ANIMATION-BASED LEARNING INSTRUCTIONS (ABLI) IN EARLY CHILDHOOD EDUCATION IN HIGHER INSTITUTIONS OF LEARNING IN NORTH-CENTRAL NIGERIA

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Abstract

This study was on the appraisal of Animation for instructions in Early Childhood Education Programmes in higher institutions of learning in North-Central States of Plateau, Nasarawa and Kogi States of Nigeria. The objectives were to appraise the ABLI readiness that is to determine the level of staff knowledge in ABLI and identify the challenges to the effective deployment of ABLI in the study area. The study was carried out in the Early Childhood Education Departments of the higher institutions of learning in North-Central States of Plateau, Nasarawa and Kogi. The 250 questionnaires was administered to relevant teaching staff in ECE Departments, and a total of 219 were received and used in the analyses after putting off incomplete ones. The general response rate after data screening was 87.6 percent. Descriptive statistics based on mean ranking was used to determine the results. Research question 1 was on the level of animation facilities provided in the ECE Department, and the major level is Computer Equipment/Printers, while the least level was reported in Closed circuit television (CCTV) and Cable satellite facilities respectively. Question 2 was to determine the level of staff knowledge with ABLI. The results indicated the highest ranked as Computer Equipment/Printers, while the lowest are loud speakers/Amplifiers/Microphones, Editing/dubbing machines, Floodlights, Closed circuit televisions (CCTV) and Cable satellite facilities respectively. Question 3 was on the challenges encountered in deployment of ABLI. Inadequate animation facilities ranked high, lack of animation instructional applications, inadequate electricity supply, and lack of training among others ranked moderate. The findings show a high level of readiness in ABLI, high level of ABLI usage, very high level of staff knowledge of ABLI and a moderate level of challenges encountered in the deployment of ABLI in the ECE departments. Recommendations were made on how to enhance the deployment of animation facilities for effective teaching and learning.

Keywords: Animation, ABLI, (Animation Based Learning Instructions). Early-Childhood Education.

Introduction

Solid educational programmes and methods of implementing them are panacea for a virile and vibrant educational system for the growth and development of any society (Dodds, 2011). Poor quality of education in Nigeria has affected the proper plan and lack of proper implementation of this plan. Several attempts have been made towards addressing this handicap but to no avail. Adepoju (2012) observes that the falling standard of education, exemplified by the rate of failure in external examinations by students, can no longer be hidden or treated

with soft gloves. Therefore, time has come for animation-based learning to be adopted as a method of instruction (teaching and learning) in Nigerian educational institutions, especially in the early childhood education. This is because technology today has taken over methods of instructions; it has made it very easy for people to learn at a very convenient atmosphere. In addition, the importance of animation in the early childhood education cannot be over-emphasised, as it provides practical approach to teaching and learning. Children assimilate this method of learning very easily, fast because it is entertaining and captivating and enhances, and motivate them towards effective learning.

Animation is a term which makes people recollect the funny cartoons, ferocious characters, imitation of real people and magical styles of text flowing which create laughter and joy of the beauty of creativity. Today, the wonders of animation are not limited to cartoon shows and films that people enjoy, but have become the highlights for the video marketing campaigns and platforms or vehicles for teaching and learning which grab attention due to the entertaining, captivating and simplified nature (Tversky, Morrison & Bétrancourt, 2002).

Animation refers to motion created by recording a series of still images — drawings, objects, or people in various positions of incremental movements — that when played back no longer appear individually as static images but combine to produce the illusion of unbroken motion. The term animation also applies to creations on film, video, or computers, and even to motion toys, which usually consist of a series of drawings, three-Dimensional models or photographs that are viewed with a mechanical device or by flipping through a hand-held sequence of images (for example, a pad of paper can be used to create an animated flipbook of drawings) (Marvell & Halas, 2001). The term cartoon is sometimes used to describe short animated works (under ten minutes) that are often humorous in nature (Culhane, 2008).

