Clear the Air:
A Student-Led Climate Action Project

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Abstract

Today, young people face the reality of climate change directly as it brings health risks such as respiratory issues. In response, this study investigates how 11- and 12-year-old students can become agents of environmental change through a hands-on, data-driven project focused on improving air quality and mitigating climate change. This project, conducted at St. Ignatius College, Prof Edward de Bono Ħandaq Middle School, enabled students to explore real-time air pollution levels using low-cost environmental monitors. Students also engaged in experiments, gamification and collaborated with the local community to understand the link between their local environment and the broader global climate issues. Through creative problem-solving strategies, addressing air pollution and climate-related challenges, students not only gained scientific knowledge but also developed a strong sense of responsibility towards the environment. Findings revealed a significant link between traffic volume and elevated pollution levels, particularly $PM_{2.5}$, PM_{10} and NO_2, highlighting the urgency of local action. Students proposed practical solutions such as green walls and improved transport systems. This study contributes to a growing body of evidence demonstrating the potential of student-driven solutions in tackling climate challenges.

Keywords: climate change, air quality, sustainability, student engagement, environmental monitoring

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Research Question

In what ways does student-led environmental education, supported by real-time air quality monitoring, enhance students' climate awareness, scientific literacy, and capacity to engage their local community in developing pollution mitigation recommendations?

Introduction

Climate change is widely recognised as one of the most pressing challenges of our time, causing a considerable threat to the stability of our planet and the well-being of humanity. The increasing frequency of extreme weather events and rising global temperatures are disrupting ecosystems while exacerbating social and economic inequalities (Verma et al., 2024). Although natural drivers such as solar cycles and volcanic eruptions affect the Earth's climate, human activities, especially fossil fuel combustion, deforestation and industrial emissions are the primary contributors of this crisis (Calvin et al., 2023). It is deeply concerning that the current climate crisis disproportionately affects vulnerable populations, even though they are least responsible for its creation (Calvin et al., 2023).

Children are especially vulnerable to climate-related health effects, including respiratory problems and heat stress, which can lead to higher school absenteeism and mental health challenges (Jeev, 2024; Ogendi, 2023). Acknowledging the urgency of climate education, St. Ignatius College, Prof. Edward de Bono, Ħandaq Middle School (henceforth referred to as Ħandaq Middle school) Science Club launched a student-led project in November 2023. The project integrated different learning strategies, namely, hands-on activities, gamification, and environmental monitoring that engaged students in climate action. Through structured inquiry, students explored the scientific principles of air quality by analysing real-time environmental data while collaborating with different entities to offer them solutions to mitigate pollution in their school community. Hence, this study aims to achieve the following criteria:

1. Evaluate the effectiveness of student-led environmental education in developing climate awareness and scientific literacy.
2. Assess air quality trends using real-time data collection and determine the causes of the trends on pollution levels.

3. Investigate how effective the strategies used in this project engaged students in environmental knowledge and enabling them to be agents of change within the local community by proposing recommendations to mitigate pollution levels.

Therefore, this project aims to increase the awareness, knowledge and understanding of air quality while advocating for proactive environmental responsibility and community engagement. This will contribute to the existing body of literature on climate education by providing empirical evidence on the effectiveness of student-led initiatives in promoting environmental knowledge and action.

Research Methods:

Through a range of practical experiments and analysis of results, students attending the school science club learned how human actions can directly impact the environment. They identified the implications of a polluted world from a local perspective to understand global climate change complexities. This paper documents the club's initiatives and the scientific findings aiming to demonstrate the educational benefits of environmental projects.

Data Collection and Preparation

The project was conducted under the STEAM Learning Ecologies initiative (SLE) (STEAM Learning Ecologies, 2023) and the GLOBE Air Quality Campaign through the GLOBE Program ® (Globe, 2024). The EU-funded project SLEs under the Horizon Europe programme (Innovation, 2021) unifies formal and informal learning through open schooling partnerships with teachers, businesses, and the community. By encouraging these partnerships, SLEs seek to establish *learning ecologies* that offer diverse and accessible science learning opportunities for all.

Since the SLE framework places emphasis on real-world application and community engagement, the project aimed to assess and improve local air quality through data-driven analysis. Moving from the project's framework to its practical implementation, the analysis centred on the real-time data collected. Since the air quality monitor transmits synchronised data daily, which is then stored on online data visualisation platform, the records must be carefully selected. Given the collaboration with the GLOBE SLE project, which operated for four weeks from November 11 to December 6, 2024, this period was optimal for data analysis testing. The following data sources were included to monitor air quality:

a) Environmental Sensor Development Kit (ESDK) (Back Andrew, 2021): This Raspberry Pi™ (2024) device created by RS Components UK™ (2024) and is supported locally by CS Technologies International Ltd™ (2024) recorded data in real-time for Temperature, Humidity, Total Volatile Organic Compounds (TVOCs), CO_2 and Particulate Matter (PM) (Figure 1). The ESDK then transmits data to the Grafana portal (*Grafana Labs*, 2024) (Figure 2) at short intervals. However, the data over a month-long period were grouped to hourly to optimise performance. This offered a high-resolution view of environmental fluctuations. To ensure data integrity and reduce false positives, the sensor underwent recalibration every other day. This process involved switching the sensor on and off to reset its internal calibration parameters. Moreover, students manually recorded data once daily using the handouts found in Appendix 1. This daily recording served to provide a consistent, student-collected dataset. The Grafana portal was used for deeper analysis when required, such as for the creation of detailed charts.

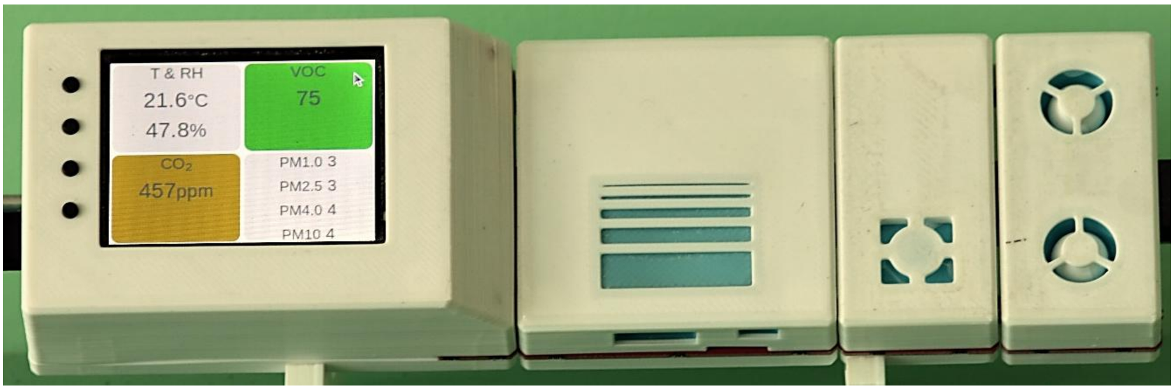
b) NO_2 passive diffusion tube (Figure 3): As part of the GLOBE project (Globe, 2024), the Environment and Resources Authority (ERA) (ERA, 2024), provided this tube to all participating schools. These tubes were placed outdoors at each school for a one-month period between November and December 2024 to measure air pollution. Following this period, the tubes were sent to Passam AG, a Swiss laboratory (passam ag, 2025) accredited under ISO/IEC 17025:2017 (2017), for data retrieval.

c) Weather Observations: Cloud types and atmospheric conditions were documented using the GLOBE Observer App (The GLOBE Program, 2024). A data sheet was filled in with these daily observations (Appendix 1).

d) Traffic Monitoring: Students recorded vehicle counts over the 4 weeks for 10 minutes each day at a selected location near the school. The number and type of vehicles were logged in a tally chart (Appendix 2).

