A Data Analytical Survey on School Selection in the Kerala Scenario for Proposing an Ml-based Approach for Improvising the Public Sector

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Abstract

Education aids individuals in improving society. It helps a person to acquire more knowledge and to know more about the technology. Machine Learning in education is a form of personalized learning that could be used to give each student an individualized educational experience. It is a subset of Artificial Intelligence (AI) that helps computers or teaching machines learn from all previous data and make intelligent decisions. Artificial Intelligence in the classroom allows teaching to be differentiated and personalized. Here, the students are guided in their learning, can follow the pace they want, and make their own decisions about what to learn. There are different types of education that a student may receive in today's society. The choices are narrowed down into two main categories, public and private schools. In this paper, we are trying to figure out whether it's better to send their children to private schools rather than public schools. Here, we are conducting a survey based on this topic. According to this survey, we reach a conclusion that will be portrayed at the end session of this paper. The survey's results will be a starting point for creating ML-based solutions to increase the efficiency of the education sector.

Keywords: Education, School Choice, School Quality, Machine Learning, Artificial Intelligence, Employment

1. Introduction

1.1. Education

One of the most efficient tools is education. The world can be changed through it. Education means inculcating moral values, positive thinking, an attitude of helping, an attitude of giving to society, and ethical values. Education can occur in formal or informal settings, and it can refer to any event that has a formative impact on a person's thoughts, feelings, or actions. Formal education is commonly divided into such stages as preschool or kindergarten, primary school, secondary school, and then college, university, or apprenticeship. A generic phrase for education that might take place outside of a set curriculum is "informal education". Although it is not restricted to that environment, informal education covers student interests inside a conventional classroom's curriculum. Instead of the "objective" reality of the activities and interpersonal interactions in the educational environment, a student's perspective of the impact of schools on their academic performance is what determines that impact. Since a person's

thoughts in a given situation have a greater impact on how they feel emotionally than the issue itself does, the emphasis of this intervention is on helping students change the way they think.

1.2. Choice of School

Whenever a family chooses to send their children to a public school, a private school, a charter school, a home school, or any other learning environment, school choice enables public education money to follow the students to the institutions or services that best suit their needs. Indian parents have more school options, but fewer resources for learning about schools and education. According to a study conducted in four rural Indian states, parents' preferences for their children's schools are influenced by their judgments of the quality of instruction, student behavior, and school safety. For parents of children attending public schools, costs are a crucial factor, whereas, for parents of children attending private schools, the English language is vital. A private school is a school that is not supported financially by the government and which parents have to pay for their children to go to. Parents who place a high emphasis on devoted teachers, small class numbers, greater safety, and a sense of community believe enrolling their child in a private school will best serve their educational needs. Public schools are primary or secondary schools offered to all children with low school fees. They are funded and controlled by the state or national government, which means they are wholly or partly funded by taxation.

1.3. School Quality

Four interrelated sets of criteria, such as a child's traits, supportive inputs, enabling circumstances, and the teaching-learning process, can be used to understand school quality. Improvements in learner capacities, supportive learning environments, appropriateness of the information, the efficacy of learning processes, and attainment of outcomes are also involved. School improvement strategies are most effective when developed on-site and in collaboration with stakeholders and implementers. Innovations are "replicated" less successfully than they are "marketed." However, doing so calls for different operational approaches than those employed by the majority of aid and development organizations.

1.4. Artificial Intelligence

Currently, technology is everywhere including the education sector, where it has proven to be of great importance for realizing the learning outcomes for students. Education is no longer just the teaching of text or requiring the student to memorize manuscripts. The instructional process, both inside and outside of the classroom, has become an activity with measurable goals and results. Over time, educational techniques have turned out to be a dynamic part of the inputs and outputs of the learning process. Moreover, these practices have grown into a vital part that plays a significant role in broadening the advancement of the components of the learning system, upgrading the rudiments of the curriculum, and making them both more effective and resourceful. These components are used in the process of planning, implementing, evaluating, following up and developing objectives.

