

DEVELOPMENT OF CONTEXTUALISED AND CUSTOMISED INTERACTIVE MULTIMEDIA APPLICATION PROGRAMME (i-MAP) SLIDE ALPHABET WHEELS BOOKS TO ENHANCE PRE-PRIMARY PUPILS' ALPHABET TEACHING AND LEARNING IN NIGERIAN SCHOOLS

Angyol, Michael Adawus Ph.D.

Department of Fine & Applied Arts,

University of Jos, Nigeria

adawusmike@gmail.com / angyola@unijos.edu.ng 08101018677

Abstract

This study explores and describes a new paradigm of innovative intervention in book design and production aimed at fostering child-centred instruction and intrinsic motivation for effective learning performance by pre-primary pupils. It addressed the problems militating against effective teaching and learning of letters of the alphabet. It inquires on the right visuals to be used through contextualization as well as the outlook of the visuals and the letters to arouse interest and sustain attention span to enhance pre-primary pupils' effective alphabet learning in Nigerian schools. Eight (8) prospective teachers were selected randomly and used as a study group to collect opinions utilizing a three (3) point Likert scale format: **A**=Agree, **U**=Undecided and **D**=Disagree. The participants' overall impressions of the developed material assessment and the product's overall effect were overwhelming. This reveals that it is relevant to its aim. Despite the positive and enthusiastic comments from the teachers the study recommended a further assessment of the developed Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book quality in enhancing self-motivation, effective learning and retention using pre-primary pupils. This is to help consolidate the grounds for inhibiting the transferability of the findings beyond the immediate context of the study area and adopt the book for use in Nigerian pre-primary schools to foster the much-needed intrinsic motivation, and child-centered learning methods desired today for our breakthrough in pre-primary education.

Key words: Contextualised, Customised, Multimedia, Interactive, Application, Alphabet, Program, Learning, Slide Wheels & Book

Introduction

The task of meeting the teaching and learning needs of pre-primary school children via adequate and relevant instructional materials are challenges those educational institutions in Nigeria must address. Books have generally been considered the most commonly available

resources for teaching and learning. They are used both by the teacher and the learners in and out of the classroom. Despite the significant available books for pre-primary alphabet instruction, there is a wealth of available evidence suggesting the need for improvement via innovative techniques to bring in new forms of books

that contain variety of self-pace-child-centered motivated activities to enhance better learning performance of the pre-primary learners. The development of Contextualized, and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book provides new innovative experiences of content designed to promote learning and improve performance, which is a new paradigm of Interactive Multimedia books that needs to be focused on. The development of this type of books will helped in highlighting clearly the description of instructional content presented to learners in an interactive manner by portraying vividly via illustration the meaning of things (letters and visuals) using the slide wheel roll over technique. The process of creating the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books using instructional graphics consists of determining the content and goals of the lesson, types and features of the visuals and the characteristics of the learners. Acher in Azi (2006) revealed that;

Design is a set of fields for problem solving that applies ascertained approaches to

understand user needs such as mental, social and other requirements to create successful solutions that solve real problems. It is the area of human experience, skill and knowledge that is concerned with man's ability to mould his environment to suit material and spiritual needs. Instructional design is a teaching device that makes instruction as well as its materials more engaging, effective and efficient (p. 107).

The task of developing a reading culture in children from the early years of schooling is essential. The available types of book use in school today do not encourage or spur intrinsic motivation in the children to study on their own. There is the need for improvement via innovative techniques to bring in new forms of books that contain variety of self-pace-child-centered motivated activities to enhance better learning performance of the pre-primary school learners. The objectives of this study therefore are to:

- i. design and develop a Contextualized and Customize i-MAP Slide Alphabet Wheels Book for use in the teaching and learning of pre-primary pupils in Nigerian schools.
- ii. assess the effectiveness of the designed and developed Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book in enhancing teaching and learning performance of pre-primary pupils in Nigerian schools.

Literature Review

There is the need to best develop good methods of teaching and best instructional materials to be used by teachers in their letters of the alphabet teaching exercises, to enhance pre-primary pupils' effective alphabet learning performance in schools. Printed materials especially Books are the most widely used instructional materials in all spheres of education including the pre-primary level to enhance learning performance in schools. However, the various strategies and modes of motivation to be use that moves pupils to want to use books constantly with less teachers' supervision has been the desire of all educationist,

teachers and parents over the years. This is because the pedagogical strategies of the teachers either attract and facilitate learning or distract and impede learning (Musa, 2009). The frequent use of lecture teaching methods and partial use of activity-based teaching methods and none use of multimedia interactive methods of instruction especially the latter two which are both children centered are a thing of concern. Thus, in an attempt to proffer solution to the impediment of learning by children Dodd in Musa (2009) advocated for the use of activity-based strategies. Thus, explaining that:

The activity base strategies (child centered methods) place the child himself at the very center of the educational process which regards him as an individual with an inalienable right of his own which must be respected by the educationist and which makes his growth and development both as an individual and an acceptable member of the society- the main aim of education (p.1).

Similarly, the three broad and important principles of learning are motivation, reward and practice (Mohammed 2007). For the fact that learning is an individual activity which has attracted increasing attention, Researchers of psychology such as Carl Rogers (1959), Cronbach & Snow (1967) and Hampton Turner (1971), among others at different levels of analysis of learning emphasized strongly the importance of considering the specific characteristics of the individual and using them as the points of reference during learning situations. Practice is an engagement to obtain feedback, especially on tasks already carried out. This is why Mohammed, (2007) emphasized that “practice should be carried out with feedback as an integral vital part of the learning process and must be provided for in teaching and learning.” Merrill’s (2000) first principle of instruction further supports it revealing that “the most effective learning environments are those that are problem-based and involved the learners in four distinct phases of learning.” These he enumerated as:

- (1). Activation of prior experience,
- (2). Demonstration of skills,
- (3). Application of skill and

- (4). Integration of skills in real world activities.

Multimedia is a media and content that uses a combination of different content forms such as text, audio, still images, animation, video and interactivity content forms (Kirk and Kenedy, 2013). Multimedia can thus be termed a combination of text, graphics, sound, animation and video delivery by computer. When you allow the user to (the viewer of the projector) control what (content) and when these elements are delivered, it is interactive multimedia and when you provide structure of link elements through which the user can navigate interactive media it becomes hypermedia (Vanghan, 1993). Thus Variety (1997) remarked that, ‘multimedia has become a central word in the wonderful world news media world’.

Multimedia is divided into linear and non-linear categories. The linear active content progresses without any navigation control for the viewer such as cinema /video presentation, while the non-linear content offers users interactivity to control progress as used in a computer game or used in self-phased computer training. A multimedia presentation can be live or recorded and played. A recorded multimedia may allow interactivity via a

navigation system while the live multimedia presentation may allow interactivity via an interaction with the presenter or performer. In another dimension “multimedia” is also ambiguous. thus, it includes static contents such as paper books, flip charts, and flash cards. This may be considered as multimedia if it contains both pictures and text or may be considered interactive by turning the pictures or pages at will. Paper books flip charts, and flash cards may be considered non-linear if the pages are accessed non-sequentially.

The Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book, being child centered in nature sums up the Merrill's first principle of instruction uniquely giving every learner the opportunity to individually learn effectively with enthusiasm with or without supervision, provided he/she has been queued. The use of Contextualization in the development of Alphabet Instructional Materials has been found to produce fruitful results in countries such as United States of America (USA), Malaysia and Saudi-Arabia just to mention but a few. Thus Cord (2012)

reveals that in the international community:

“agrowing number of teachers today are discovering that most students' interest and achievement in mathematics, science, and language improve dramatically when they are helped to make connections between new knowledge and experiences they have had, or with other knowledge they have already mastered. Students' engagement in their schoolwork increases significantly when they are taught why they are learning the concepts and how those concepts can be used in real-world contexts (p.1).

By this contextualization attempts to communicate and make sense to people within their local and cultural context, presenting knowledge to meet people's deepest needs (Whiteman, 2016). This helps penetrates their worldview, thus allowing them to remain within their own culture while giving them a fine balancing act between necessary involvement in the

culture and environment as well as maintaining an outside, critical perspective that is needed.

Contextualization is one of the most important issues today, in fact it is a “hot topic” which catches our attention since it is concerned with how learning is related to culture and the environment of the learner. Basically, it is part of an evolving stream of thought that relates to words such as “adaptation,” “accommodation,” and “indigenization” to describe this relationship and culture (Whiteman, 2016). Ever since the word emerged in the 1970s, there has been almost an explosion of writing, thinking, and talking about contextualization (Taylor in Whiteman, (2016). This helps us to have a more adequate view and focus of our vision and mission educationally by forcing us to have a wider loyalty that corresponds to an enlarged and more adequate view. When we think about the function of contextualization in expanding the universal understanding, we think of how knowledge should be shared efficiently to enhance effective learning.

Today many terms have been used to refer to contextualization, including contextual teaching (instruction) and contextual learning (Baker et al., 2009;

Johnson, 2002, Parr, Edwards, & Leising, 2008; and Wisley, 2009 in Angyol 2015). According to contextual learning theory:

“Learning occurs only when students and pupils process new information or knowledge in such a way that it makes sense to them in their own frames of reference (their own inner worlds of memory, experience, and response). The mind naturally seeks meaning in context by searching for relationships that make sense and appear useful (Cord, 2012).”

Baker, Hope, and Karandjeff (2009) points out that; contextualization has been defined in numerous ways. Mazzeo, Rab, and Alssid (2003) thus defined contextualization as: “A diverse family of instructional strategies designed to more seamlessly link the learning of foundational skills and academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context that is of interest to the student (learner).” This expands our understanding of contextualization thereby changing and

transforming the context challenges by capturing in method and perspective the challenge of relating the abstract concepts to the experiences of the learner. Thus Mazzeo et al., 2003 and Waltham, 2012 in Angyol (2015) further reveal that Contextualization is one approach being implemented which helps to give relevance to basic skills, effective learning, retention and recall via motivation. Brewster and Fagar in Rush (2012) view such motivation as “willingness, need and desire to participate in an academic task and be successful in the learning process”.

Many Nigerian teachers at the pre-primary level of education have been observed to fail to effectively utilize motivation and child centered methods of teaching and learning. Thus, Denga (2001) laments that “many Nigerian teachers lack the initiative to explore and mobilize local resources towards teaching and learning of their pre-primary children.” Thus, many students have a difficult time understanding academic concepts as they are commonly taught using abstract lecture method. But they desperately need to understand the concepts as they relate to the environment, workplace and to the larger society in which they live and work (Cord, 2012).

Against this background arose the need to carry out the study on the use of motivation and activity-based methods of teaching during the instruction of kindergarten children as a necessity through designing and developing Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book.

Methodology

This study adapted quasi-experimental and survey research designs. The quasi-experimental research design is studio practice research; thus, it uses a type 2 design and development research (DDR) method which is a systematic design, development and evaluation process (Richey, Klein and Nelson. 2004). According to Gunaydin and Karamete (2016) there are two types of design and development research (DDR) models:

The type 1 also called product and tool research (PTR) pertains primarily to studies of the design and development research of products and tools. This type of research has the tendency to combine the task of doing design and development and studying the process. On the

other hand, the type 2 or model research pertains to studies of the design, development and validation and use of the design and development model (p. 115).

They added that the Model research (Type 2) focuses on the validity or effectiveness of an existing or newly constructed development model, process, or technique. These studies often seek to identify and describe the conditions that facilitate successful design and development (Richey and Klein, 2008). The study selected nursery teachers as a sample group for use to evaluate the developed material. Richey and Klein (2004) stated that “design and development research (DDR) models are generally reported as phases of the ADDIE model. The ADDIE stands for: Analysis, Design, Development, Implementation, and Evaluation.” (See figure 1).

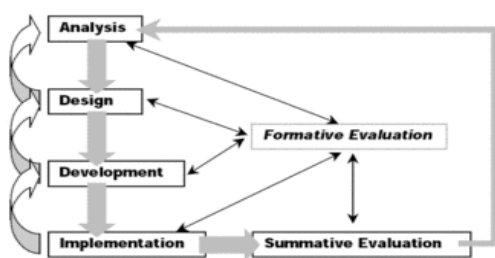


Figure 1. ADDIE Model,
Source: Diagram by: Steven J. McGriff, Instructional Systems, College of Education, Penn State University accessed 12/1/ 2013

Development of the Contextualized and Customized Interactive Slide Wheels Alphabet Books

The five phases of the ADDIE model were used in the research process for the systematical execution of the research in the following steps to Develop the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books;

1. Analysis

This is the initiation plan phase, where content specifications and preferences of the target group were examined. The target groups were defined as nursery one pupils and their teachers. The targeted pre-primary class level was Nursery one. Similarly, teachers' roles too were examined since they are the ones to facilitate the effective use of the material. Eight (8) teachers were selected in an equal percentage of gender from both urban and rural public and private nursery schools using random sampling technique for the exercise. One teacher was selected per school. This is in line with Bartlett, Kortrijk and Higgins (2001) table for selecting sample,

which consisted of gender and location factors. The teachers were to validate the viability of using the developed material for pre-primary instruction. The teachers were all assembled in one school where the material was presented to them in a class lesson format with the researcher as the teacher (facilitator) while all the nursery one teachers took the positions of the pupils. Each teacher was given a copy of the prototype book with other writing materials for use during the lessons.

