

EARLY CHILDHOOD CARE AND EDUCATION PRE-SERVICE TEACHERS' SKILLS IN PRODUCING DEVELOPMENTALLY AND CULTURALLY APPROPRIATE INSTRUCTIONAL MATERIALS IN ADAMAWA STATE

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Abstract

This study investigated Early Childhood Care and Education (ECCE) pre-service teachers' skills in producing developmentally and culturally appropriate instructional materials in Adamawa State. The study was guided by a research question, which was raised to determine; the level of ECCE pre-service teachers' skills on the extent to which they can produce instructional materials for ECCE in Adamawa State. The study adopted the descriptive survey research design. The purposive sampling technique was used to sample all the 149 NCE II and NCE III ECCE students from the Federal College of Education, Yola. A structured questionnaire was used to obtain data from respondents. The study recorded a 96.0% return rate. The data collected was analyzed descriptively using mean, percentage and standard deviation. The results from data analysis showed that; the pre-services ECCE teachers in Adamawa State were producing culturally appropriate instructional materials suitable for teaching and learning at the pre-school level. The findings showed that the exposure of Pre-service ECCE teachers in Adamawa state to the various concepts and features of local instructional materials such as culturally based, foreign-made, and developmentally appropriate as well as the sources of instructional materials, types of instructional materials are effective and efficient ways of enhancing pre-service teachers' skills of producing instructional materials sourced from the locally available materials. The study concluded that pre-service ECCE teachers have adequate skill of production of culturally appropriate instructional materials. The study, therefore, gave recommendations on the need for improvement in the skill of production of culturally and developmentally appropriate instructional materials in ECCE.

Keywords

Early Childhood,
Care,
Education,
Pre-service teachers,
Production,
Developmentally,
Culturally,
Instructional
materials.

Introduction

The traditions of the learner's immediate environment have unique influence on the process of their growth, and development, as well as the classroom learning practices. Thus, the

skill of producing instructional materials in Adamawa State should be culturally and developmentally appropriate.

Culture describes the many ways in which human beings express

themselves for uniting with others, forming a group, defining an identity and even distinguishing themselves. Culture involves many activities, including providing instructional material that supports children's development. Culturally appropriate practices in the production of instructional materials involves the understanding of self-level of skills, emotions, perceptions and motivations. Culture is acquired through the process of socialization (Trawick-Smith, 2006). The production of instructional materials among ECCE Pre-Service Teachers in Adamawa State is therefore a social practice of learning. Families of different cultural backgrounds have distinct beliefs about culturally made instructional materials for their children play and learning activities.

Culturally Appropriate Instructional Materials are therefore those instructional materials that recognize the importance of the learners' cultural practices in all aspects of its design. One of the unique features of Culturally Appropriate Instructional Materials includes the skills of sourcing for resources that are suitable for the background of the learners.

According to Okudo and Omotuyole (2013) it is quite understandable that all culturally appropriate instructional materials are made from local materials, however, it is not all locally made instructional materials that are culturally based. This shows that the method of selecting local materials from the learners' environment gives much consideration to the relevancy of the materials to the learners' background. Thus, ECCE teachers must be creative in producing instructional material for pre-school children that must meet their needs, interest and developmental stages.

Production of culturally and developmental instructional materials

at Early Childhood Education benefited young children in many ways: it makes them develop a mental capacity that makes them appreciate their society, guided them to see school as extensions of their respective home and meeting the developmental need of young children. However, Adamawa is a culturally inclined society where the child is said to be trained in line with indigenous activities and this should form the content and value of children educational practice.

