

The Role of Multimedia in Enhancing Girls' Education in India

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ABSTRACT

The notion that education empowers girls, and returns multifaceted benefits to families, communities and nations is widely acknowledged across India. Education in general, and specific skills such as literacy, numeracy and financial literacy, are crucial for effective functioning in today's economy. India ranks quite low on various gender disparity indices, indicating widespread deprivation for women and girls (Bajpai et al., 2019). Significant efforts have been made since independence to improve educational access, attainment, and the quality of education for girls, with various degree of success across different states (Damani et al., 2022). Access to multimedia learning and ICT is widely seen as a means of supporting girls' education. Research is ongoing into relation between girls' education and multimedia content and mediums, including interactive radio, through various frameworks.

Keywords: Multimedia, Girls' Education, education.

1. Introduction

Education constitutes a basic right of every girl, accounting for national development and economic growth. Various strategies have been adopted at international, national, state, and local levels to promote girl education. Multimedia is one such strategy to stimulate interest in education among girls. Multimedia contents need to be relevant, useful, accessible, and affordable, with emphasis on local languages, cultures, and social backgrounds. Multimedia school edutainment shows positive results. Girls from low-income families are more sensitive regarding the issue of drinking water, and

the associated multimedia materials provide knowledge about water pollution and help to solve the problem. Audio-visual contents, interactive platform-based English curriculum, and mobile platforms also encourage girls' attention. Multimedia pedagogy can stimulate pre-school girls, pre-puberty boys, and pubescent girls' interest in mathematics, making education enjoyable by encouraging group interaction and avoiding tedious formal teaching.

2. Historical and Policy Context

In India, a significant disparity remains between girls' and boys' education engagement, which can be traced back not only to socioeconomic restrictions but also to social-stereotypical family expectations that girls should engage with household chores early on. Policies and initiatives promoting girls' education in India date back to the 19th century and have taken various forms through 1900–2000, along with the establishment of institutions with specific purposes (Bajpai et al., 2019). The Women's Indian Association (WIA) started in 1917 to address issues faced by Indian women and elevate their low status is a case in point. Formal policies targeted to promote girls' education in colonial India began in 1919 and included programs such as the Millennium Development Goals (MDGs) initiated in 2000, the National Policy for the Empowerment of Women (2001), the National Girl Child Program (2001), Sarva Shiksha Abhiyan (2001), and the National Action Plan for the Girl Child (2008) (Snow, 2012).

Despite public and governmental efforts to raise awareness of this issue, they yield lesser results because of insufficiently educated girls. One major step was seen with the constitution of the National Policy for the Empowerment of Women in 2001, which aims to create a supportive environment for the growth and development of women through a system-based approach (Pandya, 2013). Legislation to support this empowerment program was passed, and then Girls' Education and Gender Equity programs were designed to address the gender gap in education.

3. Theoretical Frameworks on Multimedia Learning and Gendered Education

The global significance of equity in educational content access, especially for girls facing regional constraints who are more likely to drop out, is acknowledged. Despite investments and policies aimed at addressing gender disparities, true education equity for girls remains unmet. Multimedia channels are suggested as a way to engage out-of-school girls and support their education, but there's limited knowledge about their integration or outcomes in such programs. Current analysis of educational materials in India, particularly from the Integrated Child Development Services (ICDS) programme, shows that formal content is mainly in print, while multimedia approaches have not been prioritized. Girls encounter various obstacles to educational equity, suggesting that existing broadcasting infrastructure could supplement traditional education and aid girls in rural and disadvantaged areas. Digital content analysis indicates that rural girls with mobile phones can receive topic-based educational programs, enhancing their learning experiences. Educational radio can deliver structured programs while aligning with national initiatives. Multimedia content has gained attention concerning gender equity, as girls face informational deprivation affecting their health

knowledge and leading to issues like early marriage. However, the incorporation of user feedback in these programs is lacking. Exploring ongoing and planned supplementary materials that fill gaps in formal education could enhance efforts to reduce drop-out rates and address barriers more effectively in disadvantaged locations. (Liang et al., 2023)(Snow, 2012)