2. Design

This is the Planning phase, where the content of the instructional material was designed. According to Gunaydin and Karamete (2016) “the content which is to be transferred into the material is first written and saved in a word processor file where the texts and instructions are extracted from this file in the course of developing the material.” Based on the attributes of pre-primary pupils the Book was made captivating (interesting) and self-sustaining in tone with spinning effects and child

centered learning approach to give every learner the opportunity to individually learn effectively with enthusiasm while using the Book with or without supervision once he/she is queued. The Book was also made to interest the teachers to augment enthusiasm during instruction.

3. Development

The development of the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books, utilized Graphic Design and Development (GDD) Model in a systemic approach to actualize the task of developing the visuals and letters used in the material (See figure 2). The development of the visuals and letters were thus carried out as follows:

(A). The Graphic Design and Development (GDD) Model

The Graphic Design and Development (GDD) Model is usually carried out step by step either manually via using free hand to execute (carry out) the designs while on the other hand it can be carried out automatically using the computer to digitally

carry out the design or both simultaneously.

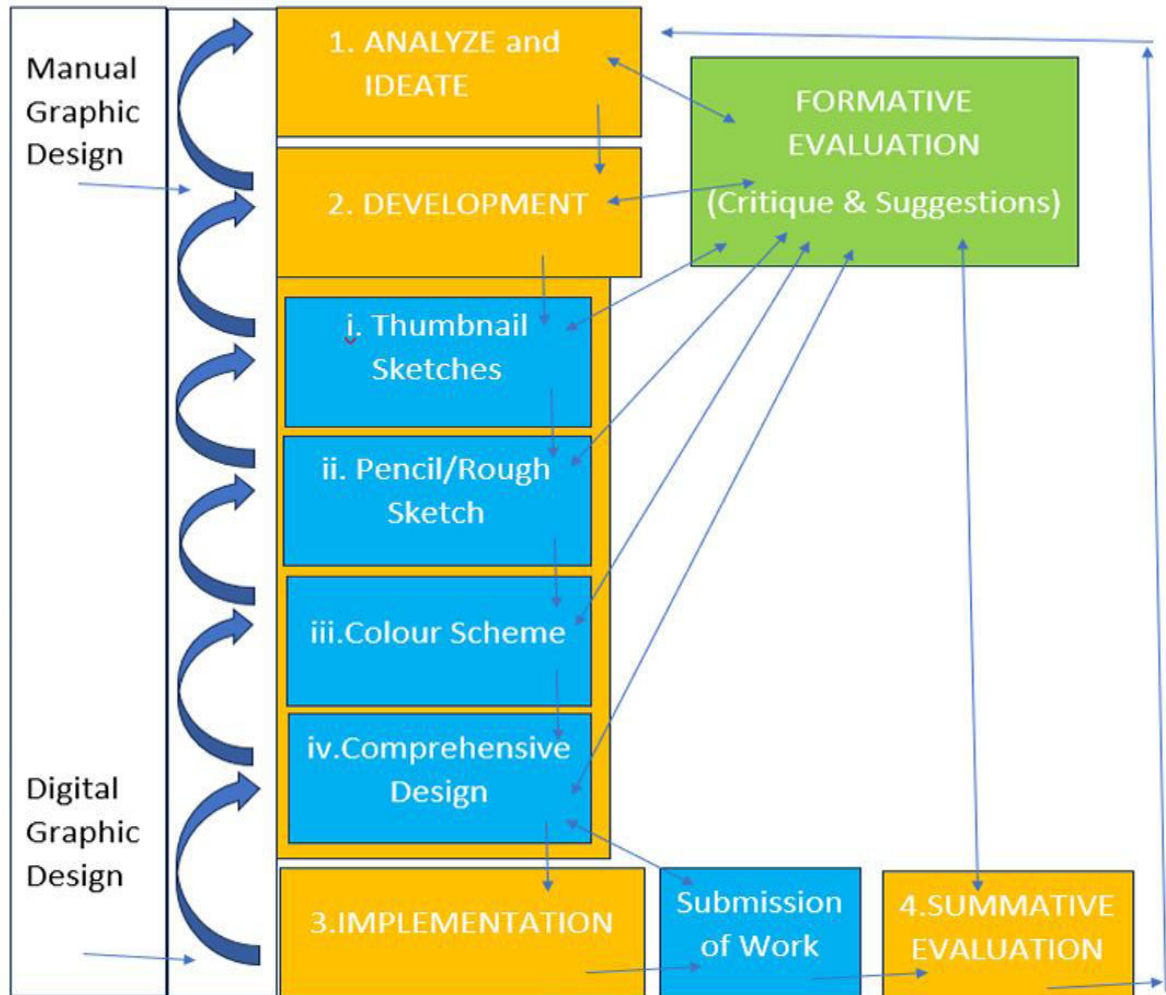


Figure 2: The Graphic Design and Development (GDD) Model **Source:** Angyol, (2020)

(B). Visuals Development

In line with contextualization only Animals and Objects visuals found in the environment of the learner were selected and used. (See figure 3-6).

i. Visuals Selection

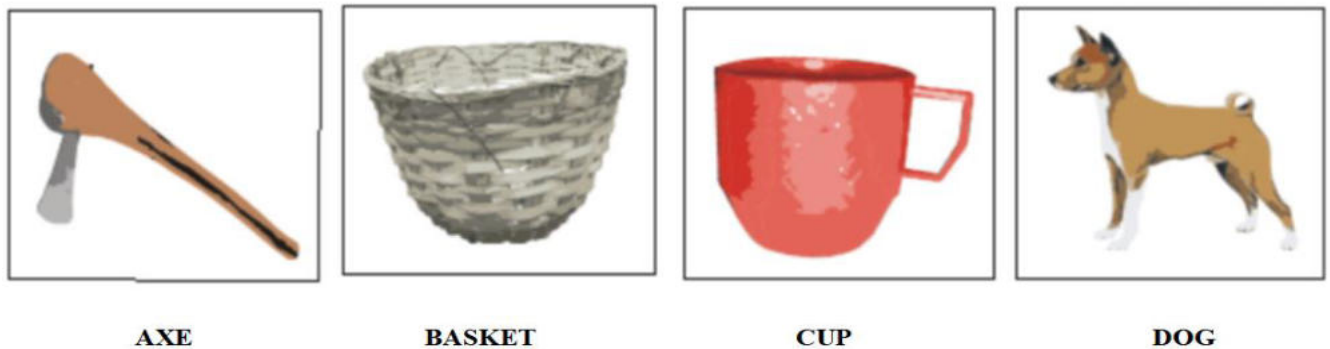


Figure 3. Samples of some selected photographed visuals based on Contextualization.

Source: Angyol, (2021)

ii. Visual Development

Stage 1. Realistic simplified colourful Photographic art impression	Stage 2. Realistic simplified colourful art impression	Stage 3. Line Drawing Outline Black and white simplified art impression	Stage 4 Line Drawing Outline Black and White patterned art impression	Stage 5. Line Drawing Non- Realistic fantastic patterned colourful art impression

Figure 4. Sample of Contextualized and Customized Developed Visuals customized with cultural motifs.

