

# Literacy Curriculum Development for Basic Science and Management Science in Secondary Schools in Nigeria

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## ABSTRACT

Curriculum development is an essential part of activities carried out for students in school, which cannot be overlooked. It is carried out to help students to cope with discoveries and other definite activities in their lives. Literacy curriculum development is all about acquiring skills, applied, practiced and socially situated for learning and teaching processes. The purpose of the study is to examine the concept of literacy curriculum development, the factors guiding literacy curriculum development and the importance of literacy curriculum development to education. Specifically, the study reviews studies that impact teaching and learning in schools, and the factors influencing literacy curriculum development. This study is significant because literacy curriculum development would influence qualitative standards in education in the country. It would also improve the confidence of students and teachers of Basic Science and Management Science. The conclusion drawn for the paper is that literacy in curriculum development should be seen as a major step, which would provide solution to educational problems by incorporating the new developments in the society. It would also contribute greatly to the effectiveness of teaching and learning in the classroom.

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## I. INTRODUCTION

Curriculum is the learning experience gained by the students under the guidance of the school. It can be seen as the program through which the content of courses is drawn by teachers (Stein, Remillard & Smith, 2007). Oliva (2009) also described curriculum as closely related to teaching and learning in schools. It is regarded as part of a cyclic process which must be followed in school to achieve the aims and objectives set down for students. For an accurate and meaningful development of curriculum, content for meaning has to be in place. This perspective has to be developed in the field of cognitive science research to take into account some important features of curriculum development. Cognitive Science research on literacy curriculum development required children and young people to have skills which can enable them to interpret and compose texts across different disciplines. Time, which is an important factor in learning, must also be present in the planning of the curriculum. That is, skills in learning must become automatic, fast, effortless, and accurate in order to be useful. However, curriculum development is to help teaching and learning in the classroom. Curriculum development requires the curriculum designer to have literacy skills which enable students to interpret and compose texts across disciplines. This involves planning how different patterns, documents, ideas, and views are written down through a sense of good knowledge of curriculum development.

Literacy could be perceived to be an instrument of power, acquired to have a good understanding of a concept. Some researchers such as Offorma 2005 stressed that curriculum content should be valid, learnable, useful, reflect the interest of the learners and consistent with social realities. This shows that literacy is the way by which learners learn how to read and write and also relevant to their society. To be effective in literacy, awareness for training and increasingly faster learning tasks for learners are supposed to be established. There is a need for teachers and students to be effective in improving their literacy skills. Literacy curriculum development cuts across the ways disciplinary knowledge is organized for students to understand, especially science and management subjects. The implication of this is that each subject or discipline, such as Basic science and management Science, has its own distinctive literacy demands of designing curriculum for it (Christies & Derewianka, 2008). The appropriateness of the construction of curriculum promotes an informed understanding of texts common to various disciplines. For instance, Basic Science and Management Science are full of the composition of a variety of print-based and multimodal texts which have their own special ways of constructing or developing the curriculum (Myhill *et al.*, 2014). This has to contribute to the teacher's capacity to support the student's interpretation. Therefore, Curriculum development requires literacy skills to communicate with established knowledge in the various fields of study. In other words, it is essential

that curriculum is constructed in such a way that teachers and students are able to understand the use of some technical terms embedded in it. This is supposed to help students learn as well as master the contents of the subjects.

Technical language is an expert's knowledge that goes beyond observable experience. This is the direct result of the kinds of knowledge scientists and other specialists are supposed to use in the development of curriculum to classify and reclassify as they develop curriculum. Technical knowledge gives a better understanding and helps explain why scientists and other specialists should develop suitable curriculum for learners. For instance, the words used in a certain discipline may be different and difficult for others in other fields to understand. Literacy development draws heavily on increasingly technical knowledge that is needed to promote prompt learning and entrench different documents, ideas, and views of a range of valuable topics. In other words, curriculum development entails technical know-how or specialized way of drawing it. An understanding of these terms is crucial to teachers and students' competence in the subjects and promotes prompt learning. According to (Fransman, 2005), literacy curriculum development encompasses the acquisition of skills in the field of education; it should entail applied practice and socially situated for learning and teaching processes.

