade-skipping. Pupils who are selected for acceleration are typically expected to demonstrate advanced academic abilities, reasoning skills or learning rates. Assouline et al. (2015) argue that appropriately selected high-ability pupils can benefit from whole-grade acceleration when their educational placement corresponds with their demonstrated level of readiness. Lupkowski-Shoplik et al. (2022) similarly emphasise that whole-grade acceleration can provide an appropriate educational response for students whose academic needs are not adequately addressed by the standard grade structure. The stronger cognitive performance expected among grade-skipped pupils therefore provides an important basis for comparing them with pupils who have remained within the conventional progression system. Empirical evidence also points to possible advantages for grade-skipped pupils in language-related development. Gronostaj et al. (2016a) examined more than 40,000 students and identified 471 grade-skippers for propensity-score comparisons. The study found that grade-skippers performed at least as well as matched older classmates and outperformed matched same-age peers in most of the language skills assessed. Such findings suggest that pupils who successfully undergo acceleration may possess language

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competencies that enable them to cope with the increased linguistic demands of higher grades. Language competence is particularly important because classroom learning depends heavily on pupils' ability to understand instructions, comprehend texts, express ideas, participate in discussions and communicate knowledge.

The evidence concerning non-grade-skipped pupils presents a different perspective. Pupils who follow the conventional grade structure generally learn alongside children who are closer to them in chronological age. Their classroom experiences may therefore involve greater similarity in developmental interests, physical maturity, social expectations and peer experiences. Remaining in an age-appropriate grade may also provide pupils with opportunities to participate in play, cooperative activities and classroom routines with peers who are at relatively similar developmental stages. This does not imply that non-grade-skipped pupils are necessarily more developed than grade-skipped pupils; rather, it provides a basis for examining whether conventional grade progression is associated with different developmental patterns.

The distinction is particularly relevant to social development. Grade-skipped pupils may be academically capable of entering a higher grade but may find themselves interacting primarily with older pupils. Differences in age, interests, communication patterns and social experiences may affect peer relationships. Kretschmann et al. (2016) found that students who skipped a grade reported less positive peer relations after acceleration, although grade-skipping did not adversely affect school satisfaction. At the same time, the literature does not establish that acceleration invariably produces social difficulties. Gronostaj et al. (2016b) found that gifted grade-skippers could experience improved intellectual fit, although their experiences differed. Thus, the social consequences of acceleration appear to depend partly on individual characteristics and the context in which acceleration occurs.

The social-emotional evidence is similarly mixed. Schuur et al. (2021), in a systematic review of 22 studies involving accelerated students, examined a broad range of characteristics, including social maturity, resilience, self-efficacy, self-concept, peer relationships, motivation, well-being and adjustment. The review demonstrates that social-emotional outcomes of acceleration cannot be reduced to a simple assumption that acceleration either harms or benefits all pupils. Miravete (2023) also noted that although more recent evidence generally remains encouraging, professionals should remain cautious because additional controls for confounding variables are needed.

Emotional development is particularly important because cognitive readiness and emotional readiness may not develop at identical rates. A child may demonstrate advanced reasoning and academic achievement while still developing the emotional maturity required to manage increased expectations, unfamiliar peer environments or changes in classroom routines. This concern has particular relevance in Nigeria, where increasing pressure for academic success may encourage educational practices that prioritise rapid achievement. Oyadeyi (2025) identifies grade-skipping, early school enrolment and

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over-scheduling among practices associated with hurried childhood and argues that children may be required to perform beyond their emotional, cognitive or social readiness. The implication is not that grade-skipping is inherently harmful, but that academic readiness should be distinguished from broader developmental readiness.

Physical development constitutes another important dimension of the comparison. Primary-school children experience continuing changes in motor coordination, strength, physical confidence and participation in games and sports. Pupils who remain in their age-appropriate grades are generally grouped with children who are closer to them in chronological age. Grade-skipped pupils, in contrast, may be younger than many of their classmates. Differences in physical maturity could therefore influence participation in sports, games and other activities. Nevertheless, such differences should not automatically be interpreted as consequences of grade-skipping because physical development is also influenced by nutrition, health, family circumstances, opportunities for physical activity and other environmental factors.

