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QSIDE Addressing Lack of School Presence

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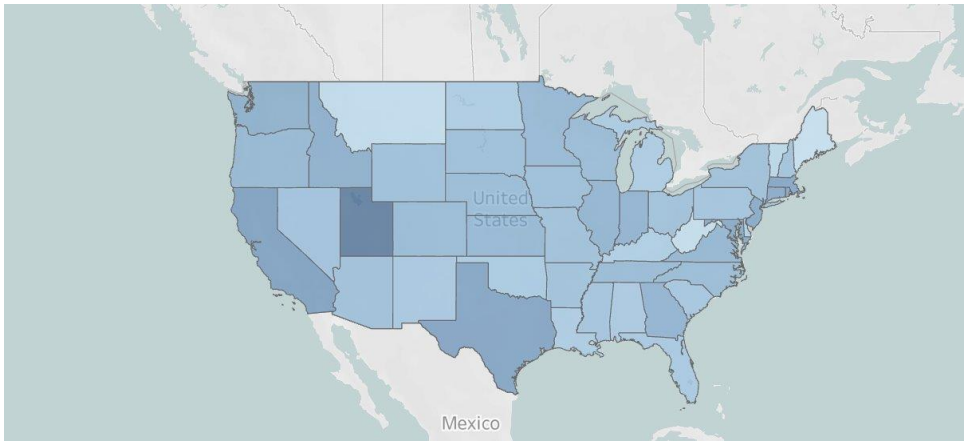

Map of % of Residents 3yrs+ enrolled in school in 2021

Source: *https://public.tableau.com/app/profile/institute.for.the.quantitative.study.of.inclusion.diversity.and./viz/Book2_17363979048000/Dashboard1*

The Spring 2025 Data Science Capstone allows students an opportunity to apply their skills to real-world problems, develop professional competencies, and collaborate with community partners. Our team, QSIDE Data Analysis, is working with the QSIDE Institute on the Act-NOW: Community Health Index Project, a data-driven initiative aimed at identifying and addressing key community issues, with a particular focus on the lack of school presence in communities.

Lack of school presence is a pressing issue that affects students' academic performance and long-term success. Research shows that students who frequently miss school face greater challenges in literacy development, graduation rates, and future employment opportunities. Furthermore, absence rates in schools disproportionately affects students from low-income backgrounds and communities of color, where systemic barriers such as unreliable transportation, food insecurity, and lack of access to healthcare contribute to frequent school absences. School presence is a much more prevalent issue now than it was a few years ago, since the Covid-19 pandemic the number of students that are academically at risk due to poor attendance nearly doubled making this issue an important challenge for communities to tackle.

By leveraging data analysis, our goal is to identify the root causes of school absence and develop actionable insights that can inform educators, policymakers, and community organizations. This project builds upon previous research while introducing new analytical

methods to explore the connection between school attendance and broader community health indicators.

The primary objective of our project is to develop a Community Health Index, a standardized tool that assesses community well-being by integrating multiple datasets. Our analysis includes factors such as school attendance records, socioeconomic data, crime rates, and healthcare access to better understand patterns of school presence.

Our project entails some key steps for our analysis, with the first one including Data Collection & Cleaning. We are working with datasets from publicly available sources like the Census Community Survey and local school districts. This involves cleaning, filtering, and structuring the data to ensure accuracy while also creating a data map to store these datasets. We will also utilize exploratory data analysis to examine how school attendance correlates with socioeconomic factors such as income levels and housing stability. Lastly, we are designing interactive dashboards that present our findings in an accessible format, making it easier for stakeholders to interpret and act on the insight.

One of the challenges we are addressing is the timeliness of data. Many publicly available datasets are outdated, making it difficult to capture real-time trends in school presence. To mitigate this, we are working on incorporating more recent, locally sourced data to enhance the accuracy of our findings.

One major challenge is the lack of standardized data across different school districts, making it difficult to create a universal model for tracking absenteeism.

Additionally, while attendance records are useful, they do not always capture the underlying reasons for a lack of school presence. Mental health, unstable housing, and food insecurity are significant factors that are often underreported in school records. Our approach includes cross-referencing absenteeism data with health and socioeconomic indicators to uncover deeper trends that may not be immediately apparent in school reports.

We are also exploring the relationship between school presence and future community outcomes. Studies suggest that early patterns of low school participation can be a potential predictor of long-term academic struggles and economic instability, making this research crucial for early intervention strategies.

Through working on the Act-NOW: Community Health Index Project we are learning many new skills and tools some being entirely new to us, also applying the data science skills we have learned throughout our undergraduate careers such as data collection, scraping, processing, analysis, modelling, and formulating results. Technical skills we are learning

from this project include working on Tableau and working with API's. We will be learning the process of creating a DataMap as it is new to our team, for data mapping and for working on Tableau our team is getting assistance and guidance from our community partners to ensure that we meet the project expectations. Conceptually learning about a lack of school presence and getting a decent understanding of the issue, its consequences and the factors causing it was an important goal for our team as moving forward we plan to utilize data driven insights with the goal of mitigating the issue of irregular school presence.

Moving forward with our project our team aims to design interactive Tableau dashboards to visualize different types of relationship from our datasets. We are looking for quality, up-to-date data on a variety of statistics, including attendance records, health factors, and other socioeconomic indicators that may influence school participation. Our team also plans to continue meeting with and updating our community partners to ensure we are on track; we will also ensure that we submit any course deliverables and maintain consistent communication amongst the team whenever necessary.

The Act-NOW: Community Health Index Project is impactful to the community in many ways, we are aiming to provide an actionable tool, the Community Health Index which will enable stakeholders like policymakers, law enforcement agencies, social justice advocates, and community organizations to better understand and address the issues affecting their communities. The project seeks to provide insights that can inform changes in policy, improve public safety, and guide community support initiatives. Our project also aims to impact the community by providing valuable insights into school attendance patterns, identifying factors that may be contributing to regular school absences, examining the potential consequences that students with inconsistent attendance may face in other areas of life, and exploring ways we can best utilize data and other tools as data scientists to support greater school engagement.

We would like to extend our sincere gratitude to our community partners Jude Higdon, Carlos Alvarez, and Tyrone Bass for their invaluable support and collaboration on the Act-NOW: Community Health Index Project. We deeply appreciate the opportunity to work alongside you and are excited to see how our combined efforts can lead to positive, lasting change within our communities.