The skill of Production of Developmentally and Culturally Appropriate Instructional Materials thus consists of practices grounded in children's cultural patterns and beliefs. Early Childhood Educational practices at the family level are considered to be activities that Caregivers and parents does to promote the care, optimal development, as well as the protection of young children. However, the pre-service teachers are to acquaint themselves with the skill of identification and production of culturally and developmentally appropriate teaching and learning materials in order to develop the whole child. A teacher is someone who carries out the function of teaching. Bisiriyu (2016) also defines teacher education as a process whereby the pre-service teacher is provided the opportunity to develop cognitive perspectives, effective dispositions and psychomotor competencies which will imbue him with qualities, capacities and capabilities for teaching. The professional preparation of the teacher is therefore the main focus of Teacher Education in Nigeria.

The National Minimum Standard for Early Childhood Care and Education NCE programme provides for the courses ECE 225: Production and use of Instructional Materials. The Minimum standard spelt out the

objectives of the course (ECE 225) which centred at giving the pre-service ECCE teacher the opportunity to acquire skills of production of instructional materials for Early Childhood Care and Education programmes in Nigeria. The teacher is at the center of teaching and learning. Since no effective teaching and learning can take place without an appropriate and relevant instructional material, pre-service teachers in their capacities and qualities are therefore exposed to production of instructional materials. (NCCE, 2020) However, in recent times, various stakeholders in Early Childhood Education have been demanding and insisting on proper developmentally and culturally appropriate implementation of the provisions for Early Childhood Education programme. One of the ways by which the application of culturally and developmentally appropriate instructional materials could be attained is through constant practical work of production that embraces the cultural context and local resources. The needed characteristics of the materials that should be produced include being dependable, durability, versatility, pliability and bleaching properties. The material can also be dyed in various colours to enhance attraction (Gabriel, 2015).

Ehikhamenor *et al.* (2015) believe that instructional materials are vital tools for acquiring the learner's scientific and intellectual development. Thus, the ECCE classroom teacher has a greater role in determining what type, how quality and how developmentally and culturally appropriate instructional materials to be produced for the pre-school children.

However, to enhance competence and proficient in the production of instructional materials among the pre-service ECCE teachers,

ECCE Educators involvement in the production process become an important approach that need to be employed by ECCE educators. Bisiriyu (2016) and Ahsan and Akbar (2014), for instructional materials to be characterized as educative and efficient, it has to possess some characteristics such as the developmentally and culturally appropriateness. This implies that instructional materials should be designed in line with the age of the child, relevance to the child's environment, friendly to the child and value oriented to the child's community.

The level of locally improvised instructional materials that are sourced from the child's immediate environment have been proved by many educational researchers to be inadequate. In most cases, most of the schools cannot provide these materials as a result of insufficient fund. More so, the foreign available materials are very scanty in most of the early childhood care and education centres and where available, they are often not available for the children's age and culture. (Andrew et al, 2016)

Hence, previous studies, such as Agari (2017), Okudo and Omotuyole (2013) revealed that pre-school teachers lack adequate skill in the production of locally made instructional materials. Thus, this study investigated Early Childhood Care and Education Pre-service Teachers skills of, Production of Developmentally and Culturally Appropriate Instructional Materials in Adamawa State.

Objective of the study

The aim of this study is to investigate Early Childhood Care and Education Pre-service Teachers Skill of, Producing Developmentally and

Culturally appropriate Instructional Materials in Adamawa State. The following objective guides the realization of the study:

- i. To determine the level at which pre-service teachers are able to produce instructional materials suitable for Early Childhood Care and Education in Adamawa State

Research Question

To what extent are the pre-service teachers able to produce instructional materials for Early Childhood Care and Education in Adamawa State?

Instructional Materials for Classroom Instruction in Early Childhood Care and Education

Instructional materials include any tool a teacher uses in his classroom to help foster learning. According to Floyd and Hebert (2010), there are many kinds of instructional materials, but some of the most used ones are traditional resources, graphic organizers, and teacher-made resources. Traditional resources include any textbooks and workbooks used in the classroom. These materials can really help to introduce new concepts to learners. One important aspect of traditional resources is to make sure that choice of material is within the resources that appropriately relate to the learning objective. Early Childhood Care and Education textbooks and should therefore very reliable in regards to addressing classroom goals. Still, it is important to be sure of choosing material within the textbooks that match the specific learning objective.