The Nigerian educational context further strengthens the need for a holistic perspective. Ojo et al. (2023) argue for the decolonisation of the Nigerian educational system in ways that support holistic development rather than limiting education to narrow academic outcomes. More recently, Oni and Anyama (2026) emphasise the importance of social pedagogy, social-emotional learning, life skills and school-family-community relationships in promoting holistic student development in Nigerian basic and secondary schools. Their analysis identifies exam-oriented educational practices as one factor that can marginalise social, emotional and moral development. This perspective is consistent with the argument that children's educational progression should be evaluated in relation to their broader development.

The comparison between grade-skipped and non-grade-skipped pupils is therefore important because neither group can appropriately be characterised solely by academic status. Grade-skipped pupils may possess cognitive and language strengths that make acceleration educationally appropriate, while non-grade-skipped pupils may benefit from age-congruent opportunities for social interaction, emotional development and physical participation. The available evidence consequently suggests that the developmental profile associated with acceleration may be uneven across domains rather than uniformly positive or negative.

Despite the existing literature, empirical evidence directly comparing grade-skipped and non-grade-skipped primary-school pupils across several domains of holistic development remains limited in Nigeria. Previous studies have concentrated largely on academic achievement, language outcomes, acceleration experiences or psychosocial adjustment. There is comparatively little evidence that simultaneously compares cognitive, social, emotional, physical and language development among grade-skipped and conventionally progressing pupils within the Nigerian primary-school context. This gap is particularly important in Kogi State, where empirical evidence concerning the broader developmental profile of grade-skipped pupils remains limited. The present study therefore

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compares the cognitive, social, emotional, physical and language development of grade-skipped and non-grade-skipped Primary Five pupils in Kogi State, Nigeria, with a view to providing evidence that can support more comprehensive decisions concerning grade advancement.

Methodology

Research Design

The study adopted a causal-comparative (ex post facto) research design. The design was considered appropriate because the independent variable, namely grade-skipping status, had already occurred before the investigation and could not ethically or practically be manipulated by the researcher. The study therefore compared two naturally existing groups—grade-skipped and non-grade-skipped pupils—on selected dimensions of holistic development. The design permitted the researcher to determine whether statistically significant differences existed between the two groups in cognitive, social, emotional, physical and language development. However, because the study was non-experimental, observed differences are interpreted as group differences associated with grade-skipping status rather than evidence that grade-skipping caused the differences. Potential differences in age, prior ability, family background, school environment and other characteristics may also contribute to observed group differences.

Area of the Study

The study was conducted in Kogi State, Nigeria. Kogi State is located in the North-Central geopolitical zone and comprises 21 Local Government Areas distributed across Kogi East, Kogi Central and Kogi West Senatorial Districts. The state has public and private primary schools serving pupils from diverse linguistic, cultural and socioeconomic backgrounds. The diversity of the primary-school population provides an appropriate context for examining developmental differences between pupils who have experienced grade-skipping and those who have followed the conventional grade progression.

Population of the Study

The population comprised all Primary Five pupils enrolled in public primary schools in Kogi State during the 2024/2025 academic session. Primary Five pupils were selected because pupils at this level have accumulated sufficient schooling experience to permit assessment of several dimensions of development. The population included pupils who had experienced whole-grade acceleration and pupils who had progressed through the conventional grade structure.

Sample and Sampling Technique

A sample of 400 Primary Five pupils participated in the study. The sample comprised 200 grade-skipped pupils and 200 non-grade-skipped pupils.

A multistage sampling procedure was employed. First, schools with documented cases of grade-skipping were identified through relevant educational records. Second, pupils who had experienced grade-skipping were identified from the available school records. Third, non-grade-skipped pupils were selected to constitute the comparison group. The comparison group was drawn from pupils in the relevant Primary Five population who had not experienced grade-skipping.

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Instrumentation

Two researcher-administered instruments were used:

Holistic Cognitive Development Battery (HCDB)

The HCDB assessed cognitive development through measures relating to reasoning, memory, comprehension and problem-solving. The instrument was designed to provide an overall indication of pupils' cognitive functioning relevant to their educational level.

Holistic Development Skills Rating Scale (HDSRS)

The HDSRS assessed four additional dimensions:

1. Social development;
2. Emotional development;
3. Physical development; and
4. Language development.

The instruments were developed following a review of literature relating to child development, holistic education, educational psychology and academic acceleration.

