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TEACHERS' UTILIZATION OF COMPUTER ANIMATION FOR MANAGING PRE-PRIMARY SCHOOL PUPILS' SOCIAL SKILLS IN DELTA STATE

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ABSTRACT

This study examined most of the teachers' utilization of computer animation for managing pre-primary school pupils' social skills in Delta State. Four research questions guided the study. A descriptive survey research design was employed in the study. Population for the study comprised 1,096 teachers from 488 pre-primary schools within 25 LGAs in Delta State. Sample size of the study constituted of 548 teachers from 244 pre-primary schools selected using the stratified random sampling technique. A 36-item researcher-developed questionnaire structured on a 4-point scale of Highly Utilized (HU), Utilized (U), Less Utilized (LU) and Not Utilized (NU) was used for data collection. The instrument was titled "Teachers' Utilization of Computer Animation for Managing Social Skills Questionnaire (TUCAMSSQ)". The TUCAMSSQ was face validated by three experts; that is, two experts from the Department of Early Childhood and Primary Education, and one Measurement and Evaluation expert from the Department of Educational Foundations, Faculty Education, Nnamdi Azikiwe University, Awka. Reliability of the research instrument was established through a pilot-test carried out once on a single administration sampling 24 teachers in some selected 4 pre-primary schools in Edo State. Data collated after the pilot test were measured using Cronbach Alpha statistics which gave internal consistency reliability coefficient r-value of 0.80. Data collated were analyzed using mean scores rated at 2.50 and standard deviation statistics. Findings of the study revealed among others that the teachers less utilized computer animation for managing pre-primary pupils' social skills in areas of their literacy skills, numeracy skills, manipulative skills and communication skills in Delta State. Among the recommendations proffered was that; Delta State Universal Basic Education Board (DSUBEB) should constantly organize and implement comprehensive computer-based animation training programmes to equip teachers with necessary skills and knowledge to effectively utilize and integrate computer animation into their teaching practices which is potent for managing pre-primary school pupils' literacy skills.

Keywords: Teachers, Utilization, Computer, Animation, Pupils, Social, Skills, Pre-Primary schools

Introduction

In recent years, the integration of technology into education has become increasingly prevalent, with both teachers and educators exploring innovative ways to enhance teaching and learning experiences. Aye, Akobi and Chinedu (2022) opined technology is fast gaining access to every element of human life, various segments of the economic sector, and the education sector is not left out. There are increasing signs that innovative teaching techniques facilitated by computer technology have the potential to improve children's learning. One such technology that has garnered significant attention is computer animation. Again,

given the 21st century knowledge-based economy and technological age, schools including pre-primary schools operate in demanding and rapidly changing environments (Serdyukov, 2017), therefore, requiring that teachers utilize modern digital technologies like the computer animation for management of pupils' social skills. Supporting the above statements, Adjeketa (2015) explained that the environmental conditions and changes to which children are exposed, including the quality of relationships and language environment in the earliest years literally shape the overall life and well-being of the child. Lori and Siddiqi cited in Adjeketa (2015) believed that such environments range from the intimate realm of the family to the broader socio-economic context shaped by governments, international agencies, and civil society. These environments together with their characteristics and changes are the determinants of early child's development; in turn, early child's development is a determinant of health, well-being, and learning skills across the balance of the life course. Therefore, investment in pre-primary or early childhood is the most powerful investment parents, caregivers, civil societies, states, and an entire nation can make (Adjeketa, 2015). Greater emphasis is now put on the context in which children grow and develop both in the micro-environment of their home, as well as, in the macro-environments of the school, society and the culture around them. Whatever the child forms association with technology and computer animation becomes part of his or her environment which will therefore contribute to his or her overall developmental process. Assessing the power of the modern technology like computer animation on pre=primary school pupils therefore, becomes very essential in this study. Adeseye (2012) observed that computer animation is the rampaging technology dominating the lives and the rhythm of societies, forcing all other technology onto the defensive. Apart from entertainment, computer animation, especially animated films can play a very important and vital role in the process of learning of young children from a very early age. Animated films have been identified as a powerful and active tool in shaping and molding the behaviour of children in the society which necessitates that teachers efficiently utilize it in the classroom teaching and learning (Adjeketa, 2015).

Computer animation, in essence, can be defined as a form of motion image creation that involves either hand or computer techniques (Aye, Akobi & Chinedu, 2022). Computer animation also refers to the process of creating moving images using computer software. It involves generating a sequence of still images, called frames, and then displaying them in rapid succession to create the illusion of motion. Computer animation can be 2D or 3D and is widely used in various fields, including entertainment, education, advertising, and scientific visualization. Computer animations, according to Musa, Ziatdinov and Griffiths (2013), are computer generated motion pictures that depict the movement of drawn objects. Animations, according to Sinor (2011), are "motion texts with sounds" or "graphics and visuals" that are frequently used in movies to grab children's attention and effectively contribute to their learning. Perhaps this is why Thompson (2010) saw animated films as movies with images that can capture children's attention and interest in order to improve their learning and development. To put it another way, children are thought to learn how to live a long and healthy life through the visual interaction of vibrant pictures such as animations and films. Animated videos are motion visuals intended to pique learners' interest in the current topic. Animated videos appear to be a popular programme among children all over the world, probably because its material is simple enough for them to understand. Animation therefore, is from a Latin word- "animatio" which is the act of "bringing

