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INDIGENOUS KNOWLEDGE SYSTEMS AND THEIR INTEGRATION INTO THE NIGERIAN SCHOOL CURRICULUM

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Abstract
Nigerian learners acquire knowledge not only in school but also in homes, communities and local environments. Before Western-style schooling expanded, communities transmitted knowledge, skills and values through oral traditions, observation, apprenticeship and participation. This paper examined the place of indigenous knowledge systems in the Nigerian school curriculum and how relevant indigenous knowledge can be integrated into formal education. It adopted a conceptual narrative desk-review approach, drawing on scholarly publications, policy documents and official curriculum materials, with emphasis on literature from 2021 to 2026, and was anchored on Afrocentricity and Vygotsky's sociocultural theory. The review identified oral literature and indigenous languages, ecological and agricultural knowledge, ethnomedicine, arts and crafts, apprenticeship, ethnomathematics and communal governance as areas with curricular potential. Official 2025 Nigerian Educational Research and Development Council (NERDC) documents show that Nigerian languages, Nigerian history and cultural arts are established in basic education, but the framework documents examined do not explicitly link environmental and sustainability education, including conservation and climate change, to indigenous ecological knowledge. Indigenous content is therefore explicit in culture and language subjects but not evident in the environmental provisions examined. The paper argues that integration should not replace scientific knowledge; rather, critically examined and ethically accessed indigenous knowledge should be placed in dialogue with disciplinary knowledge. It recommends subject-specific curriculum guidance, practical teacher preparation, community partnerships, ethical documentation, stable support for indigenous languages and contextualised assessment.

Keywords: indigenous knowledge systems, curriculum integration, Nigerian education, Afrocentricity, sociocultural theory, culturally responsive pedagogy, sustainable development.

1. Introduction
Education in Nigeria takes place within a society of diverse languages, histories and local knowledge traditions. Long before Western-style schooling expanded, communities taught children to farm, prepare food, care for the environment, make tools, observe weather, resolve disputes and take part in community life. Knowledge was transmitted through observation,

storytelling, songs, proverbs, apprenticeship, demonstration and participation. The United Nations Permanent Forum on Indigenous Issues (UNPFII, 2019) describes traditional knowledge as knowledge, innovations and practices developed over generations, adapted to local cultures and environments, and often transmitted orally. UNESCO (n.d.-b) similarly describes indigenous knowledge as understanding rooted in communities' cultural experience and their relationship with the natural environment.

This raises an educational question: how should the knowledge learners encounter in homes and communities relate to the knowledge that schools select and organise? The question is not simply whether indigenous knowledge should be inserted into school subjects. It concerns what counts as educationally relevant knowledge, how content is selected, how teachers mediate different knowledge traditions, and how learners connect prior experience with disciplinary concepts. Seehawer and Breidlid (2021) argue for dialogue between epistemologies rather than the replacement of one knowledge system by another. Silva et al. (2023), in a systematic review, found that indigenous knowledge has often remained marginal in formal schooling, although integration can support engagement and learning when well implemented.

Nigeria's basic and secondary curriculum is currently being revised. NERDC issued the approved subject list for the revised basic and senior secondary curriculum in September 2025, and the revised basic education curriculum is being introduced in phases (NERDC, 2025a, 2025b). It is therefore timely to ask where indigenous knowledge already features in official curriculum documents and where its place is less clear.

1.1 Statement of the Problem

The problem is not the complete absence of indigenous knowledge from Nigerian education. It is the uneven, partly implicit and insufficiently systematic relationship between community knowledge and formal curriculum content. Cultural and language subjects have an established place, but it is less clear how, or whether, indigenous knowledge is connected to science, environmental education, mathematics, entrepreneurship and health education. Three related difficulties follow. First, teachers may lack subject-specific guidance. Jumba and Mwiti (2022) found in Kenya that inadequate resources and unclear guidelines constrained integration even where teachers valued indigenous knowledge; the finding is a comparison for Nigeria, not direct evidence about Nigerian teachers. Second, oral knowledge may be poorly documented and hard to access in forms suitable for schooling. Third, not every traditional belief or practice is scientifically established, so integration requires teachers and developers to distinguish cultural knowledge, empirical observation, belief and claims that need verification (Alum, 2024; Seehawer & Breidlid, 2021). The issue is therefore how relevant, documented and validated indigenous knowledge can be integrated in ways that strengthen formal education.

