

EMPOWERING TOMORROW'S GENERATION: INTEGRATING TECHNOLOGY AND ENVIRONMENTAL AWARENESS FOR SUSTAINABLE CHILDHOOD CARE DEVELOPMENT

BY

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DOI: <https://doi.org/10.5281/zenodo.17469094>

Abstract

This paper explored the dynamic relationship between technology, environmental sustainability, and childhood care development. In an era defined by technological advancement and pressing environmental challenges, it provides a vital medium for discovering the complex interaction between technology, environmental consciousness, and the complete development of children. It illuminates the possibilities and responsibilities essential in harmonizing technology and environmental awareness for the betterment of future generations. Key components include the utilization of digital learning environments to enhance early childhood education while fostering an understanding of environmental sustainability. The exploration extends to innovative concepts like nature-infused digital experiences that influence virtual and improved reality to bridge the gap between technology and nature, cultivating a sense of environmental management from an early age. It explores into the realm of smart toys and gamification; recognizing the role of parents; the paper examines the challenges and opportunities of raising children in a digital age, aiming to provide strategies that promote digital literacy alongside eco-consciousness, among others. The paper recommends among others; Government should showcase initiatives such as virtual field trips and interactive simulations; schools and parents should equip children with the tools to navigate a digitally immersed world while nurturing a sense of environmental responsibility. The paper aspires to copy a path towards a future where children are empowered to hands-on learning, navigate a technologically advanced world while preserving and cherishing the natural world they will inherit.

Keywords: Technology, Environment, Sustainable early childhood care development

INTRODUCTION

It is a clear known fact that the world becomes increasingly interconnected and technologically advanced in the aspect of global technology. The impact of Children's growth development and wellbeing cannot be separated from the technologically inclined environment. How Children learn, relate with one another, ways in which Children are cared for in this day and age is technologically driven. Children cannot live in an ideal environment different from the same environment that is technologically inclined.

A sustainable Childhood care development is a care given to Children of Childhood age can enhance Children's curiosity, creativity, cognitive, social, physical learning and problem solving ability. Ways in which the Children learn and are being incorporated to the environment in such a way the Children become useful to themselves and the environment signals Childhood.

Childhood education is the skills, knowledge, care and instructions given to preschool and primary aged Children. Childhood education can be divided into two: the early Childhood and the middle Childhood. Early Childhood education is considered the official term for teaching young Children. Specifically, it refers to formal and informal educational programme that guide the growth and development of Children throughout their preschool years (Umass, 2023). The preschool which is termed the Early Childhood Care Development and Education (ECCDE) and pre-primary Education (ECCDE) as defined by Federal Republic of Nigeria (In her National Policy on Education, 2013) is the care, protection, stimulation and learning promoted in Children from age 0 – 4 years in a crèche or nursery. The pre-primary education is the one – year education given to Children age 5 prior to their entering primary school. Primary Education is the education given to Children age 6 – 12 years as described by the F RN, (2013). These levels of education have their own objectives and the objectives are meant to fulfill the government goals and objectives of education. The objectives of primary education as stated by the Federal Republic of Nigeria are to:

- a. Inculcate permanent literacy, numeracy and the ability to communicate effectively;
- b. Lay a sound bass for scientific critical and reflective thinking;
- c. Promote patriotism, fairness, understanding and National unity;
- d. Instill social, moral, norm and values in the child;
- e. Develop in the child the ability to adapt to the changing environment; and
- f. Provide opportunities for the child to develop like manipulative skills that will enable the child function effectively in the society within the limits of the child's capability.

Looking critically at the objectives of primary education most importantly points. And one will exert that Children cannot fit in well to societal demand except the society flourishes the Children with those avenues that will make them functional to the societal demand. Sustainable education given to Children will bring about achievement sustainable goals in the environment of which the society falls.

Achieving the educational objectives means achieving the global sustainable goal objectives. Education for sustainable development as described by UNESCO, (2014) allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. Education for sustainable development means including key sustainable development issues into teaching and learning. Failure to give the Children a sound and sustainable education may render the Children non-functional to the society demand.

