

The Impact of Techno- Pedagogical Practices on Early Childhood Development (ECD) Learners' Healthy Development.

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Abstract: Emerging technologies have transformed teaching and learning. Technology is now being used in various fields and is in people's everyday lives incorporated. The techno- pedagogical activities have become an integral component in all teaching and learning situations. The paper explores issues related to teaching young learners (3-8) years. A case study has been used along with content analysis to draw evidence from a wide range of techno-pedagogical practices. A blended teaching learning model has been used as a yardstick to measure how online tools and resources are used to enhance learning experiences among young learners. The study found out that techno-pedagogy has witnessed a paradigm shift from the traditional chalk and talk but it has its negative side on the part of ECD children's holistic development. The study established that techno- pedagogy creates digital divides among children, overreliance on screens, depersonalise children's learning experiences as well as impacting on physical and mental well-being. The study recommends that children limit technology use while focusing on other tasks and turning off devices where digital activity is not necessary.

Key Words: techno- pedagogy, healthy development, techno-pedagogically damaged

I. Introduction

Technological advancement has changed how people operate in their day to day lives. Technology is now being used in various fields and is incorporated in people's everyday lives. Technology is a tool that can support individuals to do things better, faster and cheaper (Paschal & Gougou, 2021). Emerging technologies have transformed the teaching fraternity world over. Techno pedagogy has become an integral component in early childhood instructions, due to the rapid revolution in the field of Information and Communication Technology. According to Bansal (2022) techno pedagogy is understood as technology integration into teaching and learning. Techno pedagogical activities have become an integral component in all teaching and learning at all levels including early childhood playrooms and classrooms. The teaching fraternity has witnessed a paradigm shift from the traditional chalk and talk to dynamic interactive activities that capture children's attention and deeper engagement. The technological revolution has also made teachers of young children in Early Childhood Development (ECD) to approach shift their roles in facilitating classes at ECD level. Kay, Bradely & Craig (2024) are of the view that integrating technology into early years' programs fosters essential skills in children even as young as three including digital literacy, social competence and problem solving abilities.

Moreover, it should be understood that technology does not only bring what is good in the lives of people since it has its weaknesses and challenges. Zomer & Kay (2016) have recommended more research on the best pedagogical practices on the use of technology in ECD. Kay et al (2024) argue that using technology in early childhood education also presents challenges. Technology, therefore has its impact on the part of ECD learners despite the fact that it has become the strongest factor in shaping the educational landscape today. In their 2024 study Kay et al, established challenges of technology use in early childhood education classrooms as teacher-related, administrator -related and research-related challenges. The study did not consider learner-related challenges in techno pedagogy which is a gap that needs to be addressed. This paper therefore seeks to explore how techno pedagogy impacts overall development of children in ECD.

II. Background to The Study

Techno pedagogy has been coined from two primary rooted words, technology and pedagogy (Bansal, 2022). Pedagogy refers to the methods, strategies and practices used in teaching and education. Vijaya (2017) views techno pedagogy as referring to weaving the techniques of the craft of teaching into the learning environment in order to maximize the ease and clarity in the transmission of information. Techno pedagogy therefore can be taken as the integration of technology into teaching and learning practices to enhance the children's learning experiences. It is, therefore crucial for teachers to have technology knowledge thus having the skills to operate the technologies. The technologies may include computers, PowerPoint, publisher, excel, spread sheets, word processor, use of software, internet and digital videos. Through technology teaching and learning are greatly enhanced through access to diverse resources, promotion of active engagement while fostering collaboration among learners.

