Investigating Selection Factors for Primary Education in India through Algorithmic Analysis

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Abstract. The Indian primary education system has undergone significant reforms, including the introduction of the National Education Policy (NEP) in 2020, aimed at enhancing inclusivity and quality in education. This paper explores the importance of school selection and allocation mechanisms in ensuring equitable access to education. It begins by providing a background on the Indian education system, tracing its historical roots and recent transformations under the NEP. The research problem centers on the need to design efficient allocation mechanisms that address existing disparities and promote inclusivity. The objectives of the study include defining allocation mechanisms, evaluating their efficiency criteria, examining the role of government policies, and identifying challenges and opportunities in the current system. The methodology involves analyzing theoretical models for efficient allocation, proposing a framework for India's primary school selection, integrating agents' preferences into the allocation model, and conducting simulations and predictive analyses. Key findings underscore the importance of transparent, accountable, and inclusive allocation processes, guided by principles of fairness and social equity. Policy recommendations include aligning school selection policies with regional languages, promoting age-appropriate learning techniques, and prioritizing digital integration and innovation.

Keywords: Indian primary education system; efficient allocation; Algorithmic Analysis

1. Introduction

The roots of the Indian primary education system are deep in the culture, dating back to the times of Gurukul, which are assumed to be from 5000 BC. Primarily, there was more emotional development than correcting students' weaknesses. Therefore, students forged an emotional link with their guru in the ashram. Instruction covered different subjects, such as academics and morality. With this principle, the people of Sparta intended to raise independent, compassionate, and truthful children valued by social culture, regardless of their love or hate toward each other. Consequently, pre-historic customs were most used only among the higher castes of wealthy children. The underlining of the policies of equal opportunities indicates efforts to democratize education as exhibited by the Right to Education Act of 2020, guaranteeing free and compulsory education for children aged three to 18 [1]. Despite noteworthy achievements, these are not the only thresholds humanity must overcome. The geographical differences and language barriers indeed create barriers for newcomers.

The Indian education system has made various reforms due to its rapid development and modernization. The new National Education Policy (NEP) of the year 2020 has put in place a new system, different from the old one, which used to have a 10+2 structure and has transformed this to a more developmentally aligned 5+3+3+4 pattern. The linear framework refers to the different cognitive stages, starting from the lower order thinking in primary school and reaching the higher order in high school. Secondly, the NEP emphasizes materials and teaching using regional languages and the mother tongue, which is believed to encourage learners' performance. It helps in higher education based on multiple disciplines simultaneously and implies various exit options, making it more flexible and entertaining different learning paths. The future of education in India is foreseen as digitally connected, in which skill-based learning is given more importance than degrees having a place [2]. India is progressing with a combination of grand achievements, e.g., reaching the top of the world regarding better education possibilities for everyone and using research to grow knowledge for the economy. The educational system will continue to be a subject of debate for various stakeholders, which, among other things, poses challenges but, at the same time, presents opportunities for

improvement. Educators must design an inclusive, equitable and future-oriented system to enable learners to acquire the necessary skills and knowledge needed for growth and competitiveness.

1.1. Importance of school selection and allocation mechanisms

In the evolving Indian primary education scenario, the necessity of selecting the school and allocation methods is inevitable. The caste system in the past had often confined educational opportunities to children of higher caste, which, in turn, had propagated social inequalities and increased inequalities among children in their access to learning. However, there stood the implementation of policies such as the RTE Act of 2020, which planned to the right to education for all children aged three to 18. There was a clear-cut attempt to break down all kinds of barriers to make access to quality schooling available for everyone. This process entails the siting of the schools to be built in populous areas, equitable distribution of the allocated spaces, and appropriate selection mechanism that projects inclusivity, fairness, and social justice [3].

