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Who Shapes the Digital Child? YouTube, Early Learning, and Policy Gaps in Pakistan

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ABSTRACT
YouTube holds immense untapped economic and educational potential. Pakistan lacks clear policy guidelines to inform safe digital exposure during early childhood. This paper examines preschoolers' interaction with YouTube and highlights policy gaps that expose children to unregulated content. In-depth interviews were held with 10 parents and 10 early childhood educators from Lahore, Pakistan. Findings of this study suggested that curated YouTube content facilitates improvements in early literacy, language development, and creativity. Whereas, algorithmic drift tends to expose children to overstimulating or inappropriate content that was associated by participants with attention problems, behavioural imbalance and screen dependence. Socio-economic disparities, parents' poor digital literacy, and insufficient educator training are risks compounded by the lack of national digital safety guidelines for early childhood. The results indicate the need for structured early childhood digital safety governance in Pakistan. This research calls for government attention to this concern.

Keywords: Digital Childhood, Youtube, Early Childhood Education, Policy Gaps, Adult Mediation, Algorithmic Exposure, Pakistan

Introduction
In Pakistan, many children of preschool age cannot read/understand the usual school materials. However, platforms such as YouTube are omnipresent and extremely efficient in articulating information. YouTube has earned the status of the first digital space with over 50 million active users in the country (Daily Pakistan, December 29, 2025). The informality of YouTube has transcended teaching, entertaining and led to set behavioural precedents for the youngest learners in Pakistan despite the lack of official monitoring (Zindagi Trust, n.d).

Initially, YouTube was launched as a video-sharing platform for users, but the educational uses of the platform soon became prominent. This increase in video uploads on YouTube is correlated with overall developments in the educational video viewing, which rose from 22 to 38 percent between 2007-2009 (Purcell, 2010; Snelson, 2010) and around 70% in 2015 as per recent statistics (Pandey, 2025). The playlist lessons are designed to address the learning goals in any of the three learning domains: cognitive, affective, or psychomotor learning in online classrooms (Snelson, 2010).

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Digital technologies influence childhood in deep, systematic forms. The unfiltered use of YouTube can potentially make children vulnerable to inappropriate content. In this respect, one of the standards to realize successful mediation is digital literacy among the kids' caregivers (Scott, 2022) in Pakistan. However, here the literacy rates of caregivers vary widely. Parents and educators need to filter the content that young children come across in order to enable them to receive the positive effects of content and prevent the negative implications (Shah Bani and Nordin, 2020).

The majority of parents use passive mediation and utilize YouTube as a "digital pacifier" (Foo & Ng, 2022) without even monitoring the content consumed by the kids (Lev & Elias, 2020). Digital literacy in Pakistan is at its developmental stage, and parents have not yet acquired the skills to choose the appropriate information, so the majority of kids are exposed to potentially harmful content. In Pakistan, the issue of digital divide often intensifies the lack of resources and training to introduce YouTube into the curriculum. Therefore, reducing the optimal efficiency of YT as a learning tool (Yildirim, 2021; Yusof et al., 2022a).

This proliferation of YouTube among preschoolers is a widespread global as well as national phenomenon. However, Pakistan lacks preschool-specific digital policy guidelines. Consequently, YT algorithmic recommendation systems may lead young children through a digital ecosystem which is not oriented towards pedagogy, cognitive competence, or emotional well-being but towards indulgence and user interaction (Eltaher et al., 2025).

This leads to one of the most important questions regarding the social implications of such unbridled usage: Who shapes the content choices of the digital child in Pakistan: the caregivers who have to raise them, the teachers who educate them, or the algorithms that decide what they are going to be shown next?

The urgency of this question can be understood by focusing on early childhood developmental needs. Children at this age are vulnerable to quick adaptation of observational learning, imitation, and behavioural modelling.