Source: Angyol, (2021)

iii. Visuals Charts and Flash Cards Development

The ABC... (Alphabet) visualscharts and flash cards were developed for the efficient facilitation of the alphabet when using theContextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Bookto enhance efficient teaching and effective learning performance of pre-primary pupils. (See figure 4, 5 and 6).

(a). A-Z CONTEXTUALIZED AND CUSTOMIZED VISUALS CHART



Fig. 5: ABC-iMAP Sample Developed A-Z Visuals Chart for Teaching Visuals Recognition/IdentificationSource: Angyol, (2021)

(b). A-Z CONTEXTUALIZED AND CUSTOMIZED VISUALS FLASH CARDS

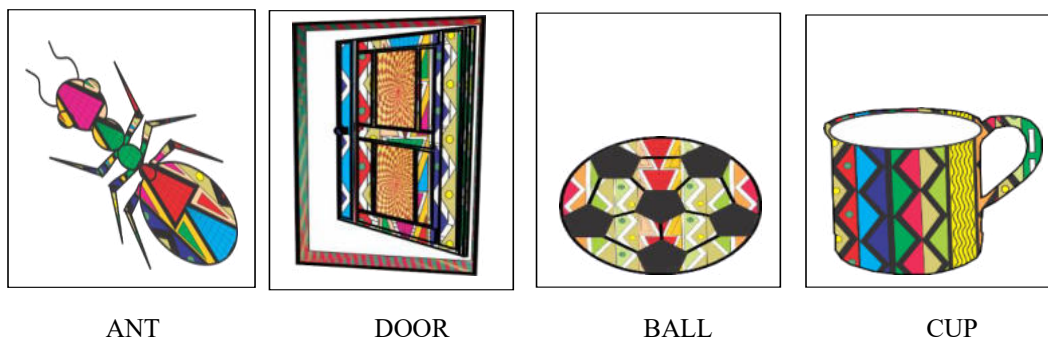


Fig.6. Sample developed Visual's Flash Cards for Teaching Visuals and Corresponding Visuals of Capital Letters A-D.Source: Angyol, (2021)

(C). Alphabet (fonts/letters) Analysis, Selection and Development

In line with contextualization only simple texts (letters) were used for the alphabet development. Hence, the ABC... (Alphabet) capital letter charts and flash cards were developed for the efficient facilitation of the alphabet when using the Contextualized and Customized Interactive Multimedia Application Program (i-

MAP) Slide Alphabet Wheels Booksto enhance efficient teaching and effective learning performance of pre-primary pupils. (See figures 7, 8, 9 and 10).

i. Alphabet (fonts/letters) Analysis of Capital Letter A

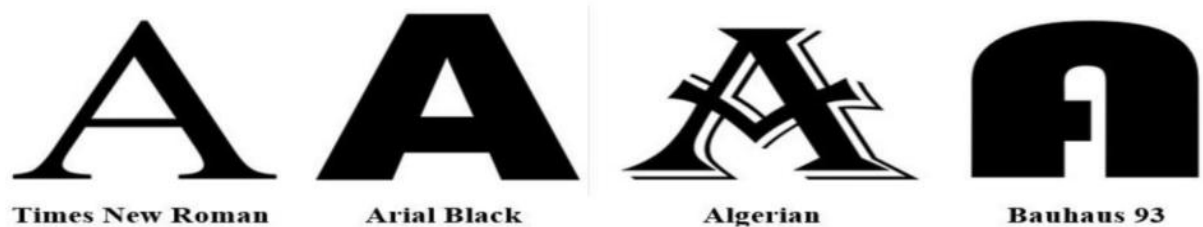


Fig. 7. A Sample Capital Letter Analysis

ii. Alphabet (Capital Letters) Selection and Development

Stage 1. Plain letter realistic simplified back colourful art impression	Stage 2. Line letter Realistic red colour simplified art impression	Stage 3. Line letter Outline Black and White art impression	Stage 4. Line Letter Realistic Black and white patterned art impression	Stage 5. Line letter Non-Realistic fantastic patterned colourful art impression

Fig.7. Samples of Selected and Developed Capital Letters Customized with Cultural Motifs.

Source: Angyol, (2021)

iii. CAPITAL LETTERS A—Z CUSTOMIZED CHART



Figure 8: ABC-iMAP Developed Customized Capital Letters A—Z Chart

Source: Angyol, (2021)

iv. CAPITAL LETTERS A-Z CUSTOMIZED FLASH CARDS

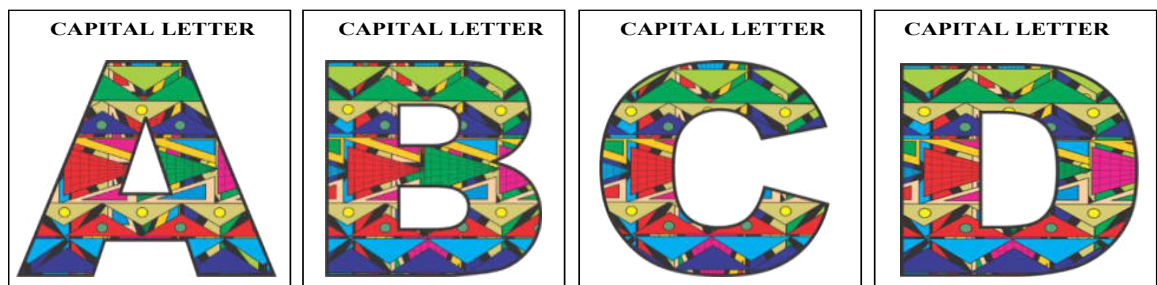


Fig.9. Sample developed Letters flash cards for teaching Capital Letters A-D.

Source: Angyol, (2021)

The Development of the i-MAP Slide Alphabet Wheels Book Inner and Outer Cover Pages

The aim of the developed Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book was to increase the effect of the material and make learning more permanent. It utilizes the second principle of Mayer in the production of the material (the signaling principle). According to this principle, when the key words and pictures that are crucial for the instructional subject are emphasized the learning process becomes more permanent (Gagne, Wager, Goals & Keller, 2005). For this reason, cues have been integrated into the content of the material, with the spinning principle using the appearing-disappearing effects of the letters, visuals (pictures) and words. These have further been emphasized using different colours to grab and sustain the attention of the user when using the material.

