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Implementation of School Remote Drop-off Walking Programs: Results from Qualitative Interviews

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Abstract

BACKGROUND: Remote drop-off programs allow children living “unwalkable” distances from school to walk partway by being dropped off by personal vehicle or bus closer to the school, supporting physical activity and health. However, little evidence exists to guide implementation of such programs.

METHODS: Semi-structured interviews were conducted with key informants from 7 remote drop-off programs to capture descriptive information and qualitative content (*e.g.*, barriers, facilitators, outcomes). Qualitative content was analyzed using inductive thematic analysis and identified themes were organized within implementation science frameworks.

RESULTS: Programs were from low and high socioeconomic areas (free/reduced price lunch range=4%–92%) and initiated by various champions (school staff=29%, parents=29%, external=42%). 29% of programs incorporated the yellow school bus, 43% involved >100 students, and 71% involved route distances < 0.5 miles. Twenty themes were identified across 5 implementation science domains (Intervention Characteristics, Inner Setting, Outer Setting,

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Implementation Process, and Outcomes). Positive outcomes included physical activity, socialization, and improved focus for students; decreased traffic; and positive perceptions of the program by students, parents, and school staff/administrators. Barriers included traffic, weather, and student engagement. Facilitators included having a champion and support from school leaders and the community, conducting process improvements, and incentivizing participation.

CONCLUSIONS: Remote drop-offs are feasible for supporting active school commuting but underutilized. Promising strategies for supporting uptake and implementation of such programs include communicating benefits, developing champions, engaging school and community leaders, and improving the neighborhood built environment.

Keywords

remote drop-off; active travel to school; built environment; implementation science; physical activity

1. Introduction

Walking to/from school offers a strong contribution to overall physical activity in youth, which can promote and improve health (Larouche et al., 2014). Findings indicate that walking to school can result in an average of 15–20 more minutes of daily physical activity (Faulkner et al., 2009) which has the potential to make a difference in whether youth meet the recommendation of 60 minutes of activity each day (Borner et al., 2018). Walking to school has also been associated with other benefits, including healthier body composition (Lubans et al., 2011) and better cognitive and academic performance (Martinez-Gomez et al., 2011).

Several efforts exist across the U.S. and world to support walking to school (Buttazzoni, et al., 2019; McDonald et al., 2014; National Center for Safe Routes to School; 2016; We Ride Australia, 2021). In the U.S., the Safe Routes to School platform has resulted in the adoption of efforts to support walking to school in an estimated 22% of elementary schools (Turner et al., 2014). Yet, population rates of walking to school remain low, with about 10% of children in the U.S. usually walking to school (Kontou et al., 2017). There are numerous barriers to walking to school that contribute to these low rates, with distance to school being a top barrier (Larsen et al., 2009; Panter et al., 2013; Rodriguez & Vogt, 2009; Timperio et al., 2005; Trapp et al., 2016; Wilson et al., 2018). Relatedly, walk to school interventions have often been effective among only a subset of students/families, typically those living closer to the school (McDonald et al., 2014; Pang et al., 2017; Stewart et al., 2014). To support students who live further from school to walk to school, remote school drop-off programs have been recommended because they allow for shorter and more feasible walking distances.

In this paper, we use the term remote drop-off to refer to a program that designates a location where students are dropped off and/or picked up before and/or after school, either by personal vehicle or bus, so they can walk the remaining distance either on their own or supervised. Remote drop-offs are sometimes called park and walk programs and are part of other Safe Routes to School-related activities for supporting active travel to school (National

Center for Safe Routes to School, 2016; Stewart et al., 2014). When paired with a walking school bus involving adult supervision, remote drop-offs can improve students' safety from traffic or crime, thus removing two of the largest barriers to active school commuting: long distances and poor neighborhood safety (McDonald & Aalborg, 2009). Remote drop-offs may also alleviate traffic congestion near the school, and there is some evidence that they are feasible and effective for increasing children's step counts and walking trips before and after school hours (Vanwolleghem et al., 2014).

