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ADVANCING INCLUSIVE EDUCATION: APPLIED STRATEGIES FOR SUPPORTING DISADVANTAGED LEARNERS

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ABSTRACT
India's evolving education system, reflecting its rich cultural diversity, plays a crucial role in the nation's social, political, cultural, and economic development. Education possesses the power to improve individuals' quality of life; however, not all students have equal access to its benefits. Disadvantaged learner, those facing challenges such as poverty, disability, language barriers, or limited access to quality schools, technology, or support systems- often lag in academic growth.
This study begins by identifying the characteristics of disadvantaged learners and exploring the educational inequalities they encounter. It focuses on developing practical models to identify such learners more effectively. The paper highlights the essential role of educators and educational institutions in designing and delivering targeted interventions to meet these students' specific needs. It discusses various programmatic interventions, along with their design, implementation, and evaluation for maximum impact.
Finally, the study outlines key implications for future research and policymaking. It emphasizes the importance of educational equity and calls for increased awareness and action among educators, policymakers, and researchers. By bridging theory and practice, this paper aims to contribute to meaningful improvements in the learning outcomes of disadvantaged students.
Keywords: Applied modeling, inclusive education, programmatic intervention, disadvantaged learner, Indian education system.

INTRODUCTION

India has one of the largest education systems in the world, with more than 250 million students. In the twenty-first century, India faces significant challenges in meeting the educational needs of its growing population. Article 21-A of the Indian Constitution guarantees the right to free and compulsory education for children aged 6-14 years. However, several issues persist concerning the implementation of this right and the quality of education provided.
India's educational landscape is diverse, comprising government, government-aided, and private institutions. In recent years, there has been a noticeable shift toward privatization, which raises questions about equitable access to resources and opportunities.

REVIEW OF LITERATURE

Angela Shogbon Nwaesei (2023) initiated a peer-led tutoring program aimed at supporting students at risk of academic failure. The program used both one-to-one and large-group tutoring, yielding remarkable results.
Magda Fourie et al. (2014) examined the experiences of seven educationally disadvantaged university students in South Africa. Data were collected through interviews and analyzed, revealing financial, academic, linguistic, and social challenges.
Reema Mohammad Al-Zoubi (2020) investigated the benefits and limitations of e-learning among 300 Jordanian students at Al al-Bayt University through a mixed-methods design. The results revealed that 55% were not in favor of e-learning.
Supardi (2022) explored students' experiences from remote areas of Indonesia during the COVID-19 pandemic using an interpretative phenomenological approach. It was observed that distance learning without adequate facilities led to psychological problems such as inferiority and low motivation, highlighting the need for offline learning options.

K. Vetrivel and R. Dakshinamurthy (2011) classified orphans, street children, physically abused children, those with behavioral issues, mental or learning deficiencies, and those affected by HIV/AIDS as disadvantaged learners.
Chunhan Huang and Xiaodong Zeng (2023) conducted a survey of 5,703 fourth- and sixth-grade students in China using structural equation modeling. The results showed that students' self-perceptions and teacher relationships mediated the relationship between academic performance and emotional skills. A similar observation was made by Zdenek Svoboda and Viktorie Mikovcova (2023) in a qualitative study on socially disadvantaged students in primary schools in the Usti Region.
Baamphatlha Dinama et al. (2024) emphasized the need to reconsider language policies to overcome the challenges faced by students from rural areas learning English.
Cristian Candia et al. (2022) examined the effects of shifting from offline to online education during COVID-19 using data from 7,526 undergraduates. Cooperation and peer support improved academic outcomes.
Caroline Sarah Jones (2023) discussed psychosocial and academic trust alienation as barriers to student engagement and proposed remedies.
Zbynek Nemec and Alice Kourkzi (2023) conducted a pilot study across 42 schools to evaluate an assessment model for identifying disadvantaged students based on home environment, language proficiency, motivation, and attendance. The model proved more effective than traditional methods.

METHODOLOGY

An **Exploratory Data Analysis (EDA)** technique was used to identify and understand relationships within the data. Correlations among variables were analyzed using **Pearson's Rank Correlation method**, ensuring reliability and objectivity in findings.

RESEARCH FINDINGS

The data contains a "Gender" variable which has a nearly equal split, which is 80 Male and 76 Female, as shown in Fig.1. This balance supports unbiased modeling and clustering. The age group distribution depicts the majority are in the 17 to 19 age group, and it is followed by 19 to 21, showing the data centers around early college years. Highest number of data was collected from urban areas almost 89% and 11% from rural areas. Limited rural representation is in the dataset. The self-perceived academic performance of the students is average as per the data collected is shown in Fig.4. A smaller proportion identify as above average, and very few as below average. This indicates a general moderate level of confidence among respondents. Predominantly private institutions are present in the data.
In most income brackets, females slightly outnumber males. The higher income groups (especially >₹20 Lakhs) have more male students, suggesting possible gender-related socio-economic patterns in education access as depicted in Fig. 6. The 40% of data is from households earning 5 to 10 Lakhs annually. This indicates a significant portion falls into lower income brackets.

