# Identifying and Addressing Fear, Perception, and Risk Related to Walking and Bicycling to and from School

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# ACKNOWLEDGEMENTS

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# BACKGROUND

Over the past 40 years, active travel has been on the decline, especially for children. Only 12.9% of all US schoolchildren used active travel to school in 2001 compared to 40% in 1969 (McDonald, 2007; The National Center for Safe Routes to School, 2011). Active travel decline occurred even for those living close to school. In the 1960s, more than 85% of students living within a mile walked to school, while by the early 2000s fewer than half walked (McDonald, 2007). During this same time, driving to school increased from approximately 20% to 55% (McDonald, 2007). Active travel decline and the concurrent increase in passive travel is a concern for declining physical activity rates, rising obesity rates, worsening air quality, increased traffic (McDonald & Aalborg, 2009) and decreased independence (Stewart, 2011). Declining physical activity has become grave enough to seize the attention of physicians, public health officials, parents, schools, planners, and policymakers, who are now seeking possible solutions.

One of the ways children can obtain more physical activity is through active travel, primarily walking or bicycling to and from school. With the goal of improving both our understanding and interventions to increase currently low physical activity and active travel rates, this paper examines parental perceptions, how and why these perceptions form, and how they impact travel mode choice. Children's perceptions were also examined to better understand their perceptions of the built and social environment in regard to mode choice.

Perceptions inform our thoughts and influence the way we make decisions in our environment (Goldstein, 2013). They are important to examine as they have been shown to influence how people decide to travel. In addition, people's perceptions do not always agree with measured features, such as traffic speed or volume. In one study, almost 1,300 adults in a telephone survey in Forsyth County, NC and Jackson, MS were asked about high-speed traffic and lack of



*"The variation between people's perceptions and what statistics or measured features indicate demonstrates the importance of examining the relationship between perceptions and reality of active travel."*

sidewalks as barriers to physical activity (McGinn, Evenson, Herring, Huston, & Rodriguez, 2007). Speed, volume, and street connectivity were also measured using GIS. Participants' perceptions of environmental characteristics such as traffic speed and volume were poorly associated with actual speed and volume, demonstrating the weight given to perception versus reality when decisions are made about travel (McGinn et al., 2007). Similarly, a 1987 telephone survey of US parents with at least one child under 13 showed that parents were far more concerned about abductions from strangers relative to the data based on actual rates (Eichelberger, Gotschall, Feely, Harstad, & Bowman, 1990). In addition, parents were less concerned about pedestrian injuries, automobile accidents, bicycle injuries, and drowning, the risks of which were substantially higher than abduction (Eichelberger et al., 1990). The variation between people's perceptions and what statistics or measured features indicate demonstrates the importance of examining the relationship between perceptions and reality of active travel.

*"...the more caregivers perceived the neighborhood to be safe, the higher the odds their children used active travel to get to or from school."*

## Perceptions of Personal Safety

Some studies have examined associations between adults' perceptions of the environment and children's active travel, including perceptions of personal safety. In several studies, adults' negative perceptions of safety have been found to be associated with reduced active travel to school by their children. In one study, caregivers rated their perceptions of neighborhood personal safety by ranking their agreement with the following statement, "the neighborhood is not safe for a child to walk/bike to/from school alone." For every unit increase, (an increase in lack of perceived safety) the odds of walking to school declined 13% (McMillan, 2007). Therefore, the more caregivers perceived the neighborhood to be safe, the higher the odds their children used active travel to get to or from school. In London, parents who were worried about abduction or molestation were four or more times as likely to drive their children to or from school compared to those who were "not at all" worried about abduction or molestation (DiGuiseppi, Roberts, Li, & Allen, 1998). Similarly, Kerr et al. (2006) found that a combination of factors in an overall parental concern variable had the strongest explanatory power to determine whether a child participated in active travel (Kerr et al., 2006). Parents who had "few concerns" were five times as likely to allow their child to participate in active travel compared to those who had "many concerns" (Kerr et al., 2006). Thus, parents' perceptions of safety may be an important factor influencing their child's travel mode and should be examined further.