The stages of literacy development include language, skills, and methods. In actual fact, language and literacy as developmental factors are really quite fundamental to education. In support of this, emphasis seems to be laid on language developmental approach, if the aim and objectives of education to participate fully in a democratic society should be achieved (Chall in Snow, 2004). In Nigerian education, it seems that most times the school curricula are drawn rarely by specialists in each of the fields. This seems to affect teachers and students' competence in teaching and learning in the classroom. Some teachers tend to avoid any topic strange to them and this invariably affects students' learning. In line with this, Gambrell *et al.* (2011) added that there should be a progressive dimension to student's learning to support and develop foundational skills which can lead to competences and mastery of disciplinary practices. This shows that the necessary objectives for learning should be fully drawn with the prospect of developing skills and methods also being acquired by students. Literacy curriculum development is therefore seen as an integral part of instruction (Snow, 2004).

Curriculum development for schools has been a major concern to all educational stakeholders in Nigeria. Several research in education have been conducted on curriculum development. However, literacy in the curriculum development could have an effect on the contents of Basic Science and Management Science and all other subjects at all levels of education in the country. On this premise, this paper seeks to examine the literacy curriculum development in Nigeria. The paper will specifically discuss the factors influencing literacy curriculum development in Nigeria. There are many factors surrounding the development of school curriculum which include: Language, skills, competence/Knowledge of subject matter, environment, and Socio- economic factors among others.

## II. FACTORS INFLUENCING LITERACY CURRICULUM DEVELOPMENT

### A. Language

This is one of the factors that can influence literacy curriculum development. Language is the act of communication. It includes speaking and listening, as well as written language (Kirsten 2019). Language can also include body language like facial expressions and other non-verbal movements that express meaning. Therefore, as learners are forming their own language, especially children between the ages of two and five who are supposed to have the advantage of forming their own language, it is important for curriculum developer to be aware of these points, thereby taking care of their situation alongside while drawing the curriculum. There are various ways through which a child can be influenced with the formation of language. These include:

a) *Health and physical development*: Illness can affect hearing which in turn will cause problems with understanding spoken language or other auditory cues. Hearing problems can in turn affect speech development. In some children, illness can also lead to a lack of proper ability to speak or communicate effectively. Therefore, literacy development of curriculum can take care and influence language which has to develop the impaired child to write and orally communicate effectively. Fine motor skills are also necessary to write or draw letters and symbols in diverse ways such as:

- 1) *Environmental language*: It is important that developing children are highly engrossed with the kind of language commonly spoken in their environment. It is noted that children who are spoken to and read to are more likely to speak and read in any other language introduced to him. Social environment can be a hindrance to language development when there is a lack of examples on which children can base their understanding of language and all that it entails. Therefore, it is very imperative for curriculum developers to endeavor construct the type of curriculum that will take care of languages which can help the learners in their weak areas.
- 2) *Cognitive ability*: According to science, there is a relationship between intelligence and early speech of a child. Research also showed that there is an increase in the cognitive ability of a child who is able to pick up on the language early. This kind of development tends to aid the early use of proper sentence structure and strong vocabulary in them. However, there are some children who are slow to develop language skills which may not necessarily slow cognitively, but to other factors which may lead to it. The curriculum planners are supposed to use their literacy ability to design a suitable curriculum that could take care of individual differences in the cognitive ability of learners.
- 3) *Gender*: Gender is another important factor which has been known to play a role in a child's language development. Obviously, people believe that girls tend to start developing language at a faster rate than boys

(especially around the age of two) and that their understanding of the spoken language develops quickly which helps them to communicate more fluently. The relationships or closeness of parents could lead to this occasionally. In line with this, Raffer (2018) added that parents usually expose their children to environment which reflects diversity in gender roles which could encourage opportunities for specific behavior. The curriculum planners are in the position to draw their curriculum to guide gender differences as some boys may even develop faster than girls due to some other factors surrounding them.

- 4) *Bilingualism*: Learning of two or more languages is seen to be crucial as part of development in learners. Learners tends to learn the first language at a slower pace than expected at the process of learning a second language at the beginning of their early life. Neil (N.D) reiterated that many people believe in a critical age period for learning second languages. Learning two languages at once can cause confusion in children who are not yet of school age. This confusion may cause frustration that affects motivation later in life. In line with this, (Tinto, and ACER,) Kift and Field noted that student's engagement in the first year is crucial to making quality learning outcomes possible and thereby helping students to achieve retention. This has made most specialists such as (Neil nd) recommend that second language learning should not begin until a child officially begins school (around the age of six or seven). However, the curriculum developers are supposed to draw the curriculum that can make room for learners to cope with and understand the two languages together.