to life" or to "give life to" (Adjeketa, 2015). Examples of these computer animations as classified into various types based on different criteria by Clark and Mayer (2016), Darling-Hammond, Flook, Cook-Harvey, Barron and Osher (2019), Kim and Anderson (2021), Mayer and Moreno (2020), Paivio (2019), Savage and Cloutier (2017) may include the following: 2D animation, 3D animation, Character animation, Motion Graphics, Visual Effects (VFX), Architectural Visualization, Stop Motion animation, Claymation, Puppet animation, Motion Capture animation, Cut-Out animation, Interactive animation, Real-Time animation, Web Animation, Scalable Vector Graphics (SVG), Educational animation, among others. Their importance according to the aforementioned authors ranges from providing pre-primary school pupils opportunities interactive storytelling, teaching phonics and word recognition, offering a fun and interactive literacy games for pupils to practice reading and writing skills, combining visual and auditory information to enhance learning, increasing motivation and engagement among young learners, to assisting to meet the personalized individual learning needs of pupils. Adjeketa (2015) avowed and affirmed that animation films are a powerful agent of change that can be used to promote socialization, improve children educational capabilities and religious upliftment among Nigerian children. Shumaila and Juliana cited in Adjeketa (2015) opined computer technology (animation clip) plays a very vital role in the socialization of a child or adult, through different storyline, characters and dramatization of different genders through different themes and portrayals. According to Gamble, cited in Aye, Akobi and Chinedu (2022) computer animated videos improve children's learning of alphabets, numeracy, colours, drawings, language acquisition, and cognitive development. Examples of such animated videos include Barney and friends, Teletubbies, Sesame Street, Dora the explorer, Blue's clues, Gali Gali sim sim, Wonder pets, Bob the builder, Noddy among others. These animated videos contain spoken language in which children listen to, and could aid their cognitive development. Animated videos have been shown in previous research to have a good impact on children's learning. Verhallen, Bus, and de Jong study conducted in 2006 cited in Aye, Akobi and Chinedu (2022), for example, found that children are more involved in visual pictures, and that when they are in motion, they receive even more visual attention than static illustrations. Ghilzai, Alam, Ahmad, Shaukat and Noor (2017) study investigated the impact of cartoon programmes on children's language and behavioral development in Pakistan and discovered that children who watched cartoon videos had a higher level of language acquisition and development than those who were not exposed to cartoons. Lodhi, Ibrar, Shamim, and Naz's (2018) study observed that children improved their cognitive competencies after watching animated videos. All these computer animations are not only important to promote effective teaching and learning in the classroom but also are very crucial for developing pre-primary school pupils' social skills in Delta State.

Social skills as defined by Gresham (2016) refers to the abilities that allow children to interact and communicate effectively with others, including cooperation, empathy, literacy, numeracy and conflict resolution, among others. Social skills in children encompass the abilities to understand and manage their own emotions, establish and maintain positive relationships, and make responsible decisions. They are the tools children use to interact appropriately with others, including verbal and non-verbal communication, empathy, and the ability to understand and respect social norms. Children's social skills according to McClelland and Tominey (2015) are the set of behaviours that facilitate

positive interactions with peers and adults, such as sharing, taking turns, and listening attentively. Some of the social skills which could be inculcated into pre-primary school pupils as pointed out by the Federal Republic of Nigeria (FRN, 2014), Gresham (2016), Kalaš (2010) and McClelland and Tominey (2015) are literacy and reading skills, manipulative skill, numeracy and arithmetic skill, active listening skill, creative skill, cognitive and motor skills, communication skill, collective bargaining skill, problem-solving skill, among others. These skills which can be inculcated through the use of computer animations are very important for children's development. They can be effective for anger control management, improving children reading and word pronunciations, identification of words and letters, recognizing/understanding others' point of view, social problem solving, peer negotiation, conflict management, peer resistance skills, building collaborations and teams among pupils, integrative learning, following instructions, identifying emotions and interpreting body languages, making decisions, active listening and effective communication, etc (Kalaš, 2010). In the context of pre-primary education in Delta State, Nigeria, teachers need to increasingly utilizing computer animation as a tool for managing various aspects of pupils' development, including literacy, numeracy, manipulative, and communication skills, which is the focus of this present study. Computer animation as indicated by Okoro (2023), Mayer and Moreno (2020), including Savage and Cloutier (2017) offers a dynamic and interactive platform for engaging young learners in literacy activities. Through animated stories, phonics exercises, and interactive games, teachers can create immersive learning experiences that captivate the attention of pre-primary pupils and facilitate their literacy development. This study explored how teachers in Delta State utilize the power of computer animation to promote literacy skills of pre-primary school pupils. In addition to literacy, numeracy skills are essential for young learners' cognitive development. Larkin and Jorgensen (2016) opined that computer animation provides teachers with a range of tools and resources to support the development of numeracy skills among pre-primary school pupils. Through animated math games, virtual manipulatives, and interactive simulations, teachers can create engaging learning experiences that promote mathematical concepts and problem-solving skills. This study examined the ways in which teachers in Delta State are leveraging computer animation to enhance pre-primary school pupils' numeracy skills.

Manipulative skills, such as fine motor coordination and spatial awareness, are critical for young children's physical and cognitive development. Computer animation for Fleer (2019) and Okoro (2023) opportunities for pre-primary school pupils to practice and refine these skills in a virtual environment. From drag-and-drop activities to virtual building blocks, teachers can use computer animation to provide hands-on learning experiences that promote pupils' manipulative skills. This study further explored how teachers in Delta State are utilizing computer animation to support pre-primary school pupils' manipulative development. Effective communication skills are essential for pre-primary school pupils' social and emotional development. Computer animation provides teachers with tools to create interactive storytelling experiences, role-playing scenarios, and collaborative activities that foster communication skills among young learners. This study investigated how teachers in Delta State are employing computer animation to enhance pre-primary school pupils' communication abilities (Neumann & Neumann, 2019). As technology continues to evolve, the integration of computer animation into pre-primary education presents exciting opportunities for managing teaching and learning experiences. Managing pre-primary school

pupils' social skills using computer animation entails the teacher capabilities to plan, coordinate lessons and other classroom activities, effective utilize and harmonize computer animations in the classroom to positively impact on children social skills for achievement of instructional objectives. Management however, as described by Robbins and Coulter (2021) is the process of planning, organizing, leading, and controlling an organization's resources to achieve specific goals efficiently and effectively. Management involves coordinating and overseeing the work activities of others so that their activities are completed efficiently and effectively, which includes planning, organizing, staffing, leading, and controlling (Daft, 2022). The act of managing hence, involves the process of directing and overseeing resources, tasks, and individuals within an organization by a group of individuals in order to achieve predetermined objectives and goals effectively and efficiently. It also refers to the systematic coordination of resources, including human, financial, and material, to accomplish organizational objectives through planning, organizing, leading, and controlling activities (Hellriegel, John & Woodman, 2021; Stoner & Freeman, 2020). From all the foregoing discussions, it is important to promote teachers' utilization of computer animations for managing pre-primary school pupils' social skills in Delta State. Teachers however, play important role in every child's learning. While the child remains the center of learning, teachers stand at the forefront of the child's learning. Teachers are saddled with the responsibilities of implementing any educational policy at the classroom level. This equally necessitates that capabilities in utilizing any technology like computer animation to implement policies and programmes in the classroom.