Sustainable development involves meeting present needs without compromising the ability of future generation to also meet theirs. Sustainable development is all about a joint effort carried out between different areas whether social, economic, ecological or political, thus trying to strike a balance between economic growth, social equality and preservation of natural resources and habitat. Ensuring that people from all over the world are able to satisfy their basic needs, while ensuring that future generations can have the same quality of life. (Denis, et al. 2013).

Ways in which the Children shall be empowered through integrating technology and environmental awareness for sustainable Childhood care and development include, Utilization of digital learning ecosystem for young mind; small toys and sustainability, eco-conscious parenting in a digital age, and sustainable design for Child- centric spaces.

UTILIZATION OF DIGITAL LEARNING ECOSYSTEM

Digital learning refers to any sort of learning that makes use of and take advantage of technology (Escuadro, 2022). Digital learning covers anything that includes learners using digital platform, resources, systems and applications. This can involve taking online classes, researching on Google, watching online videos, and using digital tools during face to face training sessions. Digital learning shall be seen here, as all learning that involves the use of digital platforms that may include application, ICT gadgets in a physical or virtual space. The ICT gadgets of Early Childhood Care and Development and Primary Education as described by Ministry of Education (2004) in Yunusa and Akinsola, (2019) could include the following types of hardware and software: computers (including desktop, laptop and handheld computers). Digitals cameras, and digital video cameras; creativity and communication software and tools;

the internet, telephones, fax machines, mobile telephones, tape recorders; interactive stories stimulated environments and computer games; programmable toys and ‘‘ control’’ technologies; video conferencing technologies and closed – circuit television; data projectors, electronic white boards and more. These gadgets have to be used in a more welcoming and accommodative environment. Some environment may value particular type of gadgets while some may not be useful in some part of the environment all these results to the values societies place on ICT. The societies make up what is involve in the eco system.

An ecosystem in the environmental sense is defined as ‘‘a biological community of interacting organisms and their physical environment’’ (Davies, 2022). Bringing digital learning to ecosystem, Davies sees it as ‘‘an interdependent group of enterprises people or things that share standardised digital platforms for a mutually beneficial purpose. A good digital learning ecosystem provides Children with relevant personal learning content that can be incorporated into daily workflow. It provides one source of truth for all learning skills and performance data, creating a collaborative environment when learning. Some of the benefits of digital learning ecosystem as described by Davies (2022) is, it facilitates learning experience aligned with self-led discovery. This is supported by scaffolding in the form of peer collaboration which helps guide learners when necessary while still granting them the freedom to create understanding for themselves.

How can a digital learning ecosystem benefit the Children of the Childhood age? And how can it be utilized for a sustainable Childhood development?

Children of Childhood age learn in two different ways; one aspect is learning through play and the other aspect is learning in a more advance setting of official learning that can enhance logical and abstract reasoning (Yunusa and Akinsola, 2019). Some of the benefits of digital learning ecosystem to Children of Childhood age include:

- i. It provides easy access to information; easy retention of information increased storage of information, and improved presentation of information education become more interactive easier sharing of knowledge and increased enthusiasm in learning.
- ii. It reduces teacher/care giver work load
- iii. It creates a more dynamic and exciting learning and classroom environment
- iv. It allows for breakdown of all educational barriers through allowing the caregivers, teachers, Children and pupil to communicate in real time and learn in ways that transcend time and location.
- v. It allows for easy access for teaching up to date material

- vi. It allows to increase in educational opportunities
- vii. It encourages video-based instructional learning
- viii. Teachers/ Caregivers and Children/pupil can quickly gain information
- ix. It addresses learning gaps (Polly, Martin and Guilband, 2021)
- x. Children/pupil gain self-learning abilities
- xi. It builds curriculum and makes education flexible
- xii. It makes the classroom instruction interesting
- xiii. It reduces the requirement for black board
- xiv. It enhances access to educational resources
- xv. It solve educational challenges
- xvi. It encourages team work and communication skills
- xvii. It creates inclusive learning environment where opportunity is provided for all learners without location barriers
- xviii. It creates virtual learning classroom and facilitates learning and teaching of students with exceptional needs
- xix. Finally, it promotes distance learning.