Algorithmic platforms such as YouTube, YouTube Kids, Instagram and TikTok operate as recommendation engines and provide an endless array of colourful, high-speed, emotionally salient content to maximize the watch time (Eltaher et al., 2025). These features can be both useful and detrimental to a preschooler: educational videos can be effective at acquiring vocabulary and learning concepts, whereas overstimulating or age-inappropriate videos can affect attention regulation, sleep rhythm, behavioural pattern, and interpersonal communication (Ahmer et al., 2025).

In Pakistan, parents and teachers are becoming more conscious of this two-sidedness of YouTube, but they are also not competent enough to mediate children in their digital lives as they must be, to their disadvantage. The early learning environment is prone to irregularities because of: socio-economic disparities; low digital literacy among caregivers; uneven access to technologies, and absence of institutional or governmental guidance (Ali, October 9, 2025).

The current paper considers the interactions among preschoolers and YouTube with respect to mediation by adults. This research is intended to critically analyze how and why children use YT as a platform, what they gain from it, and how structural factors (especially the design of the algorithm and policy gaps) influence the results (Eltaher et al., 2025).

This investigation is guided by three key questions:

In Pakistan, what is the interaction of preschool-age children with YouTube both at home and in school?

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What are the developmental advantages and threats of YouTube from the perspective of parents and educators?
What are the institutional, social, and policy gaps that shape the exposure of children as they experience YouTube, and how can they be filled?

Literature Review

The learning experiences that children encounter early in life are becoming more influenced by digital platforms. The emphasis of such interactions is monetisation and size, rather than being developmentally relevant. Among these platforms, YouTube plays a central role in determining the daily learning experiences of young children, especially in the Global South where there is no institutional control, early childhood policies of digital control and regulatory policies.
Based on four connected bodies of scholarship, the literature review is necessary in learning about the utility and policy gaps regarding early childhood in Pakistan:

Algorithmic Childhood

Algorithmic childhood is denoted as a digital space, where automated algorithmic logic and data-driven processes control the children's media consumption habits rather than the intentions of adult caregivers (Chaudhary and Dhir, 2021). In contrast, the conventional learning contexts include parents, teachers and curriculum designers as gatekeepers because algorithm-driven sites like YouTube, Instagram and TikTok are based on opaque recommendation systems in which the stream of content is personalized by the attention measurements instead of learning value (Haber and Shahar, 2021).
The lack of early childhood digital governance enhances this algorithmic influence in Pakistan (Punjab Police, n.d; Zindagi Trust, n.d). Having no nationally agreed-upon guidelines for what constitutes child-directed digital content, platforms are essentially default cultural teachers.

YouTube as a Learning Space

In spite of these organizational issues, an emerging body of literature points to the potential of YouTube as an adjunct learning tool in the context of directed and deliberate educational activities. The educational media studies indicate that quality audiovisual media can be used to help in promoting early literacy, numeracy, language learning and conceptual learning (Adisti et al., 2022; Fisch, 2004; Khan, 2025; and Susilowati et al., 2021). YouTube educational videos can be used to help young learners understand and memorize, including phonics teaching, telling stories and using animations to explain (Foo and Ng, 2022; Mayer, 2014).
These benefits are affirmed by empirical studies when mediation is done by adults. Neuman and Celano (2017) established that children who were exposed to designed educational media showed quantifiable improvements in vocabulary and background. Likewise, studies in Southeast Asia and the Middle East suggest that instruction supported by YouTube facilitated the learning of the language and classroom activities when instructors selected the content and included it in the lesson plans (Adisti, 2022; Yusof et al., 2022b).

Threats of Early Screen Exposure and Algorithmic Drift

Although there are educational advantages, there is a significant amount of research warning of unregulated or excessive exposure to screens during the early childhood stage. Research in development correlates excessive screen time with problems with attention,

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sleep disturbance and delayed emotional regulation, as well as poor parent-child communication (Christakis et al., 2004; Strasburger et al., 2013).

One of the explanatory mechanisms for understanding behavioural risks is the Social Learning Theory (Bandura, 1977). Children not only learn through direct instructions, but they also learn by observing and imitating models. The content that is optimized by use of algorithms tends to have overdone emotional expressions, violent humour or language that is socially unacceptable and therefore more likely to get imitated.