For effective teaching and learning at the early grades of pre-primary schooling, teachers should be capable to utilize various computer animations to manage pupils' social skills, especially in Delta State. But from the look of things in Delta State pre-primary schools, it seems as if many teachers seem not fluent towards the use of technology. The thing concerning teachers' utilization of computer technology have long been debated by different scholars. Many teachers still depend on the old conventional method of teaching. While some showcase laxity towards the use of modern technologies as a result of such challenges as poor knowledge, exposure and proficient towards utilization of technology, laziness towards utilizing modern technologies in the classroom, among others. Therefore, the problem of teachers' overdependence and too much reliance on old traditional methodologies without much goal(s) accomplishment in the 21st century technology age and knowledge=based economy is worrisome for the researcher which has led to conduct this present study in order to examine and discover teachers' utilization of computer animation for managing pre-primary school pupils' social skills, looking at Delta State. Several empirical studies have been conducted in areas of teachers' utilization of modern technologies. Many of these studies were carried out on the aspect of ICT without focusing on computer animations. A few of the studies on computer animations only focused on the aspects of the effect and influence of teachers' utilization of computer animations of students' learning and academic performance, therefore, warranting the present study. Also, all the previous empirical studies reviewed which includes those of Archibong, Ogbiji and Anijaobi-Idem (2010), Chiekem (2017), Cirfat, Katniyon and Duguryil (2022), Danner and Pessu (2013), Fabiyi, Abdulmalik and Taimiu (2016), Netliteracy (2012), Nwafor (2019), Okeke and Edika (2011), Onuorah and Chukwu (2022), and Techno Hella's (2012) cited in Cirfat, Katniyon and Duguryil (2022), have their own mix, findings and shortcomings, thus, motivating the researcher to

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carry out this investigation on teachers' utilization of computer animation for managing pre-primary school pupils' social skills in Delta State.

Statement of the Problem

In recent years, the use of technology in pre-primary or early childhood education has become increasingly prominent, with numerous studies highlighting the potential benefits of integrating digital tools to enhance learning outcomes. Among these tools, computer animation has shown promise in engaging young learners and supporting the development of various skills, including literacy, numeracy, manipulative, and communication skills. However, despite its potential, there is limited research on the specific impact and practical application of computer animation for managing pre-primary pupils' social skills in Delta State, Nigeria. Pre-primary education is a critical period for social skills development, as children learn to interact with peers, follow instructions, share, and develop empathy. Effective social skills are foundational for future academic success and personal growth. However, many pre-primary teachers in Delta State face challenges in managing and fostering these skills due to large class sizes, limited resources, and varying levels of pupil readiness. Given the rapid advancements in educational technology, it is essential to explore innovative methods that can aid teachers in addressing these challenges. While computer animation has been used to enhance cognitive and motor skills, its application in social skills development remains underexplored, particularly within the context of Delta State's educational system. Thus, the existing literature primarily focused on the use of computer animation for developing cognitive skills such as literacy and numeracy. There is a significant knowledge and theoretical gap in understanding how computer animation can be effectively utilized to manage and enhance pre-primary pupils' social skills. This study sought to fill this gap by investigating how teachers in Delta State currently utilize computer animation to support and manage social skills development of literacy skill, numeracy skill, manipulative skill and communication skill in pre-primary pupils. By addressing these areas, the study sought to contribute to the body of knowledge on educational technology in pre-primary education and offer actionable insights for teachers and policymakers in Delta State. This study sought to bridge the gap between technological potential and classroom application, ensuring that pre-primary pupils receive a well-rounded education that includes the development of essential social skills. Hence, the problem of this study is to find out teachers' utilization of computer animation for managing pre-primary school pupils' social skills in Delta State.

Purpose of the Study

The purpose of this study was to examine teachers' utilization of computer animation for managing pre-primary school pupils' social skills in Delta State. Specifically, the study ascertained:

1. Teachers' utilization of computer animation for managing pre-primary pupils' literacy skills in Delta State.
2. Teachers' utilization of computer animation for managing pre-primary pupils' numeracy skills in Delta State.
3. Teachers' utilization of computer animation for managing pre-primary pupils' manipulative skills in Delta State.
4. Teachers' utilization of computer animation for managing pre-primary pupils' communication skills in Delta State.

Research Questions

The following research questions were raised to guide the study:

1. How do teachers utilize computer animation for managing pre-primary pupils' literacy skills in Delta State?
2. How do teachers utilize computer animation for managing pre-primary pupils' numeracy skills in Delta State?
3. How do teachers utilize computer animation for managing pre-primary pupils' manipulative skills in Delta State?
4. How do teachers utilize computer animation for managing pre-primary pupils' communication skills in Delta State?