## Perceptions of Traffic

Although traffic is commonly cited as a barrier to children's active travel (Centers for Disease Control and Prevention, 2005; Centers for Disease Control Prevention, 2002) several studies have found no relationship between parents' perceptions of traffic and children's mode of travel to school (DiGuiseppi et al., 1998; Kerr et al., 2006; Timperio et al., 2006). In studies that have found an association, parental perceptions of traffic have varied by age and sex. Parents of older children have expressed less concern over traffic safety than parents of younger children (Timperio, Crawford, Telford, & Salmon, 2004) and parental perceptions of heavy traffic were negatively associated with active travel for boys, though not for girls in one study (Carver et al., 2005). More recently, in a study using multivariate ordered response models, parents of boys and older children in the Los Angeles – Riverside – Orange County metropolitan statistical area were less likely to be concerned about crime and traffic speed than were parents of girls and younger children (Seraj, Sidharthan, Bhat, Pendyala, & Goulias, 2012). Parents may be more protective of these two groups because younger children are less likely to be able to negotiate situations if any problems arise and parents may have social tendencies to characterize girls as more vulnerable. These possible gender differences remain important when examining how to increase active travel rates, despite inconclusive evidence of their impact. Moreover, perceptions of traffic may vary widely over different geographies and, therefore, should be examined in context.



*"...parents may have social tendencies to characterize girls as more vulnerable."*

## METHODS

A total of 48 one-on-one interviews were held with parent/guardians (hereafter called parents) of middle school students from three New Jersey communities, one community in northwest New Jersey and two in central New Jersey. The parent interview was followed by a one-on-one interview with their middle school student, in grades 6-8 (ages 11-14). By interviewing both parents and children individually, not only can perceptions be examined more deeply through the analysis of qualitative data, but also similarities and differences in parents' and children's perceptions can be studied along with what factors influence these perceptions.

### Site Selection

Middle schools in three New Jersey municipalities, Highland Park Borough, Stanhope Borough, and Franklin Township, were selected for their varied, yet suburban, built environments. These locations were purposefully selected to examine variations among communities of different densities and socioeconomic status.

Highland Park is a liberal community just across the Raritan River from New Brunswick in central New Jersey. In 2012, almost 73% of voters voted for President Obama. Graduate students and Rutgers University faculty dominate the

borough, with over 60% of the borough holding at least a bachelor's degree. It has a gridded street pattern, a downtown, and sidewalks are ubiquitous. In contrast, Stanhope is a more conservative municipality in the more rural northwest part of the state, with just 46% of voters voting for President Obama in 2012, and just over 30% of the borough holding at least a bachelor's degree. Outside of a small downtown with sidewalks and shops, the street network is not gridded and a busy, curving, high-speed road runs through the town. Lastly, Franklin Township is a large municipality only four miles



*Valley Road School*
*Stanhope Borough, NJ*



*Highland Park Middle School*
*Highland Park Borough, NJ*



*Franklin Middle School*
*Franklin Township, NJ*

**Table 1: Key Demographic Information for One-on-One Interview Communities**

|  | Highland Park | Stanhope | Franklin Township |
|---|---|---|---|
| Population | 13,982 | 3,610 | 62,300 |
| Median Household Income ($) | 78,821 | 78,625 | 89,992 |
| Population Density (per sq mile) | 7,728.10 | 1,966.30 | 1,350 |
| % Free or Reduced Lunch | 32 | 15 | 41 |

**Table 2: Key School Information**

|  | Highland Park | Stanhope | Franklin Township |
|---|---|---|---|
| School Name | Highland Park Middle School | Valley Road School | Franklin Middle School |
| Grades in School | 6-8 | K-8 | 7-8 |
| Number of Participating Students | 18 | 16 | 14 |
| Number of Students in Grades 6-8 | 325 | 120 | 1,050 |

from Highland Park. The municipality is liberal with 71% of voters voting for President Obama in 2012. Although the built environment in Franklin varies, near the middle school sidewalks are intermittent and several busy county roads dominate. Participants live in two distinct census tracts on either side of the middle school. The census tract closer to New Brunswick has a population density of 6,120 people per square mile, a median household income of $71,176, and just over 20% holds at least a bachelor's degree. In contrast, the census track further from the New Brunswick border is lower density at 3,136 people per square mile, higher income with a median income of $112,500, and has higher educational attainment, with almost 50% of the population holding at least a bachelor's degree. These demographics and characteristics of each municipality are important as they may influence personal perceptions.

