DIGITAL DEVICES, PLAY AND EMERGENT LITERACY IN EARLY CHILDHOOD

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ABSTRACT

In this paper, we examined articles between 2000 and 2024. This time span was selected as the mark of growing digital devices around 2000's. This paper aims at collecting and gathering the journal articles. The collecting and gathering stages were started by academic database by employing three search Strings. The process of collecting and gathering journal articles were focused on the roles of play during early childhood, the second point deliberating how technology tools support children in play process, followed by the digital devices promoted emergent literacy, the benefit and disadvantage of the technology advancement to children's life and development, finally this paper ends up by giving concluding remark and the future recommendation.
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I. INTRODUCTION

AS argued by early childhood educators, play takes a role as the basis for the young child's experiences[1] since it is considerable element in childhood development. As one main universal phenomenon, play takes genuine right of childhood and being a part of the whole children's life [2]. Moreover, during early childhood education, play is argued as time-honoured in this period. Some features of play in early childhood covers seven aspects; firstly play is symbolic which represents reality life to be taken into unreal situation. Play is able to connect or relate experiences that reflect meaningful activity. Moreover, children are doing various things including imagining that indicate active actions. The next attribute of play is pleasurable even when children are engaged seriously in activities. Voluntary and intrinsically motivated are the following feature of play that expose to the motives of play whether for developing curiosity, mastery, affiliation, or others. Children involve in playing by implicitly or explicitly expressed in rule-governed activities. The last feature of play is episodic that is characterized by beginning and moving goals that is developed spontaneously by the children. These features propose the nature of play in childhood period.

In accordance to the previous statements, it is recommended that children are better surrounded by play-based learning activities in order to offer various ways to study diverse skills and concepts [3]. Play-based learning activities bring wide changes to acquire appropriate abilities and build children competencies for their capability to understand something in secure and compassionate surroundings. Play-based learning offers opportunity for children to comprehend various conceptions, be skilled at diverse competencies since childhood in relaxing and engaging environments.

The key issues arises in the twenty first century living shows that literacy skills which are built since young aims at achieving and meeting the challenges [4]. In addition to this argument, they also stated that public rule instigates globally to confirm upper levels to children literacy accomplishment; it is believed when early years achieve its success, at the same time literacy achievement becomes the central critical aspect for life-long learning.

The advancement of technology nowadays offers a wide opportunity to empower the development of children's literacy through digital devices. The digital devices remarkably grew during the early 2000s; since this era, handy digital devices, for example, mobile phones and touch screen tablets, have been globally used. The integration of

these handy devices during the early childhood period has become a pervasive feature of modern education and family life. As the increasing access of digital devices is getting wider, young children engage with digital technology at earlier developmental stages than ever before. Therefore, young children have extensive digital engagement that strongly connects with play activity as the main modality to explore, learn, and communicate with each other. Furthermore, children nowadays have been exposed to the use of digital devices. They are surrounded by the digital technology anytime and anywhere [5]. The development of science and digital devices are growing rapidly nowadays. Many elements of our lives are affected by digital technology such as economic, entertainment even education. Furthermore, massive growth of digital devices as well as desktop computer, mobile phone, smartphone, tablet, iPad, in every aspect of our daily life has influenced every element of nowadays lives [6][7].

Emergent literacy is a broad term that refers to the skills, knowledge, and attitudes that come before formal reading and writing instruction. It includes features like print awareness, vocabulary acquisition, phonological awareness, and narrative understanding. When young children play with digital devices in fun ways, like interactive storybooks, literacy games, or digital drawing tools, they can have language-rich experiences. However, the quality of these types of experiences depends on how the content is designed, how adults get involved, and the social and cultural setting in which digital play exists.

As the background discussed earlier, this paper tries to firstly discuss the functions of play during early childhood, the second point deliberating how technology tools support children in play process, the benefit and disadvantage of the technology advancement to children's life and development, finally this paper ends up by giving concluding remark and the future recommendation.