The second type of instructional material is the graphic organizer, which is any type of visual or diagrammatic representation of information of the learning contents found in the curriculum. Diagrams, charts, tables,

flow charts, and graphs are all good samples of graphic organizers (Mwololo, 2009). All the graphic organizers allow children to physically see relationships between ideas and able to trace the linkage among various learning concepts. According to Adeosun (2012), an Early Childhood Care and Education pre-service teacher educator that encourages pupils to create their own graphic organizers can incorporate active learning among them.

Some materials can be very fun and interesting, but if they do not support learning, they are of no value to education. To most educators, the beauty of learning materials lies in its relevancy to teaching and learning not only its attractiveness or eye-catching effect on the learners. Paul and Isaac (2015) noted that it is the teacher's responsibility to select the most appropriate strategy that suits individual level of understanding, the subject being taught, and how the needs of the class as a whole can be met through the use of graphic organizers.

Gallavan and Kottler (2009) hinted that the teacher has to take into consideration the following factors in the selection of the most appropriate graphic organizers in order to meet the needs of individual learner in their class. This includes the age level, level of academic functioning, subject to be taught and the appropriate graphic organizers, where the fundamental reasoning is to avoid frustration, but encourage meaningful, overtly and fun learning. Linter (2010) highlighted that at higher level of learning, the graphic organizers may include; concept maps, cognitive maps, semantic maps, story maps, unit organizers and Venn diagrams.

Teacher-made resources, according to Titone *et al.*, (2012), are any type of instructional materials that

comprising any self-created materials such as handouts, worksheets, tests and quizzes. According to Fisch *et al.* (2013), many of the teachers-made instructional materials are used for the determination of the level of learning on any topic. The important aspect of teacher-made resources is that, it should be a true assessment of the learning objectives. Owuamanam (2017) submitted that teacher-made instructions have a number of advantages such as relevance of the materials as a result of its direct relevance to pupils' and institutional needs and those that reflect local content, issues, and concerns. Likewise, teacher-made materials can help develop expertise among teaching staff, giving them a greater understanding of the characteristics of effective materials. There is also aspect of reputation; teacher-made materials may enhance the reputation of the teachers and the institution by demonstrating the competency and school commitment to provide materials specifically for its pupils. Other aspect include flexibility, materials produced within the institution can be revised or adapted as needed, giving them greater flexibility than a commercial course book.

Culturally and Developmentally Appropriate Instructional Materials for Early Childhood Care and Education Classroom

Various educational researches such as Brown (2003), Curtin (2005), Floyd and Hebert (2010) and Ma'ayan (2010) have reaffirmed that the relevance of instructional materials is directly related to a learner's successful educational skills. The necessity of culturally relevant materials for teaching in the classroom is required to concretizing the learners' understanding through nature of culture. The locally made instructional materials either by teachers or students

are used to make learning interesting to the learners and build courage among pre-service teachers. Mghasse and William (2016) indicated that among locally made instructional materials that are easily achievable include: letter chart, number chart, pot made of mud, wooden mobile phone, cardboard oven, cake, mud plate, rope, snake, doll, boat, ball, watch, sticks among others. What determine the accessibility or production of culturally made instructional materials for a teacher is his/her level of resourcefulness, creativity and imagination.