Method

A descriptive survey research design was employed in the study. This design was used to collect data from a sample of pre-primary school teachers in Delta State from their large population using the questionnaire in order to showcase their opinions as regards to the present study. Information gathered from all the sample were analyzed with appropriate statistics of mean and standard deviation in order to conclude the study. Population for the study comprised 1,096 teachers from 488 pre-primary schools within 25 LGAs in Delta State. Justification for choosing only teachers was to enable the researcher to get the necessary information pertaining to the study. Sample size of the study constituted of 548 teachers from 244 pre-primary schools selected using the stratified random sampling technique. Justification for selecting 50% of the teachers and pre-primary schools for sample, was as a means to enable the researcher to have controllable sample size of the teachers' population in Delta State. The choice of sampling selection is also in line with the recommendation of Nworgu (2015) who identified that 5% to 80% of any given population is adequate for any research work. A 36-item researcher-developed questionnaire structured on a 4-point scale of Highly Utilized (HU), Utilized (U), Less Utilized (LU) and Not Utilized (NU) was used for data collection. The instrument was titled "Teachers' Utilization of Computer Animation for Managing Social Skills Questionnaire (TUCAMSSQ)".

Construction of the questionnaire was guided by the literature reviewed, purpose of the study and research questions. The TUCAMSSQ was face validated by three experts; that is, two experts from the Department of Early Childhood and Primary Education, and one Measurement and Evaluation expert from the Department of Educational Foundations, Faculty Education, Nnamdi Azikiwe University, Awka. These experts determined the face and content validity of the research instrument. They equally made useful corrections on some of the items in the questionnaire which was incorporated before the final print out of the questionnaire. Reliability of the research instrument was established through a pilot-test carried out once on a single administration sampling 24 teachers in some selected 4 pre-primary schools in Edo State; which was not part of the study. Data collated after the pilot test were measured using Cronbach Alpha statistics which gave internal consistency reliability values of 0.76, 0.89, 0.71 and 0.85 for the four clusters which were added up and divided to give an overall reliability coefficient r-value of 0.80 showcasing that the questionnaire was reliable, dependable and trustworthy of collecting the necessary data from the respondents. Method of data collection involved a face-to-face method with the respondents (pre-primary school teachers) with the help of seven research assistants who were resident in Delta State where the sampled pre-primary schools were located. An on-the-spot method was equally adopted by the researcher and the research assistants to distribute copies of the questionnaire to ensure maximum recovery of the questionnaire administered. These research assistants were equally briefed about the intention of the study likewise on how to meet with the teachers in their

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respective schools in order to collect the necessary data for the study. At first, the research assistants took permission from the head teachers before distributing the questionnaire to the teachers in the schools. A total of 548 copies of questionnaires were printed and distributed to the respondents (that is, teachers). All the copies of the questionnaire distributed to the respondents were recovered back by the researcher and research assistants within a period of eight working days at a return rate of 100%. Data collated were analyzed using mean scores rated at 2.50 and standard deviation statistics. The decision rule for interpreting the scores on each statement on the questionnaire was based on the mean scale, which was benchmarked on 2.50 rating. Only mean scores of the respondents' statements which rated 2.50 and above were regarded as an indication of Utilized (U). While mean scores of the respondents' statements which rated below 2.50 was regarded as an indication of Less Utilized (LU).

Results

Research Question 1: How do teachers utilize computer animation for managing pre-primary pupils' literacy skills in Delta State?

Table 1: Mean Scores and SD Ratings of Teachers on their Utilization of Computer Animation for Managing Pre-Primary School Pupils' Literacy Skills in Delta State; N = 548 Teachers

S/N	Statements: Please give your opinion concerning your utilization of computer animation for managing pupils' literacy skills in your school. Your utilization of:	HU	U	LU	NU	X	SD	Decision
1.	animated storybooks or storytelling apps that feature interactive animations to engage children in literacy activities that helps develop their vocabulary, comprehension including storytelling skills	41	53	240	214	1.86	0.88	**Less Utilized**
2.	animated videos or games that focus on phonics and letter recognition to support early literacy development which can demonstrate letter-sound relationships, phonemic awareness activities, and sight word recognition, likewise provide engaging and interactive learning experiences for children	30	48	190	280	1.69	0.85	**Less Utilized**
3.	animated videos or apps that present sight words in context through stories, songs, or games which helps children recognize and memorize high-frequency words essential for reading and writing	23	75	200	250	1.76	0.84	**Less Utilized**
4.	animated videos, songs, including rhymes to support language development and oral language skills for children	34	50	215	249	1.76	0.86	**Less Utilized**
5.	animated content with clear visuals, repetitive patterns, and catchy tunes can help children learn new vocabulary, improve pronunciation, and develop listening and speaking skills in a social context	42	68	210	228	1.86	0.91	**Less Utilized**
6.	animated videos or simulations that focus on reading comprehension skills such as predicting, summarizing, and making connections which can help children develop critical thinking skills and deepen their understanding of the text	25	86	159	278	1.74	0.88	**Less Utilized**
7.	animated storytelling apps or digital drawing tools to inspire children to create their own stories, poems, or illustrations	18	61	271	198	1.82	0.76	**Less Utilized**
8.	animated characters and visual prompts which can spark creativity, stimulate imagination, and provide scaffolding for writing activities, encouraging children to express themselves through writing on phonics, vocabulary, spelling, and sentence structure	40	48	250	210	1.85	0.86	**Less Utilized**
9.	digital storytelling projects where children create their own animated stories using animation software or apps to plan, script, storyboard, likewise animate their stories collaboratively, thereby promoting literacy skills, creativity, and teamwork	26	67	225	230	1.80	0.83	**Less Utilized**
	Overall Mean Score & SD =					**1.79**	**0.85**	**Less Utilized**

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Analysis of data from Table 1 indicated that none of the items from 1 to 9 was rated above 2.50 of the criterion mean score to show the respondents (teachers) agreement with these statements. All the items were rated below 2.50 of the criterion mean score to show that the respondents (teachers) disagreement with these statements. Their overall mean score and SD is 1.79 and 0.85 respectively, indicating closeness in their responses. However, this result indicated that the teachers less utilized computer animation for managing pre-primary pupils' literacy skills in Delta State.

Research Question 2: How do teachers utilize computer animation for managing pre-primary pupils' numeracy skills in Delta State?

