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Mothers' Perception Towards Integration of Digital Technology into Early Childhood Education

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Abstract

This study intends to explore the views of mothers regarding digital technology integration into Early Childhood Education (ECE) in West Bengal. Mothers' perception has a significant impact on children's early development. A descriptive study was conducted with 200 mothers from four districts of West Bengal using a three-point questionnaire. The study found that while mothers recognise the benefits of digital technology in ECE, they are concerned about its detrimental effects on young children. They also highlighted certain key responsibilities for Early Childhood Care and Education (ECCE) centres regarding integrating digital technologies into ECCE. Based on the findings, suggestions are offered for improving West Bengal's ECCE system.

Introduction

Digital technology is an essential aspect of today's society. We rely on digital technology for all activities we do in daily life, including communication, shopping, travel, healthcare, finance, transport, agriculture and more. Digital technology plays a significant role in education as well. Many countries have adopted digital technology into ECE. Early childhood is a crucial developmental stage of life, in which children's cognitive, social, emotional, psychological and other developments occur significantly. Various digital technological tools and activities have been used in ECE worldwide to advance and enhance the learning experiences of young children.

In the field of ECE, the emerging digital technologies and activities being used are digital books, interactive whiteboards, reading apps, writing tools, educational videos, digital painting, drawing tools, smart boards, smartphones, digital cameras,

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online storytelling shows, educational games and puzzles, classes through video conferencing, etc. Today's generation mostly prefers digital technology. Many families use mobile phones, laptops, computers, tablets and other technological gadgets for communication and other purposes. So, children can easily access these digital technologies in their homes (Ali et al., 2021). Teaching through digital technology can help children feel entertained and actively engaged in learning. However, digital technology is not widely used in ECE, in India yet. Mothers are the most pivotal stakeholders of ECE, because young children are highly dependent on their mothers during their childhood. Therefore, it is very important to know whether mothers in India are seeking the application of digital technology in ECE or not. Through this study, the researchers mainly tried to uncover the perception of mothers of young children towards integrating digital technology into ECE.

Need and Rationale of the Study

Children enjoy digital activities very much, because most mothers nowadays give their children digital technological tools, like mobile phones and TVs, so that the children do not bother them while they do other work. In a nutshell, children and adults are becoming addicted to technology. By shifting the children's technological addiction towards a good direction, it is possible to reduce the negative impact of digital technology on them. Using digital games to teach social skills is a fun way for children to interact and learn together. It encourages friendship and cooperation. Digital games often require teamwork, communication and problem-solving, which help children develop social skills. It enhances the cognitive skills of children like critical thinking and decision-making, as well as affective skills like empathy. Therefore, if education is provided through digital technology, along with non-digitalised or offline education, children will be more engaged and motivated in their studies.

Before conducting this study, the researchers personally visited several ECCE centres in West Bengal and interacted with ECCE stakeholders. They discovered that there was no provision for teaching using digital technology in government ECCE centres. Therefore, the researchers decided to conduct this study. This study can help gain an insight into how mothers of young children perceive the incorporation of digital technology into ECE for the development of their children in the early years. The reason for including mothers of children aged 3–6 years in this study is that children are almost completely dependent on their mothers for making any of their decisions and doing their daily activities. Also, the researchers have chosen the East Medinipur, West Medinipur, Jhargram and 24 South Parganas districts, because, in these areas, a relatively higher number of children have studied in Anganwadi and pre-primary schools than in

private schools. This choice was important as this study focused on government-run ECCE centres.

Objectives of the Study

The objectives of this study are as follows:

1. To study the parental perception towards integrating digital technology (benefits and risks) in Early Childhood Education during the early years of children's development
2. To study the parental perception towards the responsibilities of ECCE centres when it comes to integrating digital technology into Early Childhood Education