Mayer (2002) asserts that current educational use of animation suggests two main roles in instruction. Firstly, is to fulfil a cognitive function: In this role, animation is intended to support children's cognitive processes that ultimately result in their understanding of the subject matter. Instructors can also use animation to demonstrate things and concepts

visually and exactly. It can be used to show how things can be brought together and work together. In science for example, animation might be used to show how the solar system works. Other subjects such as Engineering, English, Foreign languages, Music, and Art can also be taught through animation. Secondly, as an affective learning tool that attracts attention: In this case, animation engages the learner, and sustains attention and motivation. Affective Animation Training (AAT) does not only focus on facilitating comprehension of any academic subject matter but also portrays activities that are interactive, creative, fun and motivational (Lowe, 2003).

Furthermore, children's population has grown so large such that a teacher cannot give adequate and desired information and attention, as it will be stressful and exhaustive and they (children) may not get the desired message or instruction (Hesmondh, 2017). Therefore, animation-based learning is better in this scenario because many children can learn from any animated instruction on the screen and anything said by the instructor will be given due attention and be easily understood (Kehoe, Stasko & Taylor, 2001).

Statement of the Problem

The teaching-learning situation has over the years lost lustre and the impact of instructions has been minimal resulting in series of problems in the classrooms in particular, and in the educational system in general.

It has become a truism when Nigerians cry out about the fall in the standard of education, but often shy away from the fact that the traditional classroom settings are static, and dull without life, for example, Yusuf, Ajidagba and Olumorin, (2012), asserts that the classroom learning situation has not been interesting again, as it has been static, abstract and uninteresting. Therefore, certain things that would have been communicated and learned easily with animation makes it difficult with the static or inanimate objects (Schnotz etal, 2019).

Lack of enough and qualify teachers in animation, especially in area of film and television special effects, three-dimensional technology and game development. Some teacher's computer may have good technical skills, but often lack the ability to create animation and game and although the art teachers have a certain artistic heritage, they do not master the software application technology (Kafai & Peppler, 2011).

Some teachers lack the basic animation industry experience; some have not participated in corporate interaction on animation, (Sharma & Ramachandran, 2009). From the view on curriculum system, lack of thorough investigation on animation job demands, too emphasis on computer design technology, while ignoring the rich connotation of humanistic courses (Aikenhead, 2003).

Research questions of the study

i. What are the animation facilities provided in the Early Childhood Departments in the study area?
ii. What is the level of staff knowledge of ABLI in the Early Childhood Departments in the study area?
iii. What are the challenges experienced in the application of ABLI in the Early Childhood Departments in the study area?

Aim and objectives of the study

The aim of this study was to assess the Animation Based Learning Instructions (ABLI) in early childhood departments of higher institutions of learning in North-Central Nigeria, with the view to improve the usage.

The objectives of the study are to;

i. Identify the animation facilities provided in the study area.
ii. Determine the level of staff knowledge of ABLI in the study area.
iii. Identify the challenges encountered in application of ABLI in the study area.

Scope of the study

The study covered the higher institutions of learning in North-Central States of Nigeria offering early childhood education; these are University of Jos, Jos ECWA Theological Seminary (JETS), Jos, College of Education Gindiri and College of Education Pankshin. Others are Nasarawa State University, Keffi, Nasarawa State College of Education, Akwanga, Kogi State University Ayigba and Federal College of Education Okene. The respondents to the research instruments are the relevant staff of the Early Childhood Departments of the above-mentioned institutions.

Benefits of using animation as an effective learning tool are:

i. It emphasises development of students' skills and understanding of creating and responding to the instruction.
ii. Enables children to apply imaginative and rational thinking.
iii. Enables children to invent and explore multiple solutions to a problem.
iv. Enables children to understand the value of reflection and critical judgment in creative work.
v. Facilitates positive peer interaction, including receiving and using feedback.
vi. Encourages self-motivation to create things and solve problems.
vii. Animation is self-stimulating. It can motivate the child to exert his or her mental and physical energy in any direction of human endeavour in order to make life more meaningful.

Early Childhood: Concept and Analysis

Early childhood has been defined as a period of life between 3 to 8 years of age. This is the period of greatest growth and development, when the brain develops most rapidly, almost at its fullest. It is a period when walking, talking, self-esteem, vision of the world and moral foundations are established. It is generally believed that the child's early years constitute the period of most rapid and permanent learning. By age four, about 50.00% of intellectual development potential of the child is already in place (Maduwesi, 2003). Enhancing the quality of young children's lives is now a national and international priority, expressed through research and policy initiatives, programme development and advocacy. This therefore may explain the increasing global attention being given to early childhood education.