An increasing number of studies recognise the presence of algorithmic drift as a structural threat to platform-based media. Even after autoplay and recommendation systems start with educational videos, a faster-paced and more sensational or even borderline inappropriate content that keeps the viewer engaged is introduced gradually. Even child-oriented platforms such as YouTube Kids have difficulty sifting objectionable thumbnails and themes in any consistent manner (Khan, 2025).

These risks are compounded in Pakistan through socio-economic conditions. Lack of access to safe play environments, libraries and early childhood programmes adds to the use of screens to entertain the children and provide education (Mera Pyara, n.d; Punjab Police, n.d). The lack of guidelines on using digital technologies in low-cost private schools leads to inconsistent or haphazard integration of technologies, exposing children to unsupervised content.

Adult Mediation as the Key Moderation Factor

Adult mediation has become the most relevant issue in the modern scholarship as it contributes the most to the results positive or negative of YouTube usage on children (Brauchli et al., 2024; Gateway International School, July 10, 2025; Khan, 2025; Lev and Elias, 2020; Mannell et al., 2024; Pandey, January 12, 2025 and Scott, 2022). There are three kinds of mediation, such as active mediation, where one talks, explains and asks questions about the media; limiting mediation, which is restricted time, content or disabled autoplay; and co-use or joint media use, where one focuses on watching together with others and communicating (Snelson, 2010).

Many adults belonging to remote communities or females in restrictive cultural contexts are still cut off from quality education and digital opportunities, thus leaving them and their children unprepared for the digital world. Children from remote areas also lack support from digitally equipped, skilled teachers and parents. In such environments, children miss out on utilizing technology to learn and productively engage in society. At the same time, online “filter bubbles” and fake information like that created by AI can limit their exposure to diverse ideas and reinforce biases. They are not encouraged to think critically. (Haber & Shahar, 2025. p.14)

However, on the other hand, many digitally literate teachers who viewed the material with children, contextualized the videos, and encouraged reflection, enabled the extent of positive engagement, deep understanding, and enhanced retention among their students (McFarland et al., 2025). In comparison, the use without mediation was linked to dependence, overstimulation, and behavioural disregulation. The digital literacy and support of institutions, as well as adults, were strongly associated with their mediation proficiency (Khan, 2025; Susilowati et al., 2021). The lack of training in teachers resulted in their infrequent YouTube usage, while some teachers did not use digital tools at all. This varied utility made the role of professional development and specific pedagogical prescriptions especially important in taking advantage of the digital media to learn in early childhood (Cowan et al., 2021).

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Policy Gaps and the Governance Vacuum

Although digital safety guidelines named as "Digital Hifazat Toolkit" for "caregivers" and "children" by PTA and child protection legislation exist in Pakistan. However, the current regulatory framework is more concerned with cybercrime, cyber harassment, cyber pornography, and child protection after incidents, targeting teenagers and adolescents until the age of 18 years.

These measures have viewed children mostly as victims of explicit cyber abuses and not focused on children at developmental risk. Such as early age children that utilize algorithmic spaces on video posting sites like YouTube, Instagram and TikTok. Owing to this oversight, children between the age group of 3-5 years, who are in the early stages of cognitive, emotional, and social development, remain unprotected, and their usage remains unregulated within the Pakistani cyber safety framework.

On the contrary, several global frameworks are developing in Denmark, Estonia, South Korea, Australia, the US, UK, Ireland, and the African Union settings. These policy frameworks are specifically composed of child digital well-being as a component of education, data protection and child rights (Bertram and Pascal, 2016). These countries have recognized exposure as a developmental risk in itself and place greater emphasis on transparency, accountability, and protecting the basic rights of children on digital platforms (Moreno and Anania, 2024).