FIGURE 1 Gender distribution

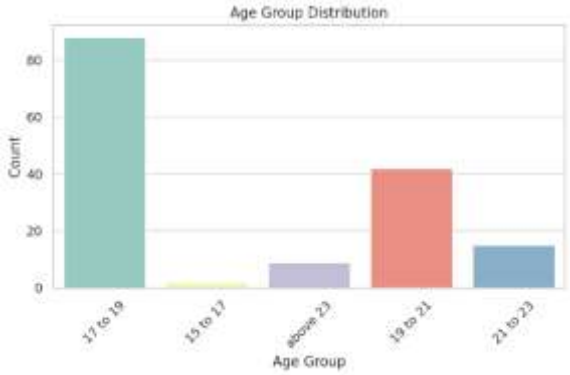

FIGURE 2Age Group distribution

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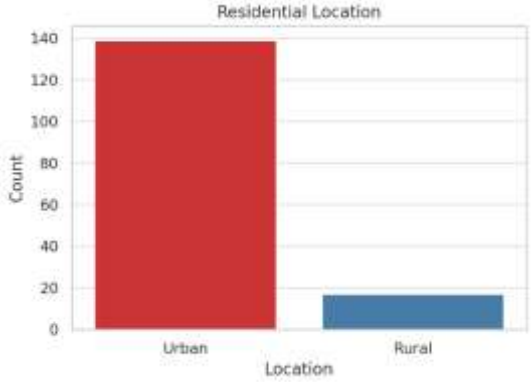

FIGURE 3Residential location data

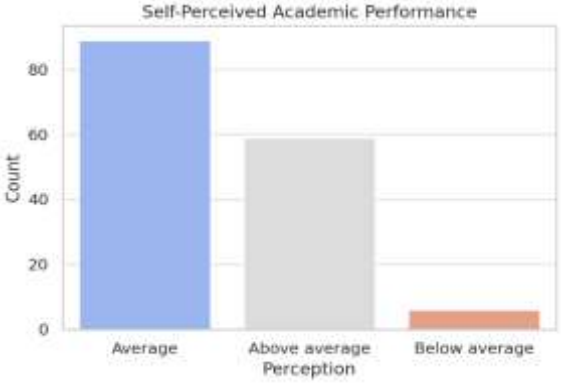

FIGURE 4Academic Performance

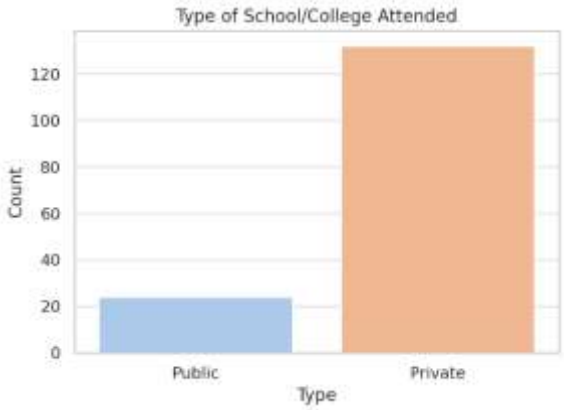

FIGURE 5Type of School/College

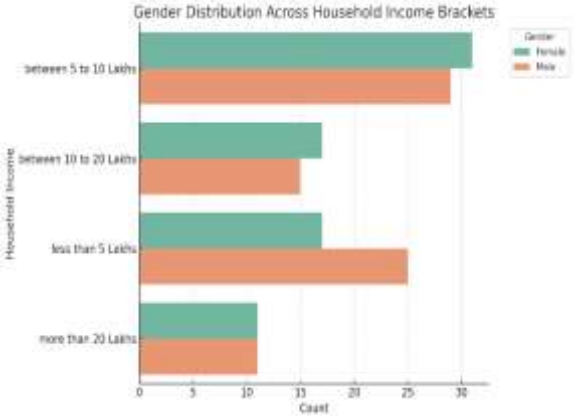

FIGURE 6Household income brackets as per Gender

The students are facing challenges in their studies; the top 10 challenges are depicted in Fig.7 The most common issue students are facing is “Difficulty in understanding the material”.

