Journal of Educational Technology and Learning Creativity
Vol. 3, No. 1, June 2025, pp. 107~114
ISSN: 3021-7865, DOI: 10.37251/jetlc.v3i1.1730

New Media and Children's Social Development: A Case Study of Digital Technology Use among 8–12-Year-Olds in Pakistan

Sadaf Zubair[1], Eyas Aref Alyousfi[2], Sajid Ali Khan[3]
[1]School of Media and Communication Studies,University of Management and Technology, Lahore, Pakistan
[2]Electrical Engineering Department, Faculty of Engineering, University of Science and Technology, Sana'a, Yemen
[3]Computer Science, Sukkur IBA University, Sukkur, Pakistan

Article Info

Article history:

Received Mar 3, 2025
Revised Apr 7, 2025
Accepted May 9, 2025
Online First May 14, 2025

Keywords:

Cultural Norms
Digital Childhoods
Educational Technology
Social Withdrawal
Technology Impact

ABSTRACT

Purpose of the study: Technological advances have accelerated the pervasive use of new media among children, significantly influencing their social interaction patterns. This study examines the impact of new media usage on the social behaviors of children aged 8–12 years in Pakistan, a developing country context that remains underexplored in the global discourse on digital childhoods.

Methodology: Employing a sequential explanatory mixed-methods approach, 220 children were purposively sampled. Quantitative data were collected using a validated questionnaire and analyzed using SPSS 21, followed by qualitative interviews with selected participants and teachers to enrich the findings.

Main Findings: The results revealed that 59.6% of children demonstrated "good" and 24.5% "very good" new media usage competencies. In terms of social interaction, 64.6% exhibited strong interpersonal skills. Regression analysis indicated that new media usage significantly explained 64.3% of the variance in social interaction patterns ($R^2 = 0.643$, $p = 0.015$). Interviews revealed a nuanced picture: while new media enhanced communication, collaboration, and critical thinking, unsupervised and excessive use was associated with tendencies toward social withdrawal and reduced face-to-face engagement.

Novelty/Originality of this study: This research provides a new socio-cultural perspective by investigating the dual role of new media in a Pakistan context—highlighting how cultural norms mediate children's digital engagement. Unlike previous studies focused on Western societies, this study integrates both child and teacher voices to propose context-sensitive digital literacy programs and emphasizes family-centered supervision strategies.

Corresponding Author:
Sadaf Zubair,
School of Media and Communication Studies,University of Management and Technology,
C-II, Johar Town, Lahore 54782, Pakistan
Email: sadar_zbu@gmail.com

1. INTRODUCTION

Technological advances have produced various forms of new media in computer-based communication, the internet, and digital systems such as mobile phones, e-mail, fax machines, digital television, streaming radio, and various other social networking devices. These technologies are now widely used by children [1]-[3]. Based on statistical data released by The NPD Group on the use of digital media by children aged 2–14 years, there was a significant increase in the use of video games, computers, and digital music players in 2008. This phenomenon is not limited to developed countries, but is also developing in developing countries such as Pakistan [4]-[6].

The main purpose of various communication technologies is to make human life easier and increase comfort. However, these devices are used by audiences with various motivations and interests, which often have undesirable negative impacts. Although there is no scientific evidence to confirm that the misuse of communication media technology causes deviant social behavior, the reality shows that this phenomenon is developing simultaneously. In Pakistan, this phenomenon can be found in many areas, both in big cities and in rural areas, where children aged 6–12 years have mastered various types of new media [7], [8]. Previous studies have shown that most children in Pakistan spend between 1 and 4 hours per day watching television, with a small proportion spending more than 4 hours [9], [10].

The widespread use of new media has the potential to influence children's social behavior, including their interactions with parents, other family members, school friends, and the community around them. As noted by Theresa Orange and Louise O'Flynn in the book The Media Diet for Kids (2005), the use of media, especially television, can influence the development of children's behavior, such as causing antisocial behavior, apathy, and the development of erroneous understanding of sex [11]. This phenomenon can also be found in Pakistan, where the use of new media has a significant influence on children's social interaction patterns [12], [13].