1.5. Machine Learning

Machine Learning has become a new frontier for higher education. Teachers are now able to have a better idea of how their kids are learning because of advancements in AI. This enables teachers to create a customized curriculum that suits the specific needs of the learners. When employed in the context of education, AI can foster intelligence moderation. It is through this platform that the analysis of data by

human tutors and moderators is made possible. Being one of the strongest newer technologies, machine learning plays the main rules in artificial intelligence and human interaction. It is used as a principle of educational activities. There are various ways to apply machine learning technology in education, such as by giving students a variety of learning alternatives so they can find the method that works best for them while also taking into account their unique individual differences. It can also be used to review a lesson that was hard to understand. Machine learning in education works in harmony with students' needs, and at a time and place that suits them best.

1.6. Employment

Employment is a connection between two people, typically based on a contract where work is compensated, where one person, who may be a company, for-profit or non-profit organization, co-operative, or other entity, is the employer and the other is the employee. Depending on the type of job they do or the industry they work in, employees receive compensation in the form of an annual salary, a piecework wage, or an hourly wage. Employees in some fields or sectors may receive gratuities, bonus payments, or stock options. Employees may also receive benefits in some jobs in addition to compensation. Benefits can include health insurance, housing, disability insurance, or the use of a gym. Employment is typically governed by employment laws, organizations, or legal contracts.

The objectives of our study are:
1. To investigate the causes of the rapid growth of the private school system.
2. To investigate the cause of the decline of the public school system
3. To assess the educational standards of both public and private institutions.
4. To examine the educational backgrounds of teachers, their pedagogical strategies, and the standard of the curriculum in both public and private schools.
5. To analyze future challenges to both public and private school systems.

2. Literature Survey

James Tooley [5], feels that to attain Universal Elementary Education, both the private recognized and unrecognized schools can play an important role. He argues that since the private budget schools employ teachers who are from the neighborhood, there is no problem of social distance, where the teachers coming from richer areas to teach in private schools are unable to interact and relate to the students from poorer classes. Rather than discouraging these entrepreneurs, micro-finance loans should be provided to the private schools so that they can have the necessary infrastructure.

According to Kingdon [6], there has been a growing demand for unrecognized schools from the majority of private primary schools in North India and Punjab which have gone hand in hand with increasing literacy in these areas.

Almani, Soomro and Abro [12] evaluated the behavior of parents, students, teachers and officers for assessment of the actual position of education in Private Schools of Sindh, identifying the role of parents, officers, teachers, and students in the promotion of the private schools. The private schools were believed to be the symbol of better education, strict discipline, hardworking, cooperation, mutual understanding, and a charming future. The data had been collected from the four important pillars of

private schooling. A sample of 360 students, 220 teachers, 220 parents and 80 officers from 90 schools was randomly selected. Four different types of questionnaires were developed. The study concluded that the stakeholders remained satisfied with the quality and quantity of private school teachers, the performance of students (quality of education), cooperation by parents, quality of textbooks, and English as a medium of instruction. They remained dissatisfied with supervision by officers, school building, facilities, admission, and monthly fees.

Henry Wandera, Vukosi Marivate and David Sengeh [8] focused on interpretability by creating a model that policy makers can easily use, interpret and test. It used a tree-based model that applied if-then analysis, mimicking the human approach to decision-making, and also assumed the absence of linear relationships between variables. This white paper uses machine learning techniques to identify patterns in existing education datasets, guide resource allocation, and inform decision-making and instructional policy. We also identify new non-linear interpretable relationships that suggest that improvements in school and community environments can affect student performance in school. This paper provides evidence that quintile factors, urban-rural differences, and security issues influence education. We need to develop more useful data-driven exploratory tools based on interpretable machine learning models. Researchers have found that rural schools perform poorly due to factors such as low teacher salaries, low qualifications and experience. In addition, western urban schools had more qualified teachers and more teaching materials than schools in other areas. The analysis found that government-financed schools struggled to achieve desirable teaching and learning outcomes, and that private schools performed better than financially-funded public schools.

Rana Rubab and Abdul Ghafoor Awan [9] conducted a comparative study on the quality of education in public and private secondary schools in Punjab, Pakistan. The survey found that public schools have competent staff, spacious buildings and basic facilities, and experienced full-time teachers. The Government of Pakistan has endeavored to ensure that both human and material resources are brought together to achieve the real benefits of education. The school is an axis of modernization and has sufficient physical facilities to provide quality education. Research studies show that physical placement plays an important role in the teaching and learning process and can affect teacher and student performance. The physical environment of the classroom can have some impact on student comfort and learning ability. The main difference between public and private schools is that private schools have better systems of educational supervision and monitoring. Public schools performed better than private schools, despite the large classes.