Validity of the Instruments

The instruments were subjected to face and content validation by experts in Early Childhood Education, Educational Psychology, and Measurement and Evaluation from Nigerian tertiary institutions. The experts examined the relevance, clarity, language appropriateness, coverage of the constructs and suitability of the items for Primary Five pupils. Their observations were incorporated into the final versions before administration.

Reliability of the Instruments

A pilot study was conducted using pupils outside the study sample who possessed characteristics similar to those of the target population. The purpose was to determine the clarity, appropriateness and internal consistency of the instruments.

Responses from the pilot study were analysed using Cronbach's alpha. The HCDB produced a reliability coefficient of $\boldsymbol{\alpha = .84}$, while the HDSRS produced $\boldsymbol{\alpha = .88}$. Both coefficients exceeded the commonly accepted minimum criterion of .70, indicating satisfactory internal consistency for the instruments used in the study.

Procedure for Data Collection

Approval to conduct the study was obtained from the relevant educational authorities and participating school heads. Parents or guardians and school administrators were informed about the purpose of the study before data collection. The researcher, assisted by trained research assistants, administered the instruments directly to selected pupils during normal school hours.

The instructions were explained clearly to the pupils, and adequate time was provided for completion. Completed instruments were checked immediately to identify missing responses and ensure completeness.

Method of Data Analysis

Data were coded and analysed using IBM SPSS Statistics, Version 27. Descriptive statistics comprising mean and standard deviation were used to answer the research questions. For the five-point rating scale, mean scores of 3.50–5.00 were classified as High, 2.50–3.49 as Moderate, and 1.00–2.49 as Low. The five null hypotheses were tested using independent-samples *t*-tests at the 0.05 level of significance. In addition to statistical significance, Cohen's *d* was calculated to determine the magnitude of the difference

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between grade-skipped and non-grade-skipped pupils. Effect sizes were interpreted as small (d = 0.20), moderate (d = 0.50), and large (d = 0.80). 95% confidence intervals (CIs) were also calculated for the mean differences to indicate the precision and plausible range of the observed group differences. The null hypothesis was rejected when $p < .05$ and retained when $p \geq .05$. The interpretation of the findings therefore considered statistical significance, magnitude of effect, and confidence intervals rather than p-values alone.

Results

Demographic Distribution of the 400 Pupils

Table 1

Demographic Characteristics of Grade-Skipped and Non-Grade-Skipped Pupils (N = 400)

Variable	Category	Grade-skipped n (%)	Non-grade-skipped n (%)	Total n (%)
Age	8 years	18 (9.0)	3 (1.5)	21 (5.3)
	9 years	72 (36.0)	25 (12.5)	97 (24.3)
	10 years	76 (38.0)	72 (36.0)	148 (37.0)
	11 years	28 (14.0)	72 (36.0)	100 (25.0)
	12 years	6 (3.0)	28 (14.0)	34 (8.5)
Sex	Male	104 (52.0)	98 (49.0)	202 (50.5)
	Female	96 (48.0)	102 (51.0)	198 (49.5)
School type	Public	200 (100.0)	200 (100.0)	400 (100.0)
	Private	0 (0.0)	0 (0.0)	0 (0.0)
Total		**200 (100.0)**	**200 (100.0)**	**400 (100.0)**

The demographic profile shows a noticeable difference in the age distribution of the two groups. Grade-skipped pupils were generally younger than their non-grade-skipped counterparts, with the former concentrated mainly within the 9–10-year age range and the latter within the 10–11-year range. This difference is theoretically expected because pupils who skip a grade may enter Primary Five at a younger chronological age. The age difference is particularly important when interpreting the finding on physical development, as physical maturation is closely associated with chronological age. Thus, the higher physical-development score recorded by non-grade-skipped pupils should not be interpreted as evidence that grade-skipping itself adversely affected physical development. Rather, the difference may partly reflect the younger age profile of the grade-skipped group, in addition to other factors such as nutrition, health, physical activity and family circumstances. The finding therefore warrants cautious interpretation and, where the individual-level data permit, chronological age should be statistically controlled in further analysis.

Research Question One

What is the difference in the cognitive development skills of grade-skipped and non-grade-skipped pupils in Kogi State?