## Instrument

Semi-structured, in-person, in-depth qualitative interviews lasting approximately 40-60 minutes were conducted with each parent. The middle school student's interview protocol was similar, but the student interview was only 20-30 minutes in length. The protocol was approved by the Rutgers University Institutional Review Board and all interview responses were kept confidential. Participation was voluntary and the primary investigator conducted all interviews for consistency.

## Recruitment

Participants were recruited through a variety of means. In Highland Park and Stanhope, a relationship was formed with the school district superintendent, who sent an e-mail home to all middle school parents with information about the study. Parents called or e-mailed and set up times to be interviewed. In addition, snowball sampling, where participants suggest additional interviewees for the study, was used. In Franklin, the principal, a vice-principal, and the head of the parent-teacher-student organization (PTSO) assisted with the communication about the project to parents. The school did not have an e-mail distribution system for all parents so the request was sent to the 100 parents who were registered in the PTSO, asking parents to forward the request. Notices were also left at eighth grade graduation events and the school front desk where parents must check in when entering school grounds. An announcement was made at "Back to School Night," which many parents attend to learn about their child's classes. Parents called or e-mailed to set up times to be interviewed and snowball sampling was used to recruit additional participants.

Parents in Highland Park received no compensation for their time. However, parents in Stanhope and Franklin Township received $20 for their participation due to the difficulty of participant recruitment in these locations. Interviews were performed with individuals

who met two sampling criteria: 1) parent of at least one child currently in grades 6-8 at the designated schools, and 2) parents and children who live without access to busing to school. This second criterion was included to ensure that children in the study did not live so far from school that they had no option to bicycle or walk there. Thus, by only including parents whose children were not eligible to take a school bus, parents could talk about their travel mode choice and not state that they had no choice since they lived too far from the school for their children to walk or bicycle to class. There is no busing in Stanhope or in most of Highland Park (aside from a small part of town that is considered to be located along a hazardous route); however, busing is available for those students who live farther than two miles from the middle school in Franklin Township.

### Data Analysis

The parent and student interviews were audio-recorded (when acceptable to the participant) to ensure quotes were verbatim. Field notes were taken by hand, then typed and expanded upon promptly after each interview to ensure accuracy and to improve richness of responses for coding.

### Limitations

Limitations arose primarily through participant selection. The respondents chose to participate and were not randomly selected, which is common in qualitative methods. Since participation was voluntary, there may be something different about respondent perceptions compared with those of other members of the community not in the study. Furthermore, since snowball sampling was used, particularly in Stanhope, these interviews may represent just one social network. However, this still provides an in-depth examination of some parents' perceptions, despite the participants not being representative of each community's overall demographic characteristics such as gender, education, and race. The interviewees were purposefully selected by meeting two criteria: they had children in grades 6-8 at the selected schools and did not have access to school busing. The

interviews were used to provide deeper rationale and to better understand why parents feel the way they do about their built and social environment, how these views are similar to their children's, and what informed their views of the built and social environment and active travel to and from school.



*"Several parents in Franklin and in Stanhope stated they had quit their jobs, "asked for a transfer," or "took a late lunch" in order to drive to school, pick their children up and drop them off at home."*

## SELECTED FINDINGS

Among the 48 parent and 48 student interviews conducted, several themes emerged. None of the participants had access to school busing. Many of the parents, primarily from Stanhope and Franklin, described the "chaos" that occurred, particularly in the mornings, as they tried to get their children to school. Several parents in Franklin and in Stanhope stated they had quit their jobs, "asked for a transfer," or "took a late lunch" in order to drive to school, pick their children up and drop them off at home. Several parents also stated they paid for transportation or after care that provided transportation, demonstrating what parents feel they must do to ensure their children get home safely. Many "wished" busing was available and stated that they thought having access to busing would "vastly simplify" their lives. Parents in Highland Park, where more students walked to and from school did not describe the morning as being as chaotic.

## Time of Day

Parents and students described the variation in the mode of transportation used in the morning compared to the afternoon, and the majority of students described that their mode preference varied by time of day. Most parents and students in Franklin and Stanhope and some in Highland Park were concerned about being late in the morning, therefore, students were more likely to be driven in the morning. Some parents did not mind driving their children to school in the morning as it was "not out of the way" as parents dropped their children off and then continued on to work.