Therefore, there appears to be a substantial policy gap in the literature in the context of Pakistan (Ali, October 9, 2025; Business Recorder, February 21, 2024; Danial, November 3, 2025; Khan, 2025; Mera Pyara, n.d; National Commission on the Rights of Child, February 2024; Pakistan Telecommunications Authority, n.d; Punjab Police, n.d; Zindagi Trust, n.d). It has policies in place through which it deals with digital harm and abuse, but does not have a comprehensive framework in place that deals with issues related to algorithmic and AI-based media exposure to children of early ages up to 5.

In other words, there are no clear pre-emptive measures for early childhood safe digital consumption. UNICEF advocates and guides the states to form practices and policies that act in favour of the fundamental rights of children by careful utilization of digital spaces, social networking sites, AI and algorithms (UNICEF, 2018; UNICEF, 2025). The digital welfare of children is influenced not only by the family habit but by the national policy guidelines and platform responsibility systems (Livingstone, 2020). The developed nations that are establishing a set of screen-time policies, media literacy education programs and regulatory collaboration with platforms will most likely exhibit positive outcomes (UNICEF, 2025).

Thus, Pakistan lacks preschool-specific preventive digital governance frameworks. This structural risk has been identified by the review of existing literature. Without institutional protections, the digital experiences of children are influenced by the strategies of caregivers who utilize algorithms as babysitters (Brauchli et al., 2024) in times of stress as a coping strategy. Moreso, the caregivers' lack of digital literacy worsens the matter further, as does the digital divide.

Theoretical Framework

The use of YouTube by children emerges from the interaction of developmental psychology, media affordances and algorithmic design. This research employs a conceptual framework by integrating concepts from the Social Learning Theory (SLT) and Uses and Gratifications Theory (UGT). These concepts combined clarify the manner in which children learn on YouTube, the reasons why they feel attracted to it, and ultimately, who controls what children see on the YouTube media platform.

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Social Learning Theory: Behavioural Modelling and Observational Learning

According to Social Learning Theory, children acquire knowledge by observing and imitating the models around them (Bandura, 1977). It is argued that when the models that children observe are salient to their eye, when they are emotionally involving, and when they are perceived to be rewarding, the learning process will take place. SLT particularly applies to this early childhood study because preschool learning in digital environments mostly occurs through imitation and modelling rather than abstract reasoning.

SLT emphasizes the importance of mediation by adults. Children do not have an intrinsic differentiation of models that are desirable versus undesirable. Adults offer interpretive scaffolding, that is, clarifying, strengthening, or correcting behaviour as they observe it. In an algorithmic setting where content choice is computerized, without the avenue of adult mediation, children will fall prey to unfiltered behavioural models.

Uses and Gratifications Theory: Reasons that Children Utilize Media

The concept of Uses and Gratifications Theory (Katz et al., 1973) views users of the media as active people who choose media to address their psychological and social needs. These needs are entertainment, sensory stimulation, emotional comfort, repetition, autonomy and familiarity in early childhood. In early childhood, this ‘activity’ is developmentally constrained and usually shaped by adult mediation and design of the utilized platform. UGT describes the reasons why young children are so attracted to YouTube. When the parental digital literacy is low, the gratification-seeking behaviour of the children is compounded with the algorithmic nudging, leading to extended overstimulating or developmentally inappropriate content exposure. This is how UGT clarifies the reasons behind the popularity of YouTube among children, but not why some content prevails.

Framework Integration: Digital Childhood as an Uncontrolled Algorithmic Governance

This combination of UGT and SLT directly addresses the core question of the study: who shapes the digital child- algorithm, caregiver or institution? In the absence of adult mediation, algorithmic recommendation systems may become influential architects of the learning environment of children. This unbridled system of digital interaction should be understood as a form of algorithmic governance which operates without adequate educational or regulatory oversight. However, it can be controlled through technology design, caregiver capacity, institutional practices, and national policy frameworks.

Methodology

The study employed a qualitative research design in which data collection included in-depth interviews. However, the findings are obtained from a small urban sample and are not generalizable to all Pakistani contexts.

Research Design and Paradigm

The study incorporated a qualitative research design where data were collected through in-depth interviews via an open-ended questionnaire. The study followed an interpretivist design and investigated the interactions of preschool-aged children with YouTube and their interpretation from the adults’ perspective.