Though remote drop-offs appear to have potential for supporting active travel to school, physical activity, and overall health, they do not appear to be commonly used and little research has been conducted to understand how they are implemented. Obtaining information about how remote drop-offs have been implemented, their barriers and benefits, perceptions of the program, and more, could support increased rates of adoption and population reach of such programs, and well as improved implementation and sustainability. While similar research and methods have been used to improve understanding of implementation factors related to walking to school interventions in general and specific efforts such as the walking school bus, less is known about remote drop-offs (Benson et al., 2020; Kong et al., 2009; Nikitas et al., 2019).

The objective of this study was to conduct a qualitative implementation evaluation of existing remote drop-offs across the U.S. based on information provided by key informant program leaders. This research was informed by implementation science frameworks that posit that successful implementation and scalability of an intervention requires identifying strategies that overcome barriers to implementation (Damschroder et al., 2009; Nilsen, 2015; Proctor et al., 2009; Rabin et al., 2008). We present descriptive information for existing programs, summarize lessons learned using thematic analysis, and provide quotes from key informants in relation to implementation barriers, facilitators, and outcomes.

2. Methods

2.1 Participants and Procedures

Participants were 7 key informants who held a leadership or management role in their elementary school's remote drop-off program, including classroom teachers, parent volunteers, Physical Education (PE) teachers, and principals. Study inclusion criteria were that the participant needed to be a leader of a remote drop-off program at a specific elementary school and able to complete the interview in English. Interviews were conducted over the phone from February through April 2018. Participants were incentivized with a \$50 e-gift card for completion of the interview, which lasted approximately one hour. All participants provided informed consent and the study was approved by the Children's Mercy Kansas City Institutional Review Board.

The first recruitment strategy involved e-mailing 12 schools, individuals, and organizations who the team identified as potentially having a remote drop-off program through literature reviews and Internet searches. Search terms included *remote drop-off*, *park and walk programs*, *active travel to school*, and *safe routes to school*. These searches resulted in academic publications, news articles, organization websites, blogs, and school websites that

provided leads for contacts involved in a remote drop-off. Three participants were enrolled as a result of this recruitment strategy (25% response rate). The second recruitment strategy involved follow up with a subset of participants of the research team's national survey of existing walking school bus program leaders in the U.S. This previous study involved programs identified using a similar search approach as described above, and well as through email inquiries to national, state and local Safe Routes to School-related organizations and national Safe Routes to School-related listservs (Carlson et al., 2020). The walking school bus survey included an item asking if a remote student pick-up/drop-off approach was used, and the 21 respondents who indicated "yes" were contacted to request their participation in the remote drop-off interview. Four participants were enrolled as a result of this recruitment strategy (19% response rate). Previous studies of WSB leaders have similarly used relatively small sample sizes due to the focus of implementation research being at the program level rather than individual (student) level (e.g., $n = 2-27$; Benson et al., 2020; Kong et al., 2009).

2.2 Interview-administered Descriptive Questionnaire

Ten quantitative items were asked via interview to capture descriptive information on each program. Response options varied, including yes/no, numerical, or categorical. The items covered the duration that the remote drop off program had been running, the number of student participants, the types of programs available (e.g., remote drop-off, walking school bus), the role of the person who started the program, the distance of the remote drop-off from school, the number of days per week and times per day it ran, whether attendance was taken, the location type (i.e., urban, suburban, or rural), and whether the school has yellow school buses that use the remote drop-off.

2.3 Interview Guide

A semi-structured interview guide was created by the research team to capture implementation factors relevant to remote drop-off programs. The guide included 11 main questions and various follow up questions to be asked based on the level of detail provided in the initial response. The questions were open ended and broadly captured implementation-related topics (questions listed in Figure 1). Questions prompted participants to report logistical considerations related to program implementation and maintenance, such as those related to traffic, student safety, and arrival/dismissal time. Questions also covered benefits of the program, implementation processes, and other barriers and facilitators to implementation.