Table 2: Mean Scores and SD Ratings of Teachers on their Utilization of Computer Animation for Managing Pre-Primary School Pupils' Numeracy Skills in Delta State; N = 548 Teachers

S/N	Statements: Please give your opinion concerning your utilization of computer animation for managing pupils' numeracy skills in your school. Your utilization of:	HU	U	LU	NU	X	SD	Decision
10.	animated math games and apps that engage children in interactive numeracy activities which can make learning math concepts fun likewise engaging while promoting social interaction and collaboration among peers	29	41	252	226	1.77	0.80	**Less Utilized**
11.	animated videos or apps to reinforce counting skills and number recognition including to demonstrate counting sequences, highlight numerical symbols, and engage children in interactive counting activities to develop a strong foundation in numeracy	18	37	280	213	1.74	0.72	**Less Utilized**
12.	animated story problems, characters or scenarios that involve mathematical concepts such as addition, subtraction, and measurement which can present real-life situations that require mathematical reasoning and problem-solving skills, encouraging children to apply numeracy skills in context	22	20	225	281	1.60	0.74	**Less Utilized**
13.	digital math manipulatives and virtual simulations such as blocks, counters, and geometric shapes, to help children explore mathematical concepts visually which support hands-on learning experiences and promote social interaction as children collaborate to solve math problems	10	24	218	296	1.54	0.67	**Less Utilized**
14.	animated videos or games that focus on pattern recognition and sequencing skills which can help children identify, extend, and create patterns, fostering critical thinking and spatial reasoning abilities in a social setting	12	28	299	209	1.71	0.66	**Less Utilized**
15.	animated simulations or interactive tools to teach measurement and geometry concepts which can demonstrate concepts such as length, weight, and shape properties, providing visual representations and hands-on activities to support learning and collaboration	34	100	275	139	2.05	0.83	**Less Utilized**
16.	mathematical vocabulary and terminology through animated videos, songs, and rhymes with clear visuals, repetitive patterns, and catchy tunes which can help children learn and remember math terms, fostering language development and social interaction	39	106	293	110	2.14	0.81	**Less Utilized**
17.	animated problem-solving activities that require critical thinking, reasoning, and collaboration which encourage children to work together, share ideas, and explore multiple strategies to solve mathematical problems	13	35	300	200	1.75	0.68	**Less Utilized**
18.	virtual math manipulatives or tools through interactive math software or apps such as number lines, ten frames, and base ten	33	57	259	199	1.86	0.83	

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	blocks which support conceptual understanding and promote collaborative exploration of mathematical concepts			**Less Utilized**
	Overall Mean Score & SD =	**1.80**	**0.77**	**Less Utilized**

Analysis of data from Table 2 indicated that none of the items from 10 to 18 was rated above 2.50 of the criterion mean score to show the respondents (teachers) agreement with these statements. All the items were rated below 2.50 of the criterion mean score to show that the respondents (teachers) disagreement with these statements. Their overall mean score and SD is 1.80 and 0.77 respectively, indicating closeness in their responses. However, this result indicated that teachers less utilized computer animation for managing pre-primary pupils' numeracy skills in Delta State.

Research Question 3: How do teachers utilize computer animation for managing pre-primary pupils' manipulative skills in Delta State?

Table 3: Mean Scores and SD Ratings of Teachers on their Utilization of Computer Animation for Managing Pre-Primary School Pupils' Manipulative Skills in Delta State; N = 548 Teachers

S/N	**Statements: Please give your opinion concerning your utilization of computer animation for managing pupils' manipulative skills in your school.** Your utilization of:	HU	U	LU	NU	X	SD	Decision
19.	digital manipulative activities on interactive whiteboards, tablets, or computers that feature animated objects or characters for children to practice fine motor skills while engaging with animated content	43	50	250	205	1.87	0.87	**Less Utilized**
20.	digital art and drawing programs with animated features that allow children to create likewise manipulate digital artwork using touch or stylus inputs which encourages children to explore creative expression and develop fine motor coordination in a social and collaborative setting	57	35	300	156	1.99	0.87	**Less Utilized**
21.	animated craft projects or tutorials that guide children through hands-on activities such as cutting, folding, and gluing to support children's manipulative skills development while fostering social interaction and collaboration during crafting activities	43	99	270	136	2.09	0.86	**Less Utilized**
22.	virtual construction play experiences through construction simulation games or apps that feature animated building blocks, tools, and construction environments where children can engage in collaborative construction projects, experimenting with different designs, structures, and spatial relationships while developing fine motor skills and social cooperation	14	33	215	286	1.59	0.72	**Less Utilized**
23.	digital sensory play experiences that incorporate animated sensory stimuli such as water, sand, or bubbles which provide opportunities for children to explore cause-and-effect relationships, experiment with different textures and materials, and develop fine motor skills in a sensory-rich digital environment	109	53	210	176	2.17	1.09	**Less Utilized**
24.	collaborative problem-solving games or puzzles that require manipulative skills and social interaction including animated characters which present challenges or obstacles that children must overcome together, encouraging teamwork, communication, and shared decision-making while practicing fine motor skills	15	48	200	285	1.62	0.76	**Less Utilized**
25.	virtual cooking and baking activities using animated cooking apps or simulations that guide children through virtual food preparation and cooking processes to create virtual culinary masterpieces	26	39	295	188	1.82	0.76	**Less Utilized**
26.	digital music and rhythm games or apps that encourage children to use manipulative skills to interact with virtual musical instruments, beats, and rhythms which guides children through rhythmic activities, promoting	17	24	302	205	1.73	0.69	

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	hand-eye coordination, timing, and social engagement through collaborative music-making							**Less Utilized**
27.	animated yoga and movement exercises into daily routines to promote gross motor coordination and body awareness which provide opportunities for physical activity, relaxation, and social interaction in a digital format	21	35	250	242	1.70	0.75	**Less Utilized**
	Overall Mean Score & SD =					**1.84**	**0.85**	**Less Utilized**

Analysis of data from Table 3 indicated that none of the items from 19 to 27 was rated above 2.50 of the criterion mean score to show the respondents (teachers) agreement with these statements. All the items were rated below 2.50 of the criterion mean score to show that the respondents (teachers) disagreement with these statements. Their overall mean score and SD is 1.84 and 0.85 respectively, indicating closeness in their responses. However, this result indicated that teachers less utilized computer animation for managing pre-primary pupils' manipulative skills in Delta State.