At some instances, locally made instructional materials may face the suitability challenges after production. The teachers or student-teachers that produced it should continuously be improving the materials until it suits teaching purposes and achieving the same goals in the Early Childhood Education just as ready-made ones

In Reggio Emilia, one of the war-torn areas in Italy, after the Second World War, to expand the quality of Early Childhood Care and programmes, the educators have to produce culturally-relevant materials to offer opportunities for pre-school children that had their resentment toward foreign-made instruction. Culturally made instructional materials are produced to calm and appeal to learners' minds at every circumstance. (UNICEF, 2018)

Improvisation and Pre-service Teacher Skills

Improvisation refers to provision of substitute for something not readily available. Through improvisation the educational materials can be designed and developed using locally available materials to meet specific instructional needs. Thus, pre-service teachers need a require skill of improvisation, which

include the ability to source and select suitable items among available resources as well as skills to produce appropriate instructional materials. (Yahaya, 2019)

As expressed by Stronge (2012), a growing body of researches concerned with teacher's improvisation skills and teaching effectiveness have reinforced the notion that specific characteristics and behaviours matter for teachers to yield better outcomes, in terms of pupil's achievement as well as other desirable outcomes.

The value of instructional materials in educational process especially in the early year's education is very crucial. The teachers are also expected to improvise, whenever they are lacking appropriate instructional materials. According to Simmons (2010), using locally made instructional materials is beneficial to the development of the early preschoolers. Bassey (2010) and Omosewo (1980) considered the human factors as the teacher's professional commitment, creativity, mechanical skills, initiative and resourcefulness. They stated that many Nigerian teachers don't often practice their skills to improvise, while majority depends on imported equipment and claims that improvisation is time consuming and often depleting. Researchers also observed that most student teachers possessed little or no interest in instructional material improvisation.

Improvisation refers to selection or provision of substitute for something not readily available. It is the process by which educational materials can be designed and developed using locally available materials to meet specific instructional needs. That is, when a ready-made instructional material which is relevant in a particular teaching-learning situation is not

available, the teacher makes an alternative provision for such an item. The teacher can only produce such alternatives using local resources if creative enough. Creativity thus implies the act of turning new and imaginative ideas into reality. Creativity is characterized by the ability to perceive the world in new ways, find hidden patterns, make connections between seemingly unrelated phenomena, and generate solutions. Creativity involves two processes; thinking then producing (Rollo, 2017). It is only the creative mind that will easily formulate and concretize ideas as a means of solving specific learning needs of individuals. Improvisation and creativity are the two major concepts that promote effective production of adequate instructional materials for teaching and learning especially in many of the developing countries where the technology of production is still growing. Improvisation means to make without extensive preparation and using those materials and devices that are locally available within the environment and do not involve high costs, in providing alternative or substitutes to factory made imported equipment (Ogbodah, 2010). This also implies that a creative teacher can find alternative materials to use where the ready-made ones are not available. Improvisation is linked with the concept of Self-reliance. When the available resources in our environment are used, they help spending less on imported and expensive commercially produced instructional materials.

Improvisation is therefore one sure method of creating an atmosphere that will sensitize and stimulate the child's curiosity in learning. This is because a creative teacher in order to improvise knows that the environment is rich with all types of resources including resource persons thereby capitalizes on the indigenous ingenuity

of the people to make design or fabricate materials required for teaching and learning according to his specifications and based on sound educational principles. Some local materials that can be used for improvisation include the following: bamboos for making of test tubes and pipettes, discarded woods or metals sheets for fabricating or mockups, bottle tops, local plant, seeds and rocks are all prime resources to a creative teacher (Nnolim, 2008). Improvisation can bring out inherent talent in pupils and teachers and in the long run may lead to self-sufficiency in both human and material resources.

Creative abilities and exercising of resourceful skills in production of instructional materials will help to cut down on the importation of gadgets and other sophisticated accessories. Such a reduction on importation will serve dual purposes. Firstly, it will reduce the drain on the country's foreign reserve and secondly, encourage the development of indigenous technology.