II. METHOD

This paper aims to summarize studies related to the use of digital devices for children emergent literacy since early age. Four electronic academic database searches were performed in Scopus, Web of Science, and Early Childhood Literacy. The searches were restricted to include peer-reviewed research articles published between 2002 and 2024. To identify all the possible articles that focused on digital devices, play and early childhood (birth to 8 years), three search strings were composed in order to collect and gather related journal articles. It was started by String 1 that focused on search terms dealing with digital devices, String 2 highlighted on search terms connected the role of play, String 3 directed on search terms related to emergent literacy on early childhood settings. The first search was a combination of keywords that were adapted from String 1 : (digital device* OR "tablet*" OR smartphone OR interactive media). The next search employed String 2 that connected with : (play* OR play-based learning* OR joint attention* OR social interaction). Meanwhile, the third search used String 3 : ("emergent literacy" OR "early literacy" OR reading* OR writing* OR phonological*). The literature search yielded 76 articles. The articles then were continued by the process of inclusion and exclusion process. Firstly, only articles published between 2000 and 2024 were included in order to examine the 24 years of the use of digital devices to support play and emergent literacy since early age. The consideration of this time span was the mark of the growing digital devices that were integrated with play and emergent literacy during eary childhood.

III. RESULTS AND DISCUSSION

This paper explored four main findings dealing with the three sections dealing with digital devices, play and emergent literacy in early childhood. It was initiated by the essential roles of play in early childhood. The second discussion was followed by technology as tools for play stages. Then, the next sub-section explored digital devices and children literacy. This section was ended by the discussion of the opportunity and challenges of technology advancement.

A. The Essential Roles of Play in Early Child hood

As proposed by [8] play had five primary roles in early childhood stages. Firstly, play displays less in seriousness as the effect of making errors and facing obstacles. In extreme view, play for a child is a type of activity without any frustrating impacts yet it concerns with serious actions. In accordance with some principles stated previously, play involves activity which emphasizes for itself but not for others' needs. As a consequence, play mediate children as the way of exploration that offers a spirit all its own.

Recent years, the main focus of the role of play significantly for children in early age by employing the guided digital play has become main issue to be explored and discussed. Modern researchers proposed idea that play-

based interactions using digital devices such as collaborative digital games and literacy-enriched digital environments could replicate many developmental advantages of traditional play, including symbolic thinking and narrative skills. On the other hand, as stated by some experts, the integration of digital devices to construct early literacy should be carefully arranged and integrated with larger curricular goals to maximize literacy outcomes and avoid substituting, rather than enriching, core learning experiences [9].

The next insight of play is its unique character of the movable value to bridge between proses and finishes. Children play together for achieving similar ends and goals however during ongoing play they often adapt to new purpose for another new goal. In this point, play is not a tool for exploration but more on innovation. In the same vein with the earlier point discussed, play is characterized by children are not greatly connected to the outcome. Children modify for what they are going to do and permit their imaginations to create various changes for themselves. The same tone with this claim [10] stated that the difference occurred between play and other general activities rest on the use of children imagination. As the consequence, these diverse modifications from the imagination during play are important in order to vary activities for impeding boredom. For example, during wood bricks play activity, an infant vary the ways how he/she play the wood brick.

The third attribute of play regardless of its varieties, it shows hardly in accidental or by chance. However, play tries to go along with a certain scenario. This scenario is fascinating in its ability to imitate ideal real life. The fourth idea regarding with play is the estimation of real life in the world. It differs from learning which it internalizes the outside world as the part of life. In the process of play, children vary the world in accordance to the needs. However, learning gives difference in the aspect of the ability of oneself to adjust and understand the broader world.

As the final aspect of play is the principle of getting much pleasure. Even though the complication may arise during play yet it brings great pleasure when children attempt to get through each obstacle in play. Additionally, the obstacle is required in order to vary the play and prevent monotonous activities. In this final point, play is considered as the resource of pleasure since it deliberates the problem solving action but in joyful way. Moreover, play improves imagination, offers wide opportunity to develop creativity, and solves the problem also unexpected incidents.