*"My primary concern is abduction, that I wouldn't see my little girl again. It's all over the news."*

In the afternoon, the majority of students in Highland Park and Stanhope stated that they preferred to walk home because it was "fun" and there was "no reason to rush." More students reported walking home in the afternoon and of those who did not walk, many wanted to walk home in the afternoon. However, in the morning many students preferred to be driven so they could sleep in and would not be late. Even students in Highland Park who described walking almost every day stated that they got

the occasional ride when they were running late. Students' thoughts from all three schools were similar:

> *If I walked, I'd have to get up a lot earlier and I don't like to get up early.*

> *I have more time to get ready when I get driven, I get to sleep more. There's not a big group in the morning maybe one or two people. Not a lot of people walk in the morning, it's easier to walk home.*

> *I get to sleep in later when I get a ride. In spring sometimes I get up early and walk, but I have to get up half hour earlier. Mostly I'm driven in the morning but can walk home.*

## Abductions and Sexual Offenders

Commonly, parent participants in Stanhope and Franklin described their primary concern for their middle school student was related to child abduction. In contrast, only two parents of 18 in Highland Park mentioned the issue at all. Parents commented that "times had changed," and that "in the world we live in," everyone had to be careful. A Stanhope parent stated that she "assumes everyone is a predator," while others described being aware that "anything could happen," which made them nervous to allow their children to walk or bicycle.

> *You never know where the creeps are coming from, I read a book once and a girl who was 12 years old gets picked up from a bus stop. It was based on a true story, so you never know. No matter how much you can tell the kids don't talk to strangers and all that, they can intimidate the kids with guns and knives and take them, they're just kids.*

> *My primary concern is abduction, that I wouldn't see my little girl again. It's all over the news.*

> *My daughter does no walking at all for safety reasons. You look on the news and there is just too much going on all over.*

*It's personal safety, you read about all the different things that are happening nearby and it's scary. There are incidents with strange people, you know?*



"I'm not too worried about being taken or anything, but the cars flying when I'm on the side of the road scare me."
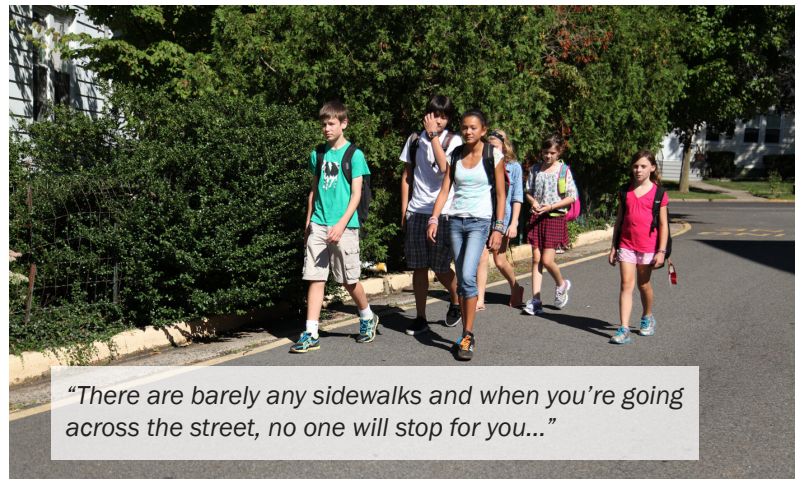
Several parents, particularly parents of girls, mentioned that they were specifically afraid of sexual offenders. These parents commonly started discussing "strangers" more broadly before describing their concern of sexual offenders in more detail to the interviewer. Five parents went so far as to mention they check sexual offender websites to see if there were any in the neighborhood, to stay informed and to keep their students safe.

*I also look at the sexual offenders and the area gang activity online.*

*I checked the sex offenders list when we were looking at houses, my wife is really against living near them and always is on the lookout on the site, so we're definitely concerned about that and traffic second.*

*There's a site for sex offenders that is good to look at to know what could happen to your child.*

Although some students, typically the students of parents who described being concerned about predators, also stated they were worried about being kidnapped, the vast majority of students in Highland Park and over half in Franklin and Stanhope were primarily concerned about traffic and the "crazy drivers who zoom" and "don't pay attention."