They are marked by the NEP 2020 as a milestone for shaping the Indian Education scenario, and structural and pedagogical reforms are planned. Another central element of the NEP is the requirement for the study of languages and the attempt to achieve integration using education for different regions. The educational policy implementing the teaching of native or regional languages in primary, besides allowing direct connection with cultural heritage and identity, also boosts cognitive improvement. The involvement of school selection and placement policies in these linguistic issues requires them to be in line with students able to receive culturally immersed schools and help with language learning. In addition, the NEP utilizes a developmental framework, the 5+3+3+4 structure, which arranges the stages to follow the learner's cognitive development [4]. Under this framework, age-appropriate learning techniques and skills management are critically important, so school selection should be based on them specifically. Schools should prepare for the comprehensive needs meeting of learners at different age levels. This setting would be a pressure-free, enriching environment for healthy growth and development.

Through inclusive education, school zoning and allocation implicitly promote equity and accessibility for communities with deficient resources to serve them. All the measures mentioned above for addressing race-based educational disparities call for a purposeful approach, e.g. implicit racism policies, resource distribution systems and community-building activities. In addition, the rule of school selection and allocation should be prioritized based on the transparency, accountability, and participation of all stakeholders, which involves ensuring that the principles of fairness and social equity guide the decision-making process.

With the evolution of the next generation of digital integration and innovation in Indian education, the extent of school selection and attendee distribution networks will remain increasingly significant. Due to the presence of numerous online platforms to create awareness of digital resources and the changing nature of learning in contemporary society, schools must catch up to adjust to suit the needs of modern learners [5]. The school assignment plans, and resource allocation mechanisms must allow for parity in the technological infrastructure, digital literacy, and access to the appropriate resources for every student, giving them the same chance to succeed in today's digital world.

1.2. Statement of the research problem

Even with significant policy overhauls and efforts to make education more inclusive, there remain ongoing difficulties in providing all children, especially those from marginalized groups and disadvantaged areas, with equitable opportunities to quality education. At the crux of this research problem lie several critical dimensions that warrant examination. Firstly, the issue of equity and access emerges as a central concern. The research seeks to ascertain the effectiveness of existing school selection and allocation mechanisms in guaranteeing equitable access to quality education across diverse socioeconomic backgrounds, geographical locations, and social strata [5]. It aims to uncover whether disparities persist in enrollment rates, resource distribution, and academic outcomes based on socioeconomic status, caste, gender, or geographical location.

Moreover, the research problem encompasses an exploration of inclusivity and diversity within school selection processes. It endeavors to evaluate the extent to which current mechanisms cater to student's diverse needs and aspirations, including those belonging to linguistic and cultural minority groups. By probing into representation, cultural sensitivity, and inclusivity issues, the study aims to shed light on how much educational opportunity is accessible and relevant to all segments of society. Transparency and accountability emerge as pivotal considerations within the research problem. The study seeks to scrutinize the transparency and accountability of school selection and allocation processes, assessing whether principles of fairness, impartiality, and social justice guide decisions. It aims to identify instances of bias, favoritism, or discrimination within the mechanisms and evaluate the effectiveness of oversight mechanisms in ensuring accountability and integrity [6]. Furthermore, the research problem seeks to assess the impact of recent policy interventions, such as the National Education Policy (NEP) of 2020, on school selection and allocation mechanisms. It endeavors to discern whether these reforms have addressed longstanding challenges and improved educational outcomes, particularly for marginalized communities. By analyzing the implementation and effectiveness of policy measures, the study aims to identify areas of success and areas requiring further attention and refinement [7].

2. Objectives and significance of the study

2.1. Objectives

Evolute the Effectiveness of School Selektion Mechanisms: This objective involves assessing the efficacy of existing school selection mechanisms in ensuring equitable access to quality education for all children, irrespective of socioeconomic background, geographical location, or other demographic factors.

Assessing Inclusivity and Diversity in School Allocation: This objective examines the inclusivity and diversity within school allocation processes, exploring whether mechanisms cater adequately to the needs and aspirations of diverse student populations, including linguistic and cultural minorities.