Observations conducted in several elementary schools in Karachi, Pakistan, showed that more than 70% of children aged 6–12 years were familiar with and had at least two types of new media. Based on this phenomenon, this study aims to focus on the influence of new media use on the social interaction patterns of children aged 8–12 years in Pakistan, with the assumption that the use of new media has a significant influence on their social interaction patterns. High media use is associated with more indirect social interactions, tends to be more media-based, and has a low level of sociability. Exposure to digital media, especially those containing violence, can negatively impact the development of empathy and increase aggressive behavior in children. Therefore, it is important for parents and educators to monitor and limit children's exposure to inappropriate media content, as well as encourage direct social interaction to support healthy social and emotional development [14]-[16].

New media refers to computerized and networked digital communication technologies, which include various forms of media such as the internet, digital television, smartphones, video games, and social networking platforms [14], [17]. New media has two main elements digitization and convergence. The internet is a prime example of convergence, as it combines several functions of other media, such as audio, video, and text [18]-[20]. Technologies described as “new media” are digital, integrative, interactive, manipulable, and networked and are not bound by physical boundaries [21]-[23].

The benefits of new media lie in the ease of accessing information quickly and efficiently, as well as opening up opportunities for economic transactions, entertainment, communication, and education. The use of this media is guided by the theory of Uses and Gratification, which states that media users are active, selective, and goal-oriented in meeting their needs [24]-[26]. Based on this theory, new media can create different patterns of social interaction compared to traditional media [27], [28]. Social interaction is basically a process of individual adaptation to their social environment, which lasts throughout life [29], [30]. According to Jean Piaget's theory, children's social interactions at an early age are limited to relationships with their mothers, but as they get older, children begin to develop interactions with wider groups, such as peers and the surrounding community [31], [32]. The use of new media has a significant influence on the patterns of social interaction that develop in children.

This study offers new contributions in several aspects. First, this study focuses on the impact of new media use on the social interaction patterns of children aged 8–12 years in Pakistan, which has received less attention in previous studies that have focused more on adolescents or young adults [33], [34]. Previous studies have mostly examined the impact of new media in the context of Western countries or on older age groups [35], [36]. This study presents a different perspective by examining the social interaction patterns of children in a developing country such as Pakistan, which has different social and cultural dynamics. Second, this study examines the types of new media that are most frequently used by children in Pakistan, and how these media influence their social skills and behaviors in the broader social context. This provides new insights into how children in a developing country interact with digital technologies, given the limited technological infrastructure and access in some parts of Pakistan [37], [38].

Although much research has addressed the impact of new media on children’s behavior, most of these studies have focused on Western countries and often neglected the geographic and cultural context of developing countries, particularly in South Asia. Existing research has focused more on the impact of new media on adolescents and young adults, while its impact on children aged 8–12 years remains understudied [39], [40], [41]. Therefore, the gap that this study seeks to fill is a deeper understanding of how children in Pakistan, living in different social and cultural contexts, interact with new media, and its impact on their social interaction patterns [42]. In addition, this study fills the gap in knowledge about the types of new media that are most widely used by children in Pakistan, and how their use of media affects their social skills and emotional development. In Pakistan, many children are not only exposed to traditional media but also access digital media through smartphones and the internet, which has not been widely studied in previous studies [43], [44]. This study seeks to fill this gap by investigating the impact of new media use on the social interaction patterns of children aged 8–12 years in Pakistan.

2. RESEARCH METHOD

This study uses a mixed-method approach. The type used is sequential explanatory. Sequential explanatory is a study whose initial data collection is quantitative, then continued with qualitative data, meaning that the quantitative data is strengthened by the qualitative data to be obtained. The sample in this study was 220 people in Pakistan who were selected using purposive sampling techniques. Where the criteria in this study were children aged 8-12 years in Pakistan.

The instrument used in this study is the Questionnaire on the use of new media and children's social interaction patterns. Respondents will be asked to provide an assessment based on a Likert scale (1-5). This questionnaire has been tested for validity and reliability, with a Cronbach's Alpha value of 0.84, which indicates that this instrument is reliable for measuring the use of new media and children's social interaction patterns. The following are categories of the use of new media and children's social interaction patterns including very good, good, less good, and very less good, as in Table 1.