In a study carried by Vijaya in 2017 it was revealed that India does not have a national plan for ICT education till as it is the responsibility of the state government to define norms, standards guidelines and frameworks to implement the plan in an effective manner. The current study, therefore seeks to find out how Zimbabwe as a state facilitates and monitors ICT regarding techno pedagogy. According to Paschal, Owino, Tungu & Oyore (2024) the world is increasingly interconnected through technology and techno pedagogy is gaining recognition worldwide. The study by Pascal et al it was noted that use of technologies in Africa has been reportedly not been well implemented as a lack of preparedness. The same study indicated that the COVID-19 pandemic has

intense effect on the use of technologies in education. The influence of the pandemic also influences techno pedagogies in ECD institutions.

The rapid advancement of technology has changed how read, write, teach, communicate and process information (Mahona & Pacho, 2021). Paschal et al have shown that in the context, there is a saying, “If we teach today’s students as we taught yesterday’s we rob them tomorrow. This quote therefore carries out the demand for an innovative approach to teaching at all level including at early childhood development level. Children in the 21st century should not be taught like children the past centuries It is; therefore, the focus of the current research paper is to establish how new technologies are being utilised to equip young learners with relevant skills.

In 2021 a study by Mahona and Pacho revealed that using technology is not enough to complete the actual concept of techno pedagogy but how to critically analyse digital content, information and resources gives a complete idea of techno pedagogy. The current paper, therefore explores how fully techno pedagogy is being used to provide appropriate information and skills among young people in ECD classes. In another 2022 study Paschal & Gougou indicated that the internet has become a great source of information for the global village. Using the internet facilitates teaching and learning, enhances the realization of reality and upholds teaching and learning skills (Garrison, 2017, Jiang & Rafeeq, 2019). This paper delves into whether the content children are exposed to on the internet is suitable for their age level or in line with what they are expected to learn.

In April 2020 over 1,598,099,000 students worldwide (91.3% of the total enrolled students) from preprimary to tertiary education were impacted by school closure as a result of the coronavirus (UNESCO, 2021). The covid-19 pandemic forced schools to adapt and fulfill their functions, challenging teachers to rethink ways to support their teaching and their students’ learning (Courtney, Miller & Gisondo, 2022). Zimbabwean teachers among other teachers worldwide tried to fill the void left by the school closures by adapting to digital technologies. The use of technologies reshaped what learners learn, how they learn, where they learn, when they learn and the extent to which they acquire relevant skills and knowledge.

The researcher has noted the worldwide use of techno pedagogy and has been compelled to take a closer look at how techno pedagogy is being utilised in ECD institutions, specifically in the Zimbabwean context. Young children nowadays are accustomed to the usage of electronic gadgets and integrating them in their learning instruction would automatically increase their interest, active and engaging learning experiences. The impetus behind the researcher is that despite all the positive outcomes techno pedagogy brings to ECD learning environments, there are still some challenges posed by techno pedagogy. This paper therefore explores some challenges brought forth in the use of techno pedagogy in ECD learning environments so as to suggest improvements in the use of techno pedagogy.

Theoretical Framework

The current study has used the lenses of the Technology Acceptance Model (TAM). The TAM posits that actual technology use is directly determined by the individual’s intentions to use the technology (Burgess & Worthington, 2021). The Technology Acceptance Model further predicts that these intentions are directly predicted by (i) an individual’s perceived usefulness of the technology (ii) an individual’s perceived ease of use of the technology. Perceived usefulness is defined as the degree to which an individual believes a particular technology would be beneficial. Perceived ease of use is defined as the degree to which an individual believes that using a particular technology would be free from effort. The TAM predicts that intentions lead to behavior.

The application of the model includes several other predictor variables one of the expansion being that perceived risk of technology has been defined as the degree to which an individual believes that using technology involves exposure to danger (Schnall, Bakken, Rojas, Travers & Carballo –Dieguez, 2015). According to Pavlou (2003) the TAM has been expanded to include the Perceived Trust which has been defined as the degree to which an individual believes that the other part will exploit responsibly. This theory is relevant to the current study because it focuses on how use of technology influences how teachers accept and use knowledge in their instruction and the type of knowledge children acquire in that effect. The theory expansion asserts that technology instruction involves exposure to danger and can affect children in techno pedagogy. Mutekwe (2012) believes that when technology changes its effects can be profound. Techno pedagogy can have the negative effect on the acquisition of knowledge and the development of ECD learners.