*I'm not too worried about being taken or anything, but the cars flying when I'm on the side of the road scare me.*

*There are barely any sidewalks and when you're going across the street, no one will stop for you, it's usually pretty busy, that's the kind of stuff I worry about, nothing else.*

Students described being less concerned about kidnapping and predators because they knew people along their routes to go to for help. They commonly described walking in groups, which they felt was protective. Students were less likely to base their perceptions on the media, describing that they had "never had a problem," walking before, and therefore didn't anticipate any.

*I know my way, I know everyone around, I know people here, I'm not worried.*

*There are people on Hamilton and you can't get snatched near people, so I took all main roads [to get home] and so it's fine.*

*I've never saw or heard anyone get hurt, so kids shouldn't be worried.*

*It's a small town, we know people and the area if anything happened, know places you could run to if you got hurt or yards you could cut through, we know where to go.*



"There are barely any sidewalks and when you're going across the street, no one will stop for you..."

## Cell Phones and GPS Technology

Most parents reported that they felt more comfortable when their middle school student had a cell phone regardless of the mode of transportation they used. Parents felt having a cell phone allowed them to more easily know where their child was or to contact their child, particularly if something went wrong. Parents, notably in Stanhope and Franklin, described their children "needing to have the cell phone on." They "had to know" where their children were, "particularly after school."  Overall, parents preferred their child to have a cell phone, particularly if they were walking, so the child could contact their parents and let them know where they were and that they had arrived at destinations safely. Parents commented that they got their children cell phones "earlier since they sometimes walk," with some stating that their child received a cell phone in third grade. Thus, cell phones may be a facilitator of active travel. In addition, several parents described "watching" their children walk home from school via a GPS-enabled mobile application to ensure they got home safely while others debated doing so. While cell phones may make parents feel more comfortable and perhaps allow a greater number of students to walk, this technology may also be allowing parents to maintain a higher level of control and may be robbing their children of some level of independence by having them "constantly check in."

> *They won't walk anywhere without the phone, I prefer for them not to, so it's win-win, they don't want to and I don't want them to.*

> *My son wanted to walk and asked, I agreed. I got him a cell phone for it. He has to call when he's leaving and when he's home.*

> *They are required to have it on [cell phone] and text me all the time. I've toyed with watching her cellularly, I've joked that I would do it, I haven't yet though, I know I'm overprotective.*



*"I can watch her from my office with the Find My iPhone app, you watch the bubble move..."*

*I can watch her from my office with the Find My iPhone app, you watch the bubble move, it makes me feel like I can see her.*

*They have GPS on their phones and I haven't looked into this, but there is a need to have some way to track the kids. The school should support an app of some kind, I bet there is one, I should look into it.*

Students were happy to have cell phones and many said they "asked for them," though most admitted that was to "play on them" or "text their friends." However, students also said that they felt more comfortable having a cell phone "in case of an emergency" and "know who to call" if something happened. Although some students were "frustrated" at how often they had to check in with their parents, most found it fair given that their parents had purchased the phone, although many commented that they often forgot to let their parents know where they were. Students also described the consequences for not telling their parents where they were, though they seemed understanding of their parents' desire to be apprised of their location.

> *I have to check in, it's fine, I mean they got me the phone.*

*If I forget to call my mom, even like once, my dad gets scared and nervous, and like calls and calls. I've been trying to stay on that because then I lose privileges of hanging out with my friends.*

*She tracks my phone, with the Find my iPhone app, I don't care that she does or know when she does it, but she told me so I just try to behave.*



"*I'm worried about like perverts, jumping out, though I'm concerned about people picking up the girls, like my daughter.*"

## Gender

In both Stanhope and Franklin, parents of girls, even if the daughter was not the child being interviewed, mentioned that their child's gender influenced their active travel concerns. Parents thought that girls were more likely to be picked up or harassed, even in groups, than groups of boys or mixed gender groups. Parents often said they were worried about their children walking or bicycling "because they were girls" and were particularly concerned about sexual predators targeting girls. One parent wasn't sure that "as a girl...if she should be out for that long," referring to the mile walk home from school for her middle school student. Although the parents interviewed did not specifically indicate that they set different rules for daughters compared to sons, the child's gender came up in several conversations as a reason that parents are not comfortable with their child walking, or as part of the reason that the child does not walk.