To wrap it up, Children might become more engaged in learning if technology is used in classrooms. This is because young stars of these days are pretty accustomed to the usage of electronic gadgets incorporating them into schooling would assist in piquing their interest and enhancing their involvement levels (Haleem et al. 2022). Utilization of digital learning gadgets such as projectors, computers, television, video games tablets, radios, mobile platforms, internet and other Cutting-edge technical gear to teach in the learning environment may make studying entertaining and fascinating to Children (Kryukov and Gorin, 2017).

SOME CHALLENGES OF DIGITAL TECHNOLOGIES IN DIGITAL LEARNING ECOSYSTEM

- It may provide difficulties for instructors particularly in areas where it has not been the norm (Shilpa, Radha, & Movva, 2022)
- Teachers frequently lack topics expertise and received little training (Stemberger & Konrad, 2021)
- There is also evidence of low-tech intervention for “ instruction at the appropriate level.
- Some Children may experience difficulties in online schooling as a result of low income family background.
- Learners with disabilities or who speak a different language other than English at home will require individualized assistance.

The utilization of digital learning ecosystem is with a great reward in educational system as it creates seamless learning environment for the learning which can further bring about lasting achievement of educational objectives in the environment, it may also be a sense of community belonging in a global world that is captivated with the use of technology in their day to day transactions.

SMART TOYS AND SUSTAINABILITY

Sustainability involves meeting present needs without compromising the ability of future generation to also meet their needs. (Denis, et al. 2013). Toys have a strong connection with sustainability; these could be seen through the toy companies' using recycled or bio-based plastic, reducing material used in either the product or its package and designing toys to be more easily recycled at the end of their usable life. Smart toys as described by Sylla, et al (2022) is seen as entities that directly and purposefully interact back "smart toys have the ability to offer possibilities to develop social, cognitive and behavioural skills, among others; smart toys may have various shapes, and ranging degrees of anthropomorphism such as humanoid, plush toys, dolls, blocks tangible robots, companion robots or wearable gadgets (Sylla, et al, 2022).

Some of the general properties of smart toys based on consensus may include:

- i. Interactive: equipped with sensors and response to input;
- ii. Connective: may communicate with other toys, services and online platforms through different means such as Wi-Fi and Bluetooth. (Sylla, et al, 2022)
- iii. Pervasive: may follow Children through everyday activities and;
- iv. Social: facilitate the creation and sharing of information, ideas, interest and other forms of expression.

When Children learn through play with the application of smart toys it gives a sense of connection to communicate, it may guide the everyday play life of Children, it may also facilitate the interest and interaction of ideas. As good and engaging smart toys are to Children, it may come with a lot of dangers. Leamy (2017) stated out some of the several risk factors of smart toys that parents have to use as a guide to scrutinize Children's toys based on the recommendation FBI. The FBI caution parents to be mindful of toys that may Connect directly to the internet via Wi-Fi and Bluetooth Contains speakers and microphones; contains recording device and cameras; contain wireless transmitters and receivers; has speech recognition and GPS capability; connect to a mobile application; request personal information (i.e. name, address, date of birth and many more; store data internally; send data to the manufacturer or partners; has cloud connection capability and finally, does not come with an end user license agreement.

In trying to stress more on the danger of toys, Leamy, further narrates an episode where Germany banned an interest-connected doll called “my friend Cayla” and advised parents who already own one to destroy it. Cayla, made by Genesis toys, contains an internal microphone that criminal could use to listen to Children. The Norwegian consumer council says stranger could also speak to Children through Cayla and demonstrated how it could be done in a well-produced YouTube video. Projecting the use and advantages of toys for sustainability as seen in the utilization of digital learning does not stop the society from looking at its dangers to the ecosystem. The importance shall be what teachers, caregivers and parents use to bring out the benefits.