Statement of The Problem

Technology has become part and parcel of human lives worldwide, Zimbabwe included. The Zimbabwean education system had to keep pace with current trends and responded to the new innovation by integrating technology from ECD up to tertiary level. The ICT policy in education of 2016 marked a full blown use of techno pedagogy by many teachers including in ECD classes and the abandonment of traditional methods of teaching. This new innovation brought a lot of advantages in the education system, but on the one hand exposing learners to danger. Infusing technology in teaching and learning enhanced teachers’ motivation to teach and increased learners’ interest in school learning resulting in improved results (Matongo, Goronga & Muchenje, 2024). On the one hand Schnall et al. (2015) have noted that expansion of the Technology Adaption Model (TAM) identified the Perceived risk of technology. The Perceived risk of technology gave the researchers the impetus to explore the dangers brought forth by use of techno pedagogy among ECD learners.

Research Questions

- What is the level of techno pedagogy in ECD classes?
- What is the impact of techno pedagogy in the knowledge and development of children at ECD level?
- How can techno pedagogical damages be addressed among children in ECD?

Research hypothesis

- Techno pedagogy has a negative impact on children's overall development.
- Children who are often exposed to techno pedagogy are technologically damaged.
- Technologically damaging children can be avoided.
- Technologically damaged children can be corrected.

Significance of The Study

The study has potential to impact policy on techno pedagogy among ECD learners in Zimbabwe and world over. The dangers or risks of techno pedagogy to be revealed by the current study are going to inform practice in the utilization of digital technologies in teaching and learning of young children. It is assumed that the findings from the current study may drive all the stakeholders in the education of young children to rethink ways in which techno pedagogies can be monitored and effectively used among ECD learners with limited damage to their overall development.

III. Methodology

The research study utilises a survey approach to underpin the exploration on the impact of techno pedagogy on children at ECD level. The study has been conducted among ECD teachers and the children they man by observing behaviors, attitudes and asking opinions regarding techno pedagogy by use of open ended questions. Surveys are used as are a good choice of gathering data when you want to find out about characteristics, preferences, opinions or beliefs of a group of people ((Mc Combes, 2024). A short survey was deemed suitable for the current research study because the researchers had an opportunity to ask questions in person and record the responses. The participants are both rural and urban ECD teachers identified by their pursuing of further studies in ECD programme at Midlands State University (MSU) Harare campus. The researchers found a short survey suitable

Sample Size

A sample is a small manageable version of a larger group containing the characteristics of a larger population (Kenton, Anderson & Velasquez,2024). Stratified sampling has been used to select 50 participants with variation in their geographical location and differences in their techno pedagogical proficiency.

Data Collection

Open -ended questions were used to gather data among ECD teachers on their use of techno pedagogy, the negative impact of techno pedagogical problems among ECD learners and the resolution to techno pedagogically damaged children. Data was collected through a short survey questionnaire with ECD teachers from different parts of the country perusing further studies at Midlands State University Harare Campus.

Data Analysis and interpretation

Data analysis is a process of collecting, transforming, cleaning and modeling data with the goal of discovering the required information (Dewitt, 2020). Data analysis is the process of making sense of unstructured information to uncover patterns and themes and insights that shed light on the human experience. No software was used to sort all the responses or cleaning the data by removing incomplete or incorrectly completed responses. Analysis was done by identifying patterns, themes and relationships of the code responses. According to Mc Combes, (2015) when open ended questions have been asked, one has to code the responses and organize them into categories or themes.

Data interpretation is the act of making sense of the analysed data, drawing conclusions, and making decisions or recommendations based on the findings (Ahmed,2023). Data interpretation is the process of assigning meaning to the collected information and determining the conclusions, significance and implications of the findings. This research study categorised the data into meaningful chunks of information which were then presented to address questions at hand.