Figure 1

The indoor air quality monitor



Note. The ESDK kit displaying the monitor with various parameters such as Temperature, Humidity, TVOC, CO_2 and PM.

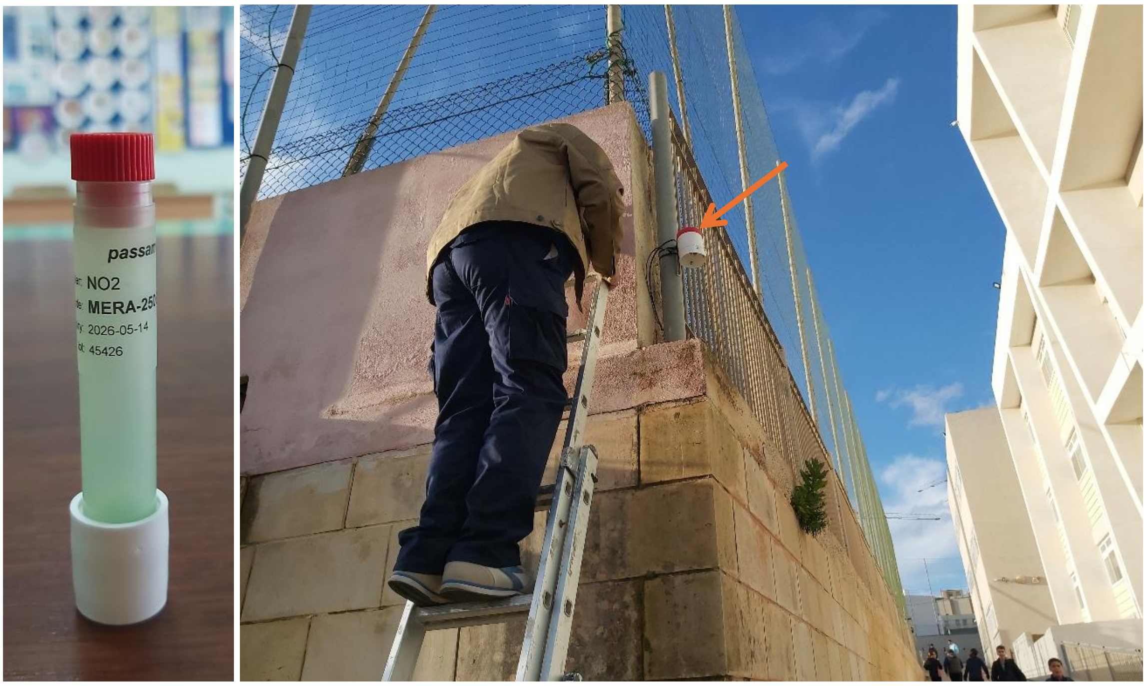
Figure 2

The real-time portal

Note. An illustrative example of the Grafana portal showing some of the parameters in real-time for different schools.

Figure 3

The NO_2 diffusion tube



Note. The passive diffusion tube provided by ERA (2024) for monitoring NO_2 was placed on the school premises to measure outdoor air quality (left). The orange arrow (right) indicates the location where the tube was installed on the school fence at a chosen height to ensure accurate ambient air sampling.

Results

Traffic Volume and Particulate Matter Dynamics

From the results shown in Figure 4, it became clear that a high volume of vehicles passes through or next to Ħandaq Middle school, during weekdays. Over 1,400 cars were recorded every 10 minutes over a month-long period. This meant that 69.7% of the school traffic is attributed to private cars (Figure 4a). Daily traffic counts changed significantly reaching 151 vehicles/10 minutes on November 27 and dropping to just 42 vehicles/10 minutes on November 11 (Figure 4b).

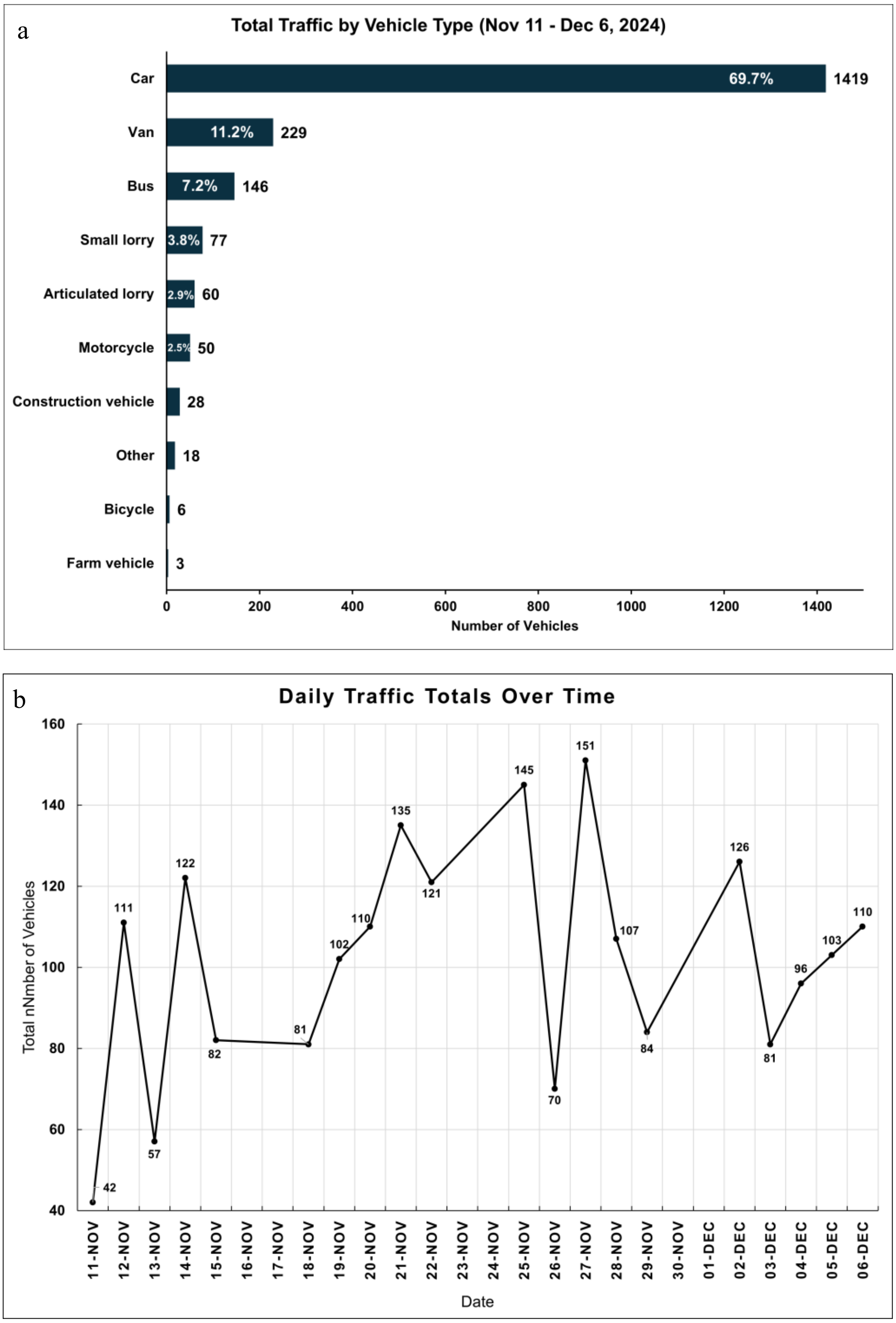
While daily traffic counts showed only a weak correlation with $PM_{2.5}$ and PM_{10} levels ($R^2 = 0.0759$ for both; Figure 7 a-b) statistically significant differences between weekdays and weekends emerged:

a) $PM_{2.5}$: Weekday mean = 3.6 μg/m^3 vs. weekend mean = 1.5 μg/m^3 ($p < 0.001$; Cohen's d = 1.76).
b) PM_{10}: Weekday mean = 4.0 μg/m^3 vs. weekend mean = 1.5 μg/m^3 ($p < 0.001$; Cohen's d = 1.76).

However, the large Cohen's d ($d = 1.76$) effect size and the statistical significance ($p < 0.001$) for both PM levels indicate that traffic is the driving factor for the pollution rise. For instance, on the 25th of November, $PM_{2.5}$ level peaked at 4.0 μg/m^3 (Figure 5a) and PM_{10} reached 5.0 μg/m^3 (Figure 5b) under high traffic activity during a weekday. Nevertheless, since these activities are non-linear and R^2 is weak due to data limitations, other factors such as weather parameters, Saharan dust events or industrial emissions should be considered as these can influence PM variability independent of traffic volume.

Figure 4

Daily Vehicle Traffic: Total Volume and Type Distribution

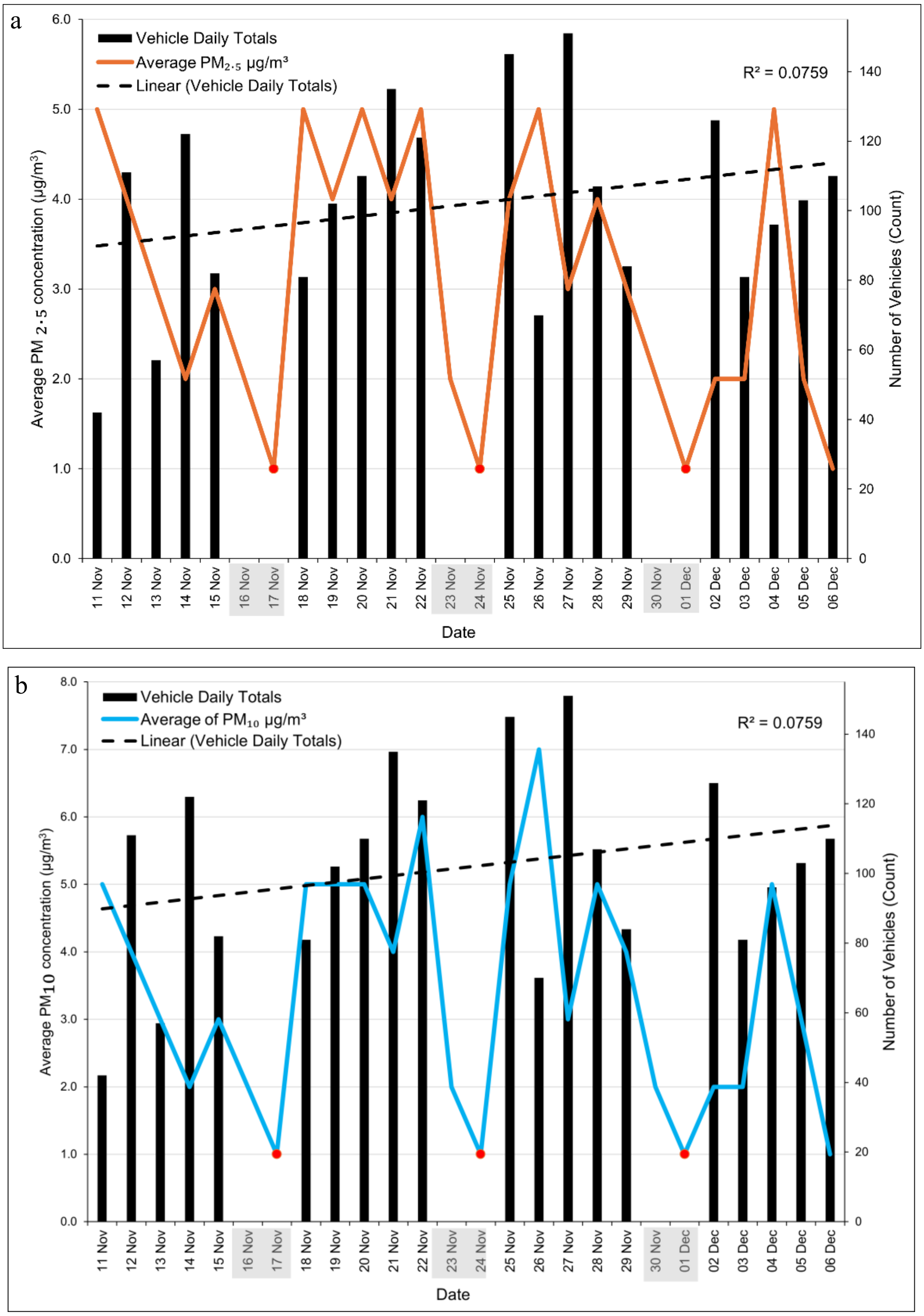


Note: a) Total traffic counts by vehicle type recorded between November 11 and December 6, 2024. Cars accounted for most of the traffic (69.7%), followed by vans (11.2%) and buses (7.2%). Other vehicle types contributed marginally.

b) Daily traffic totals recorded from November 11 to December 6, 2024, showing fluctuations in vehicle volume. Peak traffic was observed on November 27, while the lowest was recorded on November 11.

Figure 5

Relationship Between Daily Vehicle Counts and PM Concentrations Over Time



Note: (a) Average $PM_{2.5}$ concentration and daily vehicle counts.

(b) Average PM_{10} concentration and daily vehicle counts. Data were collected at Ħandaq Middle School, between November and December 2024. The shaded areas indicate weekends. $R^2 = 0.0759$ for both relationships.

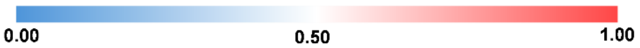
Correlation Analysis of Air Quality Parameters

As indicated in Table 1, the measurements of particulate matter (PM) show a strong positive correlation with each other, namely between $PM_{2.5}$ and PM_{10} ($r = 0.97$). This indicates that these pollutants likely originate from the same sources. Volatile organic Compounds (TVOCs) show weak correlations with other variables ($r \leq 0.22$), indicating different influencing factors which is expected when using certain cleaning products in a classroom environment. CO_2 levels demonstrate moderate positive correlation with humidity ($r = 0.31$) and temperature ($r = 0.41$) suggesting a link between occupancy levels in the classroom, environmental factors and CO_2 buildup.