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Table 2
Mean and Standard Deviation of Cognitive Development Skills by Grade-Skipping Status

Group	*N*	*M*	*SD*	Decision
Grade-skipped	200	4.28	0.47	High
Non-grade-skipped	200	3.71	0.56	High

Table 2 shows that grade-skipped pupils obtained a higher mean cognitive-development score ($M = 4.28$, $SD = 0.47$) than non-grade-skipped pupils ($M = 3.71$, $SD = 0.56$). Both groups were classified as having high cognitive development based on the study's decision rule.

Research Question Two
What is the difference in the social development skills of grade-skipped and non-grade-skipped pupils in Kogi State?

Table 3
Mean and Standard Deviation of Social Development Skills by Grade-Skipping Status

Group	*N*	*M*	*SD*	Decision
Grade-skipped	200	3.52	0.63	High
Non-grade-skipped	200	4.16	0.49	High

Table 3 indicates that non-grade-skipped pupils recorded a higher mean social-development score ($M = 4.16$, $SD = 0.49$) than grade-skipped pupils ($M = 3.52$, $SD = 0.63$). Both groups fell within the high category using the stated decision rule.

Research Question Three
What is the difference in the emotional development skills of grade-skipped and non-grade-skipped pupils in Kogi State?

Table 4
Mean and Standard Deviation of Emotional Development Skills by Grade-Skipping Status

Group	*N*	*M*	*SD*	Decision
Grade-skipped	200	3.46	0.60	Moderate
Non-grade-skipped	200	4.21	0.44	High

Table 4 shows that non-grade-skipped pupils obtained a higher emotional-development mean ($M = 4.21$, $SD = 0.44$) than grade-skipped pupils ($M = 3.46$, $SD = 0.60$). The grade-skipped group was classified as moderate, while the non-grade-skipped group was classified as high.

Research Question Four
What is the difference in the physical development skills of grade-skipped and non-grade-skipped pupils in Kogi State?

Table 5
Mean and Standard Deviation of Physical Development Skills by Grade-Skipping Status

Group	*N*	*M*	*SD*	Decision
Grade-skipped	200	3.59	0.58	High
Non-grade-skipped	200	4.14	0.46	High

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Table 5 indicates that non-grade-skipped pupils recorded a higher physical-development mean (M = 4.14, SD = 0.46) than grade-skipped pupils (M = 3.59, SD = 0.58). Both groups were classified as high.

Research Question Five

What is the difference in the language development skills of grade-skipped and non-grade-skipped pupils in Kogi State?

Table 6

Mean and Standard Deviation of Language Development Skills by Grade-Skipping Status

Group	*N*	*M*	*SD*	Decision
Grade-skipped	200	4.18	0.43	High
Non-grade-skipped	200	3.74	0.54	High

Table 6 shows that grade-skipped pupils recorded a higher language-development mean (M = 4.18, SD = 0.43) than non-grade-skipped pupils (M = 3.74, SD = 0.54). Both groups recorded high mean scores.

Tests of Hypotheses

Hypothesis One

H_{01}: There is no significant difference in the cognitive development skills of grade-skipped and non-grade-skipped pupils in Kogi State.

Table 7

Independent-Samples *t*-Test of Cognitive Development

Group	N	M	SD	Mean Difference	95% CI	*t*	df	*p*	Cohen's *d*	Decision
Grade-skipped	200	4.28	0.47	0.57	[0.47, 0.67]	11.24	398	< .001	1.13	Reject H_0
Non-grade-skipped	200	3.71	0.56							

The result in Table 7 shows a statistically significant difference in cognitive development between grade-skipped and non-grade-skipped pupils, $t(398) = 11.24$, $p < .001$. Grade-skipped pupils recorded a higher mean score (M = 4.28, SD = 0.47) than non-grade-skipped pupils (M = 3.71, SD = 0.56), with a mean difference of 0.57 and a 95% CI of [0.47, 0.67]. The Cohen's d of 1.13 indicates a large effect, suggesting that the difference is not only statistically significant but also substantial in practical terms. Therefore, the null hypothesis was **rejected**. The finding indicates that grade-skipped pupils demonstrated considerably higher cognitive-development scores than their non-grade-skipped counterparts.

Hypothesis Two

H_{02}: There is no significant difference in the social development skills of grade-skipped and non-grade-skipped pupils in Kogi State.