According to Lawal et al. (2010) the class teacher remains the source of the instructional materials by improvisation using resources from either school environment or within the hosting communities. Improvisation supposed to be teacher self-initiatives, with class and learner's age customization. Kohler, Henning and Usma-Wilches (2013) argued that pre-service teachers should be given periodic training on creating instructional materials and improvisation techniques while at teacher institute. The teacher educators must have ways of encouraging the pre-service teachers to gain required skills and passion to produce appropriate instructional materials that suit the pupils' education and psychological development needs.

Methodology

The study adopted the descriptive survey research design. The

choice of descriptive survey design in this study was to enable the researcher to describe the Early Childhood Education Pre-service Teachers' skill of Production of Developmentally critically and objectively and Culturally appropriate Instructional Materials in Adamawa State.

The population of this study comprised all the NCE I, NCE II and NCE III pre-service teachers of the Department of Early Childhood Care and Education in the Federal College of Education Yola, Adamawa State. The purposive sampling technique was used to select only the one hundred and forty-nine (149) NCE II and NCE III pre-service Early Childhood Care and Education teachers from the Department. The researcher used a self-designed instrument titled: Pre-service Teachers skill of Production of Developmentally and Culturally Appropriate Instructional Materials Questionnaire (PTSP_DCAIMQ). The questionnaire (PTSP_DCAIMQ) was grouped into two parts. The Part A was designed to obtain the respondents' Bio-Data; Part B, consist of 5 items soliciting from the respondents to identify local resources they have produced during their course of study and how appropriate they are to the child's culture and developmental stages.

The researcher gave the instruments to experts in the field of Early Childhood Care and Education and research experts to review and critique the applicability and appropriateness of the instrument. The observed suggestions and contributions of the experts to the instrument were used to correct the instrument. Corrections were made according to modifications before administering the instrument to the respondents. However, to determine the instrument's reliability, the researcher

administered the corrected version of the instruments to 18 Early Childhood Care and Education students in Taraba State College of Education, Zing who were not part of the study. The researcher used the split-half method of testing reliability of instrument and used Pearson Product Moment Correlation Analysis. The reliability coefficient obtained was 0.83, and this was considered suitable for the study.

The research instrument was administered to the respondents by the

researcher. The administration of the designed questionnaire was carried out in two days where the researcher met with the students after their lectures.

The descriptive statistic of mean, percentage and standard deviation was used to analyze the data collected. The decision rule to accept or reject an item on research question was determined based on average weight on the scale (1.40 – 2.40).

Table 1: Pre-service Teachers’ Ability to Produce Instructional Materials for Early Childhood Care and Education in Adamawa State

S/n	Items	Mean	Std. Dev
1	Type of materials produced during course of study	2.56	0.82
2	Relevance of local resources used for production	1.87	0.98
3	Appropriateness of sourcing for the local resources for production	1.78	0.89
4	Appropriateness of production to developmental domain of young children	2.20	0.49
5	Appropriateness of age level consideration for the production	2.05	0.90
	Weighted average	2.09	

N = 143, Std. Dev = Standard deviation

Below is the representation of results presented in the above table of analysis. The chart represented the

level of production of Instructional materials by Pre-service Teachers in Adamawa State.