Data presentation

Data presentation is an art of transforming raw data into a visual format that is easy to understand and interpret ((Bothra ,2015). According to Hecker & Kalpokas (2025) presenting qualitative data is to make your findings accessible and understandable to others. To present data for this particular research study themes have been drawn from the following insights:

- Whether teachers believe techno pedagogy has a negative impact on ECD children or not.

- How often teachers of young children use techno pedagogy?
- Behavioral problems teachers encounter in using techno pedagogy with ECD learners.
- Damages of techno pedagogy in children's holistic development
- Avoiding technologically damaging or assisting technologically damaged children

IV. Presentation and Discussion of Results

1. Teachers' believes on the negative impact of techno pedagogy on children's holistic development

The findings revealed that the majority (80 %) of the teachers believe that techno pedagogy has a negative impact on children's holistic development, while a few (20 %) believe that technology has no impact on ECD children's holistic development. Even though digital literacy becomes increasingly fundamental for success and crucial for developing children's foundational skills it has proved to also have some negative consequences on the holistic development of learners. Excessive screen time may reduce opportunities for children's real world social interactions affecting empathy, communication skills and emotional intelligence (Joshi & Hinkley ,2021). Fast- paced digital content such as videos and games may condition learners to expect constant stimulation making sustained focus on traditional learning tasks difficult. Over reliance on pre designed digital content may limit children's imaginative problem-solving compared to hands –on, exploratory learning. Prolonged device usage contributes to physical inactivity, leading to obesity poor posture and other related issues.

Excessive screen exposure is linked to digital eye strain and sleep disturbances due to blue light emission. Instant access to information may hinder perseverance and independent problem solving when answers are a click away. Not all learners have equal access to educational technologies, exacerbating educational inequalities. Learners might be exposed to inappropriate content such as violence of which they may learn some bad behaviours vicariously. Excessive use of technology may lead to technology addiction, affecting academic performance and mental health. The concerns of the teachers regarding techno pedagogy is that there should be a mindful integration in the education of early childhood learners ensuring its support to avoid hindering the children's cognitive, social, emotional and physical growth. Generally, a balanced approach to pedagogy among young learners is key to fostering holistic development in the digital age.

2. How often teacher teachers use techno pedagogy

The following themes emerged:

Use techno pedagogy very often

The emerging themes reveal that teachers of young children do not always use techno pedagogy, showing that teachers do not just jump on trends but there are solid pedagogical reasons behind their use of techno pedagogy. Teachers do not engage in techno pedagogy for its own sake but it is always goal oriented. The techno pedagogy should be linked to the modern curriculum demands, preparing children for a tech –saturated world. Teachers of young learners typically ages 3-8 years integrate technology for well researched pedagogical practice and motivational reasons and its use requires careful selection. The key drivers for techno pedagogy with young learners may include:

- Enhanced engagement and motivation;
- Personalized and differentiated learning;
- Development of foundational 21st century skills;
- Accessibility and inclusion;
- Active learning and exploration;
- Immediate feedback and progress monitoring and
- Resource expansion and efficiency.

In essence, techno pedagogy, when used thoughtfully and purposefully, offers educators for young learners powerful tools to enhance engagement, personalize learning, develop essential modern skills, support diverse learners and access rich resources ultimately creating more dynamic, effective and inclusive early learning environments. The key issue lies in the educator's pedagogical expertise to integrate it meaningfully and maintain a healthy balance. Digital technologies can complement, enrich and transform education... but their real potential lies in how they are used (UNESCO,2020). The study, therefore justifies the use of techno pedagogy very often in early learning environments.

Rarely use techno pedagogy: once per week, twice per week, and at regular intervals.