Ranjit Basumatary [11] studied on private and public school issues and prospects in the Bodoland (BTAD) was conducted based on primary data collected in selected schools. We examined the effectiveness of private and public schools. Private school students have been observed to perform better than their public school peers, and teacher happiness has a significant impact on student performance. Private and public schools operating in the BTAD region suffer from several problems. The purpose of this study is to examine and compare the problems and prospects of private and public schools and to provide policy recommendations to overcome the problems faced by both private and public schools. Public schools are more likely to face severe student shortages because of the different economic backgrounds of students and parents. Almost all private schools have boarding schools, but only 10% of

public schools have this facility. Modern facilities such as digital classrooms enable teachers to teach more easily and have a lasting impact on the minds of students. A student's career success depends on the educational guidance they receive. However, few private schools offer educational counseling and most public schools do not. Private schools offer a better educational environment than public schools and offer parents more options for sending their children to private schools. In addition, parents can indirectly select public schools for their children to the extent that they choose their place of residence and preference. Private schools offer safe drinking water, gender-segregated toilets, connected electricity, better science labs, dormitory facilities, digital classrooms, more extracurricular activities, and a wider choice of schools than public schools. It has several advantages over public schools.

K. Rashmitha, K.S. Shoba Jasmin [10] examined the characteristics of parents who consider private schools for their children and those who do not. They found that parental satisfaction with their child's previous school was not a predictor of whether to consider a private school. The private sector is becoming an important source of education. This article examines the factors that motivate parents to choose private schools for their children. Education is considered an economic good because it enhances human skills, accelerates economic growth through the development of knowledge and skills, and makes individuals self-confident, conscious, and active. It is offered by both the public and private sectors, with fee discounts varying from percentages to full fee discounts. The purpose of this paper is to find the factors that make parents choose private schools over public schools to educate their children. Factors include educational environment, teacher-student ratio, parental education, occupation, and small class sizes in private schools. The study collected data from 200 randomly selected parents and explored their motivations for choosing a private school for their children. Parents' education is considered one of the most important variables in creating perceptions of a child's level and standards of education. Most of the 200 parents were educated. A study was conducted to find out what factors motivate parents to choose a particular school for their children. They found that family size, parental education, parental income, teacher qualifications, school performance, and dissatisfaction with a particular school were the most important variables. Research shows that, due to lack of educational facilities, inadequate teaching environment, lack of teacher attention, overcrowded classes, inappropriate teaching methods, lack of discipline, and lack of attention to the child's overall development, parents avoid public schools.
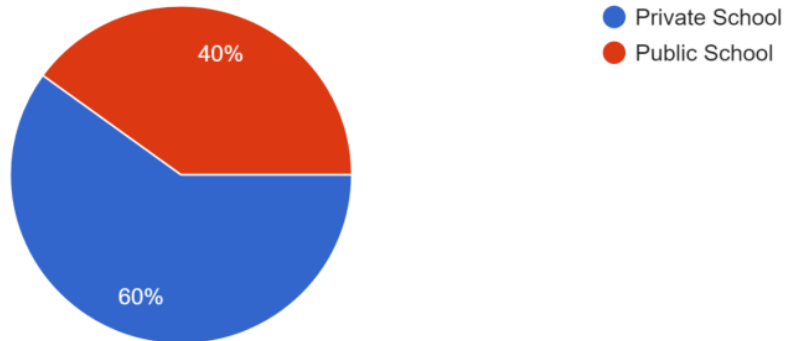
The term Artificial Intelligence (AI), coined by John McCarthy in 1955, is defined as a computer with the capability to perform a variety of human cognitive tasks, such as communicating, reasoning, learning, and/or problem-solving (Nilsson, 1998). Baker and Smith (2019) further explain that AI represents a generic term to describe a wide collection of different technologies and algorithms (e.g., machine learning, NLP, data mining, and neural networks). In the earlier stage, AI in the education area normally refers to intelligent tutoring systems, which aim to solve problems such as enhancing operator performance automatically (e.g., Ross, 1987; Hwang, 2003). Currently, AI refers to using big data to perform complex tasks.