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Sampling and Participants

Participants with firsthand experience of the "preschoolers using YouTube" were recruited through purposive sampling, such as 10 parents of children aged 3-5 and 10 educators from low-cost private preschools in Lahore. The choice of "low-cost private schools" is justified by the fact that it is the most common early childhood education environment in urban Pakistan, and most private schools informally incorporate technology in their teaching routines without any formal instructions. There was diversity in the participants in terms of level of education, teaching experience and family backgrounds. In terms of limitations, this study only deals with evidence from urban contexts. Rural contexts have inconsistent access to digital devices and internet connectivity so they were excluded to retain analytical focus on algorithmic exposure rather than diverting to access-related constraints.

Data Collection

Semi-structured interviews of 30-45 minutes in Urdu or English were used to collect the data. Interviews were conducted on the patterns of viewing, perceived advantages and riskiness, behaviour change, algorithm experience, mediation approaches, and policy awareness. Audios of all the interviews were recorded, transcribed verbatim, and anonymity was retained. The collection of data continued until thematic saturation was attained after the 18th interview. In addition to primary sources and scholarly studies, this study reviews Pakistani media reports and policy commentaries to contextualize the national discourse on digital child safety. These sources denote the institutional and public discourses within the landscape of mass communication.

Data Analysis

Manual reflexive thematic analysis (Braun & Clarke, 2019) was employed for data analysis, and themes were cross-checked to attain analytical consistency. Initial codes were produced to analyze explicit experiences and observe structural patterns. The integrated theoretical framework was used to interpret the themes.

Trustworthiness and Ethics

Peer debriefing, audit trails, thick description, and reflexive journaling provided credibility, dependability, transferability, and confirmability. Informed consent was obtained, and the participant's confidentiality was ensured. All ethical considerations were followed.

Findings and Analysis

There were three main themes obtained from the analyzed in-depth interviews. The subthemes and their short definitions are given in Table 1 below:

Table 1

Names and Definitions of Themes and Subthemes Obtained from Interviews on Preschoolers' YouTube Usage from Parents and Educators

No. and Name of Theme	Subtheme	Short Definition
1. Curated YouTube Playlist as	1a: Cognitive Growth by Global Exposure and	YouTube enhances preschoolers' cognitive skills by exposing them to

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No. and Name of Theme	Subtheme	Short Definition
a Learning Resource	Interactive Content	diverse cultures, languages, and interactive learning experiences.
	1b: Social-Emotional Learning through Stories	Story-based YouTube content supports preschoolers' emotional regulation, empathy, and conflict resolution skills.
	1c: Self-Directed Learning and Independent Exploration	YouTube empowers preschoolers to explore topics independently, supporting autonomy and critical thinking.
	1d: Enhancing Creativity and Self-Expression	YouTube encourages imaginative play and creative self-expression through artistic, musical, and craft-based content.
2. Algorithmic and Behavioural Risks	2a: Screen Addiction, Algorithmic Recommendations and Decreased Attention Span	Excessive YT usage is associated with screen dependency and reduced ability to focus on non-digital activities.
	2b: Behavioural Dysregulation due to Unregulated Algorithmic Usage	Unsupervised overstimulating YouTube usage is associated with emotional instability and irritable behaviour in preschoolers.
	2c: Social Isolation and Withdrawal	Prolonged screen exposure is associated with replacement of social interactions and reduce interpersonal skills.
	2d: Physical Health Concerns	Excessive YouTube usage is associated with eye problems, bad posture, sleep disturbance and decreased physical activity.
3. Adult Mediation as the Determining Factor	3a: Parental Engagement and Supervision	Active parental involvement in content supervision and co-viewing helps guide healthy YouTube usage.
	3b: Educator's Role in Digital Learning Curation	Educators enhance learning outcomes by curating age-appropriate, educational YouTube content.
	3c: Institutional Policies and Media Usage Guidelines	Few schools implement structured screen-time limits and content regulations to ensure safe YouTube use, while others use informally. No governmental guidelines for early childhood specifically.

