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Impact of the Distance Travelled to School on Students' Performance, Tardiness, and Absenteeism in Public Schools in Morocco

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Abstract

The challenges of providing equitable access to quality education are particularly acute in rural areas, where the distance pupils have to travel to school can have a significant impact on their academic performance. This study addresses the critical question: How does the distance students have to travel to school affect their academic outcomes? Focusing on a primary school in a rural area of Morocco, the research aims to analyze the relationship between students' travel times and their academic performance. Based on a statistical analysis of data collected from 220 students, the study uses univariate analysis, ANOVA, and Pearson correlation tests to examine the effects of commute time on tardiness, absenteeism, and academic performance. The results indicate that longer commute times are associated with higher rates of tardiness and absenteeism, as well as lower student performance. These findings highlight the urgent need to address logistical challenges in rural areas in order to improve educational outcomes. The study concludes by emphasizing the need for targeted interventions, such as improved transport infrastructure, to mitigate the negative impact of long commutes on student performance.

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Introduction

Émile Durkheim (1922) showed that schools reflect society, its value systems, and how these values are transmitted. Schools are responsible for providing moral, cultural, and scientific knowledge that helps children integrate into their social environment.

Students' academic performance is influenced by many factors including gender, age, teaching staff, students' previous schooling, the socio-economic status of the father or guardian, students' area of residence, the medium of instruction in schools, tuition trends, daily hours of study, and boarding or day-school accommodation (Ali Shoukat and al., 2013).

However, disparities in academic performance remain a significant challenge, particularly in rural areas, where students often face barriers to accessing quality education. Recognizing the importance of education in a country's development, all nations have made efforts to make education accessible to all, although the extent and success of these efforts vary from country to country (Gatchew, 2018).

In Morocco, schools are currently at the heart of the country's social project due to their crucial role in shaping future citizens, achieving sustainable human development goals, and ensuring the right to education for all. From this perspective, education occupies a central place in national priorities and concerns.

In this context, the present study aims to examine the impact of distance and travel to and from school on students' academic performance. Accordingly, the research question is How does the distance travelled by pupils to their schools affect their academic performance, given that distance is synonymous with the time spent travelling to school?

The objectives of this study are threefold:

1. To analyze the impact of the distance traveled to school on students' academic performance in public schools in rural areas in Morrocco.
2. To assess the relationship between commute time and student tardiness in rural areas, exploring how longer travel times lead to higher rates of lateness.
3. To examine the effects of commute time on absenteeism, determining whether increased travel distances contribute to higher rates of student absenteeism.

The structure of this article is as follows: The second section provides a comprehensive review of the relevant literature, followed by the third section which details the methodology and data used in the study. The fourth section

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presents and analyses the findings, and the fifth section discusses the results. The sixth section concludes the study.

Literature Review

The accessibility of schools and the distance pupils have to travel to reach them has been the focus of significant research. Schools in mountainous regions face significant accessibility challenges due to poor infrastructure, which makes it difficult for pupils to reach their schools, ultimately affecting their attendance and academic performance (Limaye, 2016). The distance that pupils travel from home to school has been the subject of numerous studies over the years and categorising travel modes into active and passive types. Active travel includes walking, cycling and skateboarding, while passive travel includes motorised transport such as cars, buses, minibusses, taxi,s and trains (Easton & Ferrari, 2015).

In most developed countries, passive transport is modern, relatively safe, and affordable, in stark contrast to developing countries where pupils often walk long distances through dangerous terrain. The impact of active and passive transport in these regions is considerably less severe compared to the challenges faced by pupils in developing countries, who often endure long walks through dangerous and difficult terrains such as mountains, rivers and forests (The New Times, 2016). Long walking distances are a common phenomenon for these students, leading to mental and physical effects as well as health risks (Zuckerman, 2021).

Studies have shown that pupils who commute long distances suffer from fatigue and low morale, which can lead to dropping out of school or poor concentration in class after spending long hours on the road (Marique et al, 2013). Early departures and late returns severely limit students' time for private study, and commuting distances profoundly affect the sleep patterns of adolescent pupils (Pradhan & Sinha, 2017). The literature consistently confirms the impact of distance to school on student performance, with various researchers documenting significant effects (Easton & Ferrari, 2015; The New Times, 2016; Vuri, 2007). Thapa (2015) and Getachew (2018) also found that distance to school has a significant impact on student achievement.

Creswell and Creswell (2017) found that distance to school has a negative impact on students' academic performance. Distance to school may influence student performance through numerous factors associated with long-distance travel to and from school (Thomas, 2016). Mhiliwa (2015) found that long walking distances to school negatively affect student performance compared to those who live closer to their schools. Students who travel long distances to school are exposed to longer travel times, reducing the time they can spend on homework or preparing for the next day of school (Andre-Bechely, 2007).