Research Question 4: How do teachers utilize computer animation for managing pre-primary pupils' communication skills in Delta State?

Table 4: Mean Scores and SD Ratings of Teachers on their Utilization of Computer Animation for Managing Pre-Primary School Pupils' Communication Skills in Delta State; N = 548 Teachers

S/N	**Statements: Please give your opinion concerning your utilization of computer animation for managing pupils' communication skills in your school.** Your utilization of:	HU	U	LU	NU	X	SD	Decision
28.	animated storytelling apps or digital storytelling platforms to engage children in storytelling activities which capture children's attention and stimulate their imagination, encouraging them to express their thoughts and ideas verbally while narrating stories or creating their own animated stories	33	46	261	208	1.82	0.82	**Less Utilized**
29.	virtual puppet shows or puppetry apps that feature animated puppets or characters to facilitate communication and social interaction including using animated puppets to role-play, act out stories, or engage in dialogues, promoting language development and social communication skills in a playful and interactive format	24	97	248	179	1.94	0.82	**Less Utilized**
30.	animated role-playing games or simulations that encourage children to take on different roles, interact with virtual characters, and engage in social scenarios which can also prompt children to initiate conversations, negotiate roles, and practice turn-taking and active listening skills while developing communication and social skills	44	82	205	217	1.91	0.93	**Less Utilized**
31.	virtual show and tell sessions using animated presentation tools or platforms where children can share and present items, stories, or experiences with their peers	39	90	274	145	2.04	0.84	**Less Utilized**
32.	collaborative story writing activities using digital storytelling tools or collaborative writing platforms which inspires children to collaboratively brainstorm ideas, plan story structures, and write narratives together, promoting communication, collaboration, and creativity	45	67	239	197	1.93	0.90	**Less Utilized**
33.	animated conversational prompts or discussion starters to facilitate peer interactions and group discussions likewise encourage children to engage in meaningful dialogue and express their thoughts and opinions verbally	36	59	240	213	1.85	0.86	**Less Utilized**
34.	digital language learning games or apps that feature animated characters and interactive language activities to support language development and communication skills which help children learn vocabulary, practice	48	50	210	239	1.83	0.92	

	pronunciation, and engage in language-based activities while interacting with peers							**Less Utilized**
35.	virtual pen pal exchanges or digital communication channels where children can connect with peers from other pre-primary schools through animated messaging platforms or collaborative projects in order to foster social connections, cultural exchange, likewise communication skills development	58	66	220	204	1.96	0.96	**Less Utilized**
36.	animated social stories or social narratives using digital storytelling tools or animation software to support children's understanding of social situations and communication expectations which helps children navigate social interactions and develop effective communication skills	51	78	250	169	2.02	0.91	**Less Utilized**
	Overall Mean Score & SD =					**1.92**	**0.89**	**Less Utilized**

Analysis of data from Table 4 indicated that none of the items from 28 to 36 was rated above 2.50 of the criterion mean score to show the respondents (teachers) agreement with these statements. All the items were rated below 2.50 of the criterion mean score to show that the respondents (teachers) disagreement with these statements. Their overall mean score and SD is 1.92 and 0.89 respectively, indicating closeness in their responses. However, this result indicated that teachers' less utilized computer animation for managing pre-primary pupils' communication skills in Delta State.

Discussion of Findings

Findings of this study generally indicated that the teachers less utilized computer animation for managing pre-primary pupils' social skills in areas of their literacy skills, numeracy skills, manipulative skills and communication skills in Delta State. It was found out the teachers less utilized computer animation for managing pre-primary pupils' literacy skills in Delta State. The finding further included that the teachers less utilized animated storybooks or storytelling apps that feature interactive animations to engage children in literacy activities that helps develop their vocabulary, comprehension including storytelling skills. They less utilized animated videos or games that focus on phonics and letter recognition to support early literacy development which can demonstrate letter-sound relationships, phonemic awareness activities, and sight word recognition, likewise provide engaging and interactive learning experiences for children. They also less utilized animated videos or apps that present sight words in context through stories, songs, or games which helps children recognize and memorize high-frequency words essential for reading and writing. The teachers further less utilized animated videos, songs, including rhymes to support language development and oral language skills for children; including animated content with clear visuals, repetitive patterns, and catchy tunes can help children learn new vocabulary, improve pronunciation, and develop listening and speaking skills in a social context. The teachers less utilized animated videos or simulations that focus on reading comprehension skills such as predicting, summarizing, and making connections which can help children develop critical thinking skills and deepen their understanding of the text. They less utilized animated storytelling apps or digital drawing tools to inspire children to create their own stories, poems, or illustrations.

The teachers less utilized animated characters and visual prompts which can spark creativity, stimulate imagination, and provide scaffolding for writing activities, encouraging children to express themselves through writing on phonics, vocabulary, spelling, and sentence structure. They also less utilized digital storytelling projects where children create their own animated

stories using animation software or apps to plan, script, storyboard, likewise animate their stories collaboratively, thereby promoting literacy skills, creativity, and teamwork. Since teachers less utilized all these computer animations, it would be difficult to manage such pre-primary pupils' social skill as their literacy skills. This finding corroborates the findings of Cirfat, Katniyon and Duguryil (2022) study which indicated that teachers' competence in using technology in areas of presentation of instructions, educational robotics and internet usage was low. Findings from this previous study further revealed that early childhood in-service teachers showed poor competence in utilizing digital presentation skills with zoom, WhatsApp and Google classroom, with low mean scores in these skills areas. The finding of Techno Hella's (2012) study cited in Cirfat, Katniyon and Duguryil (2022) also found out that teachers showed low competencies in utilizing slide presentation. However, newer technologies required that teachers must brace up to integrating them in learning in STEM. Danner and Pessu (2013) study on a survey of ICT competencies among students in teacher preparation programmes at the University of Benin, Benin City, Nigeria, confirmed that ICT usage of the student-teachers were low, particularly the use of internet and email. However, when teachers do not effectively utilize computer animations, this negatively affected managing pre-primary pupils' literacy skills in Delta State.