According to the National Policy on Education (2013) given to a child in an educational institution prior to his entering primary school. This level includes the crèche, the nursery, and the kindergarten. This can also be called pre-primary education programme. Obiweluozo, (2011) stated that the years between birth and age five are the foundation upon which successful (or otherwise) lives are built. Cryer, et al. (2009), affirms that the first five years is critical for a child's overall development and later life chances. Creemer, (2009) asserted that ECE is the term commonly used to describe the formal teaching and care of young children by people other than their families or in

settings outside of the home. Early childhood Education span the human life from birth to age eight. However, Early Childhood and Education covers the period from birth to when a child starts school.

Early Childhood Education

Early Childhood Education is a term that refers to educational programmes and strategies geared toward children from birth to the age of eight. This time is widely considered the most vulnerable and crucial stage of a person's life. Early Childhood Education often focuses on guiding children to learn through play. The term commonly refers to preschool or infant/child care programmes.

Early Childhood Education, according to Brabre (2003), is actually the first part of basic education and must be given priority and accorded appropriate workforce for effective service delivery. Mishra (2008) posits that Early Childhood Education (ECE) refers to a wide range of programmes, all aimed at the physical, cognitive and social development of children before they enter primary school theoretically from birth to age 7 or 8years. Ibiam and Ugwu (2009) defined early childhood education as that which is designed to develop the habits, attitudes and skills needed for primary education, while Harkonen (2004), maintains that the concept of early childhood education only covers the practice of early childhood education and learning of the child. Similarly, Hujala (2002) posits that early childhood education in Finland deals with the process of Care, Education and Teaching of the child to ensure that he or she effectively acquires basic skills to cope with the primary stage of schooling. UNESCO and UNICEF (2012), further define the term early childhood education (ECE) as a range of processes and mechanisms that sustain, support and aid the holistic development of children, from birth to age 8.

Early Childhood Education summarily is seen as the first formal form of education given to children between the ages of 1 to 5years and learning is usually through play by the use of toys and games.

Prescribed Minimum Standards in Early Childhood Education in Nigeria

Education For All (EFA) global monitoring report (2007), in Nigeria stated that a minimum standard package has been developed and approved to ensure quality of service delivery both at home, community or school-based centres. This package takes care of the basic requirements of the pupils.

This report focuses on the first EFA goal, which calls upon countries to expand and improve early childhood care and education, which is a holistic package encompassing care, health and nutrition in addition to education be the minimum to be provided to children especially the less privileged. The report contains 4 parts divided into 9 chapters. Part 1: A Comprehensive Approach stresses on the fact that Learning begins at birth (chapter 1). Part 2: Monitoring EFA includes chapter 2: The six goals: how are we doing; chapter 3: Tackling exclusion: lessons from country experience and chapter 4: International support: making better use of more aid. Part 3, Early Childhood Care and Education (ECCE), encompasses chapter 5: The compelling case for ECCE; chapter 6: Worldwide progress in early childhood care and education; chapter 7: The making of effective programmes; and chapter 8: Fostering strong ECCE policies. Finally, the last part; Setting Priorities emphasizes on the EFA: action now (chapter 9). The report is completed with lots of annexes which provide statistical tables, index or glossary in particular. Even if the report is not specifically about HIV/AIDS education, this subject is treated here in a more general way.

Drawing from researches and recommendation from organisations like the United States Consumer Product Safety Commission (CPSC) and the American Society for Testing and Material (ASTM), they prohibit known hazards such as sharp edges, loose bolts and splintered wood, and require shock-absorbing surfaces under indoor and outdoor climbing equipment to protect children at critical fall heights. To ensure that the environment contributes to quality care, it is also important to consider how its contents are organised. Provision of appropriate developmental activities that support the physical, social, emotional, linguistic, and cognitive development of children are required.

Method of Data Analysis: The data collected was analysed using Statistical Package for Social Sciences (SPSS).

Field survey results

The total of 250 units of questionnaires were administered to relevant staff teaching early child education departments in the higher institutions of learning from the North-Central geopolitical zone of Nigeria (namely Plateau, Nasarawa and Kogi). A total number of two hundred and twenty-seven (227) questionnaires with a 90.08 % response were retrieved. A total of 219 had were used in the analyses after putting off incomplete ones.