Literature Review

Zakaria et al. (2022) have tried to explore Malaysian mothers' perceptions regarding the benefits and drawbacks of digital technology for young children. The results showed that mothers had a favourable opinion of the computers' ability to teach their kids new and practical information. The results of this study were comparable to the study conducted by Downes (2002), which claimed that children have access to new information through digital technologies; it provides stimulating ways to play and explore. Vittrup et al. (2014) conducted a study on 101 American mothers, and 39 children aged 2–7 years old; and found positive parental attitudes towards media and technology used by their children. They believe media and technology have significant roles in children's development. Integrating technology into ECE setting supports young children's learning and development, particularly concerning social connections (Bracken, 2015). Ralph (2018) conducted a study on iPad use among four-year olds and discovered that while there was no indication of negative effects, there was considerable evidence of positive social behaviour. Furthermore, Couse and Chen (2010) endorsed that computers could better and more meaningfully support children's learning. Werling (2020) conducted a review-based study to explore the effects of digital technology in ECE and reported that digital technology would be helpful for teachers to create a developmentally appropriate environment in the classroom for young children. Osorio-Saez et al. (2021) discovered that mothers were more involved in their children's education when schools supplied or recommended well-structured technology tools, while they were less involved when they thought the offered technology was difficult and above their level of expertise.

Research Gap

The researchers have studied some previous studies related to digital technology integration into ECE. The researchers found that most of the studies on integrating digital technology into ECE have been conducted abroad. After review, the researchers also found that although digital technology is used to some

extent in private ECCE centres, digital technology-guided learning is less available in public ECCE centres or pre-primary schools. A very negligible amount of study regarding digital technology integration into ECE has been conducted in West Bengal. The researchers therefore decided to carry out this investigation to fill these gaps to some extent.

Methodology of the Study

The researchers employed a descriptive survey method. The researchers purposively selected 200 mothers of 3–6 year old children from four districts of West Bengal, namely East Medinipur, West Medinipur, Jhargram and South 24 Parganas. Researchers have developed a self-designed questionnaire for data collection. After that, the researchers personally visited the districts and collected the data from selected mothers from each district.

Table 1
Geographical Distribution of Sample

Sample	Mothers of Children
East Medinipur	55
West Medinipur	45
Jhargram	45
South 24 Parganas	55
Total	200

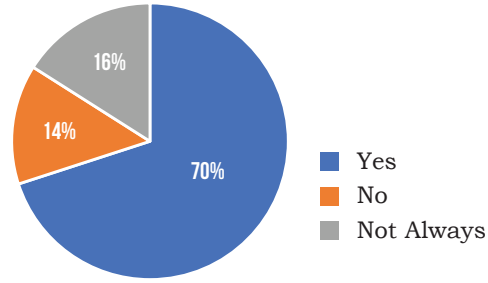
Analysis and Interpretation

Perceived Benefits

1. Do you think digital technology is necessary for ECCE?

Yes	141
No	28
Not Always	31
Total	200

As indicated in the pie chart below, 70 per cent of mothers believe that digital technology is necessary for ECCE. 14 per cent of mothers said digital technology is not necessary, while 16 per cent believed it is not always necessary for ECCE.

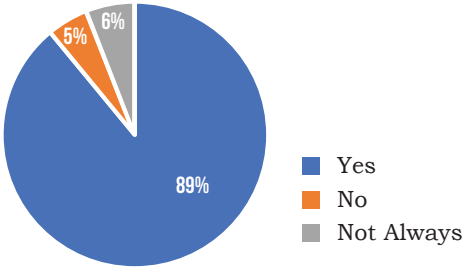


2. Do you think digital technology increases access to educational opportunities for children?

Yes	179
No	9
Not Always	12
Total	200

As seen in the pie chart, 89 per cent of mothers agree that digital technology increases children's access to

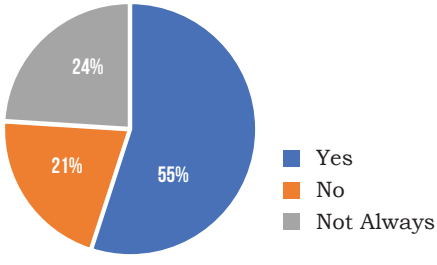
educational opportunities, 5 per cent of mothers do not feel digital technology increases children's access to educational opportunities and 6 per cent say it does not always do so.



3. *Do you think digital technology enhances children's learning experiences?*

Yes	110
No	42
Not Always	48
Total	200

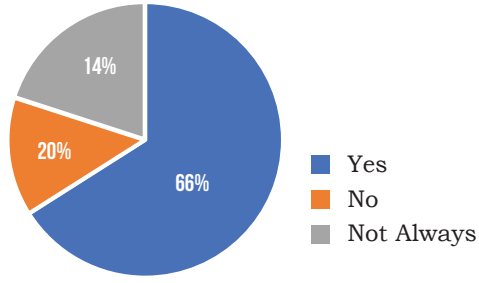
According to the pie chart below, it can be seen that 55 per cent of mothers think that digital technology enhances children's learning experiences, 21 per cent of mothers do not think the same, and 24 per cent of mothers think digital technology does not always enhance children's learning experiences.