The spinning principle enhanced gaining of attention to the learning event thus ensuring the learners concentration on the content. The spinning view usually draws the attention of the user to the subject point thereby enhancing attachment and engagement for better learning. These spinning effects stimulate the user's abilities to retrieve the information in their mind and become cognitively ready to proceed to other slides. Cognitive preparedness is described as the readiness of the neural system of a learner to receive and process information (Binbaşıoğlu in Gunaydin and Karamete, 2016). The aim is to produce an interactive slide wheels' alphabet Book with an appearing and disappearing effect via spinning that is pleasing to the user's eyes and reflect visual integrity (Gunaydin and Karamete, 2016). Hence the colours used are appealing and complementary to the taste of the users to motivate them to learn effectively. (See figure 10, 11, 12 & 13)

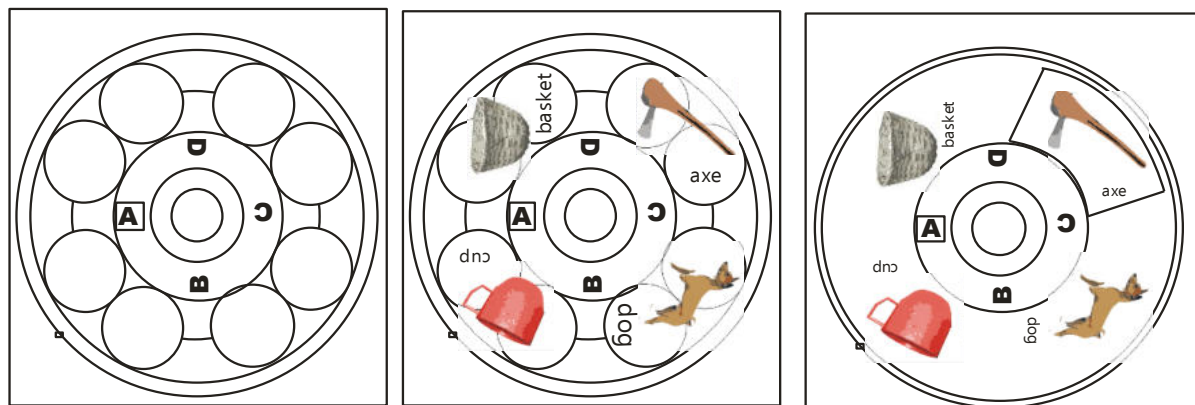


Fig.10. i. Sample sketch plan with letters

ii. Sample sketch plan with letters and visuals

iii. Sample slides wheels plan with letters and visuals

Source: Angyol, (2021)

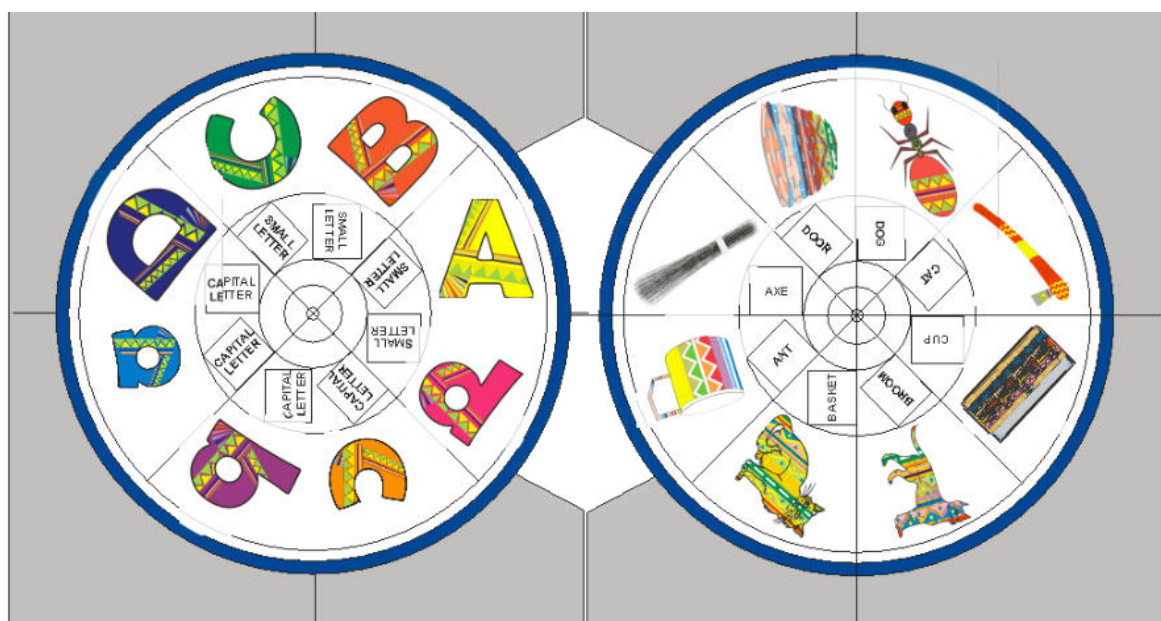


Fig.11. Sample of the Contextualized and Customized Interactive Multimedia Application Program(i-MAP) Slide Alphabet Wheels BooksInner Pages **Source:** Angyol, (2021)



Fig.12. Sample of the developed Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels BooksInner CoverSource: Angyol, (2021)

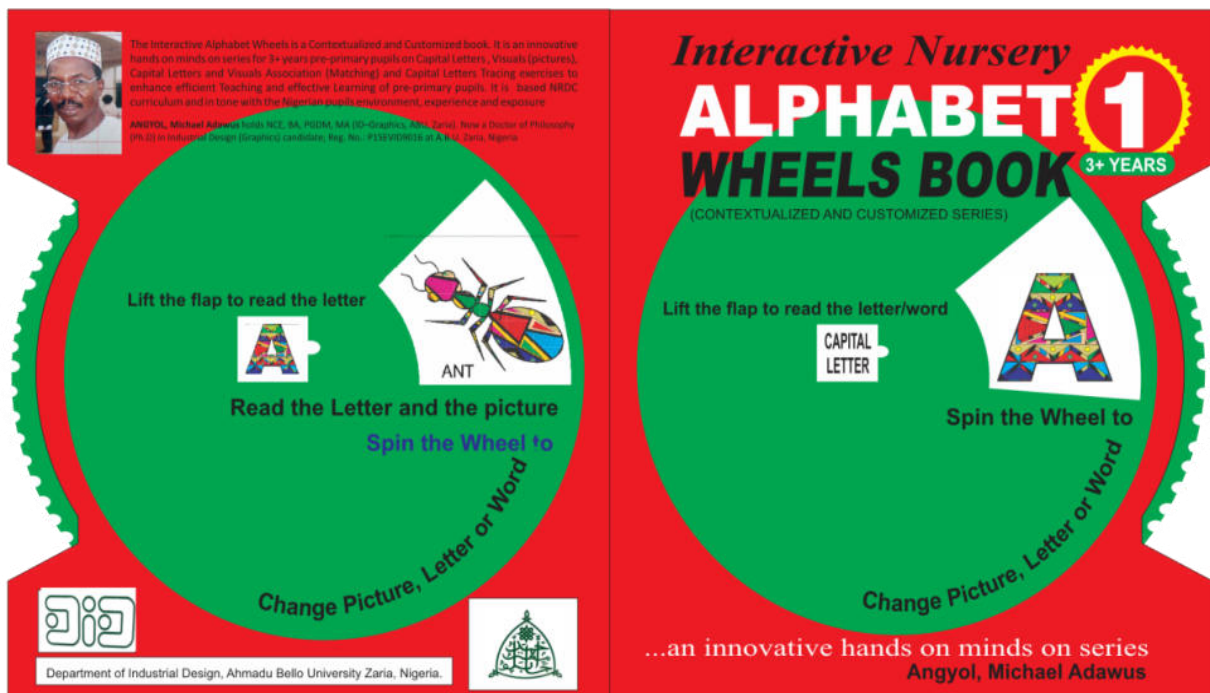


Fig. 13. Sample of the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book Outer Cover **Source:** Angyol, (2021)