Table 1

Correlation Matrix of Environmental Parameters Measured at Ħandaq Middle School

	Temperature	Humidity	TVOC	$PM_{1.0}$	$PM_{2.5}$	$PM_{4.0}$	PM_{10}	CO_2
Temperature	1.00							
Humidity	0.46	1.00						
TVOC	0.00	0.14	1.00					
$PM_{1.0}$	0.24	0.47	-0.02	1.00				
$PM_{2.5}$	0.24	0.37	-0.08	0.93	1.00			
$PM_{4.0}$	0.23	0.30	-0.11	0.86	0.98	1.00		
PM_{10}	0.22	0.28	-0.13	0.83	0.97	1.00	1.00	
CO_2	0.41	0.31	0.22	0.42	0.41	0.39	0.38	1.00



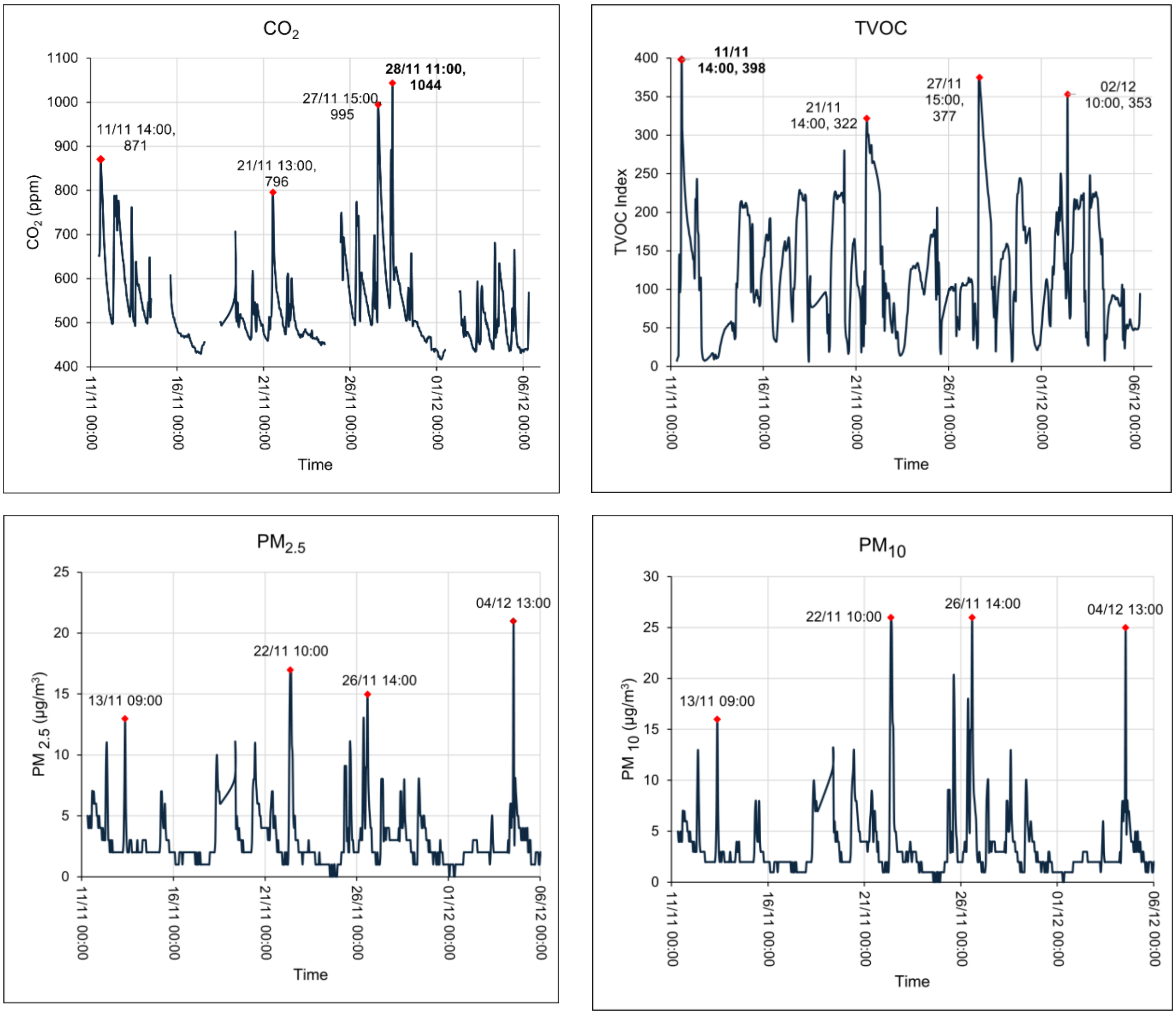
Note: $N = 492$ for correlations involving CO_2; *$N = 583$* for all other correlations. Statistically significant correlations (*$p \leq 0.05$*) are displayed. TVOC Index shows weaker associations with certain PM values. A correlation value $r = 1.00$ shows a perfect correlation, whereas $r = 0.00$ indicates no correlation, while negative scores indicate negative correlations.

Indoor Air Quality Dynamics

Indoor CO_2 levels have recurrently exceeded the widely quoted level of 1000 ppm, in accordance with ASHRAE Standard 62.1 (ANSI/ASHRAE Standard 62.1, 2022) for ventilation adequacy. A reading of 1044 ppm on November 28th at 11:00 pm, show times of high occupancy (Figure 6). Both $PM_{2.5}$ and PM_{10} had repeatedly showed significant fluctuations, that indicate intermittent sources. These peaks, on November 13th, 22nd, 26th, and December 4th (Figure 6), show a similar trend between the two levels, supporting the previously mentioned connection. The time of these peaks (at 9:00 am, 10:00 am, 1:00 pm, and 2:00 pm) corresponds with school arrival and dismissal times. TVOC levels also fluctuate and have a remarkably high reading of 398 index units on November 11th at 2:00 pm and are likely due to indoor activities such as cleaning products.

Figure 6

Temporal Variations in Indoor Air Quality Parameters at Ħandaq Middle School



Note: Temporal variations in indoor air quality parameters at Ħandaq Middle School over the sampling period from 11th November to 6th December 2024. CO_2 (ppm), TVOC (index value), $PM_{2.5}$ (µg/m^3), and PM_{10} (µg/m^3) concentrations are shown. Peaks are labelled with date, time, and value. Data gaps are indicated for CO_2.

Comparisons across Maltese Schools

This section discusses the results of indoor air quality across several schools in Malta. The focus is on $PM_{2.5}$ and PM_{10}, TVOCs, and NO_2. Schools were selected based on comprehensive data and priority was given to schools with the most complete records to ensure good comparison.