The current study revealed that techno pedagogy in early learning environments remains inconsistent despite the growing availability of digital tools and their potential benefits. Research indicates that while over 90% of U. S preschool classrooms

incorporate some form of educational technology many teachers remain reluctant to fully embrace techno pedagogy in early learning environments. This reluctance stems from a complex interplay of personal and practical barriers that hinder effective technology adoption. Some of the barriers to a full pledged techno pedagogy in early learning environments include:

- Lack of strong administrative support and leadership;
- Budget constraints and infrastructure limitations present another significant systematic barrier to techno pedagogy.
- Many early childhood educators harbor deep-seated fears and doubts about their ability to effectively implement technology in their classrooms;
- Many early childhood educators worry that technology might replace valuable hands-on sensory experiences that are crucial for children's development.
- There is also concern about excessive screen time potentially harming cognitive development;
- Time constraints since teachers already face overwhelming workloads;
- Lack of adequate professional development compounds the time pressure

Additionally, there is usually a mismatch between available technology and curriculum needs. The study, therefore concludes that there is need for addressing these barriers through a multi-faceted approach. The lack of educational infrastructure and poverty raise particular challenges to the introduction of technology mediated in the low (and medium) income countries (UNESCO, 2020). Addressing these complex barriers educational leaders can assist early childhood educators overcome their rare use of techno pedagogy and harness technology to enhance young children's learning experiences. The key issue lies in creating supportive early learning environments where teachers feel empowered rather than overwhelmed by technological change.

3. Behavioral problems encountered in using techno pedagogy

Loose focus during techno pedagogy

Loss of focus is one of the behavioral problems during techno pedagogy identified by the current study. The challenge for contemporary education is not rejecting technology outright, but developing what researchers call "contemplative techno pedagogy" a mindful approach to digital integration and prioritize learning outcomes over technological novelty. By understanding the realities of children's loss of focus during techno pedagogy early childhood educators need to employ evidence-based strategies to promote focus and harness technology benefits while preserving the deep sustainable attention that meaningful learning in early learning environments requires. It is important to remember that **all kids (and adults) struggle with focus and attention at various times**, especially when the task is uninteresting, overly difficult, or monotonous (Beurkens, 2023).

Exhibiting anti-social behavior

The results of the present study indicated that children exhibit anti-social behaviors during techno pedagogy. Techno pedagogy has transformed learning in early learning environments, but it has also introduced new challenges regarding children's social behavior. Empirical research indicates that excessive or inappropriate use of techno pedagogy can contribute to the exhibition of anti-social behaviors in children. This phenomena manifests through various forms such as reduced empathy, increased aggression, social withdrawal and disruptive behaviors. The key lies in using technology as a tool to enhance rather than replace human connection and social learning experiences. In some social contexts or communal settings, antisocial behavior threatens an individual's physical and social survival (Mishra et al., 2024a). Supportive environments from both families and learning institutions can help children navigate techno pedagogical settings while maintaining social development. Application of evidence-based insights can assist educators to harness technology potential while minimizing its risks to children's social functioning source

Lack of resources

Techno pedagogy in early childhood education faces significant barriers due to resource limitations in many learning environments. The severity of this problem may range, but regardless of how bad it is, the lack of resources is evident (Maffea, 2020). While digital tools hold transformative potential for young learners, early childhood educators often struggle with inadequate access to devices, training, funding and support systems necessary for effective techno pedagogy. While constraints are significant, innovative approaches in professional development and community partnerships can help bridge resource gaps, ensuring that all children have access to developmentally appropriate, transformative digital learning experiences. As technology continues to evolve, addressing resource limitations must remain a priority for creating equitable, effective early learning environments.

Laziness

There is an argument that children have become lazy and not ready to do the required hard work. Technology has not made children completely lazy, but definitely children these days do not realize the importance of hard work (Issam, 2015). The label "laziness" is not only inaccurate but counterproductive in educational settings. One educator powerfully states, "Let's stop calling kids lazy". Learners often appear lazy when they find school work meaningless. Techno pedagogy provides tools to move beyond this label. By leveraging technology thoughtfully, educators can create learning environments where all learners including those traditionally

labelled as lazy can find motivation, develop skills and achieve success. The key issue is recognizing what appears as laziness is usually a symptom of unmet needs of mismatched use of techno pedagogy among children, not a character flaw.