1.2 Purpose and Research Questions

The paper examined indigenous knowledge systems and their integration into the Nigerian school curriculum. It addressed five questions:

1. What do indigenous, indigenous knowledge, integration and school curriculum mean in this paper?

2. How do Afrocentricity and sociocultural theory explain the educational relevance of indigenous knowledge?
3. What do curriculum theories and Nigerian and African studies reveal about integration?
4. What indigenous knowledge is evident in official NERDC curriculum documents, and where are links not explicit?
5. Which areas of indigenous knowledge have potential for basic and secondary education, and what challenges and strategies affect integration?

The paper is relevant to curriculum developers, teacher educators, schools working with community knowledge holders, and researchers who may follow it with empirical studies of classroom implementation.

2. Methodology

This paper adopted a conceptual narrative desk-review approach. It drew on peer-reviewed articles, scholarly books, and official curriculum and policy documents on indigenous knowledge, curriculum development, Afrocentricity, sociocultural learning and Nigerian basic and secondary education. Recent literature from 2021 to 2026 was emphasised for contemporary evidence, while foundational works were retained to explain established theories and curriculum concepts. The review was organised thematically around concepts, theory, curriculum theories and studies, official curriculum evidence, areas of potential integration, and challenges and strategies.

No human participants, questionnaires, interviews or statistical analysis were involved, so no sampling procedure or inferential test was required. To distinguish what the literature argues from what Nigerian curriculum documents contain, two official 2025 NERDC documents were examined: the notice of approved subjects for the revised basic and senior secondary curriculum (NERDC, 2025b) and the implementation strategy for the revised 9-Year Basic Education Curriculum (NERDC, 2025a). Both are framework-level documents. Subject-level syllabi, such as those for Basic Science, Intermediate Science and Agriculture, were not analysed, so the findings on curriculum representation apply at the framework level.

3. Conceptual Clarification

3.1 Indigenous and Indigenous Knowledge

Indigenous is used here for knowledge, practices, languages and cultural expressions rooted in the historical and continuing experience of particular peoples and communities. The United Nations links indigeneity to historical continuity, self-identification, cultural identity and the transmission of ancestral knowledge (United Nations, n.d.). Because Nigeria contains many ethnic and linguistic communities with distinct histories, the term is not used for a single uniform Nigerian culture. Indigenous knowledge is plural and place-based, and curriculum developers should avoid presenting one community's practices as applicable to all learners.

Indigenous knowledge refers to knowledge, innovations and practices developed through long-term community experience and adapted to local cultural and environmental conditions. It can include stories, songs, proverbs, values, beliefs and rituals (UNPFII, 2019) as well as ecological, agricultural and medicinal knowledge (UNESCO, n.d.-b). Dei et al. (2025)

characterise it as local, intergenerational, holistic and closely tied to social and ecological settings. It is not automatically equivalent to scientific knowledge: some practices rest on sustained observation, while others reflect belief, spirituality or cultural interpretation. The educational task is therefore not to accept every traditional claim but to document, ethically access, contextualise and, where relevant, compare knowledge with disciplinary knowledge.

3.2 Integration and School Curriculum

Integration means the deliberate connection of relevant indigenous knowledge with school subjects, teaching activities, learning experiences and assessment. Mentioning a local example once is not integration; it requires a meaningful relationship between community knowledge and a curriculum concept that is then used to support learning. Seehawer and Breidlid (2021) describe a dialogical approach in which knowledge traditions interact rather than one displacing the other. Forms of integration include curriculum infusion, contextual examples, project work, field activities, community resource persons, language use and locally grounded assessment.

Curriculum extends beyond a list of subjects. Tyler (1949) relates it to educational purposes, learning experiences, their organisation and evaluation; Taba (1962) treats it as a systematic development process; and the UNESCO Institute for Statistics (UIS, n.d.) defines it as the design, planning and sequencing of teaching and learning, including purpose, content, activities and assessment. Integration therefore cannot be reduced to adding indigenous topics to a textbook. It should appear in content selection, learning activities, teacher guidance and assessment, and it raises questions of representation, relevance and educational purpose.