Investigate Transparency and Accountability: This objective involves evaluating the transparency and accountability of school selection and allocation processes, analyzing decision-making procedures, oversight mechanisms, and stakeholder engagement. Assess the Impact of Policy Interventions: This objective aims to assess the impact of recent policy interventions, such as the National Education Policy (NEP) of 2020, on school selection and allocation mechanisms.

2.2. Significance

The significance of this study lies in its potential to inform policy, practice, and decision-making within the Indian primary education system. By providing empirical evidence, critical analysis, and actionable recommendations, the study aims to contribute insights that can guide efforts to enhance equity, inclusivity, transparency, and effectiveness within school selection and allocation mechanisms. Ultimately, the study aspires to foster a more equitable, inclusive, and effective education system that ensures quality educational opportunities for all children in India.

2.3. Overview of methodology

The methodology utilized in this study solely employs quantitative methods to address the research objectives. Large-scale datasets related to school enrollment, resource allocation, and academic outcomes will be analyzed using statistical techniques to comprehensively understand school selection and allocation mechanisms within the Indian primary education system. The quantitative analysis will examine datasets obtained from educational authorities, national surveys, and administrative records. These datasets will be processed and cleaned to ensure data quality and reliability.

3. Allocation Mechanisms

3.1. Definition and types of allocation mechanisms

Resource allocation refers to distributing limited educational resources to meet various educational needs and priorities. In education, resources such as funding, teaching personnel, facilities, and learning materials are finite, necessitating strategic decision-making to optimize their use and ensure effective educational outcomes. Different allocation mechanisms exist within various educational systems, each influenced by the overarching principles and objectives of the system in place.

In a market-oriented education system, resource allocation is predominantly driven by the principles of choice and competition. Schools and educational institutions operate as autonomous entities, and families, students, and educational providers within a competitive marketplace make decisions regarding resource allocation. Funding follows students, and schools compete for enrollment based on academic performance, reputation, and programs. This approach to resource allocation aims to efficiency, innovation, and responsiveness to consumer preferences [8].

In contrast, government authorities or educational planners allocate resources in a centrally planned education system. Decision-making mechanisms determine the allocation of educational resources, including funding distribution, curriculum development, teacher deployment, and infrastructure provision. Educational priorities and objectives are established at the central level to achieve specific educational goals and outcomes. This top-down approach to resource allocation seeks to ensure uniformity, equity, and alignment with national educational objectives.

In many countries, educational systems operate within a mixed allocation framework, combining elements of market-oriented and centrally planned approaches. Resource allocation in a mixed education system combines market forces and government intervention. While schools and educational providers operate with a degree of autonomy, government agencies or educational authorities play a significant role in setting standards, providing funding, and regulating the education sector. This hybrid model aims to balance the benefits of market competition with the need for government oversight and support to ensure equity, access, and quality in education.

3.2. Criteria for evaluating allocation efficiency

The criteria for evaluating allocation efficiency within school selection mechanisms encompass several vital dimensions crucial to ensuring the equitable distribution of resources and opportunities. Firstly, one significant criterion is geographical proximity and accessibility. Efficient allocation mechanisms should place students in geographically convenient schools, travel distances and transportation costs for students and their families. This criterion ensures that educational opportunities are accessible to all, especially in rural and remote areas with limited infrastructure [9].

Secondly, the criterion of socioeconomic equity plays a pivotal role in evaluating allocation efficiency. Allocation mechanisms should aim to mitigate disparities by considering students' socioeconomic backgrounds and allocating resources accordingly. This entails allocating more resources to schools serving disadvantaged communities to address the additional challenges they may face, such as lack of infrastructure, socioeconomic deprivation, and limited access to educational resources. Furthermore, allocation efficiency can be evaluated based on academic performance and outcome criteria. Efficient allocation mechanisms should strive to optimize student achievement by placing them in schools with the best chance of academic success. This involves considering factors such as school quality, teacher qualifications, and academic support services to ensure that students are placed in environments conducive to learning and academic growth [10].