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Table 8
Independent-Samples *t*-Test of Social Development

Group	N	M	SD	Mean Diff.	95% CI	*t*	df	*p*	Cohen's *d*	Decision
Grade-skipped	200	3.52	0.63	-0.64	[-0.75, -0.53]	-11.36	398	< .001	1.15	Reject H_0
Non-grade-skipped	200	4.16	0.49							

Table 8 shows a statistically significant difference in social development between the two groups, $t(398) = -11.36$, $p < .001$. Non-grade-skipped pupils recorded a higher mean score (M = 4.16, SD = 0.49) than grade-skipped pupils (M = 3.52, SD = 0.63), producing a mean difference of −0.64 and a 95% CI of [−0.75, −0.53]. The Cohen's *d* of 1.15 represents a large effect, indicating a substantial difference in social development between the groups. Therefore, the null hypothesis was rejected. The result suggests that non-grade-skipped pupils demonstrated considerably stronger social-development scores than grade-skipped pupils.

Hypothesis Three

H_{03}: There is no significant difference in the emotional development skills of grade-skipped and non-grade-skipped pupils in Kogi State.

Table 9
Independent-Samples *t*-Test of Emotional Development

Group	N	M	SD	Mean Diff	95% CI	*t*	df	*p*	Cohen's *d*	Decision
Grade-skipped	200	3.46	0.60	-0.75	[-0.85, -0.65]	-14.10	398	< .001	1.46	Reject H_0
Non-grade-skipped	200	4.21	0.44							

As presented in Table 9, there was a statistically significant difference in emotional development, $t(398) = -14.10$, $p < .001$. Non-grade-skipped pupils obtained a higher mean score (M = 4.21, SD = 0.44) compared with grade-skipped pupils (M = 3.46, SD = 0.60). The mean difference was −0.75, with a 95% CI of [−0.85, −0.65]. The Cohen's *d* of 1.46 indicates a **very large effect**, representing the largest observed difference among the five developmental domains. Thus, the null hypothesis was **rejected**. The finding indicates that non-grade-skipped pupils demonstrated substantially higher emotional-development scores than grade-skipped pupils.

Hypothesis Four

H_{04}: There is no significant difference in the physical development skills of grade-skipped and non-grade-skipped pupils in Kogi State.

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Table 10
Independent-Samples *t*-Test of Physical Development

Group	N	M	SD	Mean Diff	95% CI	*t*	df	*p*	Cohen's *d*	Decision
Grade-skipped	200	3.59	0.58	-0.55	[-0.65, -0.45]	-10.48	398	< .001	1.06	Reject H_0
Non-grade-skipped	200	4.14	0.46							

Table 10 indicates a statistically significant difference in physical development between grade-skipped and non-grade-skipped pupils, $t(398) = -10.48$, $p < .001$. Non-grade-skipped pupils recorded a higher mean score (M = 4.14, SD = 0.46) than grade-skipped pupils (M = 3.59, SD = 0.58), giving a mean difference of −0.55 and a 95% CI of [−0.65, −0.45]. The Cohen's *d* of 1.06 indicates a large effect, demonstrating that the difference has considerable practical magnitude. Therefore, the null hypothesis was rejected. The result indicates that non-grade-skipped pupils had substantially higher physical-development scores than grade-skipped pupils.

Hypothesis Five

H_{05}: There is no significant difference in the language development skills of grade-skipped and non-grade-skipped pupils in Kogi State.

Table 11
Independent-Samples *t*-Test of Language Development

Group	N	M	SD	Mean Diff	95% CI	*t*	df	*p*	Cohen's *d*	Decision
Grade-skipped	200	4.18	0.43	0.44	[0.34, 0.54]	9.05	398	< .001	0.91	Reject H_0
Non-grade-skipped	200	3.74	0.54							

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Table 11 shows a statistically significant difference in language development, $t(398) = 9.05$, $p < .001$. Grade-skipped pupils recorded a higher mean score (M = 4.18, SD = 0.43) than non-grade-skipped pupils (M = 3.74, SD = 0.54), with a mean difference of 0.44 and a 95% CI of [0.34, 0.54]. The Cohen's *d* of 0.91 represents a large effect, indicating that the difference is practically meaningful as well as statistically significant. Consequently, the null hypothesis was rejected. The finding indicates that grade-skipped pupils demonstrated substantially higher language-development scores than non-grade-skipped pupils.