1. Implementation

In DDR model, the developed product: The Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book, must be used in the actual intended context (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2014). In these respect ten sample copies of the developed instructional material (the book) were produced manually and presented to eight (8) prospective teachers who were

placed in one of classes of the selected pre-primary schools for a model prototype pilot (trial) testing. Lesson development and delivery plans were developed and use for teaching the teachers who served as the pupils by the researcher who assumed the position of the teacher during the facilitation exercise. After using the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) hardware Slide Alphabet Wheels Book, the teachers' opinions were collected

through the use of questionnaires. This was to enable them give their thoughts and observations about the material(i-MAPSlide Alphabet Wheels Books) content and efficacy. (See figures 13).

2. Evaluation

The process utilized questionnaire of three (3) points Likert scale formats: A=Agree, U= Undecided,D=Disagree, to collect the data from the study population. The result of the data collected was analyzed using mean. The nominal scores and records were attained using Likert scale model: Agree=3, Undecided =2, Disagree =1. These were calculated as: $3+2+1= 6 \div 3 = 2.0$ (Likert criterion). The score of each item was summed up and the arithmetic mean calculated for each item. The mean is compared with

the Likert criterion above. If the mean is equal to or above (greater than) the Likert criterion (2.0) the variable statement is accepted but if the mean is less than the Likert criterion that is below 2.0 the variable statement was not accepted.

Results and Interpretations

Objective One: To design and develop Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book, for use in the teaching and learning of pre-primary pupils in Nigerian schools. Figures 3 to 13 above shows the attainment of the objective using the graphic design development model and type 2 design and development research (DDR) model generally reported as phases of the ADDIE model. (See tables 1 and 2 respectively).

Table 1: Teachers' opinions rating on the message/text (letters/types/fonts) use

s/n	Variable	A	U	D	TT	X	Decision
		3	2	1	3	2.0	Accepted
i.	Clear and legible	7	0	1	8		
		21	0	1	22	2.75	Accepted
ii.	Simple	8	0	0	8		
		24	0	0	24	3.0	Accepted
iii.	Understandable	8	0	0	8		
		24	0	0	24	3.0	Accepted

A= Agree, U= Undecided, D=Disagree. **Survey:**January, 2026

Tables 1 show that all the variable statements are above the Likert criterion of 2.0. This revealed that both the messages and the letters were clear, legible, simple and understandable. This means that participants found the content generally friendly.

Table 2: Teachers' opinions rating on colour application and appeal

s/n	Variable	A	U	D	TT	X	Decision
		3	2	1	6	2.0	Accepted
i.	Attractive	8	0	0	8		
		24	0	0	24	3.0	Accepted
ii.	Compatible	8	0	0	8		
		24	0	0	24	3.0	Accepted
iii.	Distracting	0	0	8	8		
		0	0	8	8	1.0	Not Accepted

A= Agree, U= Undecided, D= Disagree. **Survey:**January, 2026

Tables 2 show that item (i) and (ii) variables statements are above the Likert criterion of 2.0 while item (iii) variable has 1.0 signifying not acceptable. This

revealed that the colours used in the material were pleasantly and compatible with each other and thus appeal to the

learner hence enhancing effective learning.

Table 3: Teachers' opinions rating on Visual outlook and contextualization

s/n	Variable	A	U	D	TT	X	Decision
		3	2	1	6	2.0	Accepted
i.	Beautiful	8	0	0	8		
		24	0	0	24	3.0	Accepted
ii.	Simple	7	1	0	8		
		21	2	0	23	2.88	Accepted
iii.	Complex	1	7	0	8		
		3	7	0	10	1.7	Not Accepted
iv.	Compatible	8	0	0	8		
		24	0	0	24	3.0	Accepted

A= Agree, U= Undecided, D=Disagree.Survey:January, 2026

Tables 3 show that item (i), (ii) and (iv) variables statements are above the Likert criterion of 2.0 while only item (iii) variable has 1.7 signifying non acceptance. This revealed that the content analysis of the visuals outlook and contextualization were pleasantly, beautiful, simple and remarkably compatible as the appeared on the slide wheels' screen thereby enhancing effective learning.

Objective Two: To assess the effectiveness of the designed and developed Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books,in enhancing teaching and learning performance of pre-primary pupils in Nigerian schools using teachers' opinion rating. (See tables 4-5).

Table 4: Teachers' opinions rating on slide wheel spinning rotation effectiveness

s/n	Variable	A	U	D	TT	X	Decision
-----	----------	---	---	---	----	---	----------

		3	1	2	6	2.0	Accepted
i.	Freely rotating	8	0	0	8		
		24	0	0	24	3.0	Accepted
ii.	Not freely rotating	0	8	0	8		
		0	0	0	8	1.3	Not Accepted

A= Agree, U= Undecided, D=Disagree. **Survey:**January, 2026

Tables 4. Show that item (i) variables statement was above the Likert criterion of 2.0 while item (ii) variable has 1.3 signify not acceptable. This revealed that participants really liked the pictures slide wheels' screen transition (spinning)

effects. This result indicates the attainment of Mayer's signaling principle via the appearing and disappearing effect to provide the expected benefits. Hence it enhanced effective learning.

Table 5: Teacher's opinion rating on the product Overall Effect

s/n	Variable	A	U	D	TT	X	Decision
		3	1	2	6	2.0	Accepted
i.	Impressive	8	0	0	8		
		24	0	0	24	3.0	Accepted
ii.	Catchy	8	0	0	8		
		24	0	0	24	3.0	Accepted
iii.	Interesting	8	8	0	8		
		24	0	0	24	3.0	Accepted
iv.	Interactive and innovative	8	0	0	8		
		24	0	0	24	3.0	Accepted

A= Agree, U= Undecided, D=Disagree. **Survey:**January, 2026

Tables 5 show that all the results of the variables statements were above the Likert

criterion of 2.0This revealed the participants' thoughts and opinions on the

overall impression on the material overall effect were overwhelming. This expressed that they were not bored when using the book confirming further that the book is innovative and interactive in nature thus enhancing effective intrinsic motivation in the user.