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Nelson, Misra, et al (2016) reported that pupils who live further from school find it difficult to complete out-of-school assignments assigned by their teachers. Taiwo (2019) found that walking long distances to and from school every day affects students' academic performance and contributes to absenteeism and fatigue, which leads to a lack of concentration and interest in school activities, with indirect negative consequences such as delinquency and lack of discipline.

Moyo (2013) analysed the impact of walking long distances to and from school and found that such journeys result in pupils arriving late at school and returning home late at night. In addition, longer walking distances lead to exhaustion and hunger, causing pupils to be tired while learning. This situation often results in pupils arriving at school on an empty stomach, which has a negative impact on their academic performance.

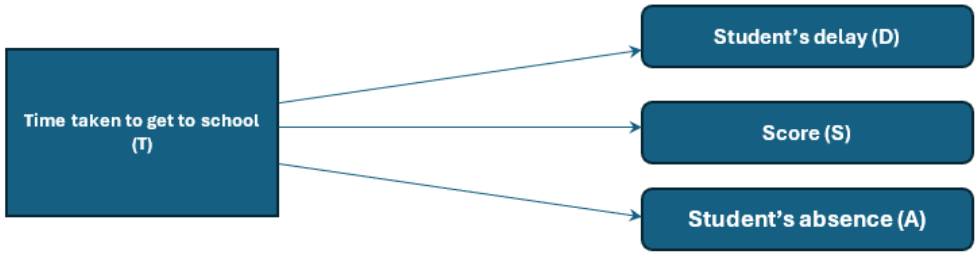
Baliyan and Khama (2020) investigated the effect of distance to school on students' mathematics performance among 168 pupils in Botswana. Their results showed that distance had a significant effect on mathematics performance, with post-hoc analysis showing that long travel distances adversely affected students' mathematics performance. Duze (2010) examined the average distance traveled to school by pupils in primary and secondary schools in three states of Nigeria and its effect on attendance. The results showed that most pupils traveled up to five kilometers, which negatively affected their attendance.

Despite extensive research, the relationship between distance to school, after-school study time, and student achievement remains unclear and under-researched (Andre-Bechely, 2007; Ledwith, 2009; Thomas, 2016; Warrington, 2005). While existing evidence suggests that the distance to school significantly impacts student performance—longer distances often lead to fatigue, reduced learning time, and lower academic achievement—there is limited research that focuses on how these factors specifically affect students in rural areas of Morocco. This study aims to fill this gap by examining the relationship between commute times, and academic outcomes in public schools in these regions.

By analyzing this context-specific data, the research seeks to provide new insights into the challenges faced by rural students and offer solutions, such as improving infrastructure and providing safer, more efficient transport options, to mitigate the negative effects of long commutes and improve educational outcomes. The figure 1 shows our model.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Figure 1. Representative diagram of the model



Source: Authors

Methodology and data

Methodology

In order to achieve the objectives of this study, the statistical analysis will be carried out in three stages. The first stage is a univariate analysis, which provides a descriptive overview of the variables within the study using statistics such as mean, variance, and proportion. The second step is to explore the relationships between several key variables: the time a student takes to arrive at school and the student's tardiness over a month, the time a student takes and the student's absenteeism over the same period, and the time a student takes to arrive at school and the student's academic performance during the first semester of the 2023-2024 school year. To assess these relationships, we use ANOVA and Pearson correlation tests.

Data and Results

Data

This study analyses the relationship between distance from school and academic performance. To measure academic performance, grades, tardiness, and absenteeism during the first semester of the 2023-2024 school year were used as indicators. The time taken to reach school was used as a proxy for distance from school.

In addition to these primary variables, other factors were taken into account to create a relatively homogeneous group that differs only in the time it takes to get to school. These factors include individual variables such as gender and age.

Data were collected using a questionnaire distributed to primary school pupils in a single rural school in the province of El Kelaa des Sraghna in Morocco. The pupils' teachers played a crucial role in this process, distributing hard copies of the questionnaire and explaining the questions to the pupils. Data collection took one month, starting on 1 March 2024 and ending at the end of the month.

The questionnaire was divided into three parts. The first section collected individual data such as gender, age, grade, and time spent traveling

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to school. The second section focused on school-related information, including first semester grades, instances of grade repetition, tardiness, homework completion, attentiveness in class, number of absences in the past month, and feeling tired in class

Results

Participants

The school is located in a rural area and operates as a public institution under the management of the provincial directorate of the Ministry of Education, Pre-school Education and Sports. Located 15 km from the town of El Kelaa des Sraghna, the school employs 22 teachers who teach in both Arabic and French. A total of 220 pupils took part in the survey, of whom 118 were boys (53.6%) and 102 girls (46.4%).