Curated YouTube Playlist as a Learning Resource

This study discovered that YouTube is a useful learning tool when carefully selected content is watched by children with caregivers, which is called co-viewing. So that it can become a two-way discussion and interactive practice while gate-keeping the negative

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content. Some positive parental experiences with YouTube viewership of their children are as follows:

Children learn new English words. (Parent 1).

Another parent shared,

...my kids take an interest in finding new things. (Parent 7).

In particular, children showed better results in various developmental dynamics such as, acquiring vocabulary, phonics awareness, numeracy, storytelling comprehension, creativity, and socio-emotional awareness. Some educators shared their positive utilization of YouTube for early-year students both formally and informally in class, such as:

In my class, I have taught anger-management through YouTube videos. (Educator 2)

YouTube provides content in global cultures...children easily learn about the world. (Educator 3).

Parents exclaimed that there was more interest in the content-related activities when digital learning was being transferred to the real world. These results are consistent with the Social Learning Theory (SLT) by Bandura that states that children adapt observational learning and positive modelling. In this regard, the aspect of adult intervention in guiding attention and putting concepts into context strengthens the positive results and enables children to gain cognitive and emotional benefits from digital media (specifically YouTube).

Algorithmic and Behavioural Risks

There were serious behavioural and cognitive dangers associated with the unsupervised usage of YouTube. This drawback of YT is perceived to negatively affect cognitive development and the ability of preschoolers to engage in real-life activities. Several parents shared that their children struggled to disengage from algorithmic loops on screens and threw "tantrums" when asked to "stop" watching videos and "join" "family " or "friends". One parent shared her grievance, which reflected her son's screen addiction:

...even after watching for an hour, he can’t stop. (Parent 2).

These interview responses reflected that children develop a compulsive need to engage with content, which potentially leads to resistance when they are being stopped. Parents expressed that fear of missing out (FOMO) has started “affecting their (childrens’) brain” at such a tender age (preschool). Parents revealed that the children who experienced unregulated screen time displayed a lack of concentration and emotional instabilities. They also modelled unacceptable behaviour to which they were exposed on YouTube.

One educator remarked,

Children who watch highly stimulating content...become agitated later. (Educator 1).

One parent explained,

My toddler started copying the characters from videos. (Parent 4).

Another parent shared,

...she (preschooler) repeated (rude phrases) like the characters (did on YT) (Parent 5).

These examples highlight how children’s behaviour is influenced by the models they observe in the consumed digital content. If a child is exposed to content that features aggressive or disrespectful behaviour without clear consequences, they may internalize these behaviours and act them out in real life -aligning with SLT.

A recurrent theme in the interviews was the physical discomfort that children often experience after extended periods of screen exposure. Many parents reported that their children complained of eye strain and headaches, particularly after spending hours on YouTube. One parent affirmed the detrimental health impacts on her 3-year-old, who was

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not exposed to YT on the smartphone screen until she was 2 years old, while for the past year, she has been using a smartphone to prepare for Montessori and faced some health issues.

..my daughter rubs her eyes constantly…she didn't do this before. (Parent 3)

These perceptions align with research by Susilowati et al. (2021), which highlighted that prolonged exposure to digital screens contributes to eye fatigue, dry eyes, and even blurred vision, symptoms commonly associated with what is known as "computer vision syndrome". Parents also expressed in the interviews that their children often face trouble while falling asleep after prolonged screen time, which affects their mood the next day. In the long run, lack of sleep deteriorates overall health (AAP, 2023).

One of the main causes of these risks was the algorithmic drift, in which by default, following the initial display of harmless and child-safe content by autoplay and recommendations, YouTube began to propose inappropriate videos and, as a result, the child was exposed to content that is even more harmful to him or her than it is to an adult (Weninger, December 30, 2025).