4. Theoretical Framework

4.1 Afrocentricity

Afrocentricity directs attention to African agency, experience, history and cultural perspectives in interpreting African realities. Asante (1997) developed it as a framework for locating African people as subjects, rather than objects, of knowledge produced from external perspectives. For curriculum, this means that decisions about what counts as knowledge also determine whose histories, languages and cultural resources are represented. Diop (1974) challenged interpretations that minimised African contributions to civilisation, which shows why historical representation in schools matters, and Ngũgĩ wa Thiong'o (1986) linked language to identity and the production of knowledge. The latter is particularly relevant because indigenous knowledge is often encoded in local languages, oral traditions, proverbs and culturally specific concepts, so language policy affects whether learners can access community knowledge meaningfully. Recent work applies Afrocentric perspectives to education, liberation and contemporary research (Hill, 2023; Sakala, 2024). Afrocentricity here does not mean rejecting Western knowledge. It asks whether Nigerian learners can encounter African experience as a legitimate resource for learning and whether that resource can be placed in dialogue with other traditions.

4.2 Sociocultural Theory

Vygotsky's (1978) sociocultural theory emphasises the social and cultural mediation of learning through language, cultural tools and social interaction, and Alkhudiry (2022) discusses

its continuing relevance to knowledge co-construction. Learners bring prior knowledge from family, language, community practice and observation, and teachers can use it as a starting point for formal concepts. Observations of local weather can open discussion of weather and climate; farming practices can contextualise agricultural science and ecology; local patterns can support mathematics; and traditional stories can support language and literature.

The two perspectives are complementary. Afrocentricity asks whose knowledge is represented, and sociocultural theory explains how culturally mediated experience supports new learning. Together they support connecting indigenous and disciplinary knowledge through deliberate curriculum and pedagogy.

5. Review of Related Literature

5.1 Curriculum Theories

Tyler's (1949) objective-centred rationale asks developers to consider educational purposes, learning experiences, their organisation and evaluation. Applied to indigenous knowledge, it asks which learning experiences can connect purposes such as cultural relevance, local problem-solving and sustainable development to local knowledge. Taba (1962) emphasises diagnosis of learners' needs, formulation of objectives, selection and organisation of content, and evaluation. A Taba-informed process would not merely declare culture important; it would identify learner and community needs, select relevant knowledge, organise it with subject concepts and decide how learning is assessed. UNESCO (n.d.-a) likewise stresses that curricula should respond to local and national realities. The implication is not that every local practice becomes content, but that developers need a principled method for identifying knowledge that serves educational goals.

5.2 International and African Evidence

Silva et al. (2023) found that indigenous knowledge has often been marginalised in formal schooling, while integration is associated with positive educational possibilities when appropriately implemented; outcomes appear to depend on content selection, teacher preparation and classroom organisation. Seehawer and Breidlid (2021) argue that Sub-Saharan African classrooms benefit from dialogue between epistemologies, an approach that avoids both treating indigenous knowledge as inferior and treating it as beyond critical examination. In science, local observations can generate questions that are then explored through formal concepts and methods, without requiring teachers to treat every indigenous explanation as equivalent to a scientific one. Manns et al. (2025) and Dei et al. (2025) link indigenous knowledge with education for sustainable development, including environmental care and resource management.

In Kenya, Jumba and Mwiti (2022) found that teachers identified agriculture, weather patterns, food habits, history and culture as areas with integration potential, but reported inadequate resources and unclear guidelines. The findings should not be generalised directly to Nigeria. They nonetheless show that policy recognition alone does not produce classroom integration; teachers need examples, resources, training and compatible assessment.

5.3 Nigerian Studies

Onyewuchi and Owolabi (2022) examined an indigenous knowledge systems strategy in secondary school Physics in Lagos State and reported differences in performance between learners taught through that strategy and those taught conventionally, which shows an attempt to connect existing knowledge with school science. Omilani and Bada (2024) identified Yoruba knowledge relevant to environmental conservation and climate change education, including knowledge about rainfall, crops and environmental management. Alum (2024) examined indigenous knowledge in the therapeutic use of medicinal plants, identifying both opportunities and challenges; this is relevant to biology and health education provided that traditional claims are not presented as established medical fact. More recent work argues for culturally relevant science instruction in secondary Biology (Gulee & Amina, 2025) and for integrating indigenous knowledge and practices into sustainable science education in Nigeria (Olu-Ajayi, 2026). Collectively, these studies move the discussion from general statements about culture towards subject-specific approaches, particularly in science and environmental education.

