Interdisciplinary Term Paper

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What is the most effective method to decrease chronic absenteeism in urban schools?

Chronic absenteeism rates have been high and have unfortunately continued to rise since the onset of the Covid Pandemic. The Department of Education of the United States of America defines chronic absenteeism as a student who has missed at least 15 days of school in one year. During the 2015-2016 academic year, one in six students was classified as chronically absent (2019). Additionally, it is important to acknowledge that since the pandemic, seventy percent of schools noted an increase in student absenteeism (Elwood, 2023).

It is important to recognize that poor school attendance not only adversely impacts student achievement, but it is also strongly linked to a higher risk for social, economic and health issues in the individual's future. Students who are chronically absent are more likely to experience lower reading proficiency, lower grades and test scores, and a higher likelihood of dropping out of high school. These repercussions extend into adulthood, leading to a greater risk for incarceration, unemployment, and health issues in adulthood (Wallace, 2017). Additionally, it is significant that higher rates of absenteeism are often found in the urban school systems (Gottfried, 2010). With that information, I must ask, which method would be most effective to reduce chronic absenteeism in Urban Schools?

Identifying the root causes of student absenteeism in urban schools is a difficult challenge. The demographics of students in urban schools involve multiple layers of complexity that make it difficult to identify the best method to tackle this issue. To address this effectively, researchers and scholars have considered various factors, including students' race and socio-economic status, the learning environment within the school building and its surroundings. Researchers focus on economic status because schools in urban areas have higher poverty rates.

The significance of these diverse factors underscores the necessity of employing interdisciplinary research. Individual disciplines with limited scopes of research and knowledge have been unable to prove a comprehensive solution to reduce chronic student absenteeism in urban schools.

To solve chronic absenteeism in public education, a researcher must identify relevant disciplines that pertain to the issue. There are many key disciplines that are involved in the public education system. Public Administration discipline is essential since public education is a social program that requires representatives to create policy regarding education and student attendance. Education has another key role in public education. Research and the development of theories help school administrators and public officials enact appropriate policies.

A vast amount of research on the topic of student absenteeism has been communicated by various disciplines. However, the focus of this paper utilizes important disciplines such as Education, Medicine, Environmental Studies, Machine Learning, and Public Administration. In the field of education, researchers continually seek effective methods and practices for students, possessing valuable discipline knowledge. Additionally, Public Administration's significance arises from the understanding that public education functions as a social program, necessitating efficient administration to address attendance challenges. Thirdly, Environmental Studies play a pivotal role as it considers reasons for students' attendance that are often overlooked in educational research, despite their potential influence on attendance outcomes. Lastly, Machine Learning is an emerging technology and offers avenues to address this complex issue.

Environmental studies field help provide causes to decrease attendance rates in urban schools. In the field of environmental studies, researchers have been exploring solutions to increase student attendance. A research study revealed that students exposed to industrial air pollution and Toxic Release Inventory locations had higher rates of student absenteeism

(Berman, et al., 2018). Children who were exposed to high levels of lead were more likely to have attendance issues (Needleman, 1990). Lead exposure has been associated with various health problems and detrimental effects on cognitive development in students. Additionally, an environmental study emphasized the connection of a school having green spaces surrounding their premises to decreased absenteeism (MacNaughton, et al., 2022). Urban schools are less likely to have sufficient green spaces which may increase urban school chronic absenteeism.

MacNaughton et al., studied the effects of increased air pollution and adequate green spaces on student attendance. Inadequate air quality is known to cause health problems and increase issues such as asthma. Areas with a higher number of vehicles are associated with increased number of individuals with asthma. Due to this fact, urban students are more likely to be impacted from this issue. The study received data from all the schools in Massachusetts regarding student attendance, Normalized Difference Vegetation Index and PM 2.5 exposures.

The field of medicine has found various causes that increase student absenteeism. Students with chronic illnesses are more likely to be absent from school. Asthma holds the highest rates for absenteeism than other chronic illnesses (Weitzman et al., 1982) There is also research that shows a link between anxiety and school absenteeism. (Finning et al., 2019). This finding is significant due to anxiety rates among children that have risen in recent years.