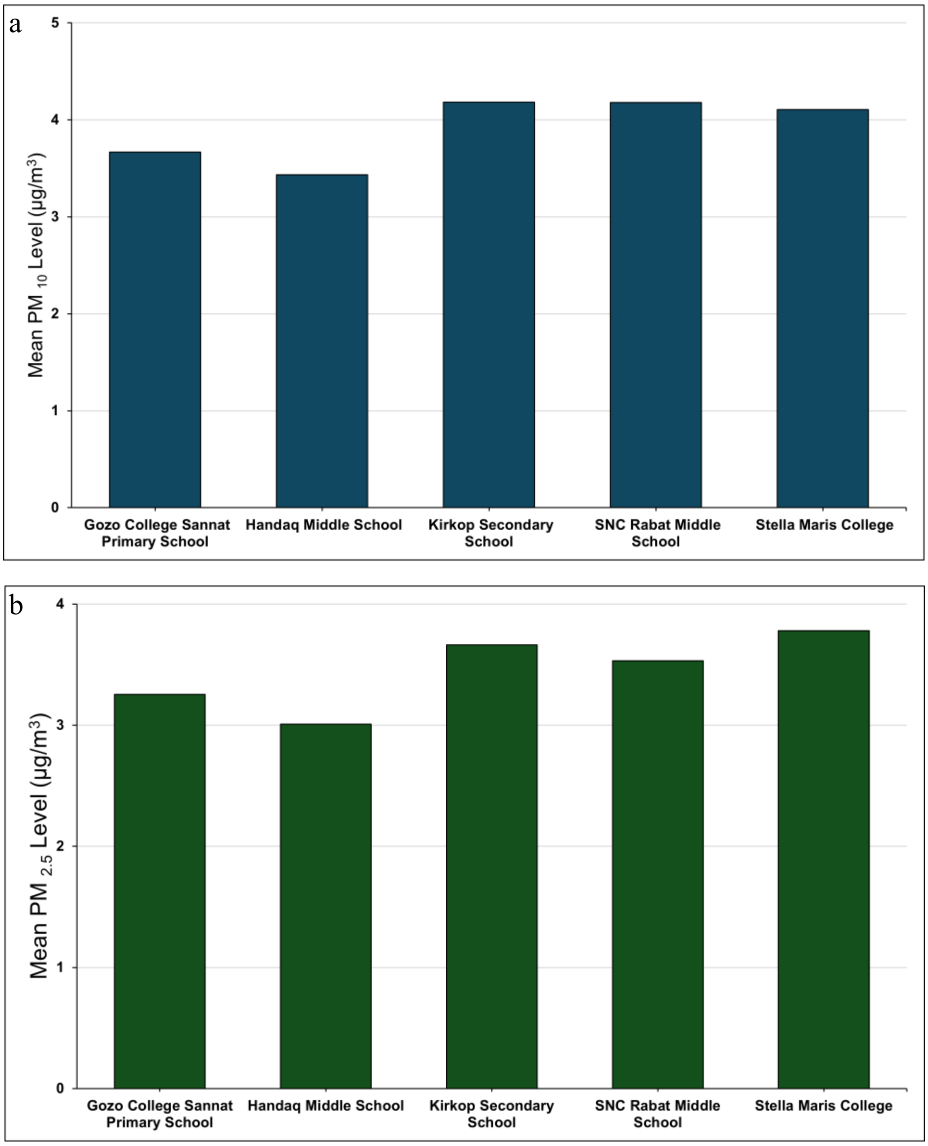
Particulate Matter ($PM_{2.5}$ and PM_{10})

Air quality levels were taken at Sannat Primary School, Ħandaq Middle School, Kirkop Secondary, Rabat Middle School, and Stella Maris College in Gżira. The results showed some clear differences in pollution levels between schools (Figure 7). One of the most interesting findings was that Ħandaq Middle School had the lowest recorded levels of both PM_{10} (3.43 $\mu g/m^3$) and $PM_{2.5}$ (3.01 $\mu g/m^3$). In contrast, Kirkop Secondary School recorded the highest average PM_{10} concentration (4.18 $\mu g/m^3$) while Stella Maris College had the highest $PM_{2.5}$ level (3.78 $\mu g/m^3$).

Figure 8 shows the fluctuations of $PM_{2.5}$ levels for each school. Levels varied considerably throughout the month, with distinct peaks and lower periods of $PM_{2.5}$ concentration. Kirkop Secondary School showed more frequent peaks compared to the other schools. Its highest reading was reached on 4th December at 04:00 pm reaching 39 $\mu g/m^3$. These peaks surpassed the 24-hour mean guideline of 15 $\mu g/m^3$ as stated by the WHO for $PM_{2.5}$ (WHO, 2021). These exceedances if becoming frequent can possibly present health risks (Geneva: World Health Organization, 2021).

Figure 7

Mean PM_{10} and $PM_{2.5}$ Concentrations in Selected Maltese Schools

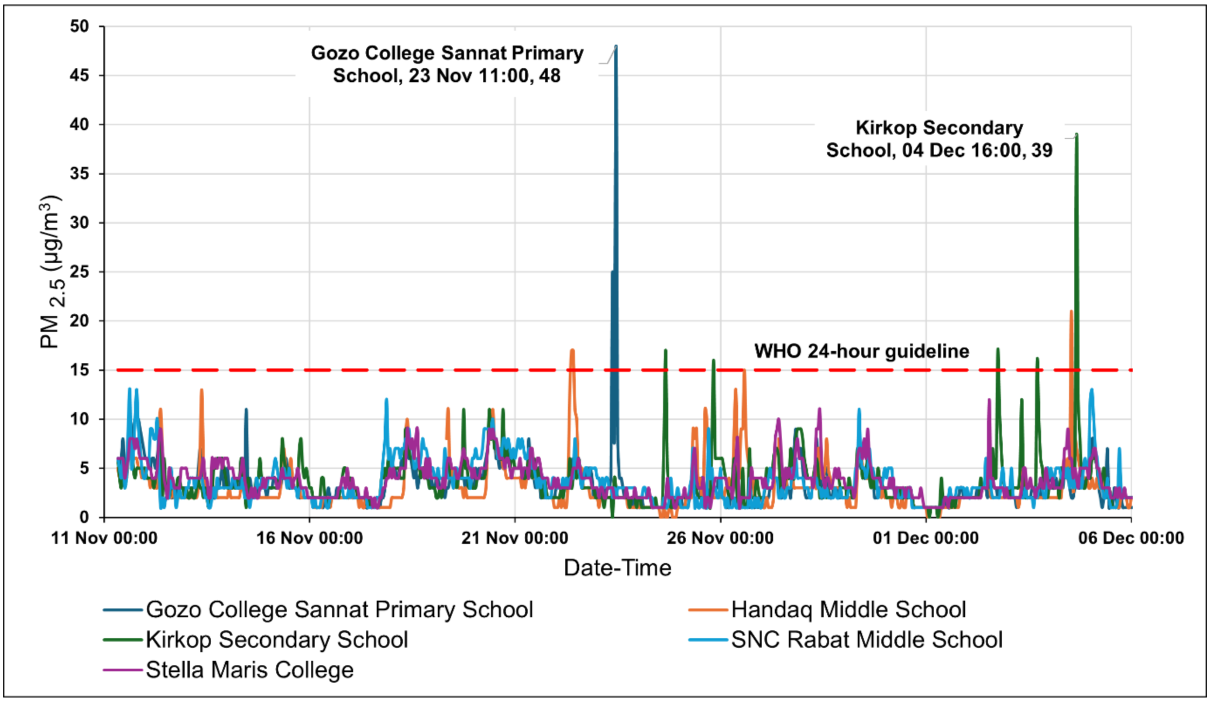


Note: (a) Mean PM_{10} concentrations (µg/m^3)

(b) Mean $PM_{2.5}$ concentrations (µg/m^3) measured in five Maltese schools between November and December 2024.

Figure 84

Hourly $PM_{2.5}$ Concentrations and WHO 24-Hour Guideline



Note: Hourly $PM_{2.5}$ concentrations (µg/m^3) measured in five Maltese schools between November and December 2024, including the WHO 24-hour mean guideline.