4. Access and Equity: Digital Divide and Rural-Urban Disparities

India has made significant strides in improving access to education, demonstrating commendable progress in recent years. However, it remains clear that there are substantial disparities in the quality of education provided across different regions and demographics, particularly affecting rural girls who are notably underserved in this regard. The integration of Information and Communication Technology (ICT) offers promising tools to bridge these gaps, as it can facilitate access to additional educational resources, enhance planning strategies, and improve the availability of critical data. These effective access solutions are essential for realizing the full potential of multimedia in education. Despite the advancements, stark inequalities persist: girls are often less likely to enroll in school compared to their male counterparts. Furthermore, even among those girls who do manage to enroll, there is a troubling trend of higher dropout rates or delayed participation compared to boys, which hinders their educational attainment. The gender digital divide further widens these challenges, creating additional barriers. Although Asia stands as one of the most rapidly growing mobile phone markets globally, it is concerning to note that girls held only 59 out of every 100 mobile subscriptions by 2018, significantly lower than the number held by boys. This lack of access to mobile technology directly impacts educational opportunities and resources available to girls, perpetuating a cycle of inequality that must be addressed urgently. (Bajpai et al., 2019)(Liang et al., 2023)(Antonio & Tuffley, 2014)

5. Multimedia Modalities in Practice

The multimedia format advocates diversified and multiple-level perception through varied communication channels and sensory organs that constitute attitude and learning engagement. Combining different modalities (images, sounds, text) in one message raises memorising capability and retention by utilising more than one channel at the same time and could be helpful for recall when only one of the channels is accessible. The level of interaction and feedback among multi-modalities also contributing to a higher impact. The multimedia format reduces the time needed to transfer information and to understand its meaning compared to a single modality. For example, provided with analogous or additional textual information, a simple illustration or image could be more understandable than a verbal description alone (Bajpai et al., 2019).

5.1. Audio-Visual Content and Broadcast Media

Educational multimedia can be defined as combinations of text, graphics, sound, animation and video, which promote learning when presented via print and electronic media (Hean Chua et al., 2015). Multimedia is instrumental in teaching girls in India because it can present instructional messages in both verbal and nonverbal forms when broadcast via mass media. When print media

alone or in combination with non-broadcast media (e.g. radio) and audio-visual, television and 3D material combine with teaching systems (e.g. face-to-face only, television only), media versatility is essential for wider accessibility to learning (Bajpai et al., 2019). Girls are often hindered from attending school for financial and social reasons, deprivation of educational opportunities and loss of potential income. Nationally, girls comprise 34% of all school dropouts. Several Education Levels show a positive comparative advantage of girls in communication. Popularizing multi-channel educational television programs increases opportunities for girls to continue learning through television. Television is a highly recommended medium for educational purposes because it combines image and sound to facilitate cognitive learning (K. OLUBE, 2015).

In Port Harcourt, primary school pupils respond positively to audio-visual learning technologies like educational television programs. The audio-visual medium engages attention, comprehension, retention of concepts and ordering of steps in a sequence more than other media. Audio-visual techniques enhance the social and intellectual development of both male and female children and are particularly suited to teaching young pupils who have limited verbal ability. Children aged 9-11 learn best through audio-visual methods; the pace of audio-visual instruction must, however, take age into consideration. Well-sponsored educational broadcast programs by either government or private support improve pupils' knowledge. Social contexts, learning content, resources and patterns that align with culture and children's lives are essential for effective engagement. Educational materials at all levels endure humanity's lifelong pursuit of knowledge.