4. *Do you believe digital technology supports early literacy and numeracy?*

Yes	133
No	40
Not Always	27
Total	200

From the pie chart below, it can be seen that 66 per cent of mothers believe that digital technology supports early literacy and numeracy, while 20 per cent of mothers do not believe the same and 14 per cent of mothers think that digital technology does not always support early literacy and numeracy.

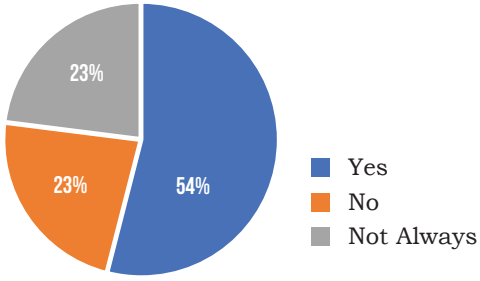


5. *Does digital technology help to improve children's problem-solving skills?*

Yes	109
No	46
Not Always	45
Total	200

As seen in the pie chart, 54 per cent of mothers agree that digital technology helps to improve children's problem-solving skills, 23 per cent of

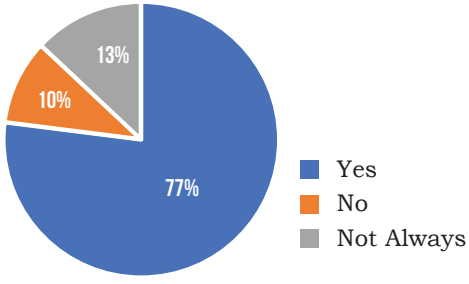
mothers do not feel digital technology improves children's problem-solving skills, and 23 per cent of mothers say it does not always do so.



6. *Does digital technology increase children's engagement and motivation in learning?*

Yes	154
No	20
Not Always	26
Total	200

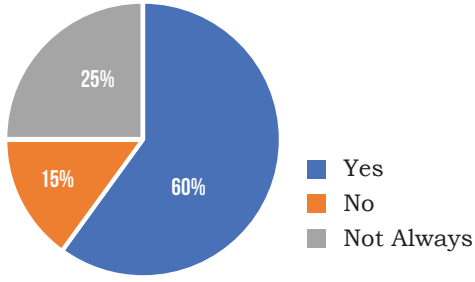
From the pie chart below, it can be seen that 77 per cent of mothers believe that digital technology increases children's engagement and motivation in learning, while 10 per cent of mothers do not believe the same, and 13 per cent of mothers think digital technology does not always increase children's engagement and motivation in learning.



7. *Do you think digital technology prepares children for future educational success?*

Yes	120
No	30
Not Always	50
Total	200

The pie chart below shows that 60 per cent of mothers think digital technology prepares children for future educational success, 15 per cent of mothers do not think the same, and 25 per cent of mothers think digital technology does not always prepare children for future educational success.

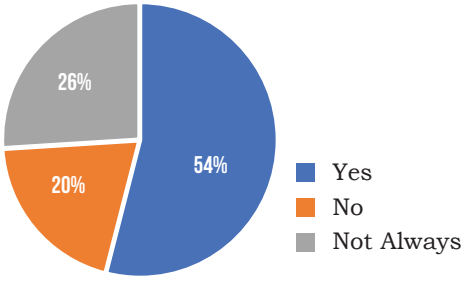


8. *Does digital technology enhance teacher-child and teacher-parent interaction?*

Yes	108
No	40
Not Always	52
Total	200

The pie chart shows that 54 per cent of mothers believe digital technology enhances teacher-child and teacher-parent interaction, while

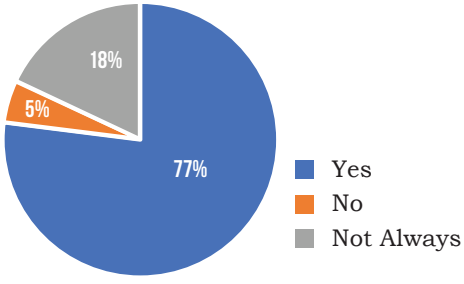
20 per cent disagree, and 26 per cent of mothers believe it does not always do so.