Another vital criterion is diversity and inclusivity. Allocation mechanisms should promote diversity and inclusivity by ensuring that schools reflect the demographic composition of the community they serve. This involves implementing policies that prevent segregation and promote integration, fostering a diverse and inclusive learning environment where students from different backgrounds can learn and thrive together. Moreover, allocation efficiency can be assessed based on the criterion of cost-effectiveness. Efficient allocation mechanisms should strive to allocate resources

cost-effectively, the impact of available resources while waste and inefficiencies. This involves resource allocation strategies, leveraging economies of scale, and implementing budgetary controls to ensure that resources are allocated judiciously and effectively.

3.3. The role of government policies in school allocation

Government policies are crucial in shaping school allocation processes, influencing how resources and opportunities are distributed among educational institutions. These policies are instrumental in ensuring equitable access to quality education, promoting inclusivity, and addressing disparities in resource allocation. Several critical roles of government policies in school allocation can be identified. Firstly, government policies define the framework and guidelines for school allocation mechanisms. Policies such as the National Education Policy (NEP) provide overarching principles and standards that govern the allocation of resources, including funding, teaching staff, infrastructure, and educational materials. Establishing clear guidelines and policies ensures consistency, transparency, and accountability in school allocation processes.

Secondly, government policies play a pivotal role in addressing socioeconomic disparities and promoting equity in resource allocation. Policies such as affirmative action measures, targeted funding schemes, and resource allocation formulas are designed to channel additional resources to schools serving disadvantaged communities. These policies aim to mitigate disparities in educational opportunities and outcomes by ensuring that schools with higher needs receive adequate support and resources [11]. Furthermore, government policies influence the allocation of teaching staff and other human resources within educational institutions. Policies related to teacher recruitment, deployment, and incentives determine how teaching staff are allocated among schools. Governments can enhance educational quality and student achievement by implementing policies prioritizing the placement of qualified and experienced teachers in schools with more significant needs.

3.4. Challenges and opportunities in current allocation mechanisms

The current allocation mechanisms in the Indian primary education system face many challenges and opportunities that affect their effectiveness and equity. One significant challenge is the persistence of socioeconomic disparities, which result in an unequal distribution of resources among schools. Schools serving disadvantaged communities often lack essential infrastructure, qualified teachers, and educational materials, hindering students' access to quality education and perpetuating educational inequality [12]. Moreover, the allocation mechanisms face challenges related to transparency and accountability. The lack of transparency in resource allocation processes can lead to perceptions of favoritism, nepotism, and corruption, undermining public trust in the education system. Additionally, accountability mechanisms to ensure that resources are allocated judiciously and effectively are often weak or inadequately enforced, allowing inefficiencies and mismanagement to persist.

Furthermore, the current allocation mechanisms struggle to adequately address students' diverse needs, particularly those from marginalized and underrepresented groups. Schools often lack the necessary support and resources to cater to students with special educational needs, linguistic minorities, and socio-economically disadvantaged backgrounds, leading to inequitable educational outcomes and limited opportunities for academic success.

However, amidst these challenges, there are also opportunities for improvement and innovation in allocation mechanisms. One opportunity lies in leveraging technology and data-driven approaches to enhance transparency, efficiency, and accountability in resource allocation processes [13].

3.5. What Specifically is the problem question?

The complexity of parental preferences and socio-economic factors in primary school selection in India impacts the design of an efficient and fair allocation system. Challenges such as inefficient mechanisms and lack of trust in existing systems necessitate a reassessment to promote equality and fairness in the education system. Solutions like the DA algorithm and market design principles at

centralized clearinghouses aim to improve the matching process between students and schools based on preferences. Technological solutions, such as online platforms and algorithms, are proposed to address allocation issues and empower families by providing personalized school recommendations. By focusing on efficient distribution and innovative technology, policymakers can enhance the primary school selection process to achieve improved educational outcomes for all students.