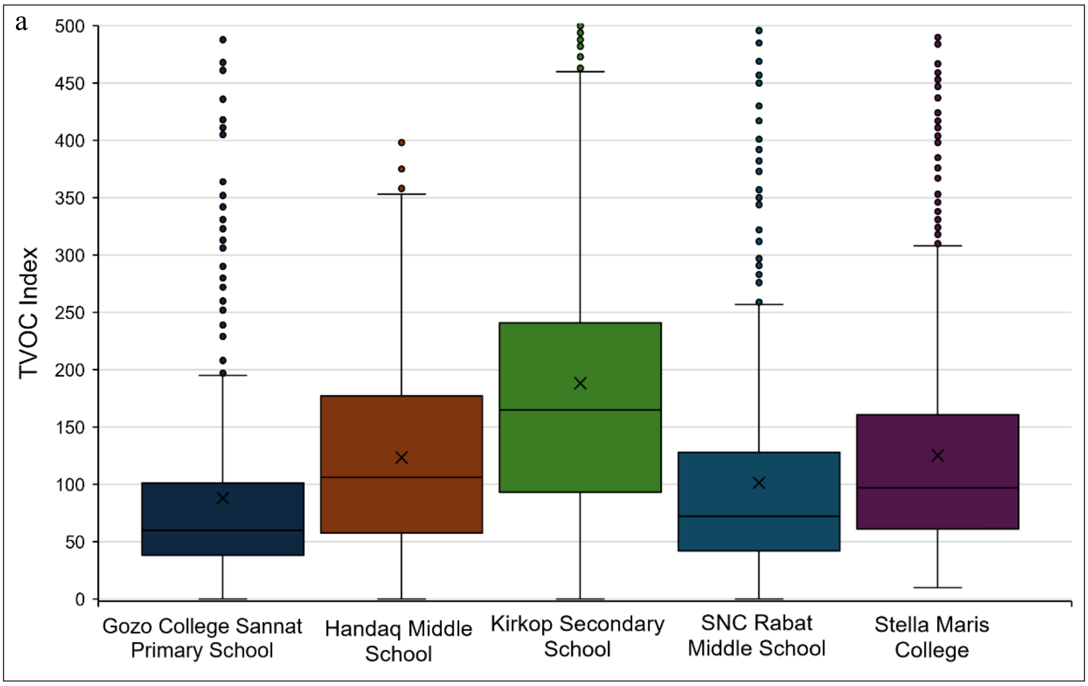
Volatile Organic Compounds (TVOC)

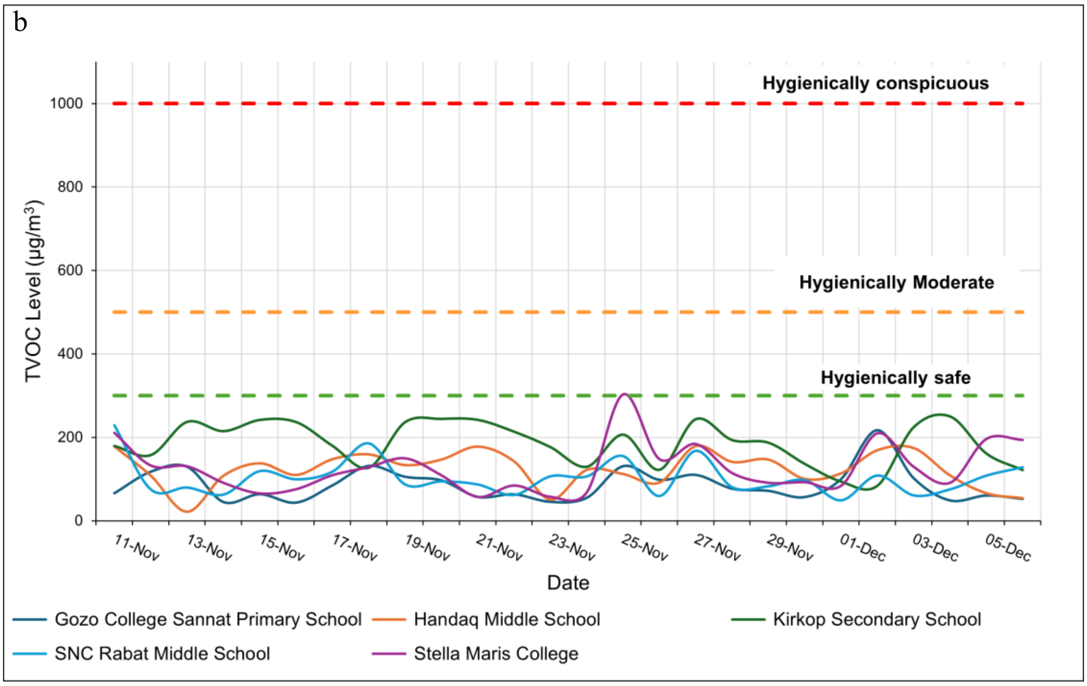
TVOC levels showed noticeable differences between schools (Figure 9a) with Kirkop Secondary recording the highest median concentrations (165 units) and the largest interquartile ranges (*Min* = 93 and *Max* = 241units). In contrast, Gozo College Sannat Primary School, showed the lowest median concentration (60 units) and the narrowest interquartile range (*Min* = 88 and *Max* = 101 units). This may suggest consistent lower and more stable hourly concentrations. Ħandaq and SNC Rabat Middle Schools remained within these limits, however, Ħandaq showed greater variability in hourly levels.

Since WHO does not publish guidelines for TVOC, a study issued by the German Federal Environmental Agency, (Umweltbundesamt, 2007) grouped indoor air TVOC levels based on hygienic assessments. Level 1, which is considered hygienically safe has a target value of TVOC concentration below 300 $\mu g/m^3$. All schools remained below this daily safety threshold as shown in Figure 9b.

Figure 95

Hourly and Daily Mean TVOC Levels in Five Maltese Schools





Note: (a) Distribution of hourly TVOC concentrations (µg/m^3) across five Maltese schools shown as boxplots.

(b) Daily mean TVOC concentrations (µg/m^3) for the same schools, plotted over time and compared to the German Federal Environmental Agency safety standards (Umweltbundesamt, 2007) .

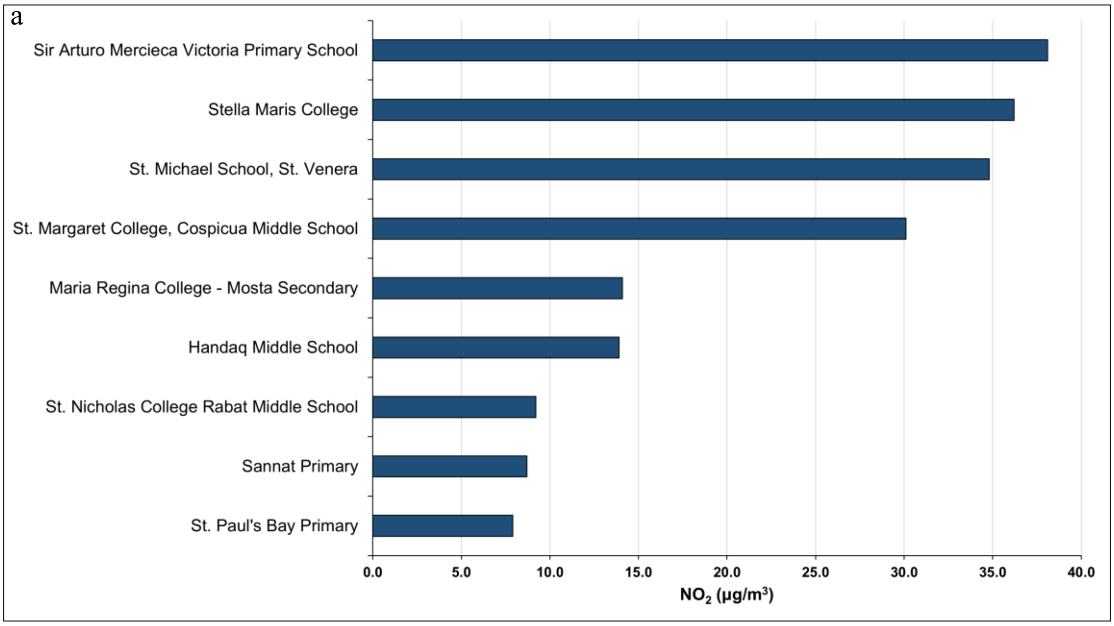
Nitrogen Dioxide (NO_2)