5.2. Mobile Learning and Applications

Mobile-learning applications play an important role in enhancing girls' education by providing access to a wide variety of curricular, non-curricular, and self-learning content meeting varied educational needs outside school hours. Wide coverage of the mobile applications ecosystem ensures content access irrespective of device availability. Diverse formats of multimedia content delivered through mobile-learning applications motivate and enhance engagement, participation, and learning outcomes. Educational mobile-learning applications also attract girls and build their interest to continue and complete education. Educational games provide immersive and engaging edutainment experiences reinforcing learning concepts and are widely adopted by boys and girls. Girls' access to mobile-learning applications matches boys' access, and girls show similar interest in mobile games providing edutainment. These insights hold at the macro level across states as well as at the micro level within states (Sánchez-Azqueta et al., 2016).

5.3. Interactive and Participatory Platforms

In India, girls' access to digital platforms has been increasingly supported by innovative approaches using audiovisual formats as well as a significant literacy improvement through the ongoing rollout of free-on-voice content and applications. Audio-visual tools also interact with contextualised mathematics and Hindi-language content to help girls relate mathematics concepts to their practical life and thereby build basic numeracy skills (Bajpai et al., 2019). Interactive games that include

concepts of hygiene, personal, and family well-being, taken up in educational podcasts that are listened to by family members, enable adolescent girls to think about their own development, resulting in improved performance and self-confidence. Simple text-input platforms allow girls to use simple, safe languages in videogames, equipping them with basic communication skills; one platform helps develop an interactive comic-book format enabling girls to discuss fun learning and self-development topics shared with peers (Liang et al., 2023).

5.4. Local Language and Cultural Relevance

Multimedia materials developed in regional languages acquire special significance in the context of gender equity, because despite the widespread endorsement of Hindi and English as major routes to acquiring cognitively rich content, increased apprehension exists that pursuing these languages skews the content offered to girls and other disadvantaged children (A Wagner et al., 2010). Content in Hindi, English, and other major languages may significantly improve educational equity, provided that material is available in these languages. Content in minority languages tends to be even more education-equity enhancing, especially in the case of languages such as Bouddh, Urdu, and Punjabi that are written in Arabic script (Bajpai et al., 2019). In such circumstances, regional languages provide essential formal and informal support to schooling policies designed to foster both quantity and quality of schooling inputs.

6. Impacts on Learner Outcomes

Multimedia content delivered through television, radio, mobile devices, and Internet applications shapes access to information, the learning experience, and educational outcomes for girls in India (Liang et al., 2023). Analysis of public data sources and resources from government and non-governmental organisations reveal the types of multimedia media applied, the formats used, and the potential benefits, risks, barriers, and ethical considerations raised by integrating multimedia into girls' education. Prevalent initiatives employ multimedia modalities in the content and delivery of educational material across five categories: audio-visual content and broadcast media; mobile learning and applications; interactive and participatory platforms; local language and cultural relevance; and gender-awareness content. In India, educational multimedia content is produced and disseminated in conjunction with the teaching of social education, reproductive health, health awareness, and general knowledge. For educational multimedia resource development, when no budget has been allocated for video or animation production, additional local educational video resources on social science, various general knowledge, or natural science in local languages have been compiled and shared. However, have limited availability when teaching specific lessons relevant to the subject matter.

Various models exist for integrating the learning needs of rural girls into educational multimedia content development. For certain educational subjects, once videos or animations already in Multimedia Educational Resources for Learning and Online Teaching (MERLOT) have been identified, local educational video resources closely related to the subject are selected from the resource library.

The corresponding local language videos are then used to support the teaching of courses such as geometry or health when gender stereotypes and eco-behavior enter.

Elements intentionally included within multimedia educational resources can help enhance local awareness among targeted gender groups. When rural girls are the primary target audience, other girls from regions within a similar geographical scope but slightly different cultural characteristics are invited to participate in video production activities. Such action is believed to promote gender-equity consciousness among them.

7. Barriers, Risks, and Ethical Considerations

The positive impacts of multimedia are, however, accompanied by potential challenges. As well as being subject to general risks associated with digital technologies, girls, especially those from marginalised communities, are subjected to additional barriers, such as the threat of premarital pregnancy, restricted movement in public spaces, and the demand for household chores.