*She'd be a girl in the middle of the road alone. I don't know who's in the neighborhood, who is going to grab my child, what stray animals there are, what people are driving crazy, just no.*

*I envision them pulling her into the car, she's a little girl and she hangs out with giddy little girls, they are tiny things with little legs and they are too vulnerable, I don't know if she could take care of herself.*

*I'm worried about like perverts, jumping out, though I'm concerned about people picking up the girls, like my daughter.*

*They are still girls, maybe I'm sexist, I guess, but even a group of girls, I don't know.  My son, is a junior, he can walk them, there are seedy people.*

The responses from parents in Stanhope and Franklin were much more alike than those from the parents in Highland Park, particularly when considering stranger danger. This similarity occurs despite the fact that parents and students from Stanhope and Highland Park both described those communities as places where "everyone knows each other," and "people look out for one another." Parents and students in Franklin described the community more in terms of its "convenient location" and "affordability." Despite this, parents and students in Highland Park were much less likely to mention concerns about strangers and were more apt to discuss traffic as a barrier to walking or cycling.

Highland Park is known for its grid system, walking community, and higher residential density. In addition, the socioeconomic or political environment may be influencing parent perceptions. Several Highland Park parents mentioned that they moved to the borough specifically to be able to complete more tasks on foot while no Franklin or Stanhope residents mentioned a walkable environment. Although perceptions vary based on the context of each of the individual locations, the variation may reveal ways to improve interventions to increase walking and bicycling.

*"Encouraging active travel both to and from school and hosting events in both directions would continue to achieve the goals of reducing traffic, improving air quality, building community, and improving accessibility, while possibly involving more students who may arrive by vehicle but want to walk home."*

## IMPLICATIONS

These findings have implications not only for researchers examining the perceptions of children but also for schools and municipalities. Communities seeking to encourage the number of students using active travel may want to consider hosting both "Walk to School" and "Walk from School" days, given the variation that both parents and children see in the two trips. Encouraging active travel both to and from school and hosting events in both directions would continue to achieve the goals of reducing traffic, improving air quality, building community, and improving accessibility, while possibly involving more students who may arrive by vehicle but want to walk home. Given the different perceptions parents and students have about the trip to and from school, specifically encouraging walking home may increase overall active travel participation, allow students to find neighbors to participate in other walk trips with them, and provide students an additional opportunity to form beneficial travel habits. Walking home, the perceived easier and more fun trip, may also act as a catalyst to encourage walking to school in the future.

In addition, programs and skills-based education that addresses and builds independence by teaching appropriate traffic and crime safety rules can alleviate anxiety and concerns about walking or bicycling in local environments. One way to address fear is to educate and prepare students about what to do in a potentially bad situation and how to stay safe. Children can be empowered by giving them opportunities to practice and role-play people and traffic safety skills in contexts that are relevant to their lives.

Cell phones may facilitate active travel by allowing parents to feel more comfortable with allowing their child to walk or bicycle to or from school. However, students may not be gaining as much independence from their parents who watch them wirelessly or ask them to call in the beginning, sometimes middle, and end of their trip. Parental over-involvement has been demonstrated to lead to higher levels of depression and lower levels of perceived competence (Schiffrin et al., 2014). Thus, a balance may need to be considered whereby parents feel comfortable allowing their children to walk or bicycle without constant supervision (either in person or through technology) to avoid these related negative impacts.

Students were much more likely to state that their active travel concerns were from local or personal experience, while parents were more likely to state that their concerns were from books or the media. Therefore, parents were much more likely to be concerned about abductions and sexual offenders than were students, who were more worried about traffic incidents. Students were more likely to report that knowing people along their route, knowing where to go if something happened, and having "eyes on the street" made them feel confident about being able to make their trip to or from school safely. Parents, schools and municipalities should help students identify safe areas where they could go if there were a problem, such as certain local businesses, in addition to the more well-identified police and fire stations.

Students and parents both perceived walking in groups to be safer than walking alone. Schools can help facilitate walking in groups by providing, on their website, common routes that students take to and from school. Schools can identify "meet-up" locations and, in the morning, can even specify times by which to arrive there. Students coming from different directions can meet at these locations and walk the rest of the way, particularly to school, together. The findings indicate that some students would be willing to walk out of their way to find others to walk with and that many students' enjoyment of walking increases with company.