6. Indigenous Knowledge in Official Nerdc Curriculum Documents

6.1 Culture, Language and History

The approved subject list for the revised basic education curriculum, issued by NERDC on 8 September 2025, retains Nigerian Languages, with learners taking one Nigerian language, alongside Nigerian History, Social and Citizenship Studies and Cultural and Creative Arts (NERDC, 2025b). The implementation strategy presents global and cultural awareness as a fundamental design principle, intended to help learners understand and appreciate diverse perspectives, values and traditions, and it expects community leaders and members to take part in implementation (NERDC, 2025a). It also introduces trade subjects, including livestock farming and horticulture and crop production, which schools are to select partly on the basis of local needs and economic advantages (NERDC, 2025a). Culture, language and history therefore have an established place in the official framework, and local needs are recognised in the choice of trade subjects.

6.2 Environmental Conservation and Climate Change

The implementation strategy states that environmental and sustainability education is fully integrated into the revised curriculum to promote ecological awareness and responsible stewardship, and it lists environmental literacy among the core competencies (NERDC, 2025a). Neither this document nor the subject list, however, refers to indigenous or traditional knowledge, and neither identifies local ecological knowledge, such as community observations of rainfall, seasons, soils and plants, as a source of environmental or climate-related content. Environmental and climate learning is thus provided for, but its connection to indigenous ecological knowledge is not made explicit in the framework documents examined. Studies such as Omilani and Bada (2024) show that relevant knowledge exists and can be identified, which points to a resource the curriculum has yet to draw on explicitly. Whether subject syllabi for Basic Science, Intermediate Science or Agriculture make such links is a question for subject-level analysis.

6.3 Position of the Paper

The two findings are compatible because they concern different domains. Indigenous cultural and linguistic content is established through dedicated subjects, whereas an explicit link between indigenous knowledge and environmental conservation and climate change is not evident at framework level. Indigenous knowledge is therefore more firmly represented where the curriculum addresses culture and language than where it addresses environment and science. This is a difference of domain, coherence and explicitness. It supports expanding and coordinating existing provision, not a claim that the curriculum lacks indigenous content. Because the revised curriculum is being introduced in phases beginning with Primary 1, Primary 4, JSS 1 and SS 1 (NERDC, 2025a, 2025b), the teachers' guides that NERDC reports having developed for each subject (NERDC, 2025a) offer a practical point at which such links could be specified.

7. Areas of Indigenous Knowledge Relevant to The Curriculum

Table 1 summarises areas that the literature identifies as having curricular potential. They are presented as possible resources, not as a proposal that every practice be taught as established fact.

Table 1. Areas of indigenous knowledge with curricular potential

Area	Possible curriculum links	Points of caution
Oral literature and indigenous languages	Proverbs, folktales, riddles, songs and oral histories support language, literature, civic and moral education; indigenous languages carry the meanings of many oral traditions (Ngũgĩ wa Thiong'o, 1986).	Represent the plurality of communities rather than a single culture.
Agriculture, ecology and environmental knowledge	Local knowledge of rainfall, seasons, crops, soil, plants and resource management can open agricultural science, biology, geography and environmental education (Omilani & Bada, 2024), and can support the environmental literacy competency and local-needs criterion for trade subjects (NERDC, 2025a).	Separate observed practice from claims that need verification.
Ethnomedicine and medicinal plants	Biology and health education: plant identification, cultural history, evidence, safety and ethics (Alum, 2024).	Do not present unverified remedies as medical prescriptions.
Arts, crafts and technologies	Weaving, dyeing, carving, pottery and metalwork support Creative Arts, technical and vocational education, trade subjects and design.	Link craft practice to technical concepts and enterprise.