Discussion of Findings

Cognitive Development

The study found a statistically significant difference in cognitive development between grade-skipped and non-grade-skipped pupils, with grade-skipped pupils recording a substantially higher mean score (M = 4.28, SD = 0.47) than non-grade-skipped pupils (M = 3.71, SD = 0.56). The mean difference was 0.57, with a 95% confidence interval of 0.47–0.67, indicating that the observed advantage was consistently positive across the plausible range of the population difference. More importantly, the Cohen's *d* of 1.13 represents a large effect, suggesting that the difference has considerable practical as well as statistical significance. This finding is consistent with the established rationale for academic acceleration. Grade-skipping is ordinarily considered for pupils whose cognitive or academic development is substantially ahead of that expected within their chronological age group. Consequently, the higher cognitive-development score observed among the grade-skipped pupils may partly reflect the characteristics that contributed to their selection for acceleration in the first place. Whole-grade acceleration is generally intended to provide learners with academic content that better corresponds with their readiness and rate of learning rather than requiring them to remain in a grade where the curriculum may be insufficiently challenging (Lupkowski-Shoplik et al., 2022).

The finding is also consistent with the broader acceleration literature. Steenbergen-Hu et al. (2016) reported positive academic effects associated with acceleration, while Miravete (2023) concluded from a review of grade-skipping research that the more methodologically robust recent evidence generally continues to support acceleration, although potential confounding variables require greater attention. The present finding therefore provides further support for the view that pupils who have undergone grade-skipping may demonstrate stronger cognitive functioning than pupils who have remained in conventional grade progression. Evidence from Nigeria also provides contextual support for recognising the needs of academically advanced learners. Nigerian scholarship on gifted education has argued that acceleration can provide an appropriate response to learners whose intellectual development exceeds the pace of the regular curriculum. However, such acceleration requires appropriate academic and affective support rather than simply moving a pupil into a higher class.

The result should nevertheless not be interpreted as demonstrating that grade-skipping caused the higher cognitive scores. Because pupils were not randomly assigned to acceleration, pre-existing cognitive ability may have contributed substantially to the difference. Indeed, the large effect size may partly reflect selection effects: pupils who were already cognitively advanced were more likely to have been identified for grade-skipping. Thus, the finding demonstrates a strong association between grade-skipping status and cognitive development in this sample, rather than a causal effect of acceleration. For Kogi State primary education, the implication is that cognitive readiness remains an important consideration in acceleration decisions. Nevertheless, the present study

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demonstrates why cognitive readiness should not be treated as synonymous with overall developmental readiness. The contrasting findings in the social, emotional and physical domains provide evidence that a pupil may be cognitively prepared for a higher grade while requiring further developmental support in other areas.

Social Development

A statistically significant difference was also found in social development. Non-grade-skipped pupils recorded a higher mean score (M = 4.16, SD = 0.49) than grade-skipped pupils (M = 3.52, SD = 0.63), producing a mean difference of −0.64 and a 95% confidence interval of −0.75 to −0.53. The Cohen's *d* of 1.15 indicates a large effect. Thus, the finding represents more than a statistically detectable difference; it indicates a substantial difference in the social-development profiles of the two groups. The finding is consistent with research suggesting that the social consequences of grade-skipping may be more complex than its academic consequences. Kretschmann et al. (2016), using a large longitudinal sample and matching procedures to reduce selection differences, found that grade-skipping was associated with less positive peer relations, even though it did not significantly reduce school satisfaction. Their findings suggest that moving into an older peer group can create social demands that are not necessarily present when a child remains with age-similar classmates.

One possible explanation for the present result is the difference in the social environment experienced by the two groups. Non-grade-skipped pupils generally remain within peer groups that are more closely aligned with their chronological age and developmental experiences. Grade-skipped pupils, by contrast, may enter classrooms where classmates are older and may have different interests, levels of independence, communication patterns and expectations. These differences may make social integration more demanding, particularly when acceleration occurs without systematic transition and peer-support arrangements. The finding, however, should not be interpreted as evidence that grade-skipping inevitably produces poor social development. Gronostaj et al. (2016b) found that gifted grade-skippers' experiences varied considerably, with some pupils reporting improved intellectual fit and positive experiences following acceleration. Similarly, Miravete (2023) concluded that the social-emotional evidence concerning grade-skipping is mixed and that the effects cannot be reduced to a simple positive or negative outcome. The Nigerian context makes this finding particularly relevant. Ojo et al. (2023) argue that Nigerian education needs to move towards a more holistic conception of educational development rather than concentrating narrowly on academic attainment. More recently, Oni and Anyama (2026) identified the exam-oriented nature of Nigerian schooling and inadequate attention to social and emotional development as important challenges to holistic education. The present finding reinforces this argument by demonstrating that pupils who appear academically advantaged may nevertheless display a different social-development profile. The large effect size also strengthens the practical importance of the finding. Schools should therefore not assume that high cognitive performance automatically indicates social readiness for acceleration. Social competence, peer adjustment and the ability to function within the receiving classroom should form part of the assessment process before whole-grade acceleration is approved.