Descriptive statistics

Table 1. Descriptive statistics of the time taken to get to school and the score

Variables	N	Min	Max	Average	Standard deviation
Time taken to get to school (T)	220	5	60	13.75	11.75
Score (S)	220	1.86	8.94	6.1809	1.19

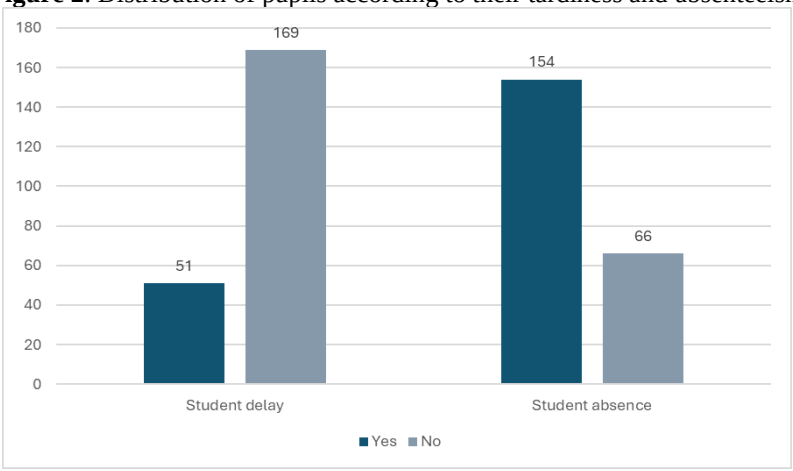
Source: Primary data

All pupils reported that they walked to school, which simplified the process of estimating travel time. The minimum travel time was 5 minutes, reflecting the proximity of some students' homes to the school. In contrast, the maximum time recorded was 60 minutes, indicating a significant variation in the time taken by pupils to get to school. On average, pupils took 13.57 minutes to get to school.

The data also revealed differences in the academic performance of the participants. The average score was 6.18 out of 10, with scores ranging from a low of 1.86 to a high of 8.94. The standard deviation of 1.19 points indicates that the scores vary significantly from the mean, suggesting that the academic performance of the pupils in this sample is quite heterogeneous.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Figure 2. Distribution of pupils according to their tardiness and absenteeism



Source: Primary data

The figure 2 shows the differences between the participants regarding the variable of lateness. According to the teachers, 51 pupils are usually late at the beginning of the lesson, representing 23.18% of the total, while the remaining 169 students, representing 76.82%, arrive on time. The table also shows the distribution of participants on the basis of the absence variable. It shows that 154 students, or 70%, were absent at least once a month, while the remaining 30% were regular attendees

Table 2. Relationship between the time taken to get to school (T) and the student's delay (D)

Student delay (D)	**Average**	**N**	**Standard deviation**
Yes	19.72	51	12.339
No	12.31	169	11.170
Total	13.75	220	11.754
ANOVA test	F=14.62	Signification	0.00

Source: Primary data

The data in table 2 show that students who are frequently late, as reported by their teachers, tend to live farther away from school than their classmates who arrive on time. Specifically, students who are often late take an average of 19 minutes to get to school, while those who arrive on time take only 15 minutes. An ANOVA test was carried out to see whether the time taken to get to school had a significant effect on the probability of being late. The calculated F-value is 14.62, with a significance level of 0.00, indicating that the difference is statistically significant. This result suggests that the further a student lives from school, the higher the probability of being late.

 ISSN: 1857-7881 (Print) e - ISSN 1857-7431

Table 3. Relationship between the time taken to get to school (T) and the student's absence (A)

Student absence (A)	Average	N	Standard deviation
Yes	20.45	154	10.32
No	12.31	66	12.18
Total	13.75	220	11.754
ANOVA test	F=13.62	Signification	0.00

Source: Primary data

Regarding the distribution of travel time to school (T) about absenteeism (A), it was found that students who are absent from school at least once a month report an average travel time of 20.45 minutes to get to school. On the other hand, those who do not miss any classes during the month only need an average of 12.31 minutes. This is a difference of 7 minutes between the two groups. The ANOVA test confirms that this difference is statistically significant, indicating that the farther the students live from school, the more likely they are to be absent.