This suggests potential structural risks that are embedded in the design of the platform, where algorithmic recommendation systems influence content sequencing and manage the viewership. Algorithms are designed to optimize engagement and accidentally which may amplify unintended developmental risks to the child viewer. Another issue raised by parents and educators was the reduced ability to regulate behaviour when children were exposed to YouTube for long periods. Several parents described how their children's ability to follow rules or directions diminished after excessive screen time. One parent expressed in this respect that,

He (preschooler) ignores us after watching YouTube (for long)...he can't listen (properly and cannot focus on anything else (Parent 6).

The interview responses reflect the negative effects on self-regulation abilities of a child due to overexposure to YouTube content. Participants suggested that when children are frequently exposed to instant gratification and stimulation, their ability to manage impulsiveness reduces, and they get frustrated in less stimulating environments. The results indicate that the platform may function as a relatively unregulated influence that is likely to counter the developmental objectives of children unless it is actively monitored.

However, digital media dependence on seeking emotional gratification can make real-life social interactions undesirable for children because there is no immediate pleasure in them. Children do not feel interested in seeking emotional rewards from slower and more complex activities. Some parents perceived increased withdrawal and reduced peer interaction among children. Thus, to avoid anxiety and distress, they prefer withdrawal and social isolation. These interview findings reflect that adult mediation is imperative to prevent the negative effects of YT usage, like social isolation, and to encourage meaningful social and digital interaction.

Adult Mediation as the Determining Factor

The responses revealed that the quality of adult mediation proved to be the determinant of reducing the risk and boosting the benefits. The active mediation patterns, including co-viewing, discussion, questioning, and contextualization of video material, were all invariably linked to improved learning and less risky behaviours. Parents ensure screen time is constructive by directing children towards content that develops their thinking. Parents can assess the quality and suitability of the content, one mother shared.

I review the videos before my child watches them. (Parent 1).

Parents bolster the educational worth of YT content by structuring the discussions. As a

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parent stated about her strategy to manage the optimal usage of YT for her children,

…we talked about the video afterwards. (Parent 2).

Management of children's screen time on YouTube is also a critical element of parental supervision. Excessive screen time has been linked with numerous types of developmental issues, such as difficulties with attention span, sleep interference, social disconnection, and physical health issues such as obesity. A parent shared her rule that,

I have a rule at home to watch YouTube for only an hour daily after homework or playtime. (Parent 4).

Time limits ensure that children do not spend excessively long periods in front of screens, so endorsing digital learning as one developmental aspect in the daily routine. On the other hand, using YouTube as an online parent or "algorithm babysitter" without adult supervision had the tendency of making behavioural risks worse; this finding supports the study conducted by Human Rights Research Centre on algorithm-recommended content (Weninger, December 30, 2025). The study on TikTok algorithm revealed that after even 90 minutes of CoComelon cartoon videos, the algorithm drifted to suggest AI-generated fake videos, inappropriate and violent videos to kids. Which means that unsupervised exposure to algorithmic content leads to unfavourable results.

Interestingly, mediation succeeded based on the level of digital literacy and socioeconomic status, where parents or caregivers who were more digitally literate could control the children's unbridled interaction with YouTube. Interview responses of the educators reflected that it is paramount to ensure that e-learning materials on YouTube selected by teachers are age-appropriate and supplement the goals of the preschool curriculum. Almost all teachers emphasized the necessity of aligning digital resources with the curriculum taught traditionally at school, but 8 out of 10 educators revealed that their schools lack formal digital resources to utilize for early childhood students due to a low budget. Educator 2 stated,

If we're learning about animals, I select videos that introduce animals in the wild or discuss their habitats, which helps with vocabulary development.

This approach ensures that the videos reinforce the practical work in the classroom, thus consolidating the lively, engaging learning experience that children are having. Educator 4 also emphasized the importance of tailoring the content to the developmental stage of the students:

I avoid fast-paced or overly complex videos, as they overwhelm the children.