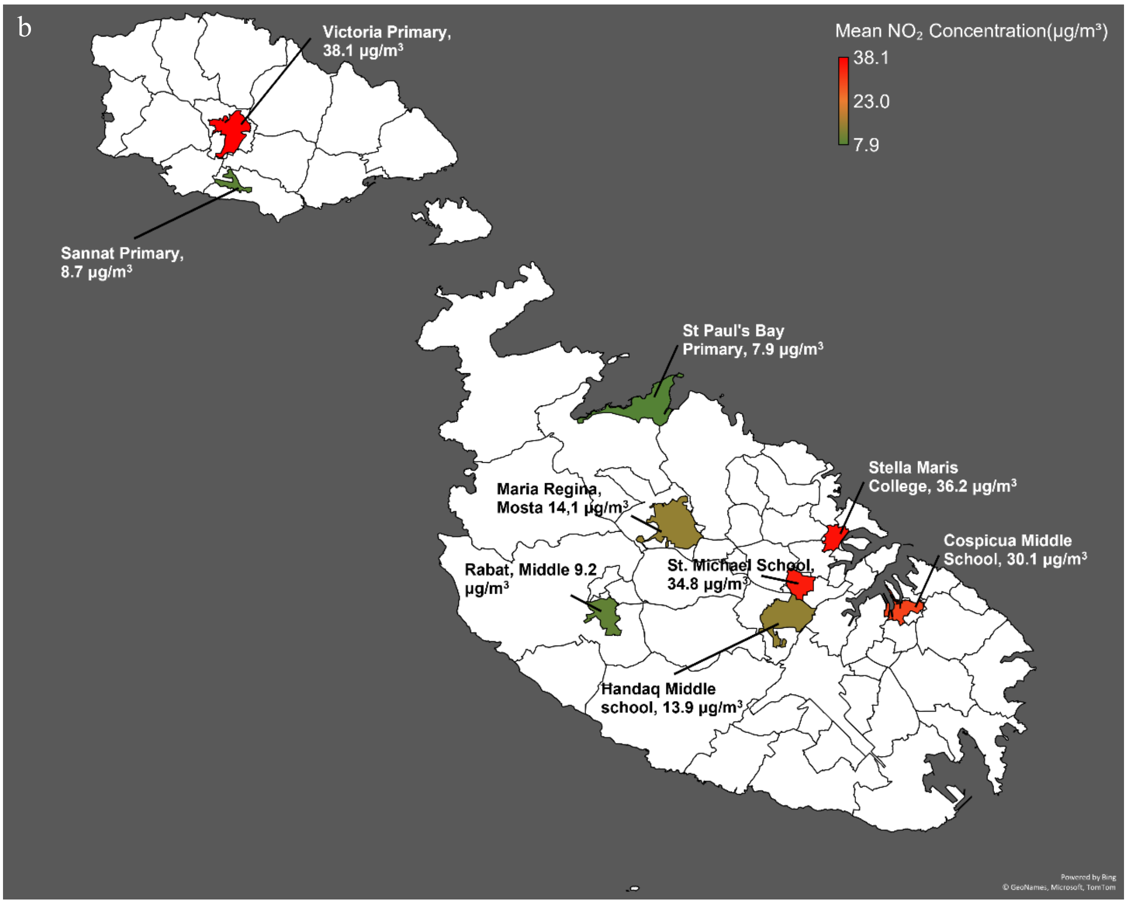
NO_2 levels, mainly linked to traffic emissions, were measured at various schools to assess possible exposure due to nearby vehicular activity. Figure 10a illustrates the mean NO_2 levels recorded at each school over the monitoring period. St. Paul's Bay Primary had the lowest, measuring 7.9 µg/m^3 while Victoria Primary School had the highest recorded NO_2 concentration at 38.1 µg/m^3, the latter approaching the EU annual regulatory limit of 40 µg/m^3 (European Parliament and Council of the European Union, 2008, p. 41). The distribution of NO_2 levels across Malta, as shown in Figure 10b, shows a clear trend where higher concentrations are found in densely urbanized areas, particularly around Valletta and the harbour region. Schools with elevated NO_2 readings, such as St. Michael School (34.8 µg/m^3) and Stella Maris College (23.0 µg/m^3), are located in regions where the map also indicates high pollution levels.

Notably, Ħandaq Middle School, located in Ħal Qormi, a town which is prone to traffic but away from main roads, registered a much lower value of 13.9 µg/m^3. A similar pattern appeared in Gozo, where Victoria Primary School, located near congested roads, had the highest NO_2 level (38.1 µg/m^3), whereas Sannat Primary School, situated away from traffic, reported one of the lowest concentrations (8.1 µg/m^3).

Figure 10

Mean NO_2 Levels in Schools Across Malta





Note: (a) Mean NO_2 concentrations (µg/m^3) measured at selected schools in Malta between November and December 2024. All data was obtained using diffusion tubes supplied by the Environment and Resources Authority (ERA, 2024) and analysed by Passam ag, Switzerland (passam ag, 2025).

(b) Spatial distribution of mean NO_2 levels across Maltese schools.

Discussion

Theoretical Implications

This project fits with Freire's definition of education as empowerment (Freire, 1970). Instead of just receiving information, students engaged by investigating air quality issues in their community and presented tangible solutions. This process reflects Freire's (1970) definition of "problem-posing" education, whereby learners actively interact with the world to produce change. This project also involves participatory learning, whereby students learn by working together through real-world application (Rogoff et al., 2003). By gathering data, analysing trends, and advocating for cleaner air, students went beyond the traditional ways in the classroom and became responsible for their education.

Moreover, this project fits with the Educational for Sustainable Development goals developed by UNESCO, which emphasize critical thinking and collaboration skills to address global problems (UNESCO, 2020). Students' work with air quality addresses directly the wider sustainability goals, such as greening the cities (SDG 11) and mitigating climate change (SDG 13). This project allowed students not only to learn and understand the world around them but also take tangible actions to make it a better place.