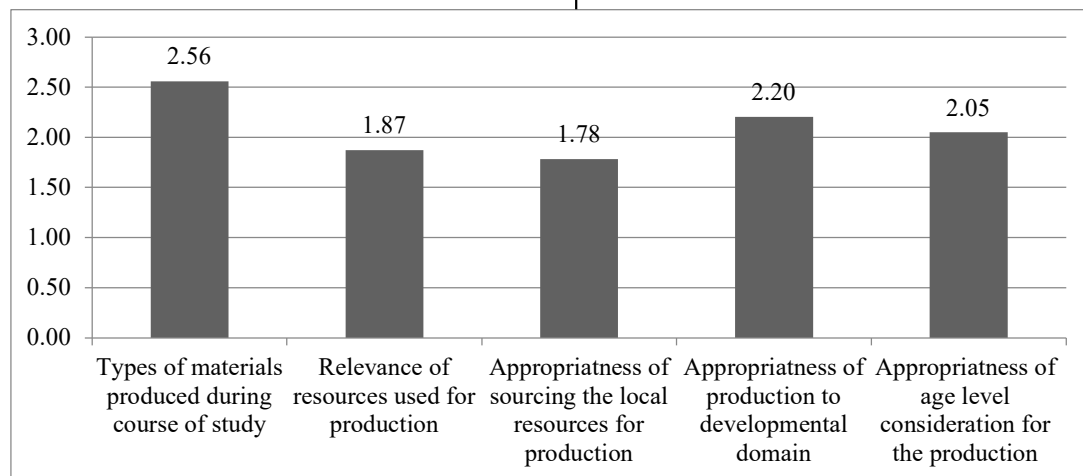


Figure 1: Pre-service Teachers’ Ability to Produce Instructional Materials for Early Childhood Care and Education in Adamawa State

Table 1 and Figure 1 respectively revealed the extent of the ability of Early Childhood Care and Education pre-service teachers to produce instructional materials for pre-school children in Adamawa State. The results showed that most pre-service teachers were producing relevant materials for teaching pre-school children (mean = 2.56; Std. Dev. = 0.82). However, the results showed that the pre-service Early Childhood Care and Education teachers were not able to utilize relevant resources for their production (mean = 1.87, Std. Dev. 0.98). Likewise, most pre-service Early Childhood Care and Education teachers could not realize the appropriate places suitable for sourcing the local resources for production of instructional materials for pre-school children (mean = 1.78, Std. Dev. = 0.89). The results revealed further that the pre-service ECCE teachers were producing the instructional materials in line with appropriate developmental domain (mean = 2.20, Std. Dev. = 0.49). More so, the pre-service ECCE teachers in Adamawa State were producing the culturally appropriate instructional material taking into consideration the age level of pre-school children (mean = 2.05, Std. Dev. = 0.90).

Meanwhile, the weighted average of 2.09 which is greater than 2.00 that was set out as the borderline for accepting the high extent of production of culturally appropriate instructional materials by pre-service ECCE teachers implies that, to a great extent, the pre-service ECCE teachers were producing the culturally appropriate instructional materials for pre-school children.

Discussion of Findings

The findings from this study indicated that the pre-service Early Childhood Care and Education teachers were producing culturally appropriate

instructional materials, suitable for teaching and learning in pre-school level. Their ability to produce the relevant instructional materials could be as a result of intensified hands-on practices that these pre-service teachers were subjected to during their NCE programme, especially those course works related to production and use of instructional materials. As such, it could also be argued that the production of locally made instructional materials are visible among pre-service teachers in Adamawa state due to availability of local resources either domestic or industrial waste.

This showed that whenever pre-service teachers passed through special training on production of instructional materials their ability to look inward for resources that can be explored for designing culturally appropriate instructional materials that are suitable for teaching and learning in pre-school would be high. That is, the quality of training on production of locally appropriate instructional materials could be an added advantage for the Early Childhood Care and Education teachers who wished to be self-creative in the aspect of producing educative child-play materials. The high production rate could also be attributed to adequacy of training on production of instructional materials received by teachers during their pre-service training.

It could be argued that the over-abundance of local resources in the study area likely affected the sourcing of resources and the production efficiency of instructional materials. Adamawa state is one of the few states in Nigeria where waste resources have not been well managed. Thus, it becomes an imperative challenge to identify most appropriate resources among many. In the course of this

study, a number of pre-service teachers poorly combined resources together and make their production to be less considerate to pre-school child's ages, needs, interest and levels of development.