Such judicious selection ensures that preschoolers are not subjected to content that could confuse or distract them, thereby facilitating good learning. Supplemental usage of the YT curriculum enables improved interest and retention of complex concepts by children. For example, Educator 1 explained informal digital usage as,

I use it (YT) for introducing a topic. For example, if we're learning about the seasons, I'll show a video on my phone on how seasons change before going outdoors for a nature walk.

In order to achieve optimal results, critical media literacy needs to be introduced to children through national guidelines on early childhood digital safety so that, with the passage of time, they form a vigilant eye regarding the quality of content that they come across (Khan, 2025). These results highlight that adult participation and not the platform is what will make YouTube a tool of developmental enrichment or a risky platform, and mere usage of the algorithm as a babysitter will prove to pose detrimental effects on the child.

Discussion

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The findings duly address the aforementioned three research questions. Analysis of findings suggested that in Pakistan, algorithmic influence operates within social and caregiving contexts. Mostly, preschool children interact with YouTube at home in a passive, unattended and algorithmic manner without careful curation. Some educated and digitally-literate households practiced curated content exposure, and their kids benefited from the educational potential. While others had no idea how to control inappropriate exposure caused by algorithmic drift. Thus, children were perceived to experience algorithmic and behavioural risks as denoted by findings.

Moreover, in only 2 schools out of 10, formal usage was conducted to gain educational benefits, but mostly in low-income settings, either informal or no digital usage was noted at all. In many cases, YouTube functioned as a babysitter or pacifier for parents, and the content choices of children were mediated by algorithm-based recommendation systems rather than being utilized as a structured educational tool.

According to the findings of the research, YouTube takes a dual position in the development of children at an early age: it is a possible source of education as well as developmental risks, as given in the findings in detail. The findings justify that children imitate observational learning (SLT) through videos, as reflected by respondents (1,2,3,4,5,7), hence the essence of positive behavioural modelling. Some parents also revealed that their children adopted negative habits from YouTube models like talking rudely, abusing and acting like a thief because they mistakenly considered them as powerful heroes.

This discussion highlights the need for special attention to the interaction of children with digital platforms because this study highlights that unmediated content usage is perceived to be associated with detrimental behavioural and cognitive outcomes.

Recommendations for Policy Guidelines

The thematic findings indicate that the problem of early exposure to digital devices requires policy attention and structured governance. The study proposes recommendations which have emerged from parents' and educators' reported challenges in mediation, such as:

Optional national digital literacy certification programs for caregivers, so that parents and guardians acquire some basic skills on how to monitor online materials.

Media-use codes in schools, that direct teachers on how to integrate digital material in the classroom, and how to protect children against the dangers of the algorithms.

Training in digital pedagogy among teachers, to enable them to use platforms such as YouTube to deliver systematic learning without affecting the safety of development.

Cooperation between governments and platform providers in terms of regulation and adherence to child protection norms and content moderation.

Interventions centred on equity to help low-income families (who might not be digitally literate, and cannot access safe options).

A cross-ministerial Digital Safety Task Force should be established to track trends and create coordinated guidelines and interventions by relating data from the education sector, health sector, and the digital media industry.

The focus of this policy approach is on a multi-layered form of governance where the children's involvement in digital media is organized, safe and equitable to balance between innovation and protection. The recommended policy guidelines will provide free digital safety tools and community-based education to low-income social strata to minimize socio-economic inequalities, besides incorporating digital safety and ethical media use in teacher education programs. Coordinated regulatory and educational

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initiatives may strengthen early childhood digital governance in Pakistan.

Conclusion

This research shows that the results of early childhood learning in the algorithmic media context are not necessarily technology issues, but the main concern is the lack of adequate mediation and regulation of technology. As an algorithmic platform, YT has the potential to function as an unregulated educational influence because algorithms enhance both developmental possibilities and risks, depending upon how well they are controlled. The study highlights how the future of early childhood online safety will need school, family, policy and platform provider cooperation. The central issue is not whether children use YouTube but rather how the digital experience is structured and governed. The paper proposes certain policy guidelines for adult mediation and algorithmic accountability to optimally utilize the educational potential of digital platforms (like YouTube) and reduce the inherent risks.

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