Emotional Development

The emotional-development finding represents the largest observed group difference in the study. Non-grade-skipped pupils recorded a higher mean score (M = 4.21, SD = 0.44) than grade-skipped pupils (M = 3.46, SD = 0.60), yielding a mean difference of −0.75 and a 95% confidence

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interval of −0.85 to −0.65. The Cohen's *d* of 1.46 represents a very large effect. This indicates that the difference in emotional development is not simply a consequence of the large sample size; it represents a substantial separation between the two groups in the present sample. The result supports the argument that cognitive readiness and emotional readiness should not be assumed to develop at exactly the same pace. A pupil may possess advanced reasoning, comprehension and academic skills while still developing the emotional resources required to cope with unfamiliar social situations, increased expectations and changes in classroom relationships. Grade-skipping can therefore produce a situation in which the academic demands of the receiving class are appropriate while some of its emotional and social demands may be more challenging.

This interpretation is consistent with the systematic review by Schuur et al. (2021), which showed that social-emotional outcomes among accelerated learners cannot be described uniformly as either beneficial or harmful. Similarly, Miravete (2023) concluded that acceleration research generally remains encouraging but requires caution because potentially important confounding factors are not always adequately controlled. The Nigerian literature provides an especially relevant perspective. Oyadeyi (2025) argues that practices such as grade-skipping, early school enrolment and excessive academic scheduling can contribute to hurried childhood when children are expected to perform beyond their emotional, social or cognitive readiness. This does not mean that grade-skipping is inherently harmful. Rather, the present result suggests that acceleration should be based on a broader assessment of readiness rather than on academic performance alone. The result also reinforces recent Nigerian calls for more holistic approaches to education. Oni and Anyama (2026) argue that Nigerian schooling has historically given considerable attention to examination outcomes while social, emotional and moral development receive less systematic attention. Ojo et al. (2023) similarly advocate an educational orientation that supports holistic development within the Nigerian context. Given the very large effect size, emotional readiness deserves particular attention in acceleration decisions. However, the causal-comparative design requires caution. The lower emotional-development score among grade-skipped pupils may have existed before acceleration and may reflect selection characteristics, family circumstances, school environment or other factors. Consequently, the result should be interpreted as a substantial group difference associated with grade-skipping status, not as evidence that grade-skipping caused lower emotional development.

Physical Development

The study found a statistically significant difference in physical development, with non-grade-skipped pupils obtaining a higher mean score (M = 4.14, SD = 0.46) than grade-skipped pupils (M = 3.59, SD = 0.58). The mean difference was −0.55, with a 95% confidence interval of −0.65 to −0.45, while the Cohen's *d* of 1.06 indicated a large effect. Although this finding is statistically and practically substantial, it requires the greatest caution in interpretation because of the age distribution of the two groups. The demographic profile indicates that grade-skipped pupils were generally younger than non-grade-skipped pupils. This is an important consideration because physical development is naturally associated with chronological age and maturation. The higher physical-development score among non-grade-skipped pupils may therefore partly reflect their older age rather than an adverse developmental consequence of grade-skipping. This qualification is essential because the present study is ex post facto. Unlike an experimental study, the researcher did not randomly assign pupils to grade-skipping and conventional progression. Age, therefore, cannot simply

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be treated as irrelevant background information. The age difference may represent a potential confounding factor in the relationship between grade-skipping status and physical development. The result nevertheless has educational significance. Grade-skipped pupils may enter classrooms in which many classmates are older and potentially more physically mature. Differences in physical maturity may become relevant during games, sports, practical activities and other school experiences that involve coordination, strength or physical confidence. However, physical development is also influenced by nutrition, health, opportunities for exercise, family circumstances and school facilities. The observed difference should therefore be interpreted as a multidimensional developmental difference rather than as evidence of a direct physical effect of acceleration.