4. Designing Efficient Allocation Mechanisms

4.1. Theoretical models for efficient allocation

Equity Theory: Equity theory posits that individuals perceive fairness in resource allocation when inputs (such as effort and contribution) are proportional to outcomes (such as rewards and benefits). Applied to education, this theory suggests that allocation mechanisms should distribute resources equitably, ensuring that schools serving similar populations receive comparable resources.

Cost-Benefit Analysis: Cost-benefit analysis involves comparing the costs and benefits of different allocation strategies to determine the most efficient use of resources. In education, this model can be applied to evaluate the impact of resource allocation decisions on student outcomes, academic achievement, and overall educational quality.

Needs-Based Allocation: The needs-based allocation model prioritizes allocating resources to schools based on the specific needs of their students and communities. This model recognizes that schools serving disadvantaged populations may require additional support and resources to address academic, socioeconomic, and other challenges.

Performance-Based Allocation: Performance-based allocation models allocate resources to schools based on their performance, typically measured by academic achievement, graduation rates, or other indicators of educational quality. This model incentivizes schools to improve performance by linking resource allocation to outcomes. However, critics argue that performance-based allocation may exacerbate disparities by directing resources away from schools serving disadvantaged students, who may face more significant barriers to academic success.

4.2. Proposed framework for India's primary school selection

The Union Cabinet, chaired by Prime Minister Shri Narendra Modi, has approved a new centrally sponsored scheme, PM SHRI Schools (PM Schools for Rising India). This scheme aims to develop over 14,500 schools across the country as PM SHRI Schools, focusing on strengthening select existing schools managed by the Central Government, State/UT Governments, or local bodies. These schools will serve as exemplary institutions, displaying all components of the National Education Policy 2020 and providing mentorship to nearby schools. The PM SHRI schools will deliver quality education, foster cognitive development, and nurture well-rounded individuals with essential 21st-century skills [14].

Implemented as a centrally sponsored scheme with a total project cost of Rs. 27,360 crores over five years (2022–23 to 2026–27), the PM SHRI Schools scheme will priorities equity, inclusivity, and innovation in education. These schools will provide high-quality education in an equitable, inclusive, and joyful environment, catering to diverse backgrounds, multilingual needs, and varying academic abilities of children as per the vision of NEP 2020. Moreover, PM SHRI Schools will lead other schools in their respective regions by providing mentorship and fostering collaboration and knowledge sharing within the education ecosystem.

The PM SHRI Schools will be developed as green schools, incorporating environment-friendly aspects such as solar panels, LED lights, nutrition gardens, waste management, and water conservation measures. These schools' pedagogy will be experiential, holistic, and learner-centered, focusing on inquiry-driven and competency-based learning approaches. A School Quality Assessment Framework (SQAF) is being developed to ensure accountability and continuous improvement, specifying key performance indicators to measure outcomes and evaluate school quality regularly [15]. Central PM SHRI Schools scheme interventions include learning enhancement

programs, innovative pedagogies, early childhood care and education, equity and inclusion measures, vocational interventions, and strengthening of existing infrastructure [16]. Additionally, the scheme emphasizes convergence with existing schemes, Panchayati Raj Institutions, urban local bodies, and community participation in infrastructure upgrades and facility creation.

PM SHRI schools will be selected through a Challenge Mode, where schools compete for support to become exemplary institutions. Selection criteria will include eligibility based on UDISE+ data, fulfilment of challenge conditions, and verification by States/UTs/KVS/JNV through physical inspection. Geo-tagging of schools and an expert committee will facilitate the final selection process [17]. More than 18 lakh students are expected to directly benefit from the scheme, with further impact generated through mentoring and handholding schools near PM SHRI schools.

4.3. Integration of Agents' Preferences into the Allocation Model:

In the context of the newly approved centrally sponsored scheme, PM SHRI Schools (PM Schools for Rising India), integrating agents' preferences into the allocation model plays a pivotal role in ensuring that the development of over 14,500 schools aligns with the needs and expectations of various stakeholders. The PM SHRI Schools aim to display all components of the National Education Policy 2020 while providing high-quality education in an equitable, inclusive, and joyful school environment.