ECO-CONSCIOUS PARENTING IN A DIGITAL AGE

Digital technologies have quickly changed the way in which family member communicate, enjoy themselves acquire information and solve their daily problems. Parents are also the first mediators of Children’s experiences with digital tools, they have task of integrating their use into ordinary routines (play, entertainment, learning, mealtime, and many more), promoting constructive and safety use. Digital parenting describes parental efforts and practices for comprehending, supporting and regulating Children activities in digital environment. (Benedetto & Ingrassia, 2020). A growing research on digital parenting identified the main approaches that can allow parents to ‘motivate’ Children’s activities with digital technologies, (Helsper, 2019). According to Vygotsky’s theory of child development and his concept of proximal development zone, parental mediation can be considered a key aspect in facilitating the interactions between Children and new media. The proximal development zone is an intermediate area between what the child is able to do alone and what he/she can learn from the guidance of others. Some of the impediments of eco-conscious parenting in digital age may include;

- Parental worries about Children’s online activities
- Parenting styles; the approaches in Children digital engagement.
- Parental media competence and self-efficacy
- Parental beliefs.

SUSTAINABLE DESIGN FOR CHILD-CENTRIC SPACE

This means that the space should be designed for Children in a way that Children’s development and safety should be considered. An environment that is mutually enjoyable, caring and respectful relationship with the people and the environment itself, Children respond accordingly. When Children participate collaborative in everyday routine, events and experiences and have opportunities to contribute to decisions, they learn interdependently. Children’s connectedness and different ways of belonging with people,

country and communities helps them learn ways of being which reflect the values fractions and practices of their families and communities. Some aims of designing sustainable space for Children may include:

Developing healthy physical and mental activities, and fostering Children's abilities to independently maintain a healthy and safe life.

- Developing a culture, where sustainable practices are embedded in daily preschool and primary school routines and activities.

Main space in a child centre designed environment may include:

- Natural spaces, such as trees, water and living creatures, which form the most basic and important space for Children.
- Open and wide space in which Children could run freely and release their internal energy.
- Road space were Children's main play ground before the presence of cars. They are places in which Children meet, connect and network various spaces together. (Khodadad et al, 2018)

Conclusion

With the trend of globalization in technological advancement, young minds of present generation need to be prepared in order to have a sustainable development. Children on their own cannot meet up with the global challenges except they are being guided through eco-friendly socialization. Teachers, caregivers and parents need to have the awareness needed to guide these Children through sustainability. This paper journeyed through ways in which technology and environmental awareness for sustainable Childhood care and development can empower young minds of tomorrow's generation. Sustainable Childhood care development enhances Children's creativity and problem solving skills through social, cognitive and language development for sustainability. Different means of sustainability such as the gadgets, websites, Television, games and video games when utilized well for teaching and learning will lead to sustainable development. Children's involvement in sustainable development will enhance the Children's ability to be ready and compete with a wider society and prepare themselves better for future endeavours; it may also prepare them for the challenges that may be faced by the Children.

Recommendations

Having explained clearly how integrating technology and environmental awareness for sustainable Childhood care development empowers tomorrow's generation. The following recommendations were made:

1. The government should sponsor school teachers/caregivers for workshops and conferences for environmental awareness for sustainable Childhood care development.
2. Parents should be encouraged to go for courses that will enhance environmental awareness.
3. Government should provide incentives to instructors
4. Parents should pay attention to what Children are doing with toys either by monitoring them in person or using the parent portal if there is one.
5. If Children toys uses Bluetooth parents should make sure it requires PINS or passwords when pairing with internet-connection devices.
6. Government/schools should make Children space that contains the location and designed places are accessible to both disabled and non-disabled Children.
7. Parents/caregivers should consider safety regulation with respect to natural disaster and fire, and diversity should be considered in designing space.
8. Ministries of education should encourage the removal of all linguistic boundaries and better online availability of learning resources in regional languages.
9. There should be integration of offline and online teaching and learning for enhanced outcomes.
10. Parents should be confident enough to have adequate digital skills.
11. Parents and caregivers should closely watch their own behaviours; how they share online content, as they use digital technologies through the day or as they allow their Children to access these technologies.

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