The general response rate after data screening was 87.6

Table 1: Questionnaire Administration

Questionnaire	Number	Response rate
Administered	250	-
Collected	227	90.08%
Screened	219	87.6%

Source: Questionnaire

Reliability Results

The reliability of the constructs was analysed by finding Cronbach's alpha as recommended by Pallant (2011). The reliability test for the field records presented in Table 2 confirmed that the Cronbach's alphas acquired for each of the constructs are above the minimum recommended of 0.7 in Pallant (2011).

Table 2: Reliability test

Constructs	Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
Available Animation Facilities	.936	.934	16
Staff Knowledge	.845	.843	16

Source: Questionnaire

Research question 1: What is the level of the animation facilities provided in the study area

Descriptive statistics based on the mean ranking were carried out to identify the major animation facilities provided in the study area. Hence, the results showed the ranking, mean, and standard deviation for each item in Table 3.

Table 3: Animation Facilities Provided in the study area

	Mean	Std. Deviation	Rank	Remark
Computer Centre	4.3562	.99129	1	Very high
CorelDraw	4.2719	1.25061	2	Very high
Photoshop	4.1806	1.28855	3	High
Macromedia Flash	4.0234	1.34247	4	High
Internet infrastructure	3.9402	1.05843	5	High
Web camera	3.4667	1.23085	6	High
Projectors	3.4647	1.17794	7	High
Tripods	3.3585	1.23918	8	Moderate
Digital stills camera	3.3224	1.19008	9	Moderate
Digital Board	3.1539	1.12506	10	Moderate
Computers for animation	3.0922	.96773	11	Moderate
Digital storybooks	2.6714	.93928	12	Moderate
Monkey-Jam application	2.6204	1.01564	13	Moderate
iMovie	2.5767	1.13429	14	Low
Stop motion software	2.4953	1.05686	15	Low
Windows Movie-Maker	2.4601	1.02919	16	Low

Source: Questionnaire

Table 3 showed the results of animation facilities provided in higher institutions of learning in the North-Central, Nigeria. The major animation facilities provided in the study area ranked Very high are Computer Centre and CorelDraw, with mean values of (M = 4.3562, std. deviation = .99129), (M = 4.2719, std. deviation = 1.25061). Photoshop and Macromedia Flash provision were ranked High, with their mean values of (M = 4.1806, std. deviation = 1.28855) and (M = 4.0234, std. deviation = 1.34247). The lowest animation facilities provided in the study area were iMovie, stop motion software and Windows Movie-Maker with their mean values of (M = 2.5767, std. deviation = 1.13429), (M = 2.4953, std. deviation = 1.05686) and (M = 2.4601, std. deviation = 1.02919) ranked at 14th to 16th respectively.

Research question 2: What is the level of the staff knowledge of ABLI in the study area?

Descriptive statistics based on the mean ranking were carried out to identify the level of staff knowledge with ABLI in the study area. Hence, the results showed the ranking, mean, and standard deviation for each item in Table 4.

Table 4: staff knowledge/awareness with ABLI

	Mean	Std. Deviation	rank	Remark
Computer Centre	4.4815	.92351	1	Very high
Photoshops	4.1822	1.18842	2	High
CorelDraw	4.1368	1.21729	3	High
Internet infrastructure	3.9954	1.11494	4	High
Macromedia Flash	3.9952	1.25068	5	High
Web camera	3.7204	1.17798	6	High
Digital stills camera	3.5403	1.08874	7	High
Projectors	3.5370	1.15279	8	High
Tripods	3.4670	1.10621	9	High
Digital Board	3.2972	1.08847	10	Moderate
Computers for animation	3.2406	.97851	11	Moderate
Digital storybooks	2.9429	1.00301	12	Moderate
iMovie	2.7746	1.28360	13	Moderate
Monkey-Jam application	2.7547	.95602	14	Moderate
Stop motion software	2.7136	1.06558	15	Moderate
Windows Movie-Maker	2.6238	1.08636	16	Moderate