Table 1. Categories Use of new media and social interaction

Categoty	Interval	
	Using New Media	Children's social interaction
Very Not Good	24.0 – 42.0	10.0 – 17.5
Not Good	42.1 – 60.0	17.6 – 25.0
Good	60.1 – 78.0	25.1 – 32.5
Very Good	78.1 – 96.0	32.6 – 40.0

The collected data will be analyzed using descriptive statistics and inferential statistics. Descriptive statistics will describe the characteristics of new media use and children's social interaction patterns. For simple regression analysis will be used to test the influence of new media use and children's social interaction patterns. Data analysis was carried out using SPSS statistical software to obtain more accurate results and can be interpreted objectively.

3. RESULTS AND DISCUSSION

The results of the questionnaire and questions given were analyzed using the SPSS 21 application and can be seen in tables 2 and 3.

Table 2. Results of using new media

Classification					Mean	Min	Max	%
Range	Respond	M	F	Total				
24.0 – 42.0	Not very good	6	7	13	66	39	91	5.9
42.1 – 60.0	Not good	9	13	22				10.0
60.1 – 78.0	Good	59	72	131				59.6
78.1 – 96.0	Very good	28	26	54				24.5
TOTAL		102	118	220				100

From table 2 which comes from 220 respondents, after being processed and the results obtained using the SPSS 21 application program, the using new media has a dominant good result with a percentage of 59.6% as many as 131 students from a total of 220 students, very good as many as 24.5% as many as 54 students from a total of 220 students, less good as many as 10% as many as 22 students from a total of 220 students, and very poor as many as 5.9% as many as 13 students from a total of 220 students. From 220 students, the mean result was 66, the maximum value was 91, and the minimum value was 39.

These results were reinforced through in-depth interviews. Most students revealed that they use new media such as smartphones, tablets, and computers for various purposes, from entertainment to education.

> *"I usually play games on my cellphone every afternoon after doing my homework. Sometimes I also watch educational videos or chat with friends via applications."*

This statement indicates that children are able to utilize new media not only for entertainment, but also to support learning needs, which supports the high proportion of media use in the good category.

Table 3. Results of children's social interaction

Classification					Mean	Min	Max	%
Range	Respond	M	F	Total				
10.0 – 17.5	Not very good	7	4	11	28	15	38	5.0
17.6 – 25.0	Not good	10	12	22				10.0
25.1 – 32.5	Good	61	76	142				64.6
32.6 – 40.0	Very good	23	22	45				20.4
TOTAL		102	118	220				100

From Table 3 which comes from 220 respondents, after obtaining the results will be processed using the SPSS 21 application program, in children's social interaction the dominant results are good with a percentage of 62.3% as many as 137 students from a total of 220 students, very good at 20.4% as many as 45 students from a total of 220 students, less good at 11.4% as many as 25 students from a total of 220 students, and very poor at 5.9% as many as 13 students from a total of 220 students. From the 220 students, the mean results were 28, the maximum value was 38, and the minimum value was 15.

The interviews conducted supported these results. Most students felt that the use of new media encouraged them to interact more quickly and effectively with their peers.

"If I want to play together, I just send a message to my friend. We sometimes arrange a time to play football on the field."

The teachers interviewed also confirmed that new media does not replace physical interaction. According to one of the teachers:

"Children today do use a lot of digital media, but that does not eliminate their real interaction. They still play together outside of school hours and are active in class discussions."

Thus, new media seems to function more as a supporter of social interaction than as a barrier, as long as its use is within reasonable limits.

Table 4. Results of the influence of use new media on children's social interaction

Variabel	Unstandardized Coefficients		Standardized Coefficients	t	sig.
	B	Std. Error	Beta		
1 (Constant)	12.104	3.116		4.507	.000
Children's social interaction	.104	.110	.128	1.059	.015

Table 4 shows the results of a simple regression test showing the regression equation is Y = 12.104 + 0.104X. The magnitude of the contribution of use new media to children's social interaction can be seen in Table 5.