The Nigerian holistic-development literature strengthens this interpretation. Ojo et al. (2023) emphasise that education should contribute to social, mental, physical, emotional and broader human development rather than focusing narrowly on academic attainment. Recent Nigerian work on holistic child development similarly stresses the interconnectedness of cognitive, physical, social and emotional domains. The physical-development finding consequently provides one of the strongest arguments for the study's central proposition: academic readiness should not be equated with total developmental readiness. Nevertheless, future studies in Kogi State should control statistically for chronological age, and preferably for sex, nutritional status and other relevant physical-development factors, before drawing stronger conclusions about the relationship between grade-skipping and physical development.

Language Development

Grade-skipped pupils recorded significantly higher language-development scores than non-grade-skipped pupils. The grade-skipped group obtained a mean of 4.18 (SD = 0.43), compared with 3.74 (SD = 0.54) for the non-grade-skipped group. The mean difference was 0.44, with a 95% confidence interval of 0.34–0.54. The Cohen's *d* of 0.91 represents a large effect, indicating that the difference is both statistically significant and practically meaningful.

The finding is consistent with Gronostaj et al. (2016a), who compared grade-skippers with appropriately matched peers using propensity-score methods. Their study found that grade-skippers performed at least as well as matched older classmates and outperformed matched same-age peers on most of the language skills assessed. The present result therefore contributes to the evidence that language competence may be one of the developmental characteristics that supports successful academic acceleration. One possible explanation is that language competence is closely connected to the academic characteristics that often lead to grade-skipping. Pupils who demonstrate advanced comprehension, vocabulary, communication and reasoning skills may be better prepared to cope with the linguistic demands of a higher grade. Thus, the higher language scores observed among grade-skipped pupils may partly reflect their pre-existing academic readiness rather than an effect of grade-skipping itself. The finding is also relevant to the Nigerian context because language is central to classroom participation, comprehension, reading, written expression and communication of knowledge. A pupil entering a higher grade must be able to understand more complex instructions and communicate effectively with teachers and older classmates. The relatively large effect observed in this study suggests that the grade-skipped pupils may possess linguistic strengths that help explain their successful participation in the accelerated placement. However, the finding should again be interpreted cautiously because the study did not measure language ability before grade-skipping. The higher language-development score may therefore

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represent a selection characteristic. The study can establish that grade-skipped pupils in this sample had higher language-development scores; it cannot establish that grade-skipping produced those higher scores.

Conclusion

The study concludes that grade-skipped and non-grade-skipped Primary Five pupils in Kogi State differ significantly across all five dimensions of holistic development. Grade-skipped pupils demonstrated higher cognitive and language development, while non-grade-skipped pupils recorded higher social, emotional and physical development, with the observed differences showing substantial practical effects. The findings suggest that academic acceleration may be associated with strengths in domains closely related to learning while developmental differences may exist in other areas; therefore, grade-skipping should not be judged solely on academic performance. Given the ex post facto nature of the study and the possible influence of age and other background characteristics, the findings should be interpreted as group differences rather than causal effects of grade-skipping. Overall, decisions concerning whole-grade acceleration should be based on a multidimensional assessment of developmental readiness.

Recommendations

1. Cognitive readiness assessment: Schools should assess pupils' cognitive abilities, reasoning, comprehension and problem-solving skills before approving grade-skipping, particularly because grade-skipped pupils demonstrated significantly higher cognitive development.
2. Language-readiness assessment: Pupils considered for acceleration should undergo appropriate assessment of language development, including comprehension, communication and vocabulary skills, to ensure that they can cope effectively with the linguistic demands of the higher grade.
3. Social and emotional readiness: Teachers, counsellors and school administrators should assess pupils' social competence and emotional maturity before grade-skipping and provide appropriate peer-integration and counselling support after placement in the higher grade.
4. Physical and age considerations: Schools should consider chronological age and physical readiness alongside academic ability when making acceleration decisions, particularly because non-grade-skipped pupils recorded significantly higher physical-development scores and the groups may differ in age.
5. Holistic and continuous monitoring: Educational authorities and schools in Kogi State should adopt a multidimensional framework covering cognitive, language, social, emotional and physical development and monitor accelerated pupils after placement to identify and address developmental or adjustment difficulties promptly.

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