Discussion of Findings

This is the validation of the materials by the users aimed at ascertaining the quality of the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books, in enhancing effective instruction and learning performance of pre-primary pupils in Nigerian schools. Though throughout the development process, experts in the field of English language, child psychology, early childhood care education, graphic design and instructional technology were consulted and necessary adjustments in accordance with their advices were carried out. This was in compliance to the observations and suggestions made during the formative evaluation phases of the ADDIE instructional systems design model framework. Thus, evaluating each of the phases during any stage of the development in order to carry out necessary revisions (Richey and Klein,

2014). Below is the summary of the revisions and updates performed according to the results of observations, which were conducted during the development of the product. The feedback provided by the teachers is reported in the findings as follows:

- i. The first suggestion was to either use customized or real visuals only.
- ii. The second criticism was in reference to the number of activities on each slide wheels' page which could be confusing for learning especially to beginners.
- iii. Thirdly the rotation of the slide wheel should be improved upon to facilitate easy spinning (forwarding and backwinding) of the slide wheels.

In the implementation phase, a content analysis was performed on the opinions collected from the experts and the teachers. The main aim of the content analysis was to establish concepts and relations that can explain the gathered data (Yıldırım and Şimşek, 2004). For this purpose, the suggestive statements in the data have been encoded. The relationships between the codes were examined and the suggestions were analyzed under five

aspects: message/text, visual outlook and contextualization, colour application and appeal, spinning rotation effectiveness and product overall effectiveness.

Conclusion

The core purpose of this study is the desire for an intervention to foster self-reading (learning) culture via a new paradigm to encourage activity-based method of teaching and intrinsic motivation in the teaching of pre-primary pupils for the enhancement of effective learning performance. As the child centered method of teaching and intrinsic motivation are yet to be grasp properly by the Nigerians teacher especially at the kindergarten level of education. It is hoped that the use of Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books, as a new paradigm which culminates into the various activity-based methods boost the self (intrinsic) motivation and reinforced span of attention while sustaining effective engagement during user application. Thus, the child rather than the teacher centered method will occupy a central place in the teaching and learning of the alphabet in Nigerian pre-primary schools thereby enhancing the pupil's learning

performance as a result of the aroused and sustained interest which facilitates better understanding, assimilation, and retention in learning likewise the ability to recall at the time of evaluation. The small sample group overall result indicates that there is a significant merit in the application of the Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books, in enhancing effective alphabet learning performance of pre-primary pupils.

Recommendations and Suggestions

Based on findings from the above study:

1. Books meant for pre-primary pupils should be contextualized using indigenous visuals(illustrations) which have direct relativity with the experiences and exposure of the pupils and the environment of the learner to foster effective learning.
2. Since Contextualized and Customized Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Books,has provided rewarding opportunities for significant pre-primary pupils learning performance. It should be adopted for revising other existing publications to foster the much-needed intrinsic motivation and

child centered learning methods desired today for our breakthrough in pre-primary education.

3. A further assessment of theContextualized and Customized Interactive Multimedia Application

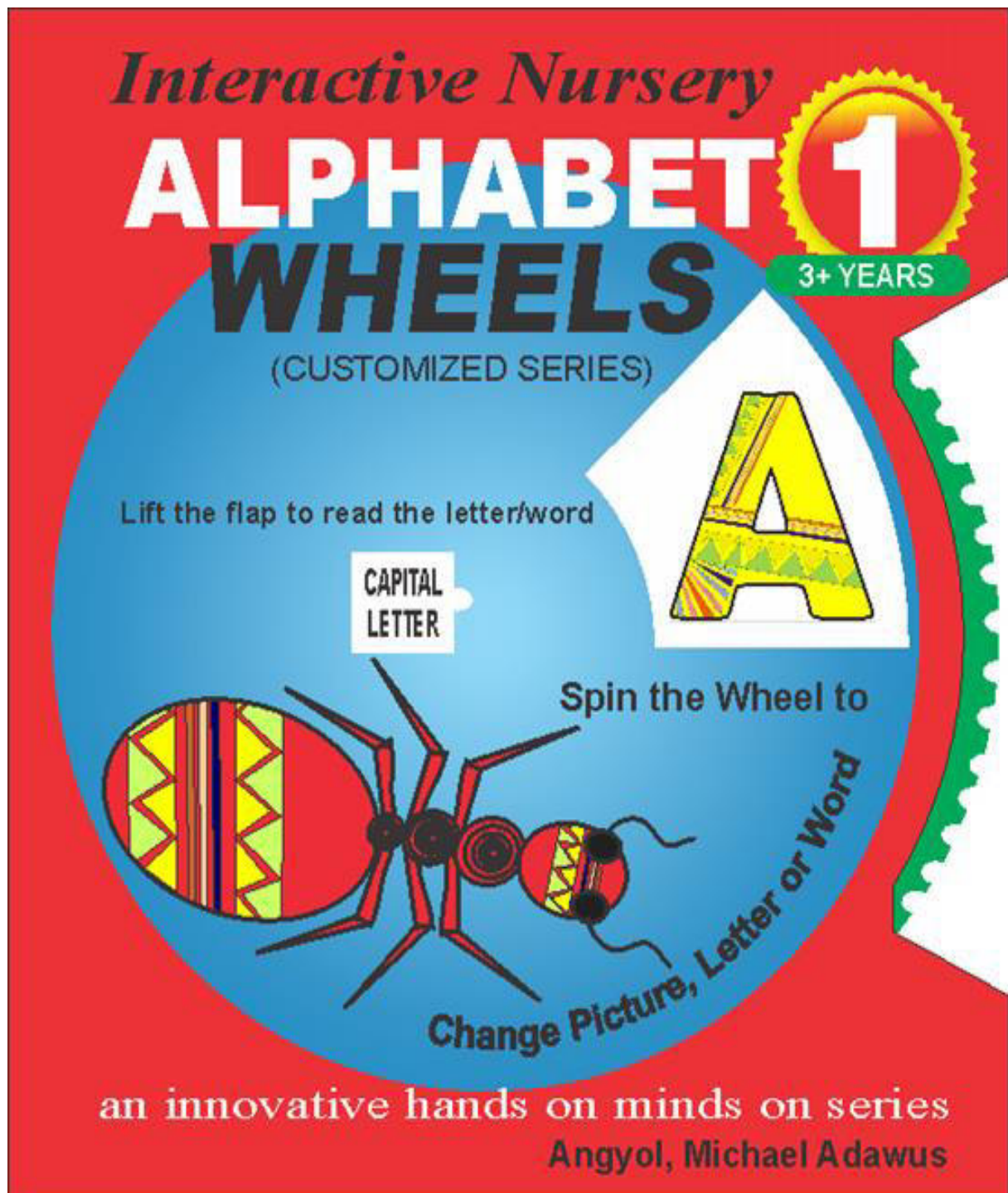
Program (i-MAP) Slide Alphabet Wheels Books, quality in enhancing self-motivation, effective learning performance and retention of pre-primary pupils should be carried out using pre-primary pupils.