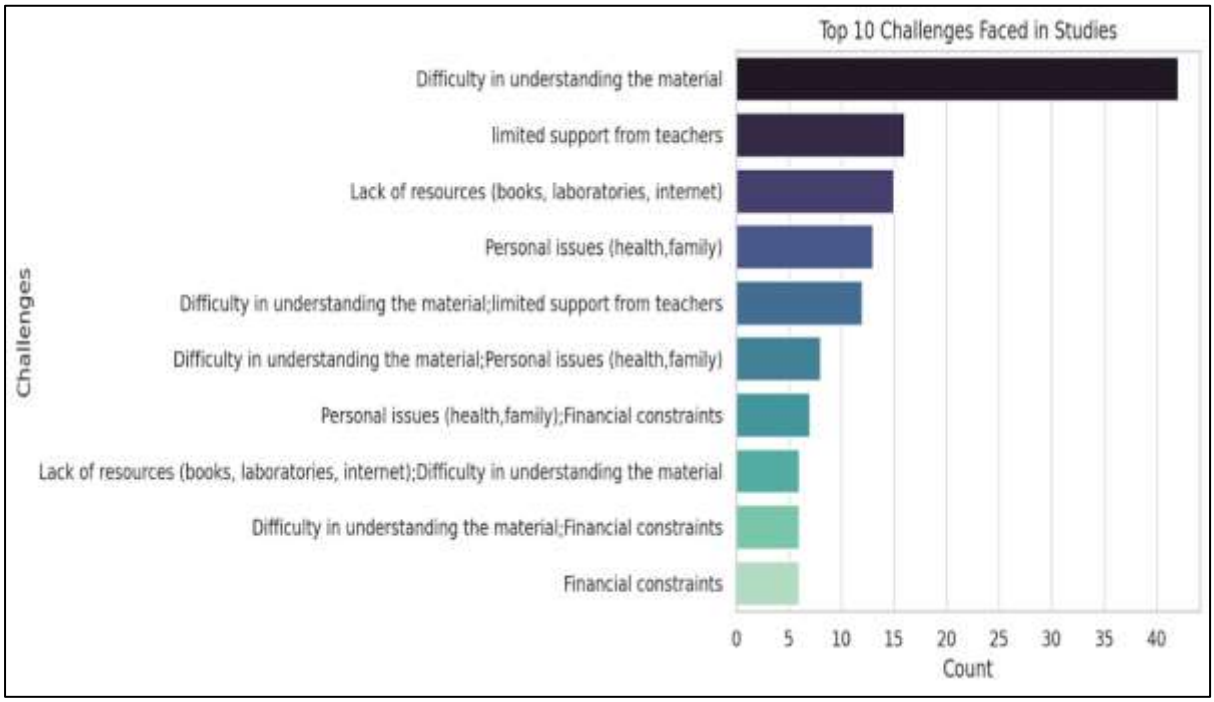

FIGURE 7,Top 10 challenges faced by students in studies.

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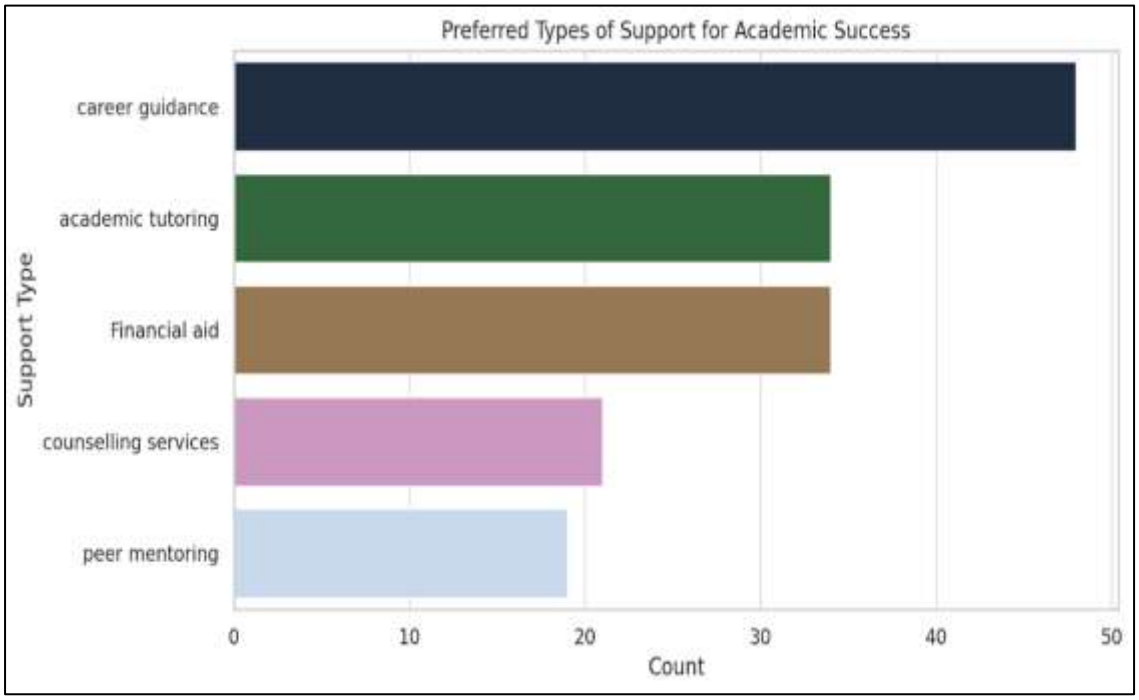

