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The Systemic Consequences of Removing Mathematics as an Entry Requirement for Arts Programmes in Nigerian Higher Education

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Abstract: The Federal Government's recent decision to remove O/Level Mathematics as a compulsory prerequisite for admission into Arts and Humanities programmes in Nigerian tertiary institutions represents a profound policy contradiction. While the stated objective was to widen access by eliminating perceived barriers to entry, the inevitable consequence is the systemic reduction of analytical preparedness among a significant cohort of future graduates. This report finds that the policy successfully expands access but fundamentally undermines foundational competence and transfers the substantial burden of remediation onto tertiary institutions. The neglect of mathematics, a subject universally recognized for its ability to foster clarity of thought and structured reasoning, leads directly to measurable deficiencies in cognitive functions critical for complex professional roles. This deficit exacerbates Nigeria's existing skills gap, resulting in graduates who often possess "employee mindsets" rather than the interdisciplinary flexibility and quantitative acumen necessary for innovation, entrepreneurship, and competitiveness in the modern global economy. The policy, therefore, must be critically reassessed and replaced by a robust framework that prioritizes mandated quantitative literacy across all academic streams.

Keywords: : O/Level Mathematics, Prerequisite, Admission, Requirement, Arts, Humanities, Tertiary Institutions, Nigeria

INTRODUCTION

Historically, O/Level Mathematics, alongside the English Language, functioned as a non-negotiable gateway requirement for gaining admission into virtually all degree programs in Nigerian tertiary institutions. This requirement was institutionalized based on the fundamental recognition that Mathematics is not merely a subject area, but a foundational tool that imparts a baseline level of numeracy, logical coherence, and rational thought essential for success in all spheres of higher learning (George, 2019). According to Obadimu (2025), educationists maintained that mathematical skills contribute significantly to general intellectual development, regardless of a student's chosen discipline, establishing it as an integral subject for shaping critical thinking.

The Federal Ministry of Education recently announced a major policy revision aimed at liberalizing entry into tertiary education. The new framework specifies that while a minimum of five credit passes, including English Language, remains mandatory for university admissions, Mathematics is no longer compulsory for students seeking admission into Arts and Humanities programmes; it is now required only for Science, Technology, and Social Science courses (Abdulazeez, 2025). The primary justification offered for this substantial shift was the desire to "eliminate unnecessary barriers to tertiary education" (Adeoti, 2025). With Nigeria facing a massive bottleneck; over 2 million candidates sitting the Unified Tertiary Matriculation Examination (UTME) yearly, yet only about 700,000 gaining admission; the Ministry argued that stringent requirements, particularly Mathematics, were limiting opportunities. Proponents of the reform projected that loosening this rule could potentially open doors for up to 300,000 new students annually, promoting fairness and increasing overall access to higher learning (Adeoti, 2025).

The official rationale; that easing entry requirements resolves a systemic bottleneck; has met with rigorous critique from academic and administrative bodies. Educationists, including the Association of Retired Principals of Secondary Schools of Nigeria (ARPSSON), strongly faulted the decision, labeling it as "not well thought out" (Obadimu, 2025). Critics argue that removing mathematics contradicts Nigeria's ongoing struggle with low numeracy and fragile reasoning (Adeoti, 2025). This policy, in effect, responds to the failure of the secondary school system to adequately teach Mathematics by simply lowering the assessment standard for university entry. Instead of rectifying poor teaching quality, curriculum inadequacy, or resource limitations; the root causes of mass failure; the government has opted to adjust the output requirement. The resulting inclusion, critics warn, is "chaos disguised as compassion" (Adeoti, 2025) as the goal of education must be to prepare people to think and reason critically once admitted, not merely to facilitate easier entry.

Furthermore, this national policy has created immediate policy disharmony and signals contradictory expectations regarding academic preparedness. Although the Federal Ministry of Education announced the removal of the compulsion, many institutions demonstrate resistance at the faculty level. For example, the University of Lagos (UNILAG) admission requirements still list five O/Level credit passes, including English Language and Mathematics, for certain Arts-related educational courses such as Geography Education and History Education (University of Lagos, 2025). This institutional disagreement indicates that academic decision-makers understand the practical necessity of mathematical skills for success in specific programs, suggesting that the implementation of the policy will be inconsistent and potentially create confusion for applicants.

2.0 The Foundational Impact of Removing Mathematics for Arts Students

The most profound negative impact of neglecting Mathematics as a prerequisite lies in the erosion of foundational cognitive and analytical capacities, which are critical components of advanced scholarly work in the Arts and Humanities. Meanwhile, the value of Mathematics itself will expose the lack of it in students.