— Lower usage of multimedia resources among girls has led to worsening learning outcomes. Fear of government spy surveillance on mobile or internet technology increases among the poor. Such fears are higher among women at the time of government lockdown. The social stigma of being a taboo electronic device restricts usage of e-learning. Family expectations also restrict access to multimedia resources by women to complete household chores (Damani et al., 2022).

8. Case Studies Across Indian States

Cumulative evidence from a range of studies and projects indicates the potential of multimedia-enhanced educational interventions for improving educational opportunities and learning outcomes of adolescent girls in diverse contexts across India. Well-established trends of urban-rural polarization and spatial inequalities in access to educational infrastructure remain significant impediments to many girls' educational attainment. An additional family poverty nexus limiting access to education and online resources is aggravated by recent increases in the cost of school education, schools' reduced capacities to provide free materials, and the perception that schooling has become a less attractive option for girls (Bajpai et al., 2019). Family incomes across socio-economic segments remain subject to widespread shocks and uncertainties stemming from the pandemic, and the necessity for continued tracking of context-specific barriers to educational access that differ by region, community, caste, and socio-economic level has been highlighted.

Case study evidence reveals how different types of multimedia-enhanced educational interventions have been organized and implemented in distinct socio-cultural and geo-political contexts within the country. The analyses illustrate how these various projects have addressed gender-specific educational barriers, informed by the views of girls, parents, and other stakeholders. The studies do not constitute comprehensive assessments of the overall impact of multimedia-enhanced pedagogical interventions for girls, but they provide useful insights into ongoing patterns of educational deprivation, interventions that have been successfully deployed to mitigate these issues, and specific obstacles still constraining educational accessibility (Pandya, 2013). In light of these issues, future

educational policies pertaining to adolescent girls should ensure access to both education and resources while safeguarding the integrity of ongoing learning processes and needs. However, embedded socio-cultural obstacles continue to stigmatize educational attainment and delivery for girls across various contexts, rendering requisite educational policies incapable of sufficiently addressing these multiple hindrances.

9. Policy Implications and Recommendations

Gendered dimensions of media-dependent education highlight the urgent need to prioritize girls' education during ongoing school closures. Gender-neutral dissemination of knowledge, understanding of media-dependent systems, recognition of the minimum entry threshold for media-dependent distance education, and provision of multiple modes of educational media are all crucial. Ultimately, policymakers must acknowledge the strategic importance of media-dependent education and identify specific actions to expand its delivery as a complementary mode of girls' education during school closures (Damani et al., 2022).

In Asia, ICT-enabled learning initiatives have been implemented to address the educational needs of girls and for other gender-responsive purposes, encompasses both school and out-of-school education. When ICT-enabled learning is accessible to schoolgirls, it is associated with increased education inclusiveness and equity through greater access to ICT tools, improved participation, and enhanced perception of their ability and education. To implement gender-responsive ICT-enabled learning in ways that promote education equity, policymakers and education authorities need to ensure equitable access to ICT and gender-responsiveness throughout the process (Liang et al., 2023).

10. Conclusion

India has long grappled with the paradox of indigence in learning in the midst of endless learning opportunities. The Sustainable Development Goals have provided an impetus to the country for enhancing the Educational Indicator, especially for the marginalized section of society. In this regard, various policies and programmes have been taken at the national and state levels to assess and address the issue of educational equity. In its quest for equity in educational opportunities for all children, India has relentlessly adopted modern technological innovations to accentuate children's learning, especially for those who are educationally deprived, including girls. Some of these innovations are Information Communication Technology (ICT) (Computer, Internet, Television and Mobile), Digital Media, Audio-Visual Based Learning (AVBL), Multimedia Content (PPT, Video) and so on. Among these innovations, multimedia-based learning has gained immense popularity in India due to its unique characteristics catering to the information requirements of the children belonging to the economically weaker sections. The present paper critically examines the role, scope, status and impact of multimedia in enhancing the age-old neglected education of girls in India (Bajpai et al., 2019).

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