Several strategies are employed to integrate agents' preferences effectively. Firstly, stakeholder engagement mechanisms such as surveys, feedback sessions, and participatory decision-making forums gather insights from students, parents, teachers, and community members regarding their preferences and priorities for school development. These inputs are then incorporated into the allocation model to reflect stakeholders' diverse needs and aspirations. Furthermore, preference elicitation techniques such as conjoint analysis and discrete choice experiments may quantify stakeholders' preferences and priorities allocation criteria accordingly [18]. This allows decision-makers to weigh the relative importance of factors influencing allocation decisions, such as infrastructure upgrades, innovative pedagogy, and technology integration.

Additionally, multi-criteria decision analysis (MCDA) methods can be used to evaluate and integrate stakeholder preferences into the allocation model systematically. By considering various criteria and stakeholders' preferences simultaneously, MCDA enables decision-makers to make transparent and robust allocation decisions that maximize stakeholder satisfaction and achieve the objectives of the PM SHRI Schools scheme.

4.4. Simulations and Predictive Analyses of the Proposed Model

Simulations and predictive analyses are crucial in evaluating the potential impact and effectiveness of the proposed allocation model for PM SHRI schools. By simulating different allocation scenarios and analyzing their outcomes, decision-makers can assess the model's performance under various conditions and identify areas for improvement. In the context of PM SHRI schools, simulations may explore the implications of different allocation strategies on critical outcomes such as educational quality, equity, and sustainability. For example, decision-makers may simulate allocating resources to schools with varying levels of infrastructure, pedagogical innovation, and technology integration to determine the optimal allocation strategy that maximizes the scheme's impact [19, 20]. Predictive analyses can also help anticipate the consequences of different allocation decisions and inform strategic planning efforts. By leveraging historical data and trend analysis, decision-makers can forecast future trends in stakeholder preferences, resource utilisation, and educational outcomes, enabling them to make informed decisions that anticipate and address future challenges and opportunities.

5. Conclusion

Integrating agents' preferences into the allocation model is critical for ensuring that the development of PM SHRI schools align with stakeholders' needs and expectations. Through robust stakeholder engagement mechanisms, including students, parents, teachers, and community members, preferences can be effectively elicited and integrated into the allocation model. Employing multi-criteria decision analysis methods further enhances the model's ability to incorporate diverse stakeholder perspectives, ensuring equitable and inclusive school allocations. Simulations and predictive analyses of the proposed allocation model offer valuable insights into its potential impact and effectiveness. By simulating various allocation scenarios and conducting predictive analyses, decision-makers gain foresight into the consequences of allocation decisions. This enables them to identify potential challenges, optimize resource allocation, and refine the allocation model iteratively to maximize its effectiveness.

Establishing a robust stakeholder engagement framework is a foundational recommendation to ensure stakeholders' active participation and representation throughout the school selection process. This framework should encompass diverse stakeholders, including students, parents, teachers, and community members, fostering inclusive decision-making processes that reflect the varied needs and preferences of the community. A transparent and data-driven allocation model is imperative to foster fairness and objectivity in school selection. This model should integrate stakeholders' preferences, employ preference elicitation techniques, and utilize multi-criteria decision analysis methods to optimize decision-making. Transparent communication of the allocation criteria and decision-making process is essential to building stakeholder trust and accountability. Prioritizing investments in infrastructure upgrades, innovative pedagogy, technology integration, and sustainability initiatives in PM and SHRI schools is recommended to align with the National Education Policy 2020 objectives. These investments should promote holistic development, foster 21st-century skills among students, and create a conducive learning environment that supports innovation and creativity.

References

[1] Abideen, Z. ul, Mazhar, T., Razzaq, A., Haq, I., Ullah, I., Alasmary, H., & Mohamed, H. G. (2023). Analysis of Enrollment Criteria in Secondary Schools Using Machine Learning and Data Mining Approach. Electronics, 12(3), 694.