Mathematics as a catalyst for logical structuring and critical thought: The value of mathematical training extends far beyond arithmetic or algebra; it is crucial for cultivating deep intellectual discipline. Mathematics, according to Adeoti (2025) teaches precision, logical sequencing, and attention to detail, shaping the very structure of thought. When a student learns to balance complex equations, they are simultaneously practicing logic and patience, skills that are highly transferable to synthesizing arguments, evaluating evidence, and verifying truth in historical, philosophical, or literary scholarship. Removing this compulsory subject will encourage laziness among students and could lead to academic decadence. Obadimu (2025) agreed Mathematics remains an integral subject that shapes logical reasoning, critical thinking, and problem-solving abilities. Discouraging students from engaging with this material through policy reform compromises the overall intellectual development of graduates and risks weakening the nation's capacity for high-level scientific research and innovation, even among those in non-STEM fields.

Empirical links between numerical literacy and academic performance: Academic research substantiates the relationship between quantitative skills and academic outcomes. Studies have shown a significant positive correlation between mathematical skills and overall student performance, confirming that these skills are an important factor enhancing academic achievement (Abiodun, Asanre & Turayi, 2025). The specific components of mathematical literacy analyzed in research exhibit validated relationships (all statistically significant with $p<0.05$). Numerical skills have been found to enhance calculation, precision, data interpretation cognitive domain of learning; Spatial skills have been found to enhance visualizing patterns, structured problem-solving; and Problem-solving skills improve logical sequencing and abstract reasoning of learners (Abiodun, Asanre & Turayi, 2025). According to Chukwuemeka (2015), O/Level Mathematics grade is a foundational analytical capacity and academic success predictor for tertiary institutions students.

These findings demonstrate that skills developed through mathematical training; namely numerical proficiency, spatial reasoning, and structured problem-solving; are fundamental assets for academic success in any discipline. Although mathematics has long been a mandatory prerequisite for higher learning in Nigeria, many students have historically lacked a proper conceptual understanding of the subject (George, 2019). By removing the mandatory requirement, the policy essentially guarantees that this pre-existing quantitative reasoning deficit will be carried, unchecked, into the tertiary environment.

A critical observation regarding the previous system was that students often resorted to memorizing formulas and calculation procedures purely to pass examinations, never fully learning how to apply these concepts to novel situations (Ajuzieogu, 2025). This indicates a failure in pedagogical approach, not a failure of the subject itself. The new policy, by allowing students to bypass the subject entirely, eliminates the necessary cognitive struggle that forces a transition from rote learning to transferable problem-solving skills. This ultimately compromises the development of professional competence, as graduates lack the flexibility needed to apply learned knowledge outside of strictly academic contexts.

Consequences for academic rigor in arts disciplines: The analytical deficiency resulting from neglecting mathematics severely impacts the rigor and relevance of many Arts and Humanities disciplines. Modern scholarship in these fields increasingly incorporates quantitative methods. Students in fields such as History, Geography, and Language Studies often encounter the need to analyze demographic data, interpret statistical reports, understand survey methods, and engage with the emerging field of digital humanities. Students lacking foundational quantitative literacy struggle to critically evaluate statistical arguments, interpret complex data sets, and conduct empirical components of their own research, leading to research output that is often less robust and evidence-based (Hellen, 2024). Furthermore, the discipline instilled by mathematical study; the ability to rigorously connect thought to verifiable evidence; is essential for building complex, sustained arguments, a core requirement of advanced scholarship in the humanities. Allowing students to enter higher education without this intellectual scaffolding risks producing graduates who are ill-prepared to engage with complex, data-driven questions or contribute meaningfully to national policy analysis.

3.0 Tertiary Education Gaps of Removing Mathematics for Arts Students

The removal of O/Level Mathematics does not eliminate the need for quantitative skills; it merely postpones the requirement and imposes a substantial remedial burden on tertiary institutions, leading to inefficiencies and policy inconsistencies. There will always be significant underachievement exposing student without sound mathematics background to higher institution of learning compared to those that have a good knowledge and impact of Mathematics which is apparent in the following ways:

Institutional compliance and required workarounds: The immediate academic resistance observed across the Nigerian tertiary landscape underscores the practical necessity of mathematical proficiency. As discussed, some faculties or specialized education tracks within Arts and Humanities programs are maintaining Mathematics credit passes as an entry standard, effectively rejecting the revised national mandate for these specific areas (Obadimu, 2025). This lack of uniformity highlights a fundamental disconnect between the Federal Ministry's policy objective (mass access) and institutional academic standards (necessary preparation).

For candidates entering via preparatory pathways, the necessity of Mathematics is even more explicit. Institutions offering foundational programs, such as Remedial Studies or Joint Universities Preliminary Examinations Board (JUPEB) courses, still require students to achieve a minimum of five credits, including both English Language and Mathematics, confirming the skill's status as essential for progression into higher learning, regardless of the direct JAMB entry policy (African University of Science and Technology, 2024).