Area	Possible curriculum links	Points of caution
Apprenticeship and entrepreneurship	Mentoring, demonstration, practice, feedback and enterprise development inform vocational and entrepreneurship education.	Examine the principles rather than reproduce every practice.
Ethnomathematics	Counting systems, measurement, patterns, games, building and trade provide contexts for mathematical reasoning.	Bridge to standard mathematical concepts that learners must acquire.
Communal governance and social organisation	Age-grade organisations, councils of elders and customary negotiation support Civic Education and Social and Citizenship Studies.	Treat as cases for analysis, not universal models of governance.

8. Challenges and Strategies For Integration

8.1 Content Overload and Curriculum Structure

Teachers work within prescribed content, time allocations and assessment requirements, and the NERDC revision itself aimed to reduce subject overload (NERDC, 2025a). Adding separate indigenous knowledge topics would therefore be impractical. A better strategy is infusion: curriculum developers identify points within existing content where local examples improve understanding and specify them in subject guides and teachers' materials. Local environmental practices can be linked to ecology, traditional patterns to mathematics, indigenous art to Creative Arts, local crops to agricultural science and oral traditions to language and literature.

8.2 Teacher Preparation

Teachers need more than a general instruction to use local culture. They need subject-specific examples, resources and professional development (Jumba & Mwiti, 2022). NERDC's plans for teachers' guides, training of trainers and school-based capacity building (NERDC, 2025a) provide channels through which such preparation could be delivered. Teacher education should cover identifying appropriate local knowledge, judging its educational relevance, working with community knowledge holders and connecting local examples to disciplinary concepts. This is especially important in science and health-related subjects, where accuracy and safety are essential.

8.3 Community Partnerships, Documentation and Ethics

Much indigenous knowledge is transmitted orally and may be lost when older knowledge holders are no longer available. Schools, universities, museums, cultural organisations and communities can collaborate to document oral traditions, ecological observations and craft techniques, and schools can work with farmers, artisans, elders, language specialists and environmental practitioners through demonstrations, interviews and field activities. NERDC's recognition of community involvement in implementation (NERDC, 2025a) supports this.

Documentation and participation should rest on informed consent and respect for ownership, attribution, privacy and confidentiality, and digitisation should not mean unrestricted publication of community knowledge (UNESCO, n.d.-b; UNPFII, 2019).

8.4 Language and Access

Meanings are often embedded in local terms, expressions and narratives, so language is central to indigenous knowledge. The place of Nigerian languages in the approved subject list (NERDC, 2025b) shows institutional recognition, but language support should not be treated only as a subject issue. Teachers can use indigenous-language terms, oral narratives and bilingual explanations to clarify concepts, provided that learners also acquire the formal language required for examinations and wider academic communication.

8.5 Epistemological Concerns

A central challenge is deciding what is taught as cultural knowledge, what as empirical knowledge and what as belief or community explanation. The solution is not to dismiss indigenous knowledge but to teach learners to ask about evidence, context, usefulness and limitations. Integration should aim at dialogue rather than substitution: indigenous knowledge should not displace established disciplinary knowledge, and disciplinary knowledge should not erase learners' community experience (Seehawer & Breidlid, 2021).

8.6 Assessment and Examination Pressure

If examinations reward mainly decontextualised recall, teachers may give little time to community observation, practical investigation and comparison of knowledge systems. Assessment can include tasks in which learners observe their environment, document local practices, compare explanations and apply formal concepts to community problems, aligned with approved objectives. This does not lower standards; it ensures that contextual learning contributes to demonstrable outcomes and assesses learning rather than cultural familiarity.

9. Discussion

The review shows that the relationship between indigenous knowledge and the Nigerian school curriculum is best described as partial integration with scope for deeper development. Official 2025 NERDC documents confirm an established place for languages, history and cultural arts, but they do not make explicit the link between indigenous ecological knowledge and the environmental and sustainability education that the revised curriculum promotes. The unevenness is therefore one of domain. The weaker area is also where recent Nigerian studies have concentrated their attention, in Physics, Biology, environmental education and sustainable science education (Gulee & Amina, 2025; Olu-Ajayi, 2026; Omilani & Bada, 2024; Onyewuchi & Owolabi, 2022), which suggests that the research base for stronger links is developing.