In addition to the practice-ready implications, there are additional suggestions for researchers. Investigators should continue to use qualitative methods such as interviews to talk directly with parents and students about how they perceive their environment, given the variation of parent and student responses among municipalities. A "one size fits all" approach to increasing active travel is unlikely to be effective and community desires and needs may best be articulated through in-person dialogue. Qualitative methods should also be used as a descriptive information gathering technique to inform future surveys and quantitative initiatives. Surveys have been used to measure both communities' needs and the effectiveness of interventions. However, schools and municipalities seeking to make improvements to enhance safety and increase active travel rates should consider speaking directly to community members of all ages to ensure that the majority of local perspectives and concerns are addressed. Qualitative methods, such as interviews, allow for a deeper level of description, including the ability to ask follow-up questions and ask participants to articulate their rationale. Lastly, community members may become more empowered to make changes by engaging in participatory research. Throughout this research, many participants felt passionately about their perspectives, thanked the interviewer for asking about important community issues, and stated their desire for improvements.

# FUTURE RESEARCH

Future research should include talking with students directly about their travel experiences. Examining more parents' and students' perceptions through interviews in a single community prepared to make planning and policy changes may enhance the usefulness of the findings for school districts and municipalities. It is unclear the level of impact students' perceptions have on mode choices, though understanding their perceptions and ideas for improvement, both as active travel users (often without their parents present) and as the leaders of the future, may help to better shape active travel interventions.

Students were consistently knowledgeable and engaged about their own safety concerns. This finding is consistent with the findings of the limited prior qualitative work with middle school children. The authors of another study which included interviews of students stated, "when given a chance, children are more than capable of forming and expressing their thoughts about the issues pertaining to the planning and design of their everyday surroundings" (Banerjee, Uhm, & Bahl, 2014, p. 136). Students should be included in travel-related planning, programming, and engineering decisions. Empowering students to have a voice and meaningful involvement in planning, programs, and projects is critical to the successful implementation and ownership of initiatives. By continuing to encourage the use of observation and interview and/or focus groups in future research, researchers will discover more about what children think of their environment and what improvements they would seek to make them feel safer. In turn, this research can improve interventions to encourage children to participate in healthy behaviors like active travel in the future.



*"Students were consistently knowledgeable and engaged about their own safety..."*

## TAKE AWAY FOR PRACTICE

The findings presented here demonstrate the importance of examining parents' and students' perceptions when identifying areas for active travel interventions. Although parents and students in Highland Park were more concerned about traffic, while parents in Stanhope and Franklin were more concerned about abductions, encouraging students to walk in groups may alleviate both of these concerns. Parents and students alike overwhelmingly perceived greater safety in groups. The majority of students from all three communities also indicated they would be willing to walk a little out of their way to walk with classmates, as it made the trip more fun. However, many parents and students reported they were unaware of neighbors also walking to school. Schools and municipalities should help parents and students find neighbors who might be interested in walking or bicycling to and from school together by designating walk pool/ walking school bus stops or bicycle train stops with morning departure times where students can meet up and complete the trip to school together. These locations can be posted on the school website or sent home to parents at the beginning of the year. Designating walk or bike pool locations can encourage students to walk and allow schools to provide some education on the benefits of walking to school, particularly with neighbors. Students can also use these locations as departure points to walk part of the way home with neighbors in the afternoon.

Since middle school students do not typically desire parents or other adults to accompany them to and from school or other locations, walk pool, walking school bus stops, or group bicycle rides may not be adhered to if they are a construct to providing adult supervision. It is essential to strike a balance between helping students find neighbors or friends to walk to and from school with and organizing a formal program with only adult input and over-involvement by parents or guardians.

Another option is working with schools or other community organizations to host instructional programs or other informational sessions about skills that build independence. Having opportunities for successful practice of skills for dealing with different problems may help students and parents become less anxious. Students can learn about the best ways to handle situations through practicing scenarios that are realistic and relevant to the neighborhood or community. Programs that teach life skills about travel and crime safety are important ways to build confidence in parents and students. With municipalities providing walk pools or instructional independence programs, students should be more able to find other students to walk with and learn how to handle situations. In turn, some of the perceived concerns around stranger danger and traffic should be minimized, while the benefits of walking to and from school can be obtained.



*"Having opportunities for successful practice of skills for dealing with different problems may help students and parents become less anxious."*

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