References

- Azi, J. I. (2006). "i-CLAP: Children (5-6yrs) Experiencing computer – Assisted Instruction." A report in the A.B.U. Bulletin Vol. 22, No. 33 Pub. by the Information and Protocol Office ABU Zaria.
- Bartlett, J. E., Kotrlík, J. W. & Higgins, C. C. (2001). "Organizational Research: Determining Appropriate Sample Size in Survey Research." in Information Technology, Learning and Performance Journal, 19 (1) p.48.
- Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş. & Demirel, F. (2014). Research methods (17. Baskı). Ankara: PegemYayımları.
- Federal Republic of Nigeria (2014) National Policy on Education, Lagos. Federal Ministry of Information Printing Division
- Gagne, R.M., Wager, W.W., Goals, K.C., & Keller, J.M. (2005). Principles of instructional design (Fifth Edition). Belmont: Thomson.
- Günaydin, S. and Karamete, A. (2016) Material Development to Raise Awareness of Using Smart Boards: An Example Design and Development Research. European Journal of Contemporary Education, 2016, Vol. (15), Is. 1 114 Copyright © 2016 by Academic Publishing House. www.ejournal1.com Accessed 25/09/2016
- Mayer, R. E. (2009). Multi-media learning (Second Edition). Cambridge: Cambridge University Press. 2009, s.244, (Mayer, 2009, s.112).
- Merill's first principle of instruction <http://ids.usuedu/ecpers/5firstprinciple.pdf>
- Mohamed, A.I. (2007) Teaching and Learning Principles as an Effective Model in Educational Process Journal of Educational Research and Development Vol.2 No. 1. Faculty of Educ. A.B.U. Zaria
- Musa, M. (2009). The impact of active teaching method in classroom interaction Journal of educational studies Vol. 14, No. 1. Institute of Education Uni-jos, Nigeria
- Richey, R.C. & Klein, J.D. (2008). Research on design and development. In J.M. Spector, M.D. Merrill, J. van Merriënboer, & M.P. Driscoll (Eds.), Handbook of research on educational communications and technology (pp.748-757). New York: Routledge
- Richey, R.C. & Klein, J.D. (2014). Design and Development Research. In J.M. Spector, M.D. Merrill, J. Elen, & M.J. Bishop (Eds.), Handbook of research on educational communications and technology (pp. 141-150). New York: Springer.
- Rush, M. T. (2013). "Multimedia Teaching Aid: Effects on Students Programme" The college of scholastic
- The ADDIE Model, Diagram by: Steven, J. McGriff, Instructional Systems, College of Education, Penn State University
- Whiteman, D. L. (2016). Contextualization: The Theory, the Gap, the Challenge [Contextualization%20The%20Theory, %20the%20Gap, %20the%20Challenge.htm](http://Contextualization%20The%20Theory,%20the%20Gap,%20the%20Challenge.htm). accessed 26/September, 2016.
- Yıldırım, A., & Şimşek, H. (2004). Qualitative research methods in social sciences. Ankara: Seçkin. (Yıldırım, Şimşek, 2004, s. 174).

Appendix 1

Interactive Multimedia Application Program (i-MAP) Slide Alphabet Wheels Book



The i-MAP Slide Alphabet Wheels BookSource: Angyol, (2020)

Appendix 2

Topic:	Identification of Capital letters A-D of the Alphabet		
Pupil's Age	3+ years		
Objectives	By the end of the lesson pupils should be able to: i. Identify capital letters A-D by names ii. Identify capital letters A-D by sound (pronunciation). iii. Identify capital letters A-D by their structures in text (within a word).		
Content	Identification of capital letters A-D by names, sounds and structures		
Previous Knowledge	Pupils have being seeing capital letters A-D of the alphabet in books, on sign boards, television etc. but may not know their names, sounds and not differentiate their structures.		
Methodology	Demonstration, Observation and Practical		
Instructional Materials	Interactive Nursery alphabet wheels book 1, Capital letters and visuals charts and flash cards, Mini Interactive alphabet books, Kids ABC iMAP APP, Digital book, chart and flash cards		
LP-SWOT Analysis (Lesson Presentation Strengths, Weaknesses, Opportunities and Threats Analysis)	Internal	Strengths: Teacher's capacity: (Qualification, skillfulness and experience) is a great advantage.	Weaknesses: Teacher's deficiencies (Lack of infant method, ability and orientation to use On-line instructional materials) is a great disadvantage
	External	Opportunities: What the environment offers (the new On-line teaching materials i.e. ABC iMAP Apps, ABC i-eBook 1 and the hardware books, charts and flash cards etc.	Threats: Environmental hitches (Pupils' age, language barrier, lack of proper seating arrangement, power and access to On-line networks, ABC iMAP Apps, ABC i-eBook 1 and the hardware instructional materials, e.g. printed ABC textbooks, charts and flash cards.
Introduction (Prologue/Prelude)	The teacher introduces the lesson with the recitation of letters A-Z rhymes and songs in a dancing and demonstrative manner using ABC... rhymes		
Presentation (Teacher's activity)	The teacher teaches the pupils how to identify capital letters A-D by name, sound and structure. i. Prologue: Today, you will be learning capital letters A-D by name and structure. This will help you to know and recognize capital letters A-D in textbooks, newspapers, magazines and on signpost etc. and you will use it to form words for writing messages and name of peoples and things. ii. Exposition: This is capital letters A-D . The capital letter A-D are also called the upper case letters A-D . Learning this letter name and structure will help you to form, write and read many words in future. iii. Activity: Let's practice naming this letter. What letter is this class? (The teacher touches each of the letters then name each of the capital letters A-D and the pupils answer by naming it after him). Anticipated Answer: Capital letter: A, B, C, D . (The teacher points to each of the capital letter severally at least 3 times asking students to identify the letter by name and structure).		
Application (Pupil's activity) i. Individual Activity ii. Group Activity	i. Pupils individually learn how to identify capital letter A-D by name, sound and structure and demonstrate same practically using Capital letters chart and flash cards. ii. Pupils in groups practice and learn how to identify capital letter A-D by name, sound and structure and demonstrate same practically using Capital letters chart and flash cards.		
Evaluation i. Individual Evaluation ii. Group Evaluation	i. Pupils are asked to individually identify capital Letters A-D by names, sound and structure in formative and summative evaluation exercises using Capital letters chart and flash cards, ii. Pupils are ask to perform group identification of capital letters A-D by name, sound and structure using Capital letters chart and flash cards.		
Conclusion i. Summary ii. Home work	i. The teacher recaps the lesson noting gray area for corrections. ii. The teacher asks the pupils to practice capital letter names, sounds and structure at home.		
Teacher's Critique and Remarks	Based on the critique of the lesson the teacher will recommend whether the lesson is to be repeated or improved upon in the next lesson.		

Sample Lesson Development and Delivery Plan with Lesson Presentation SWOT Analysis

NB: Teacher's Critique and Remarks is usually carried out after every lesson to the indicate attainment of stated objectives.

Table.6. Sample lesson development and delivery plan for teaching capital letters A-D with LP-SWOT Analysis