9. Do you support the use of digital resources along with offline resources in ECCE classrooms?

Yes	155
No	10
Not Always	35
Total	200

From the pie chart below, it can be seen that 77 per cent of mothers support the use of digital resources, along with offline resources in ECCE classrooms, while 5 per cent of mothers do not support it, and 18 per cent of mothers do not always support it.

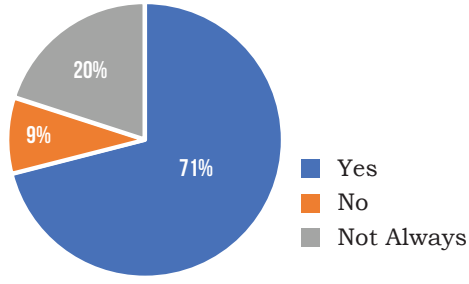


They think digital technology does not always increase children's engagement and motivation in learning.

10. Do you think digital technology helps mothers to receive regular updates on a child's learning progress?

Yes	142
No	18
Not Always	40
Total	200

The pie chart below shows that 71 per cent of mothers believe digital technology helps mothers to receive regular updates on a child's learning progress, while 9 per cent disagree, and 20 per cent of mothers believe it does not always do so.



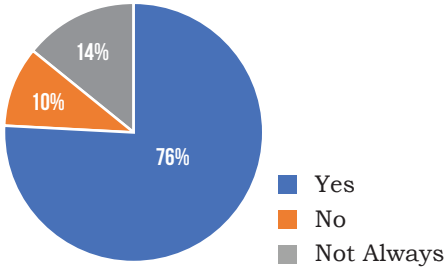
Concerns and Risks

1. Are you concerned about online safety for young children regarding digital technology integration into ECCE?

Yes	153
No	28
Not Always	19
Total	200

As seen in the pie chart, 76 per cent of mothers agree that they are concerned

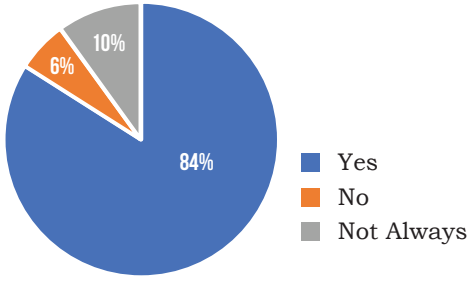
about online safety for young children after digital technology integration into ECCE, 14 per cent of mothers are not concerned about it, and 10 per cent of mothers say they are not always concerned about it.



2. *Do you think digital technology increases the risk of addiction in children?*

Yes	168
No	12
Not Always	20
Total	200

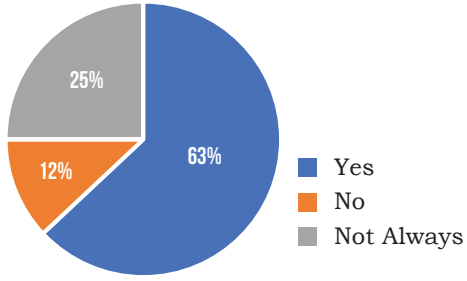
The pie chart shows that 84 per cent of mothers believe that digital technology increases the risk of addiction in children, while 6 per cent disagree with that, and 10 per cent of mothers believe it does not always do so.



3. *Are you worried about children accessing inappropriate content online?*

Yes	126
No	24
Not Always	50
Total	200

From the pie chart below, it can be seen that 63 per cent of mothers are worried about children accessing inappropriate content online, while 12 per cent of mothers do not worry about it, and 25 per cent of mothers do not always worry about it.

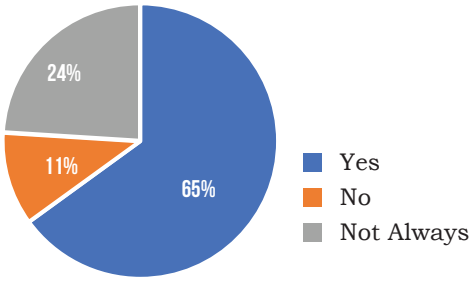


4. *Do you think digital technology exposes children to cyberbullying?*

Yes	130
No	22
Not Always	48
Total	200

As seen in the pie chart, 65 per cent of mothers agree that digital technology exposes children to cyberbullying,

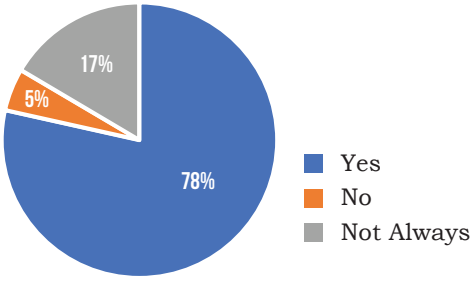
11 per cent of mothers do not feel so, and 24 per cent of mothers say it does not always do so.