Play in childhood stage is considered significant since it plays an important roles as stated by [9] , that play exposed five principles, such as it is viewed as less serious activity; emphasizes on process and ends; it is accidental or by chance; varies play activities for appropriate needs; and gets more enjoyment.
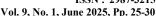
B. Technology as Tools for Play Stages

A vast progress of digital devices such as desktop computer, laptop, smartphone, tablet, iPad nowadays give children chance to experience, having fun and using wide varieties of digital media in daily life. Additionally, digital devices were one of the most influential factor in nowadays era which approaches children's growth. Children growth is the period when they build their curiosity of the world. This is also the time for children to expand their knowledge of new information. They want to know everything as well. Every part of children's cognition, linguistics, social relationship, and sensibility improve too. Consequently, their up-coming literacy such as the   are improving soon [11]. Once discussing about technology tools, argumentation proposed by [12] stated that technical tools offer opportunity towards human actions. In the same tone with this statement, he claimed that children effectively make use of symbols and tools that later be benefited through practice as one of feature through cultural development.

As conveyed by [1] throughout dramatic/symbolic play, children build their agreement of technology later on its understanding is exposed. This is because technology encircles their lives and forms the way they think. The properties of technology such as touch screen, tablet, computer and mouse are adopted since those tools are de-contextualized. The process of decontextualization lies on taking technology out of context then reproduce those tools in other settings [1] such as play time with parents or partners. Digital devices as technology tools contribute to children by their contribution during play process mainly in dramatic/symbolic play. The key concept of employing technological tools in children play is the process of decontextualization.

C. Digital Devices and Children Literacy

Nowadays, building children's literacy may be supported by the digital devices such as the computer, tablet, iPad and smartphone as well. These digital devices are able to assist both of parents and teachers to work together with their children[13]. The literacy abilities such as knowing and identifying alphabet and each sound, beginning writing and reading are pioneer knowledge for children to prepare their literacy ability someday [14]. The digital devices with their applications helped children constructing their literacy ability. The previous study has revealed that the benefit of digital technology like the use of digital devices especially on touchscreen promoted children

ability in mastering a subject matter such as reading [15] Moreover, according to [16] said that digital technology may help good understanding to deliver the message through the icon, sign, photographs, and also video. The existence of various digital devices could facilitate children since early age with diverse emergent literacy. Being literate with alphabet, sound, writing and reading contributed towards children literacy grew well in their school age experience.

To be able to literate since beginning, it can be supported by their initial boundaries such as building literacy at home to create literacy situation, activity and provide various literacy artifacts like books, magazines, newspapers and many more. The literacy properties have been grown up recently since the vast progress of technology such as desktop computer, laptop, smartphone, tablet, iPad recently that give opportunity to experience, have fun and use wide varieties of digital devices in daily life. Additionally, digital devices are one of the most influential factors in nowadays era which approaches children's growth.

Children growth is the period when they build their curiosity of the world. This is also the time for them to expand their knowledge of new information as they are eager to know everything as well. Every part of children such as cognition, linguistics, social relationship, and sensibility improve too. Consequently, their up-coming literacy such as their ability to communicate, read, listen and compose phrases improved soon. Moreover, the literacy abilities such as knowing and identifying alphabet and each sound, beginning writing and reading are pioneer knowledge for children to prepare their literacy ability someday [14]. Today, literacy has been transformed forward which involve reading, making and delivering review of multimodal texts [4].

In this era, building children's literacy may be supported by the digital devices such as the computer, tablet, iPad and smartphone as well. One of the claim proposed by [1] stated that one of technology tools namely computer has transformed greatly from modern business instrument employed by the exclusive of business and industry to everyday household tool. In addition, nowadays computer has been familiar around the homes and classrooms and more researchers pay more attention towards its influence to play in early childhood development.

Digital devices are seen as tools that able to bridge people around the child in forming the literacy development. These digital devices are able to assist both parents and teachers to work together with their children [13]. The digital devices with their applications help children constructing their literacy ability. As what has been argued by [3] that several empirical studies revealed that fruitful literacy artifacts around children's environment support children's comprehension of print literacy. The previous study has revealed that the benefit of digital technology like the use of media especially on touchscreen promotes children ability in mastering a subject matter such as reading [15]. As [16] said that digital technology may help good understanding to deliver the message through the icon, sign, photographs, and also video. In the same vein with the previous findings, [17] documented that the use of smartphone and tablet empower infants and toddlers' independent interactions with iDevices. The use of iDevices at home builds interactions with other family members that later on develop dual language learning to improve children's emergent literacy.