#### B. Teachers' Competence/Knowledge of Subject Matter

This seems to be very vital for effective teaching in the classroom. Research by (Slavin *et al.*, 2014; Slavin *et al.*, 2012; Tang & Ferguson, (2014) in Field (2016)) revealed that knowledge of the subject matter can be activated and supported through deliberate curriculum design. Literacy curriculum development across disciplines therefore enhances not only teachers' skills but as well as content for learning. Desimone & Garet (2015) emphasized that professional development of subject content will support teacher's coherence while presenting teaching content. Literacy curriculum development in content –area support and also appropriate for teachers of different subjects due to different literacy strategies which are preferred to teach in different areas of study. Studies of (Nichols *et al.*, 2007; Shanahan & Shanahan, 2008) noted that teachers will only find general literacy strategies meaningful if they are adapted to their subject area. This shows that teachers are supposed to adapt to the use of various strategies to teach in their subject area. Teachers need to integrate subject-matter knowledge with their competence in teaching students in the classroom which is the professional development that this article is out to contribute (Alvermann *et al.*, 2011). Literacy curriculum development interventions seem to bring strong significance of disciplinary difference due to the strong

significance of school subjects in secondary schools. However, (Dillon *et al.*, 2010) informed that no matter the way curriculum is literarily drawn with disciplinary practices embedded, teachers at secondary school level still need to learn little practical work to teach in the classroom.

However, (Shanahan & Shanahan, 2008) noted that standard differences in teachers relate literacy strategy to teaching in their subjects has not been ascertained.

#### C. Environment

The environment in which the curriculum is drawn, at times, has a great bearing on teaching and learning as well as students and teachers in school. In view of this, Mulenga and Mwanza (2019) noted that environment plays a vital role in students' and teachers' lives. The nature of the environment can either support or distract the teaching and learning process (Mkandawire, 2010). In addition, Msango (2010) reported that many times, the school environment has a bearing on student's overall performance. Environmental issues affect curriculum development. It is evident that our world today is quite changing and is different from that of the primitive age. Some human activities as a result of the search for 'quality standard of living' through science and technology have brought so many problems to the environment. Alberti in Bosah (2013) suggested that the interaction between humans and environment could lead to a unique biochemistry of such environment. Based on this, the intergovernmental panel for climate change in Africa (IGPCCA) observed that some African countries could face much problem of environmental hazards if they fail to adapt to the changing climate. In view of this, African Social and Environmental Studies Programmes (ASESP) group with its seat in Nairobi and Kenya encourages and promotes the creation of environmental awareness and protection in student and also develops useful activities for them during instruction. This seems to make many developing countries realize the role of environmental education and commit themselves to tackling environmental issue through education via curriculum development. In view of this, Nigerian government tried to initiate and promulgate differences policies programs and projects for environmental education since 1960 and worked on the fusion of an environmental education element into the citizenship education curriculum in 1988. Moreover, in 1990 during national curriculum review conference there was a move to promote environmental education in Nigeria, subsequently followed by a UNESCO sponsored National Works on the integration of environmental elements in the National School curriculum and the teacher program. However, Ugwu (2006) argues that many of these policies and programs have failed to attain their objectives.

These problems need to be taken care of through adequate planning which must be reflected in our school curriculum to create awareness to our young ones. Our youths need to know adequate ways of combating these horror situations through the knowledge which is supposed to be impacted through literacy curriculum development for the school to follow. Rogers and Laffoley in Bosah (2013) suggested positive changes in social, economic, and environmental consequences through adequate planning. There is a need for proper management of our environment since it is

inseparable from life. This calls for the need for environmental awareness to students and teachers in schools at all levels especially in developing countries such as Nigeria. This is supposed to gear up the curriculum developer to analyze the serious need and urgency of establishing and developing new teaching programs at schools to accommodate the necessary ingredients to include in the school curriculum.