Table 4. Relationship between the time taken to get to school (T) and the score (S)

Student's score (S)	Time taken to get to school (T)	
	Bilateral signification	0.44
	Pearson correlation	-0.14

Source: Primary data

To determine the nature of the correlation between X and Y, the Pearson correlation test is used, as both variables are quantitative. The results of this bilateral test show a negative correlation, which means that the two variables move in opposite directions. Specifically, as the time spent traveling to school increases, the score tends to decrease. Furthermore, the correlation is significant at the 0.05 level, indicating that this relationship is unlikely to be due to chance.

Discussions

The results of this study show significant correlations between the time students spend commuting to school and various indicators of academic performance, such as tardiness, absenteeism, and overall academic performance.

These findings are consistent with the existing literature, which highlights the impact of commuting distance on students' academic experiences. Mhiliwa (2015) found similar results in Tanzanian schools, where students commuting longer distances were more frequently tardy and absent, negatively impacting their engagement in classroom activities. Similarly, Pradhan and Sinha (2017) reported that students with long commutes often suffer from fatigue, which affects their ability to participate fully in school. The findings of the present study reinforce these conclusions,

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emphasizing that the physical and mental fatigue caused by long commutes reduces students' engagement and overall academic performance.

Furthermore, the negative correlation between commute time and academic performance suggests that students who spend more time traveling to school tend to have lower academic performance. This finding aligns with the research of Creswell and Creswell (2017)**,** who documented the detrimental effect of long distances on academic achievement. The current study extends this understanding by providing quantitative evidence of the significant impact of travel time on academic performance in rural Moroccan schools, a context that has been under-researched in previous studies. Longer travel times not only reduce time for studying and resting—both essential for academic success—but also compound the challenges already faced by rural students, such as limited access to educational resources and support at home, as noted by Nelson et al. (2016)**.**

The study's results also have broader implications for educational policy and infrastructure development in rural areas. As highlighted in previous research by Andre-Bechely (2007)**,** the physical distance between students' homes and schools in rural settings presents a substantial barrier to equal educational opportunities. This is particularly relevant in the Moroccan context, where road infrastructure in rural areas remains underdeveloped. The findings of this study emphasize the urgent need for targeted interventions to reduce travel times, whether through the provision of school transport services, the construction of schools closer to residential areas, or improvements in road and transport infrastructure. By aligning with previous studies, such as Duze (2010)**,** which demonstrated the importance of proximity in ensuring better attendance and academic performance, this study contributes new evidence supporting the prioritization of infrastructural development as a means of improving educational outcomes.

The significant relationship between commute time and academic performance underscores the importance of addressing educational inequities, particularly in rural areas where long travel distances are common. Research by Taiwo (2019) has shown that long distances to school not only affect students' attendance but also contribute to other social problems, such as reduced discipline and increased dropout rates. Policies aimed at reducing these disparities should consider commute time as a critical factor affecting students' access to quality education. Potential interventions could include expanding transportation options, offering boarding facilities, or providing additional academic support to pupils who face long commutes. These findings support the calls made by Baliyan and Khama (2020) for policymakers to focus on reducing the educational inequities that stem from long travel distances, particularly in developing countries like Morocco.

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Although this study provides valuable insights into the impact of commuting time on academic performance, it has a number of limitations. Firstly, the research was conducted in a single rural area, which may limit the generalizability of the findings to other regions with different socio-economic and geographical contexts. Additionally, the study did not take into account other factors that might influence academic performance, such as the quality of teaching, parental involvement, or the availability of learning resources at home, which have been emphasized in studies like those by Getachew (2018)**.** Future research should aim to cover a wider geographical area and include a more comprehensive set of variables to fully understand the complex relationship between commuting time and academic performance. Longitudinal studies, such as those suggested by Moyo (2013)**,** could provide deeper insights into how these relationships evolve over time and the long-term effects of commuting on students' educational outcomes. By addressing these limitations, future studies could build a more nuanced understanding of the barriers to education faced by rural students and contribute to more effective policy interventions.

Conclusion

This study highlights the significant impact of travel time on students' academic performance, showing that longer commutes are associated with increased tardiness, absenteeism, and lower academic performance. These findings highlight the urgent need for targeted interventions to reduce travel times and mitigate the negative effects of long commutes on students' education. Addressing these issues can help policymakers and educators create a more equitable educational environment, particularly in rural areas where students face unique challenges related to access and distance. This study adds to the growing body of literature on educational equity and provides a foundation for future research to investigate and address these critical issues further.

Declaration for Human Participants: The study was approved by the Multidisciplinary Research Laboratory in Economics and Management (LARPEG), Faculty of Economics and Management, Sultan Moulay Slimane University of Beni Mellal, Morocco, and the principles of the Helsinki Declaration were followed.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

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