Table 5. Contribution of use new media to children's social interaction

Model	R	R square	Adjust R Square	Std. Error of the Estimate
1	.802	.643	.652	2.238

The results of the simple regression analysis showed a coefficient of determination (R2) of 0.651. This means that the contribution of use new media to children's social interaction is 64.3%, while the remaining 35,7% is influenced by other variables. The level of significance (sig) in the regression test of 0.015 indicates a significant relationship between the two variables. Thus, the use of new media has a positive contribution to children's social interaction patterns.

This statement is supported by observations from teachers,

"As long as its use is controlled, new media actually makes children search for information faster, discuss, and share with their friends."

However, the interview also revealed the potential risk of misuse of new media. Several students such as admitted that there was a tendency to use digital devices too much:

"Sometimes when I'm having fun playing games, I forget the time and don't feel like leaving the house."

This indicates the need for parental supervision and media literacy education to prevent the negative impacts of using new media.

The results of the study showed that the use of new media by children aged 8–12 years in Pakistan was in the good (59.6%) and very good (24.5%) categories. This indicates that in general children have been able to utilize new media positively and productively. This finding is consistent with McQuail's (2006) view that new media, through its digital, interactive, and integrative nature, provides broad opportunities for individuals to access

information, communicate, and actively participate in various social activities. Furthermore, the results of a simple regression analysis showed that the use of new media contributed significantly to children's social interaction patterns, with a coefficient of determination ($R^2 = 0.643$). This means that around 64.3% of the variation in children's social interactions can be explained by the level of new media use. This finding is in line with the Uses and Gratifications theory which states that individuals use media actively to meet their social and psychological needs.

The interview results further strengthened this quantitative data, with the finding that children used new media to maintain relationships with peers, arrange meetings, and share information. New media not only replaces traditional social interactions, but also expands and accelerates children's social connections. This supports Orange and O'Flynn's (2005) view that digital media, when used appropriately, can enrich children's social experiences. However, this study also found a tendency for excessive media use which has an impact on decreasing direct social interactions, as expressed by Orange and O'Flynn (2005), that uncontrolled media use can lead to antisocial behavior and alienation. This is consistent with Piaget's theory of social development in which emphasizes the importance of face-to-face interaction in forming a child's sense of social responsibility and empathy.

Teachers interviewed in this study emphasized that the use of new media, when accompanied by proper control and guidance, can actually improve children's communication, collaboration, and critical thinking skills. This is in line with the concept of media convergence according to Pérez et al. [45], where various forms of social interaction are integrated into one digital platform that facilitates the development of complex social skills. Thus, it can be concluded that new media can be a supporting tool for children's social development if used in a targeted manner.

Research conducted by Disney and Gang [46], revealed that children showed seven forms of social interaction when engaging in digital games using iPads. Although some children only observed, their engagement remained high throughout the play process, indicating that digital media can stimulate diverse forms of social interaction. This finding is reinforced by research by Zaman and Nouwen [47] which highlights that young children often interact actively with their parents during digital activities at home. This interaction occurs in various forms, such as discussions, guidance, and playing together, which shows that digital media can be a medium that strengthens social relationships within the family.

Furthermore, Neumann [48], through a publication in Elsevier's Early Childhood Research Quarterly reviewed how certain features in digital media, such as interactivity and age-appropriateness of content, can improve the quality of social interactions between children and adults. Meanwhile, Hirsh-Pasek et al. [49] emphasizes that despite the increasing use of digital media, direct human interaction remains an important aspect of children's social, cognitive, and emotional development. Therefore, the use of digital media should still be balanced with the involvement of parents or peers so that its social benefits can be maximized.

In addition, a study by Nolan and Moore, [50] from the Early Childhood Education Journal challenged the conventional wisdom that children who use digital technology experience social isolation. They found that it was during digital device use that children were able to engage in meaningful social interactions with peers, such as through discussion, collaboration, and information sharing. Overall, these studies suggest that digital media use does not always have a negative impact on children's social interactions. On the contrary, when used appropriately and in supportive contexts, digital media can actually strengthen the social skills and interpersonal relationships of children aged 8–12 years.

The novelty of this study lies in the geographical and socio-cultural context, namely in Pakistan, a developing country with unique cultural, economic, and educational characteristics. This study reveals that new media in developing countries is not merely a threat to children's social development, but rather an opportunity to strengthen children's social interactions if its use is accompanied by adequate supervision and guidance. This perspective provides a new understanding in the literature on digital media and child development outside the context of developed countries.