Egocentrism

Egocentrism has been identified in this research study as one of children's behavioral problems during techno pedagogy. Egocentrism is a fundamental concept in child development first identified by Jean Piaget as referring to young children's difficulty in distinguishing their own perspective from others. In the context of techno pedagogy, understanding childhood egocentrism becomes crucial for designing effective digital learning experiences. Several aspects of childhood egocentrism have particular relevance for technology enhanced learning. When implementing techno pedagogy early childhood educators must account for the egocentric tendencies that can create barriers to effective pedagogy and learning. This will impact upon their ability to think, interact with others and on their ability to learn as physical, emotional or cognitive experiences required for normal development are either inadequate or absent (Haper,2025). Childhood egocentrism presents both challenges and opportunities for techno pedagogy. Take for example young children's limited perspective taking abilities can create barriers to certain types of technology –mediated learning, well designed digital tools and pedagogies can actually accelerate the development of critical social cognitive skills. Understanding the nature of egocentrism in young learners, educators can select and implement technologies that scaffold children's growing abilities, ultimately preparing them for more sophisticated learning. The key issue lies in designing technology advanced learning experiences while providing appropriate support to overcome egocentric thinking

Lack of communication

Lack of communication in techno pedagogy with young learners may extend beyond a child simply not taking but may manifest as a behavioral pattern. The learner may disengage from the vital, interactive loops of learning, questioning, explaining, collaborating and expressing confusion of which all these are vital for cognitive and social development. Therefore, lack of communication in techno pedagogical settings is a critical behavioral problem that signals a breakdown in the learning process and this points to children's passive consumption rather than active learning during techno pedagogy. Indirect tactics that make advantage of group collaboration, task work and other tactics to generate verbal interaction situations are crucial (Samson &Karthiga,2022). In simple terms techno pedagogy should be a medium for communication not a barrier to it. By choosing the right tools and implementing them together with pedagogical strategies that prioritize dialogue, collaboration and reflection ECD teachers can ensure that techno pedagogy nurtures rather than stifles the essential children's capacity for communication

Children's background

Framing children's background as a behavioral problem is counterproductive and deficit –based approach. It is therefore important to understand how a child's background influences their behavior in techno pedagogy. It is not the child's background that is the problem, but rather the mismatch between techno pedagogy and the child's lived experience that can led to behaviors perceived as problematic. The ultimate goal of techno pedagogy, therefore is not to make every child fit into a rigid technological mold, but to shape technology into a flexible tool that serves the diverse needs of every child. The presence of strong contextual enablers is crucial to create an environment where educators can successfully leverage technology to enhance pedagogy and ultimately benefit students learning (Hota,2023).

4. Techno pedagogical damage

Children always on the technological gadgets

It is crucial to mention this from the outset that technology itself is not is not inherently damaging but the “damage” arises from poor quality, excessive quantity and the replacement of essential developmental activities with prolonged screen- based ones. Techno pedagogical damage is not foregone but a result of unchecked assess and poor pedagogical integration. A survey of research on the possible negative effects of technology on children establishes a connection between the level of a child's use of technology and various developmental and behavior (Research Centre ,2020). If teachers of young children become critical and intentional and balanced, they can harness the benefits of technology while safeguarding the holistic development of the learners.

Content beyond children's level

Presenting children with content beyond their developmental level is often overlooked and it constitutes a significant pedagogical damage within techno pedagogy because it actively undermines the learning process. This can stifle their natural curiosity and development, leaving them less open to seeking guidance or sharing their feelings (COSMO,2024). The goal of techno pedagogy is to deepen understanding, foster creativity and empower all learners. Digital content, therefore should be carefully curated with tools so that it is slightly above the learner's zone of proximal development. It is the educator's responsibility to be the gatekeeper of appropriateness, ensuring that technology serves as a ladder to climb, not a wall to run into.