The compulsory nature of quantitative General Studies (GST): In an attempt to compensate for baseline deficiencies across the student population, the National Universities Commission (NUC) and university senates often mandate General Studies (GST) courses. These courses serve as an institutional workaround to maintain minimal standards of analytical capacity. The policy for General Studies courses dictates that Art and Humanities programmes must enroll in GST courses with a science focus (National Open University of Nigeria, 2024). This is designed to ensure exposure to scientific methodology and quantitative reasoning. For example, direct-entry students often must complete specific foundation courses like NOU107 in addition to their 200-level GST curriculum (National Open University of Nigeria, 2024).

The reliance on mandatory GST courses, however, constitutes an inefficient substitution for continuous, structured learning during secondary school. By transferring the responsibility for teaching foundational mathematics to the university, the policy increases the financial and logistical burden on already resource-constrained tertiary institutions. Universities must expend scarce resources; staffing, lecture halls, time; on remedial education that should have been mastered pre-admission, thereby decreasing the overall efficiency of the four-year degree cycle and potentially detracting from the quality of core Arts instruction. Moreover, attempting to instill complex quantitative reasoning in an isolated GST setting, often assessed via large, impersonal e-examinations (National Open University of Nigeria, 2024), presents a less effective pedagogical approach than structured high-school curriculum engagement.

The crisis of international comparability: Moving counter to the global trajectory for academic preparedness, the Nigerian policy risks isolating its graduates in the international arena. Highly competitive international institutions, while sometimes flexible with specific subjects for Arts degrees, often mandate the demonstration of foundational quantitative aptitude for all entrants. For example, some foreign universities, while accepting various qualifications for Arts, require evidence of proficiency in Quantitative Literacy through specialized benchmark tests for highly analytical degrees like Law (University of Aberdeen, 2024).

Nigerian Arts graduates who have actively neglected mathematical training will find themselves severely disadvantaged when seeking postgraduate opportunities or professional certifications abroad. Their foundational knowledge bases will reflect Nigeria's educational limitations rather than current international competence expectations, reinforcing the educational isolation described in the professional skills literature (Ajuzieogu, 2025).

4.0 Economic and Career Implications for Art Graduates that Lack Mathematical skills

The long-term impact of quantitative illiteracy is most acutely felt in the competitive modern job market, where the analytical rigor developed through mathematical training is increasingly indispensable for career progression, even in non-technical fields. Arts and Humanity graduates that lack mathematical background will definitely suffer some form systemic limitations in the following ways:

The professional isolation of arts graduates: Nigerian university curricula, according to Ajuzieogu (2025), are frequently criticized for maintaining rigid disciplinary boundaries, which often results in liberal arts students being effectively shielded from necessary quantitative analysis. This institutional structure produces graduates whose skills are highly compartmentalized, lacking the integrated skill sets demanded by modern employers. Professional roles today increasingly require interdisciplinary capabilities that combine technical understanding (such as data analysis) with soft skills like communication and cultural competence. Arts graduates who enter the workforce without a quantitative foundation inherently lack this critical interdisciplinary flexibility, leading to professional isolation.

Mapping the skills gap and employer demands: Industry research consistently identifies core analytical skills as paramount for success across all professions. The World Economic Forum's Future of Jobs Report specifies "analytical thinking" and "quantitative reasoning" as cross-cutting core competencies (Adeoti, 2025). By allowing students to actively avoid mathematical rigor, the policy fundamentally compromises the nation's ability to develop these core skills.

The negative impact is quantitatively reflected in the labor market. According to Ekugo (2025), a significant portion of Nigerian employers cite skill gaps as a major barrier to organizational transformation. While this gap covers multiple areas, the deficiency in fundamental data literacy and systems thinking derived from quantitative training exacerbates the crisis. Furthermore, the fastest-growing roles identified in the Nigerian labor market, such as Data Analysts, AI specialists, and others, require strong, high-level quantitative backgrounds, Ekugo concluded.

However, the consequences of removing Mathematics as a prerequisite extend even to traditionally high-paying, Arts-based professions. The neglect of mathematical foundations among Arts graduates manifests in several critical deficiencies: an inability to connect thought with empirical evidence, and a weakness in policy formulation and research analysis due to the absence of analytical reasoning skills. Furthermore, inadequate quantitative literacy restricts their capacity to perform effectively in strategic roles; particularly in marketing and related fields that demand data interpretation and performance metric evaluation (Adeoti, 2025).