The conclusion drawn by Owuamanam (2017) expressed that knowledge about what to produce may not be difficult as what appropriate local materials to be used among numerous that may be available within teachers' premises. Engle *et al.* (2010) expressed that where teachers have access to numerous waste resources, there are chances for delayed production as a result of battling most suitable resource for the production of instructional materials in such a way that it would accommodate various necessary considerations such as ages, culture and child needs and interest among others. Fakoya (2009) concluded that having many resources for production is a blessing but requires tactical skills to select the most appropriate ones, since most of the items in question are waste products. This could further be as a result of the fact that the study was conducted closer to the inception of Early Childhood Care and Education in Nigeria, where majority of Early Childhood Care and Education teachers were then derived from various fields of study

The findings from this study indicated that there were still concerns about how the pre-service Early Childhood Care and Education teachers were sourcing local materials for the production of culturally based instructional materials for pre-school children in the study area. This study however showed that despite the high rate of production of culturally appropriate instructional materials, the aspects of handiness, suitability, portability and relevancy which all have to do with the choice of materials used

in production remains the major challenges among pre-service Early Childhood Care and Education (ECCE) teachers in Adamawa State. This can only be addressed effectively through consistent practices, repeated production and modification of existing locally made instructional materials. The problem of appropriateness, handiness, simplicity and relevancy are big aspect that could not be overlooked in any design, yet should not be a deterrent to practices and production, till the mastery will be attained. Engle *et al.* (2011) concluded that since it has become imperative that the child environment has to be linked to their learning activities, the efforts toward production of culturally appropriate instructional materials should be continuous till all issues surrounding the production and utilization of locally made instructional materials is resolved.

Findings from this study agreed with the findings earlier made by Grantham-McGregor *et al.* (2011), Walker *et al.* (2011), Fakoya (2009), Britto, Engle and Super (2013), Lawal *et al.* (2010), Becker (2012), Chakravarthi (2012), that the availability of resources enhances the rate of production of locally based instructional materials. The skill of production of instructional materials is crucial for any teacher training programme that gives cognizance to expertness, exceptional practice, efficiency and competency of the pre-service teacher. However, it was part of the conclusion drawn from the above studies that despite the consistent training on production of instructional materials in most teacher training institutions, the locally made instructional materials are still facing the suitability challenges, especially, in the areas of ages, culture and child needs and interest.

Despite the identification of culturally made instructional materials by most Early Childhood Care and Education educators as a suitable tool for communicating learners' culture, the production rate and suitability remain largely a challenge. The relevance of locally made instructional materials for teaching and learning in pre-school level is a great concern to many educators. Since one of the means to maximize educational opportunities for preschool children is concretizing their teaching with locally made instructional materials, and then on no account should the teachers in pre-schools stop putting efforts to produce some of relevant materials for their teaching and learning, even when such materials are yet to meet the standard of readymade instructional materials.

However, the current finding has indicated a difference by revealing that the Early Childhood Care and Education Pre-service teachers have good production capability, which disagreed with the finding of Jibril (2007) that revealed poor production rate of locally made instructional materials among Early Childhood Care and Education teachers.

Conclusion

The study investigated Early Childhood Care and Education Pre-service teacher skill of Producing developmentally and Culturally Appropriate Instructional materials and found that the importance of instructional materials for teaching and learning in Early Childhood Care and Education cannot be underestimated, especially, when considering the age, child interest and developmental needs of the pre-school children. The current study has proved that pre-service teachers in Adamawa state realized the need for integrating the learners' environment and their backgrounds with classroom activities to concretize

their understanding and make their learning contribute towards the society development.

This study also reaffirmed that the pre -service Early Childhood Care and Education teachers were producing culturally appropriate instructional materials that are suitable for teaching and learning in various pre-schools in Adamawa state. This study established further that the production of instructional materials among pre-service teachers were relevant, fitted child developmental domains, and was considerate to the ages of children in pre-school level.

Suggestion for further studies

Based on the findings of this study, further researches on this topic/area should extend the population to include pre-service teachers from another related department. More than one college of education can be studied and the study can be conducted among ECCE pre-service's teachers in another state of the North Eastern Zone.

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