5. Avoiding or assisting technologically damaged learners

Limiting

Limiting is often viewed as negativity, but when applied thoughtfully it transforms from restrictive measure into a powerful scaffolding and protective strategy. The core idea in limiting is not about deprivation but creating a focused, manageable and safe

environment where learning can flourish. The skilled techno pedagogue is not the one who provides the most apps, but the one who most skillfully curates and constraints the digital experience to serve specific learning goals and the needs of the learners. Technology doesn't have to take charge of your life. You can still use technology without being consumed by it (Pham, 2025).

Monitor children's content and activities

Monitoring children's content and activities is not about surveillance or distrust, but a fundamental pillar of responsive techno pedagogy. Monitoring children's content and activities serves a dual purpose of avoiding harm that is the shield and assisting growth that is scaffolding for all learners, especially those who are technologically challenged. Monitoring is not about watching learners but if implemented thoughtfully it transforms from a top-down act of control into a dynamic feedback loop. The introduction of digital technologies into learning, as in children's lives overall, brings with it new risks and new pathways to familiar risks (UNICEF, 2023). Monitoring provides the essential data ECD teachers need to differentiate instruction, offer a timely support and create a safe environment where all learners especially the most vulnerable can build confidence with technology. Monitoring children's content and activities, therefore is not about watching them but watching out for them.

Counselling sessions

Counselling addresses the internal, affective damage that technology can cause and can move beyond merely managing behavior to healing the emotional and cognitive wounds of the negative technological experiences. The counselor should not be a peripheral figure called in during a crisis but an integral partner, ensuring that during techno pedagogy ECD teachers also equip children with emotional and psychological tools to do so healthily, confidently and safely. The goal for counseling therefore is not just to create ECD children as proficient technology users but to foster well-balanced digital citizens.

Areas for further study

The current study has left out critical areas which could have enriched the study and the areas can be taken for further study to close these gaps. The study should have included the parents and communities to enrich understanding of techno pedagogical impact. The inclusion of parents and the wider community is not just a beneficial but essential for successful implementation and enrichment of techno pedagogy. It transforms technology use from an isolated classroom activity into a holistic learning ecosystem. The ultimate goal in techno pedagogy is the creation of a sustainable and vibrant culture of learning that extends far beyond the classroom walls. The study should have focused on specific tools or platforms, which could limit its applicability across educational settings with varying access to technology. The applicability of techno pedagogy is inherently tied to the tools and platforms used in educational settings. This study, therefore lays a strong foundation for future research and practice in techno pedagogy for ECD.

V. Conclusion

Techno pedagogy in Early Childhood Development is a question of how. The impact of digital tools on a child's optimal development is not inherent to technology itself but is determined by the quality, intentionality and context of its use. Therefore, techno pedagogy when implemented thoughtfully as a complementary tool within a play-based, socially interactive and holistic framework, can positively enhance development. However, when inappropriately as a passive or solitary babysitter it poses significant risks to a child's cognitive, social, physical and emotional wellbeing. The risks of technology are substantial and cannot be over looked. Excessive, unmonitored, or age inappropriate technology use can impede optimal development by hindering real world play, that is crucial for the development of motor skills. Children's face to face interaction is reduced which is important for language acquisition. In ultimate analysis techno pedagogy in ECD must be guided by the principle of "balanced and purposeful integration" Digital tools should not replace but rather extend traditional hands on, play based learning. The optimal development of the child remains the unwavering goal of Early Childhood Development and technology becomes a valuable asset only when it serves this goal. The most effective ECD environments will be those that harness the potential of technology while fiercely protecting the irreplaceable value of human connection, unstructured play and tangible experiences in the real world.

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