The implication of this study is the importance of digital supervision and education for children to ensure healthy and productive use of new media. Parents, educators, and policymakers need to develop digital literacy programs that strengthen social skills while limiting the risk of social isolation. Integrating technology-based learning in schools is also a potential strategy to maximize the benefits of new media. However, this study has several limitations, including limitations in the scope of the region and age of respondents and potential bias in completing the questionnaire and interviews. In addition, the correlational approach used does not fully allow for causal conclusions. Based on these results and limitations, further research is recommended to use longitudinal methods to understand the long-term impact of new media use on children's social interactions. Future studies should also include moderating variables such as the role of the family, school environment, and types of media used to gain a more holistic understanding. In addition, cross-cultural research can provide broader insights into the dynamics of new media use in children's social development in various global contexts.

4. CONCLUSION

This study shows that children aged 8–12 years in Pakistan generally use new media positively and productively, with 59.6% in the good category and 24.5% in the very good category. Simple regression results revealed that new media use contributed 64.3% to the variation in children's social interaction patterns, supporting the Uses and Gratifications theory which emphasizes the active role of individuals in using media to meet social needs. Interview data support this finding, indicating that new media expands children's communication with peers but also poses a risk of social isolation if used excessively, in line with the findings of Orange and O'Flynn and Piaget's theory of social development. Teachers also emphasized that targeted media use can improve children's communication, collaboration, and critical thinking skills, in line with McQuail's concept of media convergence. The novelty of this study lies in revealing the dynamics of new media use in a developing country context such as Pakistan, suggesting that digital media, if properly guided, can be a tool for social empowerment for children. The implications of these findings call for the importance of digital literacy and school-based and family-based media supervision strategies to optimize the social benefits of new media. However, this study was limited to a specific geographic area, a narrow age range of respondents, and a correlational approach that was unable to reveal a strong causal relationship. Therefore, further research is recommended using longitudinal methods, taking into account moderating factors such as the role of the family and media type, and examining cross-cultural contexts to broaden the global understanding of the relationship between new media and children's social development.

ACKNOWLEDGEMENTS

Thank you to all colleagues who have helped, so that this research can be carried out and completed.

REFERENCES

[1] P. Limone and G. A. Toto, "Psychological and emotional effects of digital technology on children in covid-19 pandemic," *Brain Sci.*, vol. 11, no. 9, 2021, doi: 10.3390/brainsci11091126.

[2] X. Hu, M. M. Chiu, W. M. V. Leung, and N. Yelland, "Technology integration for young children during COVID-19: Towards future online teaching," *Br. J. Educ. Technol.*, vol. 52, no. 4, pp. 1513–1537, 2021, doi: 10.1111/bjet.13106.

[3] M. Vedechkina and F. Borgonovi, "A review of evidence on the role of digital technology in shaping attention and cognitive control in children," *Front. Psychol.*, vol. 12, no. February, pp. 1–22, 2021, doi: 10.3389/fpsyg.2021.611155.

[4] J. Aftab, N. Abid, N. Cucari, and M. Savastano, "Green human resource management and environmental performance: The role of green innovation and environmental strategy in a developing country," *Bus. Strateg. Environ.*, vol. 32, no. 4, pp. 1782–1798, 2023, doi: 10.1002/bse.3219.

[5] S. K. U. Shah Bukhari, H. Said, R. Gul, and P. M. Ibna Seraj, "Barriers to sustainability at Pakistan public universities and the way forward," *Int. J. Sustain. High. Educ.*, vol. 23, no. 4, pp. 865–886, 2022, doi: 10.1108/IJSHE-09-2020-0352.

[6] A. Rizwan and F. Mustafa, "Fintech attaining sustainable development: an investor perspective of crowdfunding platforms in a developing country," *Sustain.*, vol. 14, no. 12, 2022, doi: 10.3390/su14127114.