Curriculum theory explains why integration should be deliberate. Tyler (1949) and Taba (1962) both tie content to purposes, learner needs, learning experiences and evaluation, so cultural content should be selected because it contributes to clear educational purposes, not because it is familiar. Afrocentricity draws attention to the representation of African experience and agency (Asante, 1997; Diop, 1974; Hill, 2023; Sakala, 2024), and sociocultural theory explains how learners' cultural experience mediates new learning (Alkhudiry, 2022; Vygotsky, 1978).

Both converge on connecting schooling to learners' social and cultural worlds while preserving critical examination.

The literature supports this direction but identifies conditions. The Kenyan evidence shows that teachers need clearer guidance and resources (Jumba & Mwiti, 2022), so policy recognition alone will not produce effective integration; curriculum documents, teacher education, instructional materials, community participation and assessment must work together. Because indigenous knowledge includes accumulated observation as well as belief and culturally specific interpretation, integration should leave room for learners to investigate, compare, question and contextualise. This protects both the integrity of indigenous knowledge and the standards of formal disciplines.

The practical implications differ by audience. For curriculum developers, the phased introduction of the revised curriculum is an opportunity to use subject guides and teachers' materials to show where local ecological and cultural knowledge can illustrate environmental and sustainability concepts. For teacher educators, the priority is subject-specific preparation, since a general instruction to use local culture is unlikely to change classroom practice. For schools, the requirement that trade subjects be chosen partly on local needs and available expertise (NERDC, 2025a) creates a natural space for partnerships with farmers, craftspeople and other community knowledge holders, provided that participation is ethical and learning outcomes remain aligned with approved objectives.

Three limitations qualify these conclusions. The review is conceptual and narrative, so it did not formally appraise the quality of each study. The curriculum analysis is confined to framework-level documents, and subject syllabi, textbooks and classroom practice may contain links that are not visible at that level. The Kenyan evidence is comparative rather than direct evidence about Nigerian teachers. Empirical studies of syllabi, textbooks and classrooms are therefore needed to test the arguments advanced here.

10. Conclusion

This paper examined indigenous knowledge systems and their integration into the Nigerian school curriculum. Indigenous knowledge is intergenerational, community-based and closely connected to cultural and environmental contexts, and it is transmitted through oral traditions, observation, apprenticeship and participation. Official 2025 NERDC documents show that Nigerian languages, Nigerian history and cultural arts are established in basic education, whereas the framework documents examined do not explicitly connect environmental and sustainability education, including conservation and climate change, to indigenous ecological knowledge. The principal concern is therefore the uneven visibility and coordination of indigenous knowledge across domains, rather than its total absence.

Curriculum theory, Afrocentricity and sociocultural theory together explain why attention to learners' cultural and community knowledge is educationally relevant: they support purposeful selection of content, the representation of African agency and the use of culturally mediated experience as a basis for new learning. Integration should be selective, evidence-informed, ethical and subject-specific. Indigenous knowledge should not replace formal science, mathematics, history, language or other academic knowledge; appropriately documented and relevant local knowledge can serve as a context, a resource and an object of inquiry. Effective

integration requires curriculum guidance, teacher preparation, community participation, documentation, language support and assessment that recognises application.

11. Recommendations

1. NERDC and curriculum developers should provide subject-specific guidance on where and how relevant indigenous knowledge can be integrated into existing basic and secondary content, using the teachers' guides that accompany the revised curriculum.
2. Curriculum documents should state explicitly how environmental and sustainability education, including conservation and climate change, may draw on local ecological knowledge, with examples for Basic Science, Intermediate Science and Agriculture.
3. Teacher education institutions should prepare teachers to identify appropriate community knowledge, connect it to disciplinary concepts and distinguish cultural belief from claims that need empirical verification.
4. Schools should establish ethical partnerships with recognised knowledge holders such as farmers, artisans, elders, language specialists and environmental practitioners.
5. Relevant oral traditions, ecological knowledge and craft practices should be documented with community consent and attention to ownership and intellectual property.
6. Nigerian language provision should be strengthened as part of efforts to preserve and communicate culturally embedded knowledge.
7. Assessment should give learners opportunities to apply formal concepts to local situations, compare knowledge systems and solve context-based problems.
8. Researchers should analyse subject-level syllabi and conduct empirical studies of classroom integration, measuring achievement, engagement, retention, cultural identity and sustainability-related learning, while distinguishing evidence from official documents, empirical findings and their own interpretation.

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