It was discovered through the finding that teachers less utilized computer animation for managing pre-primary pupils' numeracy skills in Delta State. This finding further indicated that the teachers less utilized animated math games and apps that engage children in interactive numeracy activities which can make learning math concepts fun likewise engaging while promoting social interaction and collaboration among peers. They less utilized animated videos or apps to reinforce counting skills and number recognition including to demonstrate counting sequences, highlight numerical symbols, and engage children in interactive counting activities to develop a strong foundation in numeracy. The teachers less utilized animated story problems, characters or scenarios that involve mathematical concepts such as addition, subtraction, and measurement which can present real-life situations that require mathematical reasoning and problem-solving skills, encouraging children to apply numeracy skills in context. They less utilized digital math manipulatives and virtual simulations such as blocks, counters, and geometric shapes, to help children explore mathematical concepts visually which support hands-on learning experiences and promote social interaction as children collaborate to solve math problems. They also less utilized animated videos or games that focus on pattern recognition and sequencing skills which can help children identify, extend, and create patterns, fostering critical thinking and spatial reasoning abilities in a social setting.

The teachers further less utilized animated simulations or interactive tools to teach measurement and geometry concepts which can demonstrate concepts such as length, weight, and shape properties, providing visual representations and hands-on activities to support learning and collaboration. They also less utilized mathematical vocabulary and terminology through animated videos, songs, and rhymes with clear visuals, repetitive patterns, and catchy tunes which can help children learn and remember math terms, fostering language development and social interaction. They less utilized animated problem-solving activities that require critical thinking, reasoning, and collaboration which encourage children to work together, share ideas, and explore multiple strategies to solve mathematical problems. The teachers less utilized virtual math manipulatives or tools through interactive math software or apps such as number

lines, ten frames, and base ten blocks which support conceptual understanding and promote collaborative exploration of mathematical concepts. Since teachers less utilized all these computer animations, it would be difficult to manage such pre-primary pupils' social skill as their numeracy skills. However, when teachers do not effectively utilize computer animations, this negatively affected managing pre-primary pupils' numeracy skills in Delta State. This finding agrees and concurs with Fabiyi, Abdulmalik and Taimiu (2016) study which found out that some teachers exhibited lack of competence in application educational robotics. The present study also corroborates and concurs with Okeke and Edika (2011) study which found out that most teachers lacked the competencies needed in the use of information technologies to perform task such as: accessing, processing, storing, printing and retrieval of information from the internet. In this light, Netliteracy (2012) study confirmed that basic internet usage skills are necessary for effective access to the internet integration in learning. Early childhood school teachers needed these competencies for their effective use of digital technology in the classroom, which is equally same with pre-primary school pupils in Delta State.

The finding of this study revealed that teachers less utilized computer animation for managing pre-primary pupils' manipulative skills in Delta State. This finding further discovered that the teachers less utilized digital manipulative activities on interactive whiteboards, tablets, or computers that feature animated objects or characters for children to practice fine motor skills while engaging with animated content. They less utilized digital art and drawing programs with animated features that allow children to create likewise manipulate digital artwork using touch or stylus inputs which encourages children to explore creative expression and develop fine motor coordination in a social and collaborative setting. They less utilized animated craft projects or tutorials that guide children through hands-on activities such as cutting, folding, and gluing to support children's manipulative skills development while fostering social interaction and collaboration during crafting activities. The teachers also less utilized virtual construction play experiences through construction simulation games or apps that feature animated building blocks, tools, and construction environments where children can engage in collaborative construction projects, experimenting with different designs, structures, and spatial relationships while developing fine motor skills and social cooperation. They less utilized digital sensory play experiences that incorporate animated sensory stimuli such as water, sand, or bubbles which provide opportunities for children to explore cause-and-effect relationships, experiment with different textures and materials, and develop fine motor skills in a sensory-rich digital environment. The teachers further less utilized collaborative problem-solving games or puzzles that require manipulative skills and social interaction including animated characters which present challenges or obstacles that children must overcome together, encouraging teamwork, communication, and shared decision-making while practicing fine motor skills. They less utilized virtual cooking and baking activities using animated cooking apps or simulations that guide children through virtual food preparation and cooking processes to create virtual culinary masterpieces. They also less utilized digital music and rhythm games or apps that encourage children to use manipulative skills to interact with virtual musical instruments, beats, and rhythms which guides children through rhythmic activities, promoting hand-eye coordination, timing, and social engagement through collaborative music-making.

The teachers less utilized animated yoga and movement exercises into daily routines to promote gross motor coordination and body awareness

which provide opportunities for physical activity, relaxation, and social interaction in a digital format. Since teachers less utilized all these computer animations, it would be difficult to manage such pre-primary pupils' social skill as their manipulative skills. However, when teachers do not effectively utilize computer animations, this negatively affected managing pre-primary pupils' manipulative skills in Delta State. This finding does not deviate with Chiekem (2017) study on evaluation of the urban and rural teachers use of information and communication technology in teaching at basic education level in South-South, Nigeria, which found out that series of factors including geographical location (rural and urban) of technological facilities constrained teachers' access and competency to utilization of ICT. The present study finding also corresponds with Nwafor (2019) study on the impact of information and communication technology (ICT) on principals' administrative effectiveness in Anambra State public secondary schools which confirmed that impact of ICT usage on urban and rural based principals' administrative effectiveness was low. Onuorah and Chukwu (2022) study on principals' utilization of information and communication technology (ICT) for effective management of secondary schools in Awka Education Zone, Anambra State, Nigeria, also confirmed that principals utilized Information and Communication Technology (ICT) features and applications in school management was to a low extent.