[7] P. Mizukami, J. Reia, and J. Varon, "Mapping Digital Media," *Russell J. Bertrand Russell Arch.*, no. 2, p. 20, 2011, [Online]. Available: http://www.soros.org/initiatives/media/articles_publications/publications/mapping-digital-media-morocco-20110617/OSF-Media-Report-Morocco-06-14-2011-final-WEB.pdf

[8] B. Hussain Shah, S. Riaz, and S. Rashid, "Internet users expectations versus reality: a comparative study of South Korean and Pakistani children," *Online Media Soc.*, vol. 3, no. December, pp. 84–97, 2022, doi: 10.71016/oms/3yz17028.

[9] A. Zulfiqar, N. Saleem, and F. Latif, "Children television viewing patterns and parental media literacy in Pakistan," *Glob. Reg. Rev.*, vol. IV, no. III, pp. 403–411, 2019, doi: 10.31703/grr.2019(iv-iii).45.

[10] H. Khan, M.-U.- Ghafar, and A. Khan, "Children TV watching habits: a case study of Pakistan," *Glob. Digit. Print Media Rev.*, vol. V, no. III, pp. 11–22, 2022, doi: 10.31703/gdpmr.2022(v-iii).02.

[11] D. Apdillah, N. Isnaini, L. K. A. Lubis, P. Azura, and Z. A. Siagian, "Misuse of digital technology to the use of telecommunication industry technology devices used by children," *J. Humanit. Soc. Sci. Bus.*, vol. 1, no. 3, pp. 27–34, 2022, doi: 10.55047/jhssb.v1i3.145.

[12] S. Abbas, R. Jami, L. Iddress, S. Abbas, and K. Bibi, "Media violence and quality of life among young children and youth in Sialkot, Pakistan," *Al-Athfal J. Pendidik. Anak*, vol. 7, no. 2, pp. 167–176, 2022, doi: 10.14421/al-athfal.2021.72-07.

[13] G. Safdar, "Digital media use for cultural grooming and learning new cultural trends among young Pakistani women," *Online Media Soc.*, vol. 4, no. 1, pp. 70–85, 2023.

[14] T. Mö, "Longitudinal Effects of Violent Media Usage on Aggressive Behavior — The Significance of