FIGURE 8Type of support requirements for academic success

The Fig.8 depicts that students not only seek academic help but are also concerned about future readiness and economic barriers. The data analysis shows that "Lack of resources" and "Limited support from teachers" are more reported by lower-income groups (<₹10 Lakhs), indicating access and infrastructure issues. Higher income groups (₹10–20 Lakhs & >₹20 Lakhs) report "Time management" and "Stress" more frequently, suggesting academic load and performance pressure. Gender based intervention indicates, Male students report more issues overall, particularly with understanding material and limited teacher support. Female students are more represented in challenges like stress, time management, and personal reasons.

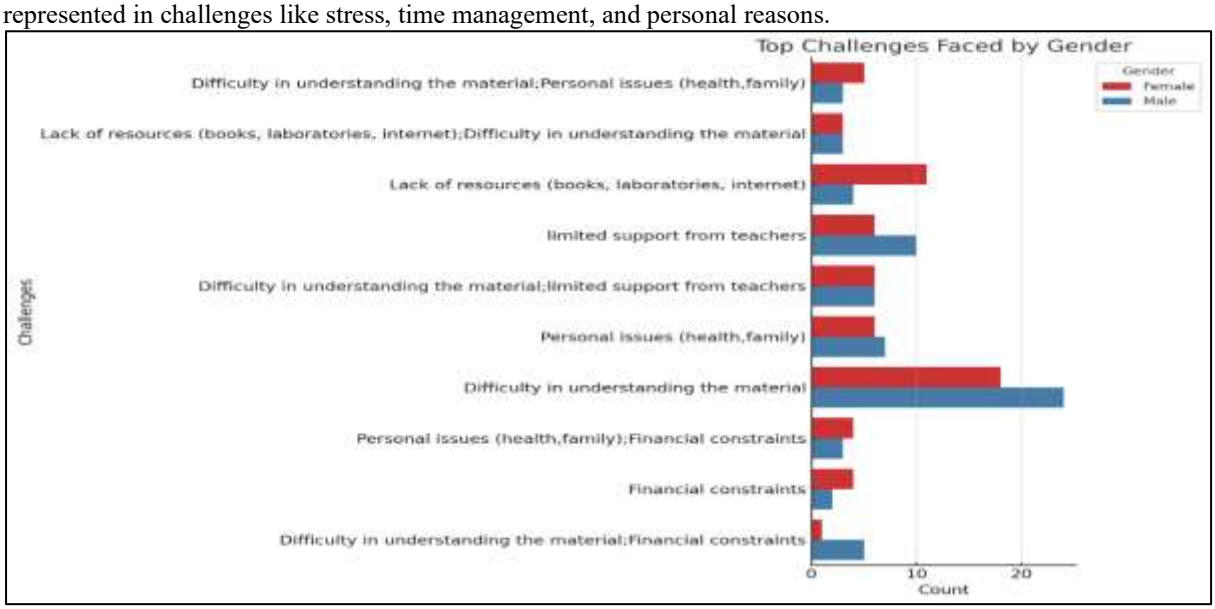

FIGURE 9 Most frequent challenge faced by Gender

Fig. 9 describes top challenges faced by students by gender. The figure shows that “Difficulty in understanding the material” is the most common issue for both genders, with a higher frequency among males. Females report slightly more “Lack of resources” and “Personal or health issues.” Males show greater concern for “Financial constraints.” Overall, males emphasize academic and financial difficulties, while females highlight resource and personal challenges.

CONCLUSION

This study emphasizes holistic interventions for disadvantaged learners, incorporating academic, social, and technological dimensions of learning. It offers valuable insights for educators and policymakers seeking to design equitable educational systems. The dataset consisted of 156 students where 80 males and 76 females. Most of the respondents are from urban areas (89%) and fewer from rural areas (11%).

Income-based analysis showed that 40% of students came from households earning ₹5–10 lakhs annually, representing lower-middle-income groups. Lower-income students prioritized material access, tutoring, and teacher engagement, whereas higher-income students focused on mentoring, stress management, and personalized learning. The findings reveal clear socio-economic trends: lower-income groups require fundamental support, while higher-income groups benefit from enhancement and career development opportunities.

Inclusive education requires a coordinated effort that blends compassion with strategic action. By implementing these recommendations, educators and policymakers can create equitable learning environments where every student could succeed. By integrating targeted interventions, educators and policymakers can promote inclusive practices that improve learning outcomes for all.

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