3. Survey

In this study, 60% of respondents stated they preferred private schools to public ones, and 42.9% thought private schools were much superior to public ones. There is a significant difference in teaching techniques between private and public schools, according to 77.1% of parents.
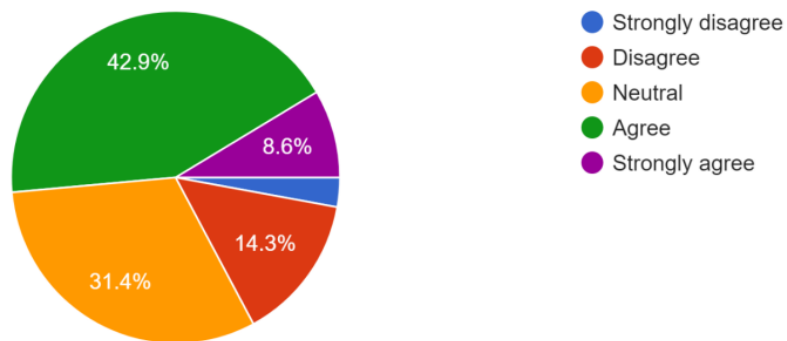
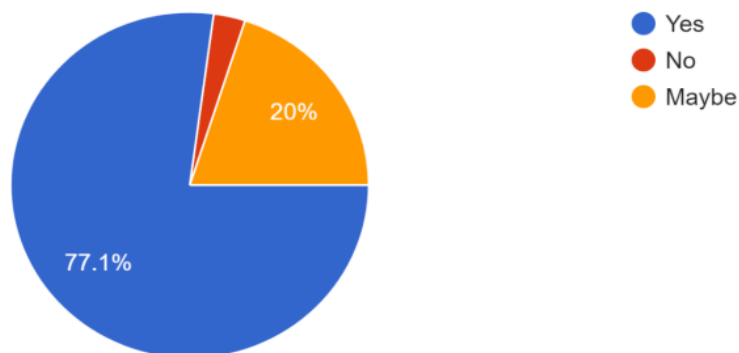Do you prefer private or public schools for your children?
35 responses

Is private school really that much better than public school?
35 responses

Is there a difference in teaching methods in both schools?
35 responses

4. Conclusion

Education is very important and it provides the base for socio-economic development in any country. If the educational system is of poor quality, it may be one of the most important reasons why poor countries do not grow. As in India, the quality of education is on the decline even though the

government is trying to improve the quality and quantity of education by introducing free education at the secondary level. The government can improve the quality of education by strict checks and balances. We know that without good and qualified teachers we cannot transform the education system and cannot improve the quality of education. According to the survey, the majority of parents continue to support private schools over public schools for their kids. But if there are appropriate facilities, rules, and teaching strategies in place, as well as better facilities to raise kids' talents, the public might be better. a good parents-teacher communication system. Through all of this, public schools can be improved, and parents' attitudes regarding public schools can be altered. We can use machine learning to make predictions about how to enhance public schools based on the survey's results. By recognizing areas where groups of students are having difficulty, machine learning helps teachers in improving their teaching. By dividing up students and teachers into groups according to their needs and availability, machine learning will enhance education. In the future, we will survey students in public schools in India to determine the challenges they experience, predict difficulties, and use ML-based solutions to fix them in order to increase the efficiency of the education sector. Whenever governments introduce educational policies based on an analysis of the performance of large schools rather than single schools, measuring the performance of local schools rather than individual schools is a pragmatic approach. Education level of public institutions. We have developed a method based on machine learning and delivered results. In addition to student academic performance, other factors were also found to have a significant impact on the performance of each school institution. In addition to a student's school performance, there are other influential factors. Computer Labs and Science Labs. Our findings show that disparities in institutional performance in different regions of the country are motivated by unequal distribution of resources, differences in essential institutions, the number of schools per region, and school location. It was due to the literacy rate and the impact it had on education. Awareness of local residents. This research helps support governance for performance monitoring, policy development, goal setting, evaluation, and reform to address the problems and challenges facing education. Moreover, changes in socioeconomic factors can lead to different outcomes. The survey can be conducted in all schools (primary, middle and high schools) and can also be conducted in higher education institutions and in various parts of the country. In the future, advanced ensemble-based machine learning algorithms such as extreme gradient amplification may be used in this region and schoolyard.

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