Finally, it was found out that teachers' less utilized computer animation for managing pre-primary pupils' communication skills in Delta State. The finding further indicated that the teachers less utilized animated storytelling apps or digital storytelling platforms to engage children in storytelling activities which capture children's attention and stimulate their imagination, encouraging them to express their thoughts and ideas verbally while narrating stories or creating their own animated stories. They less utilized virtual puppet shows or puppetry apps that feature animated puppets or characters to facilitate communication and social interaction including using animated puppets to role-play, act out stories, or engage in dialogues, promoting language development and social communication skills in a playful and interactive format. They less utilized animated role-playing games or simulations that encourage children to take on different roles, interact with virtual characters, and engage in social scenarios which can also prompt children to initiate conversations, negotiate roles, and practice turn-taking and active listening skills while developing communication and social skills. The teachers also less utilized virtual show and tell sessions using animated presentation tools or platforms where children can share and present items, stories, or experiences with their peers. They less utilized collaborative story writing activities using digital storytelling tools or collaborative writing platforms which inspires children to collaboratively brainstorm ideas, plan story structures, and write narratives together, promoting communication, collaboration, and creativity. They further less utilized animated conversational prompts or discussion starters to facilitate peer interactions and group discussions likewise encourage children to engage in meaningful dialogue and express their thoughts and opinions verbally.

The teachers less utilized digital language learning games or apps that feature animated characters and interactive language activities to support language development and communication skills which help children learn vocabulary, practice pronunciation, and engage in language-based activities while interacting with peers. They less utilized virtual pen pal exchanges or digital communication channels where children can connect with peers from other pre-primary schools

through animated messaging platforms or collaborative projects in order to foster social connections, cultural exchange, likewise communication skills development. The teachers less utilized animated social stories or social narratives using digital storytelling tools or animation software to support children's understanding of social situations and communication expectations which helps children navigate social interactions and develop effective communication skills. Since teachers less utilized all these computer animations, it would be difficult to manage such pre-primary pupils' social skill as their communication skills. However, when teachers do not effectively utilize computer animations, this negatively affected managing pre-primary pupils' communication skills in Delta State. This finding corroborates with Archibong, Ogbiji and Anijaobi-Idem (2010) study on ICT competence among academic staff in universities in Cross Rivers State, Nigeria, which found out that majority of the academic staff rated their Internet usage as low due to the fact of poor access to these facilities in the universities. This present study finding is also in line and agrees with Badmus (2011) study on access to and use of information and communication technologies (ICT) between secondary schools in rural and urban areas of Ekiti State which found out that the level of staff skillfulness in urban and rural schools was at a very low; while some schools claimed that their staffs had little or no skills in the use of ICT which was because that of the fact that the supply and donations of ICTs do not come frequently from both government and private donors. Failure to efficiently utilize computer animations in pre-primary school pupils' classroom, this made it difficult for the teachers to manage and develop the children social skills.

Conclusion

In conclusion, the utilization of computer animation by teachers in Delta State can substantially enhance the educational experience of pre-primary pupils, particularly in the realm of social skills development. By addressing the identified research gap, this study has contributed valuable insights into effective use of educational technology such as the computer animations in pre-primary education classrooms, thereby, paving way for a more innovative and inclusive teaching practices that cater for the holistic development of young learners and children. The study thus, presents a promising avenue for enhancing the management and development of various social skills such as the literacy, numeracy, manipulative, and communication skills, among young learners in Delta State, Nigeria. This study hence, concludes and submits that the teachers less utilized computer animation to manage all these pre-primary school pupils' social skills. Since computer animation offers dynamic, interactive, and engaging methods that can captivate young learners' attention and foster a more effective learning environment, it therefore, becomes essential that teachers effectively utilize them in the classroom. For literacy skills, animated stories and phonics exercises provide an immersive platform for developing reading and writing abilities. In numeracy, virtual manipulatives and interactive math games help pupils grasp fundamental mathematical concepts through engaging and visually stimulating activities. Manipulative skills are enhanced through digital tools that simulate hands-on experiences, promoting fine motor coordination and spatial awareness. Communication skills benefit from interactive storytelling and role-playing scenarios, which encourage verbal expression and social interaction. Despite the recognized potentials of the computer animation technology, the practical application of computer animation for developing social skills remains

underutilized. For quality education to triumph within pre-primary education circle or orbit, there is need for teachers' utilization of computer animations in the classroom.

Recommendations

Based on the findings and conclusions of this study, the following recommendations were proffered to enhance teachers' utilization of computer animation for managing pre-primary school pupils' social skills in Delta State:

1. Delta State Universal Basic Education Board (DSUBEB) should constantly organize and implement comprehensive computer-based animation training programmes to equip teachers with necessary skills and knowledge to effectively utilize and integrate computer animation into their teaching practices which is potent for managing pre-primary school pupils' literacy skills.
2. Delta State Government in collaborations with the Universal Basic Education Board (DSUBEB) and school administrators should create opportunities for teachers' professional development through workshops, seminars, guided practice, job coaching and online courses, to keep them abreast and updated on the latest advancements in educational technology and effective instructional methods using computer animation to effectively manage pre-primary school pupils' numeracy skills.
3. The State Government and DSUBEB should ensure that pre-primary schools are adequately equipped with the necessary technological resources, such as computers, tablets, reliable internet connectivity and interactive animation programs specifically designed to develop social skills, which create opportunities for teachers to access and highly utilize computer animation including animated tools and apps that will aid them to successful manage pre-primary school pupils' manipulative skills.
4. Teachers should be encouraged by school administrators and the DSUBEB through adequate financial sponsorship to highly utilize computer animation in collaborative learning activities where pupils can work together on animated projects or stories, promoting teamwork, communication, and social interaction, which is necessary for managing pre-primary school pupils' communication skills.
5. School heads and administrators should foster partnerships with educational technology companies, non-governmental organizations, and other stakeholders to provide resources, expertise, and support for the implementation of computer animation in pre-primary education to create supportive learning environment that fosters the holistic development of young learners.

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