The field of computer science has not conducted many studies to identify causes for student absenteeism. Machine learning is a new technology in the field. One study identified that peer relationships were the most important factor to increase student attendance among students (Bowen et al. 2022)

Educational studies research key factors in students who are most likely to be chronically absent. One research study identified that fewer temporary spaces for learning, adequate buildings that were not in need of significant repair, and enough custodial staff help increase student attendance (Branham, 2004). Additionally, students with poor grades and test scores raise the likelihood of a student will have decreased attendance and being less likely to graduate in the future (Gottfried).

David Branham related inadequate school buildings infrastructure to a proposal by Wilson and Kelling. According to their proposal, a broken window that goes unfixed may be perceived as a sign of neglect, potentially leading to disorder in the community. Branham examined several aspects of school infrastructure, including the number of temporary spaces used, the need for structural repairs and the number of custodians relative to school size in the Houston Independent School District (HISD). He looked at how much temporary space was utilized the size of the building. He criticized temporary buildings, citing their potential to separate students from the student body, safety concerns, increased likelihood of exposure to mold, and visual unattractiveness. Structural repair encompassed “electrical systems, roofing, flooring, and glass.” (Branham). He noted that most of the schools analyzed in the HISD needed structural repair, despite the schools stating they were adequate. The study concluded that school buildings that needed temporary spaces, structural repair, and not enough custodial workers increased student absenteeism and even had higher risk to drop out of school (Branham) .

Environmental studies research suggests that air pollution and lack of green spaces in the school setting will lead to increased absenteeism. These characteristics of more exposure to air pollution and lack of green spaces characterize school settings in urban areas. Studies by Weitzman et al. theory in the medical discipline propose that chronic illness is a leading cause of

absenteeism in students. Additionally, findings in the educational field found that the increased number of temporary buildings correlates with increased absenteeism rates. It is noted that temporary buildings may lead to increased exposure to mold, triggering allergies among students. While these studies present conflicting theories on the specific reasons for students' non-attendance, synthesizing the information may provide insights for addressing chronic absenteeism effectively. For instance, students in urban schools are more likely to be exposed to air pollutants, such as car exhaust, which may trigger allergies or asthma symptoms. Additionally, temporary shelters with potential mold exposure might exacerbate allergies and lead to more absenteeism. Thus, schools that provide adequate, visually pleasing structures, with proper green spaces in their surroundings may mitigate triggers for asthmatic reactions and reduce absenteeism rates.

To adequately help improve attendance rates in urban schools, an interdisciplinary approach is vital. The insights from Education, Medicine, Environmental Studies, Machine Learning and Public Administration can collectively understand the root causes of absenteeism and create meaningful changes that with improve student attendance.

An environmental study (Needleman, et al.) and an educational study (Bernman, et al.) present conflicting insights regarding key influences on chronic absenteeism. The environmental study suggests that exposure to lead can impair a child's cognitive development, leading to increased rates of poor attendance. An educational study found a positive correlation between students' test performance, higher grades, and better attendance rates. These findings hold significant implications and call for attention within the public school system. Concerningly, The U.S. Environmental Protection Agency exposed that 350 schools and day care centers had lead in their drinking water. Public administration and schools should address these issues to prevent

lead exposure in children. Furthermore, resources should be put in place to educate teachers and to create avenues to help students with cognitive impairments due to lead exposure to help close the achievement gap.

Education research provided significant findings regarding the importance of school infrastructure and student achievement. Utilizing the information provided by the field of Medicine, which highlighted the impact of health issues such as asthma and anxiety on attendance, schools can create a support system that will aid students. An on-site medical office that is able to manage chronic illnesses and mental health issues with support plans in place to help with student achievement would help improve attendance.

Machine Learning has the capacity to analyze large amounts of data from various disciplines that research student attendance in urban schools. Machine learning can use research findings and track student attendance, school administrators can intervene early in the student's academic career. Administrators with the help of machine learning can create individualized student achievement plans that would address specific issues that the student is experiencing.

Understanding the causes that influence requires a collaborative effort among various disciplines. The approach that provides a student with health support, improvements to the quality of schools, policy initiatives, and academic support would improve student attendance in urban schools. Working together with medical professionals, educators, administrators, local representatives, and families is necessary to impact the student's future and their communities.

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