In addition to joint conclusion of Kolawole (2015), Sunday and Anaduaka (2021) and Ajuzieogu (2025), lack of interdisciplinary competence, now a growing demand in modern workplaces, limits their ability to bridge technical and business perspectives, resulting in professional isolation and difficulty adapting to technology-driven environments. The absence of mathematical reasoning thus contributes to a broader skills gap, producing graduates with predominantly "employee mindsets" rather than innovative, problem-solving capabilities.

According to Benard (2025), high-paying arts-based positions, such as Marketing and Advertising Manager, Public Relations Specialist, and Content Manager, are no longer purely reliant on communication and creativity. These strategic roles require graduates to interpret market metrics, conduct campaign Return on Investment (ROI) analysis, manage media spend efficiency, and base decisions on hard business data. Graduates who neglect mathematics may possess the necessary soft skills but will lack the essential hard skills needed to transition into lucrative, strategic, managerial positions, potentially limiting them to lower-level, non-analytical creative roles.

Widening socioeconomic inequality and stunting innovation: The policy, framed as a measure to promote fairness and equity, inadvertently risks widening the socioeconomic skills gap. Families with greater financial resources can afford to circumvent the lowered public standard by providing private tutoring to ensure their children acquire robust mathematical and analytical skills, guaranteeing them the cognitive competitive edge necessary for higher education and global careers (Adeoti, 2025). Conversely, students from disadvantaged backgrounds, who rely solely on the public secondary school curriculum, are effectively left with a weaker analytical foundation, making the path to high-value, analytically demanding careers (e.g., strategic communications, financial journalism, policy roles) significantly harder.

Furthermore, the deliberate avoidance of mathematical rigor impedes national progress in innovation and entrepreneurship. University curricula in Nigeria already provide minimal preparation for venture development (Ajuzieogu, 2025). Quantitative thinking fosters the structured, systematic problem-solving necessary for building scalable businesses and driving technical innovation within Nigeria's growing startup ecosystem. When young professionals lose the discipline of structured thought, they lose the capacity to build complex, lasting systems (Adeoti, 2025). The policy, by making it easier to enter university unprepared, fosters an "employee mindset" rather than cultivating the innovative, problem-solving capabilities required for long-term national economic transformation.

Recommendations

Based on the empirical evidence of cognitive weakness, academic inefficiency, and economic disadvantage, the policy removing compulsory O/Level Mathematics for Arts students must be strategically revised. The focus must shift from simply lowering the entry barrier to universally mandating foundational quantitative skills acquisition. The following recommendations are made for immediate good and better future of Nigerian Art students and betterment of Nigeria:

Mandatory Quantitative Reasoning (QR) Component: The Federal Ministry of Education, in collaboration with the National Educational Research and Development Council (NERDC), should immediately advocate for the reinstatement of a mandatory quantitative subject for all senior secondary students across all streams (Arts, Science, Commercial). This subject must be explicitly focused on Quantitative Literacy (QL) and Analytical Thinking, separate from the complexities of Pure Mathematics, emphasizing data interpretation, financial numeracy, statistical literacy, and logical problem-solving relevant to everyday life and professional applications.

Standardized QL Benchmark: The Joint Admissions and Matriculation Board (JAMB) and the NUC must establish a minimum QL benchmark score, possibly through a redesigned, application-focused module within the UTME or a separate O'Level assessment. This benchmark must be a minimum requirement for all tertiary admissions, aligning Nigerian standards with the intermediate quantitative literacy expectations observed in competitive global educational systems.

Embedding Quantitative Skills in Arts Curricula: The NUC must mandate curricular revisions that require the integration of discipline-specific quantitative requirements (such as basic statistical interpretation, research methods, and data visualization) into core 100- and 200-level Arts and Humanities courses. This structural change ensures that quantitative skills are utilized as analytical tools relevant to the Arts, moving away from isolated, impersonal General Studies remediation.

Addressing Pedagogical Deficiencies: Policy and resource allocation must urgently address the quality of mathematical instruction in secondary schools. Teacher training must prioritize pedagogical methods that move instruction away from the memorization of formulas and procedures toward conceptual understanding and the application of knowledge to novel, real-world situations, thus ensuring that students develop genuine professional competence.

NUC/JAMB Mandate Review: The NUC must establish and enforce consistent admission guidelines across all tertiary institutions to prevent the academic and administrative friction caused by contradictory admission requirements currently observed at the institutional level. Policy must be unified to ensure stability and clarity for applicants.

Investment in Foundational Literacy: The effective long-term solution lies in strengthening basic education. Increased investment in foundational literacy and numeracy resources at the primary and junior secondary levels is critical to improving overall quantitative foundations before students are required to choose specialized streams (Arts or Science). This upstream investment mitigates the crisis that the recent policy attempts, misguidedly, to solve through downstream deregulation.

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