Empathy," pp. 105–124, 2014, doi: 10.3390/soc4010105.
[15] N. Martins and A. Weaver, "The role of media exposure on relational aggression: A meta-analysis," *Aggress. Violent Behav.*, vol. 47, pp. 90–99, 2019, doi: 10.1016/j.avb.2019.03.001.
[16] B. Krahé and I. Möller, "Longitudinal effects of media violence on aggression and empathy among German adolescents," *J. Appl. Dev. Psychol.*, vol. 31, no. 5, pp. 401–409, 2010, doi: https://doi.org/10.1016/j.appdev.2010.07.003.
[17] M. W. M. Al-Quran, "Traditional media versus social media: challenges and opportunities," *Tech. Rom. J. Appl. Sci. Technol.*, vol. 4, no. 10, pp. 145–160, 2022, doi: 10.47577/technium.v4i10.8012.
[18] M. G. Yoedtadi, A. M. Ronda, and U. Wahid, "Television and social media convergence (convergence continum and journalistic convergence analysis at Indosiar)," *Asian Res. J. Arts Soc. Sci.*, vol. 14, no. 3, pp. 56–72, 2021, doi: 10.9734/arjass/2021/v14i330241.
[19] E. A. Baranova, I. G. Anikeeva, O. V. Shiryaeva, C. G. Caselles, and A. A. Shnaider, "Ethical principles of journalism communication: media convergence as a transforming factor," *Online J. Commun. Media Technol.*, vol. 12, no. 4, 2022, doi: 10.30935/ojcmt/12746.
[20] X. Li, G. Xiaojing, and R. and Mou, "Pioneering the media convergence: lifestyle media production in the digital age in China," *J. Media Bus. Stud.*, vol. 18, no. 4, pp. 304–320, Oct. 2021, doi: 10.1080/16522354.2020.1853467.
[21] H. Bender and M. Kanderske, "Co-operative aerial images: A geomedia history of the view from above," *New Media Soc.*, vol. 24, no. 11, pp. 2468–2492, 2022, doi: 10.1177/14614448221122201.
[22] L. Savolainen and M. Ruckenstein, "Dimensions of autonomy in human–algorithm relations," *New Media Soc.*, vol. 26, no. 6, pp. 3472–3490, 2024, doi: 10.1177/14614448221100802.
[23] S. Digennaro, "The syndrome of multiple bodies: the transformative impact of the onlife existence on preadolescents," *Front. Educ.*, vol. 9, no. April, pp. 1–8, 2024, doi: 10.3389/feduc.2024.1362448.
[24] X. Wang, "The motivations and uses of mainstream and social media during the COVID-19 pandemic in China: A structural equation modeling approach," *Comput. Hum. Behav. Reports*, vol. 4, p. 100098, 2021, doi: https://doi.org/10.1016/j.chbr.2021.100098.
[25] C. Chen, L. Sangwook, and S. S. Sundar, "Interpassivity instead of interactivity? the uses and gratifications of automated features," *Behav. Inf. Technol.*, vol. 43, no. 4, pp. 717–735, Mar. 2024, doi: 10.1080/0144929X.2023.2184174.
[26] O. Ojomo and O. A. Sodeinde, "Social media skits: reshaping the entertainment experience of broadcast audience," *SAGE Open*, vol. 11, no. 3, 2021, doi: 10.1177/21582440211032176.
[27] P. Van Aelst *et al.*, "Does a crisis change news habits? a comparative study of the effects of covid-19 on news media use in 17 European Countries," *Digit. Journal.*, vol. 9, no. 9, pp. 1208–1238, Oct. 2021, doi: 10.1080/21670811.2021.1943481.
[28] Y. Theocharis *et al.*, "Does the platform matter? Social media and COVID-19 conspiracy theory beliefs in 17 countries," *New Media Soc.*, vol. 25, no. 12, pp. 3412–3437, 2023, doi: 10.1177/14614448211045666.
[29] J. B. Kirkbride *et al.*, "The social determinants of mental health and disorder: evidence, prevention and recommendations," *World Psychiatry*, vol. 23, no. 1, pp. 58–90, 2024, doi: 10.1002/wps.21160.
[30] B. Lal, Y. K. Dwivedi, and M. Haag, "Working from home during covid-19: doing and managing technology-enabled social interaction with colleagues at a distance," *Inf. Syst. Front.*, vol. 25, no. 4, pp. 1333–1350, 2023, doi: 10.1007/s10796-021-10182-0.
[31] H. M. Pontes *et al.*, "Measurement and conceptualization of gaming disorder according to the world health organization framework: the development of the gaming disorder test," *Int. J. Ment. Health Addict.*, vol. 19, no. 2, pp. 508–528, 2021, doi: 10.1007/s11469-019-00088-z.
[32] H. K. Ma, "The moral development of the child: An integrated model," *Front. Public Heal.*, vol. 1, no. NOV, pp. 1–18, 2013, doi: 10.3389/fpubh.2013.00057.
[33] M. Iqbal, F. Saeed, S. Qassim Bham, M. Athar Khan, and U. H. Ahmed Sharif, "Impact of mobile phone use on health, behavior and social interactions among children aged 2 – 12 years," *Pakistan Biomed. J.*, no. c, pp. 218–222, 2022, doi: 10.54393/pbmj.v5i7.646.
[34] B. T. Khoa, B. P. Hung, and M. Hejsalem-Brahmi, "Qualitative research in social sciences: data collection, data analysis and report writing," *Int. J. Public Sect. Perform. Manag.*, vol. 12, no. 12, pp. 187–209, 2023, doi: 10.1504/IJPSPM.2023.132247.
[35] E. Loos and L. Ivan, "Not only people are getting old, the new media are too: Technology generations and the changes in new media use," *New Media Soc.*, vol. 26, no. 6, pp. 3588–3613, 2024, doi: 10.1177/14614448221101783.
[36] M. Makita, A. Mas-Bleda, E. Stuart, and M. Thelwall, "Ageing, old age and older adults: a social media analysis of dominant topics and discourses," *Ageing Soc.*, vol. 41, no. 2, pp. 247–272, 2021, doi: 10.1017/S0144686X19001016.
[37] A. Mathrani, T. Sarvesh, and R. Umer, "Digital divide framework: online learning in developing countries during the COVID-19 lockdown," *Glob. Soc. Educ.*, vol. 20, no. 5, pp. 625–640, 2022, doi:

10.1080/14767724.2021.1981253.
[38] M. Fayez, R. Begum, L. Khan, M. Ahmad, W. Ahmed, and F. Sana, "Bridging the digital divide for diabetes care : affordability and adoptability of health technology in Pakistan," *Discov. Heal. Syst.*, 2025, doi: 10.1007/s44250-025-00207-9.
[39] B. Jungselius, "A scoping review of current research on social media use among children and adolescents," *Discov. Psychol.*, vol. 4, no. 1, 2024, doi: 10.1007/s44202-024-00226-2.
[40] D. M. Hilty *et al.*, "A scoping review of social media in child, adolescents and young adults: research findings in depression, anxiety and other clinical challenges," *BJPsych Open*, vol. 9, no. 5, pp. 1–12, 2023, doi: 10.1192/bjo.2023.523.
[41] M. P. Paulus, Y. Zhao, M. N. Potenza, R. L. Aupperle, K. S. Bagot, and S. F. Tapert, "Screen media activity in youth: A critical review of mental health and neuroscience findings," *J. Mood Anxiety Disord.*, vol. 3, p. 100018, 2023, doi: https://doi.org/10.1016/j.xjmad.2023.100018.
[42] Nazmine, A. Khalid, K. Z. Chishti, and H. K. Tareen, "New media technologies and society: a study on the impact of new media technology on interaction patterns of youth," no. May, pp. 66–77, 2021, [Online]. Available: https://www.researchgate.net/publication/351955632
[43] X. Zhang, M. Usman, A. ur R. Irshad, M. Rashid, and A. Khattak, "Investigating spatial effects through machine learning and leveraging explainable AI for child malnutrition in Pakistan," *ISPRS Int. J. Geo-Information*, vol. 13, no. 9, 2024, doi: 10.3390/ijgi13090330.
[44] A. A. Shah, A. Ullah, G. T. Mudimu, N. A. Khan, A. Khan, and C. Xu, "Reconnoitering NGOs strategies to strengthen disaster risk communication (DRC) in Pakistan: a conventional content analysis approach," *Heliyon*, vol. 9, no. 7, p. e17928, 2023, doi: 10.1016/j.heliyon.2023.e17928.
[45] F. E. L. Pérez, J. M. C. Montero, L. V. Meléndez, and E. R. Navarro, "Development of social skills of high school students on virtual platforms, 2021," *World J. Educ. Technol.*, vol. 14, no. 1, pp. 231–242, 2022, doi: 10.18844/wjet.v14i1.6720 Received.
[46] L. Disney and G. Geng, "Investigating young children's social interactions during digital play," *Early Child. Educ. J.*, vol. 50, no. 8, pp. 1449–1459, 2022, doi: 10.1007/s10643-021-01275-1.
[47] A. S. Konca and F. Tantekin Erden, "Young children's social interactions with parents during digital activities at home," *Child Indic. Res.*, vol. 14, no. 4, pp. 1365–1385, 2021, doi: 10.1007/s12187-020-09800-1.
[48] S. J. Mathers *et al.*, "Features of digital media which influence social interactions between adults and children aged 2–7 years during joint media engagement: A multi-level meta-analysis," *Educ. Res. Rev.*, vol. 46, p. 100665, 2025, doi: https://doi.org/10.1016/j.edurev.2025.100665.
[49] K. Hirsh-Pasek, J. M. Zosh, B. Hassinger-Das, R. M. Golinkoff, Y. T. Uhls, and L. Guernsey, "Putting Digital Media in Balance: The Importance of Human-to-Human Interaction for Young Children BT - Handbook of Children and Screens: Digital Media, Development, and Well-Being from Birth Through Adolescence," D. A. Christakis and L. Hale, Eds., Cham: Springer Nature Switzerland, 2025, pp. 387–393. doi: 10.1007/978-3-031-69362-5_53.
[50] A. Nolan and D. Moore, "Broadening the notion of peer-to-peer interactions when young children engage with digital technology," *Early Child. Educ. J.*, vol. 53, no. 5, pp. 1341–1353, 2025, doi: 10.1007/s10643-024-01662-4.