#### D. Social-Economic Factors

Literacy development of school curriculum helps to contribute immensely to the growth and development of individual and society. This can be referred to as the requisite for growth and the key to unlocking the development of society. Rooh (2020) referred to curriculum as the lessons and academic content taught in a school in a specific course or program. That is, curriculum typically refers to the contents knowledge and skills students are expected to learn, which includes the learning objectives they are expected to meet. The values and corresponding assumption of curriculum development for science students take care of social economic aspect of life, both the elementary and secondary levels of public-school education. It is believed that if a student is mentally and socially satisfied with whatever he/she is taught in school, the positive result will reflect on his or her performance (Nigel & William, 2005; in Walid and Sathakathulla 2018). This is to show that there is a strong relationship between social factors and curriculum development for outstanding performance. Arko (2009) reiterated that social environment influences teaching and learning by creating and stimulating the mind of students to grow and to increase the drive in them to learn. The curriculum is concerned with teaching areas that will help the learners improve upon their occupational skills and also equip them with the necessary knowledge and attitude that will enable them to raise the quality of lives in their communities. Since curriculum is the vehicle on which students are able to acquire knowledge and socialized to fit into society, therefore, there must be a campaign through literacy curriculum development emphasizing the attainment of necessary condition for social economic development.

#### E. Political Factor

This is one of the factors that affect curriculum development in Nigeria. According to Dye (2021) political factors affect the development in the area of funding. He stressed further that both private and public educational institutions rely on the government for various assignment such as hiring of personnel, purchasing and maintenance of building and equipment. In line with this, Gray (2006) added that the types of courses to be taught, the kind of teachers to teach, the type of textbooks and pedagogies to be used are controlled by the government. It also noted that the group of people to develop curriculum for schools are selected by the government. Every aspect of the curriculum is dictated by the government. Furthermore, Dye (2021) added that society can influence government to change or include certain aspects of their norms and culture in the curriculum.

#### F. Technology

The recent use of computer technology in society influences curriculum development. Shanahan and Shanahan (2008) opined that computers are provided for learners in most of the schools and learning centers as a prerequisite for interaction for studies. Therefore, curriculum developers are supposed to design the curriculum to focus classroom learning on the use of computers for effective participation of learners and full implementation of educational goals. Jandogan (2017) noted that educational goals and learning experience among students are influenced by multimedia technology. To develop relevant curriculum, societal expectations are supposed to be taken into account and the development should also be geared towards positive achievement.

### III. IMPACTS OF LITERACY CURRICULUM DEVELOPMENT ON SCHOOLS

Literacy curriculum development acts as a central pool to students' experience in school. It is a primary means of influencing every aspect of learning such as understanding, attitude, interest, behaviors, and the world at large (Field, 2016). A student's attitude towards learning and performance are essential in the implementation of curriculum. If curriculum is not designed to support the essentials students need, it may inadvertently affect students' psychological resources, contributing to student's poor performance in the classroom. Curriculum therefore includes what is taught and assessed as well as how it is taught and assessed (Field, 2016). In line with this, curriculum developed unconsciously can adversely affect teachers and students in different ways such as:

- 1) Students feel pressured when independent motivation is destabilized or controlled, and their interest is not acknowledged.
- 2) There will be a sense of belonging in the classroom which can make the course and the academic field undermined by subject curricula if topics and tasks make incorrect assumptions about students' capacities and interests.
- 3) Positive relationships are more likely to form when curriculum is designed to facilitate personal interactions between students and their studies.
- 4) The experiences and competence of students and teachers will be demoralized if the curriculum does not offer optimal challenge.
- 5) Students and teachers will be discouraged if threshold concepts, and skills are not receiving meaningful and informative feedback on their progress
- 6) Most teachers will be biased in the teaching of the correct topics to students in the classroom.
- 7) It will also lead to the incorporation of faulty educational policy.

### IV. CONCLUSION

The aim of this paper was to provide information on the literacy curriculum development for encouraging the desired

improvement in the teaching and learning of Basic Science, Management Science. Since the world is changing, literacy development should be geared towards providing solutions to educational problems and incorporating new developments in society. Since many factors and inadequacies in the existing development of the curriculum have been identified, literacy curriculum development needs to be adopted to improve the educational standard in the country.

## V. RECOMMENDATION

Based on the conclusion for this paper, the government should ensure the adoption of literacy curriculum development for effective planning of school curriculum which takes care of all necessary areas of new development in the country. Relevant curriculum to meet societal expectations is supposed to be developed and should gear towards positive achievement. The government should also recruit qualified, experienced, and competent teachers from their actual field of specialization for effective drawing of school curriculum. Educational stakeholders should show greater commitment to see to the effective planning of school curriculum. Teachers should also adhere strictly to the contents of the curriculum developed to facilitate the effective planning of curriculum objectives. Based on literacy development of curriculum, there must be a review on the existing curriculum formally developed to receive the touch of the experts on the field of Basic Science and Management Science to meet contemporary need of the nation.

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