Impact of Traffic on Air quality

One of the key findings from this study was the significant correlation between high vehicle traffic and increased air pollution, particularly $PM_{2.5}$ and PM_{10} as they influence our health. Traffic congestion near schools during peak hours, influence directly the levels of these two pollutants. The effect was striking, and the evidence shows that comparing traffic to PM on both weekdays to weekends have a significant effect. This was even confirmed by two statistical tests, supporting the argument that traffic emissions are a primary contributor to air pollution around schools. Such findings are also confirmed by major studies such as Xia et al., (2023) where they found that traffic congestion at the local level increases NO_2 concentrations immediately, while $PM_{2.5}$ and PM_{10} pollutants rise in a 2-hour lag. However, non-traffic sources such as Saharan dust events, resuspended road dust, and industrial emissions most likely influence background PM levels (Amato et al., 2014).

For instance, Saharan dust events are common during spring and summer in Malta, increasing background PM_{10} levels across the Mediterranean, which may contribute to traffic-emitted PM during rush hours (Gkikas et al., 2016). Similarly, light wind patterns may trap vehicle emissions around the school, whereas high winds may disperse them. These patterns complicate the linear correlations between daily traffic flows and PM levels ($R^2 = 0.0759$; Figure 7) and emphasize the need for combined air quality control strategies with consideration for local (e.g., traffic) and regional (e.g., Saharan dust) pollution sources.

Variations in Pollutant levels across schools

The variation in air quality parameters across different schools was evident. For instance, Kirkop Secondary School recorded the highest PM_{10} concentration, whereas Stella Maris College had the highest $PM_{2.5}$ level. Notwithstanding that Ħandaq Middle School is in a traffic congested town it had shown lower than expected PM and NO_2 concentrations. This shows that other factors such as the distance from main roads and the presence of green spaces can positively affect air quality.

TVOC and NO_2 Concentrations

TVOC concentrations showed significant variations among schools with both Kirkop Secondary School and Stella Maris Colleges showing the highest levels. Although all schools remained within the daily mean safety threshold of 300 µg/m^3, there were short-term exceedances of this safety level indicating the presence of localised sources such as cleaning products, building materials or classroom supplies. Although these sources are difficult to localise, elevated levels of TVOC can hinder a child's ability to focus and learn effectively. In fact, Yassin & Pillai (2019) and Sørensen & Kristensen, (2024) found that prolonged exposure to poor air quality can affect cognitive development and overall well-being which may impact the child's academic opportunities and success.

Similarly, NO_2 levels varied across schools, with Victoria Primary School reaching the highest concentration of 38.1 µg/m^3 , approaching the EU regulatory limit. The local distribution of NO_2 levels highlights the significant impact of urbanization and traffic concentration near schools on outdoor air quality. The results, show that schools located in main roads with high traffic density experience higher outdoor NO_2 levels. These findings are supported by the study of Matthaios et al., (2024) were they found that NO_2 levels decreased by 35% in schools located away from major roads. This indicates that proximity to traffic is a critical factor influencing NO_2 exposure in urban schools. In a case study conducted in Greater London (UK), Shoari et al., (2022) show that increased green spaces around schools correlates with reduced NO_2 levels. These findings confirm our results that Ħandaq Middle School, being in a traffic dense city, but away from major roads and surrounded by greener areas, have a below average NO_2 concentration of 13.9 µg/m^3. However, schools that are closer to major roads such as Victoria Primary School and Stella Maris have above average NO_2 concentrations, and this increases the likelihood of exceeding NO_2 limits.

Conclusion

This work presents a comprehensive review of air quality across Maltese schools, with an emphasis on Ħandaq Middle school. It identifies key factors that influence indoor and outdoor pollution levels. While certain schools gain from better air quality due to their distance from main roads, others face challenges due to high traffic density. Other factors such as classroom ventilation and the use of cleaning products could also be at play. These results show that traffic emissions are the major problem in air quality and hence there is the necessity of continued monitoring. Educational programmes and projects can enhance the awareness to provide mitigation strategies.

One of the major outcomes of this research is the role of education in creating environmental responsibility among students. Through the application of hands-on education and scaffolded learning students were capable to understand the importance of climate and air quality topics. By bringing together different entities, it was shown that besides being agents of change, students can provide solutions to real life problems. In this project, students identified three main solutions to mitigate the negative effects of air quality:

a. Implementing traffic control measures around the school such as optimising school transport and encouraging drivers to switch off engines while waiting, as this can drastically affect the air quality to maintain a healthier environment.
b. Promote the use of bicycles, walking and public transport as alternative to car use as this reduces the dependency on cars and lower air pollution. To make these alternatives more appealing it is crucial to having better infrastructure such as good quality sidewalks, secure bicycle lanes and zebra crossing. Without such improvements, the general population would not be encouraged to use alternative means of transportation.
c. The introduction of green walls next to the school will have a dual effect by improving the air quality and increasing biodiversity. Using indigenous plants that are low maintenance can help filter airborne pollutants. These plants can help create a natural habitat for insects, birds and other animals which is beneficial in urban areas (Jeyasurya T et al., 2024).

Addressing air pollution in schools requires a collaborative effort between educators, policy makers and the community. By combining scientific research with education-driven solutions, students can develop a deeper understanding of what causes pollution and global warming, their effects while providing potential solutions. This approach not only raises the scientific literacy, but it encourages students to be agents of change rendering the schools and classrooms healthier for those involved while promoting long term sustainability.

Data Availability

The data presented in this manuscript is fully reproducible and is available on *Zenodo* (https://doi.org/10.5281/zenodo.14962819) (Ciappara, 2025).

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Appendix 1

Atmospheric Conditions & Cloud Type Datasheet

School Name: ____

Date	Time	Cloud type			Air Temperature (°C)	Humidity (%)	Rainfall		Wind			Visibility		
		High	Mid	Low			Yes	No	Strong	Light	Calm	Good	Fair	Poor
11/11/2024														
12/11/2024														
13/11/2024														
14/11/2024														
15/11/2024														
18/11/2024														
19/11/2024														
20/11/2024														
21/11/2024														
22/11/2024														
25/11/2024														
26/11/2024														
27/11/2024														
28/11/2024														
29/11/2024														
2/12/2024														
3/12/2024														
4/12/2024														
5/12/2024														
6/12/2024														

Appendix 2

Traffic Survey Datasheet

Date: ______________________ Day: __________________________

Start Time: __________ End Time: ________ Total Survey Time: _________

Location: ____

Traffic	Tally	Total
Bicycle		
Motorcycle		
Car		
Van / Pick-up		
Small lorry		
Articulated lorry		
Bus / coach		
Construction vehicle		
Farm vehicle		
Other		

Air Quality Datasheet

School Name: ____

Date	Time	TVOC	CO_2	PM			
				1.0	2.5	4.0	10
11/11/2024							
12/11/2024							
13/11/2024							
14/11/2024							
15/11/2024							
18/11/2024							
19/11/2024							
20/11/2024							
21/11/2024							
22/11/2024							
25/11/2024							
26/11/2024							
27/11/2024							
28/11/2024							
29/11/2024							
2/12/2024							
3/12/2024							
4/12/2024							
5/12/2024							
6/12/2024							

	NO_2 Tube
Tube number (under QR code)	
Location of the tube	
Tube up - Date and Time	
Tube down – Date and Time	

Badge Descriptions/Justifications:

I am a Data Scientist: Students collected and analysed their own data.

I am a storyteller: Students shared this project with their peers, local council and during the research symposium.

I make an Impact student-led: Our students proposed different solutions on ways to improve local air quality with the local council.