Source: Questionnaire

Table 4 present the results of staff knowledge/awareness with ABLI in higher institutions of learning in North Central, Nigeria. The results indicated the major level of staff knowledge with ABLI in the study area were in Computer Centre, ranked Very high with a mean value of (M = 4.4815, std. deviation = .92351). Photoshops and CorelDraw with their mean values of (M = 4.1822, std. deviation = 1.18842), and (M = 4.1368, std. deviation = 1.21729) were ranked high at 2nd and 3rd respectively. The lowest staff knowledge/awareness with ABLI in the study area were in Digital storybooks, iMovie, Monkey-Jam application, stop motion software and Windows Movie-Maker with their mean values of (M = 2.9429, std. deviation = 1.00301), (M = 2.7746, std. deviation = 1.28360), (M = 2.7547, std. deviation = .95602), (M = 2.7136, std. deviation = 1.06558) and (M = 2.6238, std. deviation = 1.08636) ranked at 12st to 16rd respectively.

Research question 3: What is the level of challenges encountered in the application of ABLI in the study area?

Descriptive statistics based on the mean ranking were carried out to identify the major challenges experienced in the application of ABLI in the study area. Hence, the results showed the ranking, mean, and standard deviation for each item in Table 5.

Table 5: challenges encountered in application of ABLI

	Mean	Std. Deviation	Rank	Remark
Inadequate Animation facilities	3.5459	1.17175	1	High
Lack of interest	3.1905	1.35522	2	Moderate
Lack of animated instructional applications	3.1602	1.09149	3	Moderate
Inadequate electricity supply	3.1579	1.21872	4	Moderate
Inadequate computer skill/knowledge	3.0144	1.15130	5	Moderate
Lack of internet infrastructure	3.0049	1.11984	6	Moderate
Wrong perception and attitude	2.9714	1.17666	7	Moderate
Lack of training	2.9665	1.13890	8	Moderate

Source: Questionnaire

Table 5 showed the results of challenges encountered in the application of ABLI in higher institutions of learning in North-Central, Nigeria. The results indicated the major challenges encountered in the application of ABLI in the study area is Inadequate Animation facilities, ranked first and highest with a mean value of (M = 3.5459, std. deviation = 1.17175). Lack of interest and Lack of animated instructional applications with their mean values of (M = 3.1905, std. deviation = 1.35522), and (M = 3.1602, std. deviation = 1.09149) were ranked at 2nd and 3rd respectively. The least challenges experienced in the application of ABLI in the study area were Wrong perception and attitude and Lack of training with their mean values of (M = 2.9714, std. deviation = 1.17666), (M = 2.9665, std. deviation = 1.13890), ranked at 7st and 8rd respectively.

Major Findings and Discussion

In this discussing, the research questions which guided the study were examined individually in the light of the major findings and published data.

1. What are the ABLI facilities Provided for Early Childhood Education in the study area?

Based on the result of question one above, on the levels of ABLI facilities provide in the early childhood departments of the higher institutions of learning in North-Central Nigeria shows that the Early Childhood Education have good facilities. This shows that the early childhood departments in the study area (Plateau, Nasarawa and Kogi States) have adequate animation facilities.

Some possible reasons why some of the institutions were better equipped with some animation resources than others are that the institutions may have received different

levels of funding from the government or other sources.

Based on the findings on question one above, general mean ranking shows 3.36 which is high, implying that the early childhood departments in the study area are ready with the Animation Based Learning Instructions (ABLI**).** The findings reveal that most of the animation items are provided in most of the early childhood departments in the study area, except for few items who ranked low. These findings agree with Chinelo and Ayodeji, 2016, in their study on the effects of multimedia on primary pupils' academic performance and attitude in English Studies in Lagos State, Nigeria. They reported that most of the schools in the study area had sufficient supply of most multimedia facilities. Also, in their findings, it was reported that the use of multimedia in teaching and learning was of great advantage to the pupils as it avails them with modern instructional applications. This study however differs from the findings of Genc and Sahin (2020) in their study: Animation facilities in secondary schools: the Borno State experience. It was revealed that most of the schools did not have adequate multimedia facilities (especially animation) for instructions. This was because the multimedia facilities were generally not there or not provided, probably because the study was conducted at the heat of Boko haram insurgency where budgetary attention of the then Borno State government was not adequately given to education, or probably most of the facilities provided were destroyed or stolen because people were chased away from their inhabitants thereby abandoning their schools

2. What is the level of staff knowledge of ABLI in the Early Childhood Education of the higher institutions of learning in North- Central Nigeria?