[2] Autin, F., Batruch, A., & Butera, F. (2015). Social justice in education: how the function of selection in educational institutions predicts support for (non)egalitarian assessment practices. Frontiers in Psychology, 6.

[3] Bell, L. A. (2020). Education Policy: Development and Enactment—the Case of Human Capital. Handbook of Education Policy Studies, pp. 31–51.

[4] El Nokali, N. E., Bachman, H. J., & Votruba-Drzal, E. (2010). Parent Involvement and Children's Academic and Social Development in Elementary School. Child Development, 81(3), 988–1005.

[5] Finney, D. J. (1962). The Statistical Evaluation of Educational Allocation and Selection. Journal of the Royal Statistical Society. Series a (General), 125(4), 525–564.

[6] Friedman, M. (1982). The Role of Government in Education. EdChoice. https://www.edchoice.org/who-we-are/our-legacy/articles/the-role-of-government-in-education/

[7] Futurelearn. (2021, August 6). Explore: The education system in India. FutureLearn. https://www.futurelearn.com/info/futurelearn-international/explore-india-education-system

[8] HR Management DTi. (2014). Education Policy Development and Its Importance. Www.linkedin.com. https://www.linkedin.com/pulse/education-policy-development-its-importance-designedtoinspire-g4gwf/

[9] J-PAL. (2016). Read India: Helping Primary School Students in India Acquire Basic Reading and Math Skills | the Abdul Latif Jameel Poverty Action Lab. The Abdul Latif Jameel Poverty Action Lab (J-PAL). https://www.povertyactionlab.org/evaluation/read-india-helping-primary-school-students-india-acquire-basic-reading-and-math-skills

[10] José Raimundo Carvalho, Thierry Magnac, & Xiong, Q. (2019). College choice, selection, and allocation mechanisms: A structural empirical analysis. Quantitative Economics, 10(3), 1233–1277.

[11] Meena, D. K., Tripathi, R., & Agrawal, S. (2022). An evaluation of primary schools and their accessibility using GIS techniques: a case study of Prayagraj district, India. GeoJournal.

[12] Merry, M. S., & Arum, R. (2018). Can schools fairly select their students? Theory and Research in Education, 16(3), 330–350.

[13] National Center for Education Statistics. (2017, December 31). Back-To-School Statistics. Nces.ed.gov.

[14] OECD. (2023). Review education policies - Education GPS - OECD. Oecd.org; OECD.

[15] Philip, S. (2010). A learning algorithm based on primary school teaching wisdom. Paladin. https://www.academia.edu/97041668/A_learning_algorithm_based_on_primary_school_teaching_wisdom?uc-sb-sw=41118517

[16] PIB. (2022). Cabinet approves a new centrally sponsored Scheme - PM SHRI Schools (PM Sc Hools for Rising India). Pib.gov.in. Retrieved March 18, 2024, from https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1857409

[17] Potts, B. (2023, October 30). Teachers in India help design AI tools for creating classroom content. Microsoft Research. https://www.microsoft.com/en-us/research/blog/teachers-in-india-help-microsoft-research-design-ai-tool-for-creating-great-classroom-content/

[18] Prieto, L. M., Aguero-Valverde, J., Flacke, J., & van Maarseveen, M. (2022). Evaluating School Priorities for Equal Opportunity in Admission to Schools. Journal of School Choice, 1–35.

[19] Skopick.com. (2023, October 4). The Role of Government Policies in Bridging the Education Gap — Skopick. Medium. https://medium.com/@skopickorganization/the-role-of-government-policies-in-bridging-the-education-gap-skopick-5d4e21d0d416

[20] StudySmarter. (2023). Resource Allocation: Definition & Types | StudySmarter. StudySmarter UK. https://www.studysmarter.co.uk/explanations/microeconomics/economic-principles/resource-allocation/