5. Do you worry about the bad impact of digital technology on the children's mental and physical health?

Yes	157
No	10
Not Always	33
Total	200

According to the pie chart, it can be seen that 78 per cent of mothers believe that digital technology badly affects children's mental and physical health, 5 per cent of mothers do not think that, and 17 per cent of mothers think it does not always do so.



Mothers' Perception Towards ECCE Centres' Responsibilities with regards to Digital Technology Integration into ECCE

What do you think about the responsibilities of ECCE centres with regards to integrating digital technology into Early Childhood Education?

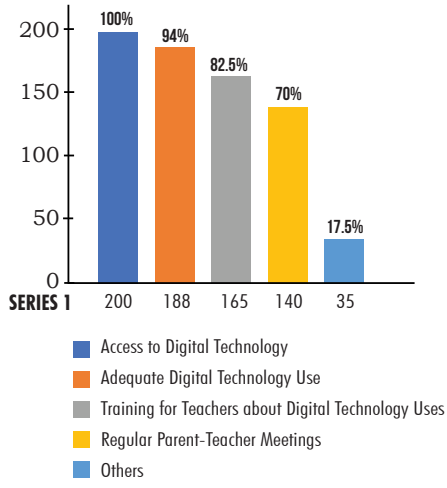


Figure 1: Mothers' Perception Towards the Responsibilities of ECCE Centres on Digital Technology Integration into ECCE

From the above figure, it can be seen that all mothers (100 per cent), who were included in the sample, responded that all governmental ECCE centres (Anganwadi and Pre-primary schools) should provide access to digital technology for children. 188 mothers (94 per cent) responded that ECCE centres should ensure proper

and adequate digital technology use for children's learning, 165 mothers (82.5 per cent) responded that ECCE centres should ensure training of teachers and staff concerning digital technology use in teaching, while 140 mothers (70 per cent) responded that ECCE centres should arrange regular parent-teacher meetings regarding children's use of digital technology in ECCE centres and at home. 35 mothers (17.5 per cent) responded that besides these, ECCE centres should have some other responsibilities in integrating digital technology into ECE. These include having digital literacy in the curriculum along with traditional learning, educating mothers about digital technology use and encouraging them to participate in digital literacy activities, assessing children's digital literacy skills, teaching children about online safety and security, etc.

Discussion

From the above analysis of data, it can be clearly seen that most of the mothers want integration of digital technology into ECE. However, they are also concerned about the bad effects of digital technology on children. Therefore, it can be concluded from the above discussion that the government should integrate digital technology into ECE by taking effective measures to prevent the negative effects of digital technology on children's development, so that all children achieve their maximum potential.

Conclusion

In conclusion, it can be said that by using digital tools, ECCE stakeholders can organise many educational games, use smartboards and storytelling tools, incorporate digital painting, etc., in their daily activities of ECCE to improve children's learning. By doing this, children are attracted to education, and they learn from it and enjoy it very much. Therefore, the government should take appropriate initiatives and focus on properly integrating digital technology into ECCE, so that digital technology-enhanced learning helps to develop children's brains for their future education and prepares them for formal schooling.

Suggestions

Here are some suggestions regarding the improvement in this area:

1. Provide and ensure sufficient access to digital tools and devices, such as smart boards, tablets, computers and laptops, and organise digitalised educational games for the overall development of children;
2. Ensure professional development opportunities for teachers and the teaching staff to build confidence and digital literacy;
3. Create and maintain a safe and secure learning environment for children in ECCE centres; and
4. Organise various awareness programmes to encourage

mothers to participate in their child's digital learning.

Delimitations of the Study

The scope of the study was limited to:

1. The scope of the study was limited to West Bengal only.
2. The study was limited to four districts (East Medinipur, West Medinipur, Jhargram and 24 South Parganas) of West Bengal.
3. The study included only 200 mothers of children from four districts of West Bengal.
4. The researchers have selected only the mothers of the children.
5. The researchers collected data only from the mothers of the children attending Anganwadis and Pre-primary schools in West Bengal.

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