The study found out that the level of staff knowledge of ABLI in the Early Childhood Education in the higher institutions of learning in North-Central Nigeria is very high. This means that most of the staff in the Early Childhood Education in the study area have a high level of knowledge in animation facilities in teaching and learning situation. The general mean ranking is 4.627 meaning that the level of staff knowledge in ABLI in the ECE departments in the study area is very high. This reveals that the staff of the Early Childhood departments in the study area are very knowledgeable in handling animation facilities and applications for instructions. The findings are in line with that of Falola and Jolayemi (2020). They studied the

Impact of Animation Technology on the Teaching and Learning of Oral English in Osun State Secondary Schools, Nigeria. They reported that the teachers in Osun State were very familiar with and had been using technology for a long time since the transition from traditional teaching methods to modern methods commenced. This has enhanced the teaching and learning of oral English in the State. They added that, the government of the State had been given premium to education in the State due to the sustainable increase in the education budget over the years. This became more interesting considering Patel's (2013), observation that the new era has assigned new challenges to modern teachers and that the use of multimedia technology in teaching has made it more interesting and productive. Solanki and Shameel (2012), Gilakjani (2017), and Ahmadi (2018) corroborate Chirag's views by noting that teaching has changed due to technology thereby becoming more interesting.

3. What are the challenges encountered in the application of ABLI in Early Childhood Departments in the higher institutions of learning in the study area?

The level of challenges encountered in the application of ABLI in the Early Childhood Departments of the higher institutions of learning in North-Central Nigeria was moderate. Meaning that most of the factors that would constitutes problems in the teaching and learning using animation resources have been appreciably taken care of.

Based on the overall mean ranking of 3.12, the challenges encountered in the application of ABLI in the Early Childhood Departments of the higher institutions of learning in North-Central Nigeria were moderate. This means that most of the variables that may constitute hindrances to the smooth teaching and learning situation in the ECE Departments have been moderately taken care of. This finding is however, in aberrance with that of Abdulrahaman etal, (2020), their findings were contrary. They reported in their work: Multimedia tools in the teaching and learning processes: A systematic review, that most of the institutions with early childhood departments in their study areas (Osun State) do not have adequate multimedia facilities and applications, especially, animation. They reported that attitudes and beliefs towards the use of technology in education, lack of teachers' confidence and resistance to change, lack of basic knowledge and ICT and multimedia skills, lack of technical, administrative and financial supports, lack of physical environment are some of the barriers

identified in the various articles reviewed. These barriers affect the integration of multimedia in education.

In addition, Muhammad, etal, (2019) in their study titled Factors militating against the use of multimedia/ICT in teaching and learning in public secondary schools in Kebbi State, Nigeria reported contrary to this study. They revealed that majority of the respondents within the selected schools said they do not have internet facilities in their schools. They added that most of their teachers do not use multimedia/ICT resources in their teachings. This was probably due to lack of electricity, internet facilities, lack of training of teachers and general look warm attitude of Kebbi State government towards public education. The above findings are supported in the existing literature as reported by the Kurawa (2008), that inadequate material resources posed a serious challenge to science teachers because most of the schools are poorly equipped. In such a condition, teaching impedes knowledge and less development of the skills by the students.

Recommendations

The findings in the course of this study generally revealed positive outcomes based on the responses. There are however, some areas that need adjustments that can help improve the deployment of ABLI and enhance the learning outcome and experience for pupils. It is therefore recommended that: government, institutions and well-meaning individuals should:

i. Provide training for staff on how to use these facilities effectively. The training can be through workshops, seminars, and online courses.
ii. Create a culture of innovation and creativity that encourage staff to use animation in their teaching, and to share ideas and collaborations on projects. This can be achieved by the constant and sustained use of animation in their teaching, and providing the staff with incentives, such as release time or financial rewards.
iii. Create incentives for staff to improve their proficiency with animation by offering financial rewards, promotion opportunities, or other recognitions.
iv. Address the issue of inadequate animation facilities.
v. Develop animation instructional applications that are relevant to the needs of the pupils, by working with staff to identify their specific needs.

vi. Monitor the impact of their efforts to improve the deployment of ABLI. This will help them to identify areas where further improvement is needed.

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