Children early literacy can be improved by the supportive literacy artifacts that are provided around children environment. Sophisticated literacy artifacts develop considerably in this era. These properties assist children early literacy for supporting them to be literate in the future. The use of contemporary literacy artifacts are advised to be observed by the social environment like family and educators.

D. The Opportunity and Challenges of Technology Advancement

Children who were born and lived in this 21st century era have countless modern features of literacy like what discovered in desktop computer, video games, through Internet, interactive toys, and chat rooms [17]. These creations as the results of development in science that made digital devices growing rapidly nowadays [18]. It impacts towards children nowadays who have been exposed to the use of digital devices anytime and anywhere [5]. Additionally, the use of digital devices has brought to considerable transformation in various elements of our lives such as economic, entertainment even education [6][7].

The growing improvement of digital technology which is straightened to children may create assorted impacts both of benefits and disadvantages. The positive effect of digital devices revealed from some studies such as documented by [19] that examined several story applications encouraged children to acquire new words. Other argumentations derived from [20] claimed that digital devices as the result of technology innovation brought several educational goals mainly for building preschool competencies such as listening, matching games, letter and number identification, colour identification, reading and writing, knowledge of nursery rhymes and songs and language development. Indeed, digital technology helps us to save our time. Such as in education nowadays, the use of digital technology has assisted a lot of students are globally connected, they attach and change a large amount of information all over the world. They do these without leaving their school and classroom [13]. On the other hand, the use of technology devices creates some challenges. As documented by [21] tiredness, obesity, less of social interaction with surroundings form challenges as the results of technology development. Another issue

regarding with the challenges of digital devices is articulated by [22] that health risks such as diabetes, hypertension, and orthopedic problems exposed the children of the uncontrolled usage of technology tools.

As the consequence, some challenges of digital devices triggered parents' awareness for building healthy use of digital technology for children. Here, the involvement of parents is needed in order to direct the children. They require determining the limitations time of their children to use their digital technology [23]. Thus, it is very crucial for parents to manage the use of digital technology specifically for their children and should realize that not all the digital technology safe and necessitated for their children [24]As its countless benefits usage of digital devices, the involvement of parents have to examine and check sites, applications in digital technology used by children in order to create safe and suitable for their age [24].

The growing improvement of digital technology which is straightened to children may create assorted impacts both of benefits and disadvantages. Here, the involvement of parents is needed in order to direct the children. They require determining the limitations time of their children to use their digital technology[23]. Thus, it is very crucial for parents to manage the use of digital technology specifically for their children and should realize that not all the digital technology safe and necessitated for their children [24]). Additionally, the awareness of parents may build healthy use of digital technology for children and create the benefits of digital technology itself for them. Then, parents have to examine and check sites, applications in digital technology used by children to be involved in are safe and suitable for their age [24]. The establishment of digital technology such as a involving the education which brings in digital technology tools during teaching and learning process Furthermore, digital technology helps us to save our time. Such as in education nowadays, the use of digital technology has assisted a lot of students are globally connected, they attach and change a large amount of information all over the world. They do these without leaving their school and classroom [13].

Two folds of technology tools both benefit and weakness require social participation in order to create safe and healthy usage of digital devices for children. Thus, its usage considerably gives more values for the children mainly for helping literacy formation since early.

IV. CONCLUSION

As what have been discussed through this paper, play takes a considerable position in children development. Play offers wide opportunity to improve skills at the same time literacy which is important for living and facing the challenges in this twenty first century era. To support literacy development, children are suggested to be encircled by play-based learning environment which may be assisted by technology tools as the result of technology advancement nowadays. Modern digital devices are seen as literacy artifacts that according to human activities are affected by the use of technical tools. At the same time, he claimed that children also make use of symbols and tools to be employed in practice process which is the aspect of cultural development. The stages of literacy development could be assisted by sophisticated devices improving lately. The help of digital devices may construct the literacy ability so children are capable to be literate since young and it contributes to life-long learning.

However, the advancement of technology in the form of digital devices creates two side opposition perspectives both positive and negative. To be able to handle the use of technology devices, the involvement of social environment around the children is needed. It is to build health and safe technology tools usage for children. The future directions that can be done by parents and teacher are the capability to integrate technology tools in the play-based learning for supporting children literacy and helping them to be literate since young that is advantageous for their whole life.

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