2.4 Thematic Analysis Coding Guide and Process

The interviews were transcribed verbatim. Inductive thematic analysis was conducted on the data set, as the goal was to identify patterns within the data (Braun & Clarke, 2006). One member of the research team reviewed the entire dataset (all interviews) and created a list of identified themes and theme definitions. The themes and definitions were discussed and revised with input from the other two team members, who also reviewed all interviews, until a consensus was reached. These discussions resulted in the inclusion of 17 themes to guide coding. Two team members then independently coded each interview (all content) to extract data (i.e., gathering all data relevant to each theme). This involved mapping interview content to each theme using a color coding in Microsoft Word. Discrepancies between

coders were discussed until a consensus was reached regarding the final content mapped to each theme. Three additional themes were identified during the data extraction process, resulting in the inclusion of 20 total themes. A summary of the content within each theme was then created, and the 1–2 quotes that best exemplified each theme were selected for inclusion in this paper. Additionally, the coders rated each program on its level of systemization based on its scope/reach: 1= very few students reached; not a significant presence at the school; 2= some, but not all, students reached; moderate presence at the school; and 3= almost all students reached; almost fully integrated into the school. These ratings were based on information about how many students participated, how often the program operated, and additional information provided by the interviewee about the program's scope at the school.

The 20 themes were then grouped into domains based on implementation science frameworks such as the Consolidated Framework for Implementation Research (CFIR) and Proctor's model (Damschroder et al., 2009; Nilsen, 2015; Proctor et al., 2009; Proctor et al. 2011; Rabin et al., 2008; CFIR, 2014). This was done to organize and map the findings to facilitate inferences around implementation. The domains included characteristics of the (1) Intervention, (2) Inner Setting, (3) Outer Setting, and (4) Implementation Process, and (5) Outcomes (See Figure 2; Damschroder et al., 2009; Proctor et al., 2009).

2.5 General School Information

Rural vs. urban location based on Rural Urban Commuting Area (RUCA) codes (rural was indicated by RUCA codes > 4; Hall et al., 2006; USDA Economic Research Service, 2019), percentage of students receiving free and reduced price lunch, and racial/ethnic distribution of the students (NCES, 2019) were captured for each school using publicly available datasets.

Results

3.1 Descriptive and Sociodemographic Information

Descriptive characteristics of the programs included in the study sample are presented in Table 1. The programs were located in the U.S. states of California, Colorado, Florida, Minnesota, Michigan, North Carolina, and Wisconsin. Both elementary and combined elementary/middle schools were represented, as well as schools in low- and high-income areas. The programs operated between one and five days per week in mornings and/or afternoons. Drop-offs occurred at single or multiple locations, which included parks, teachers' houses and parking lots. The use of each remote-drop off programs by students at the schools was optional, though some programs used an opt-out vs opt-in approach for participation. For example, one school provided families with information about the remote-drop off and their neighborhood-specific walking route upon registration for the school year and provided the option to opt out rather than having families sign up. Programs that incorporated the use of yellow buses by having all buses drop off and pick up students from a remote drop off spot were also represented. The systemization ratings indicated a range of small, moderate, and large (fully integrated) programs based on their level of integration at the school.

3.2 Remote Drop-off Themes

The 20 emerging theme labels, summaries, and example quotes are presented in Tables 2–4. Three themes were identified in relation to the Intervention characteristics domain, two in relation to the Inner Setting, three in relation to the Outer Setting, four in relation to the Implementation Process, and eight in relation to the Outcomes domain.

Representative quotes pertaining to Intervention Characteristics, Inner Setting, and Outer Setting are included in Table 2. Intervention Characteristics quotes cover the themes about feasibility and reasons for initiating remote drop-off program, such as reducing vehicle traffic and promoting physical activity. Inner Setting quotes cover the need for support from internal school leaders as well as use of incentives, for successful implementation. Outer Setting quotes cover barriers to implementation, such as traffic, weather, and engaging older students. Example quotes pertaining to the Process domain are included in Table 3. These covered themes of needing a program champion, support from the community, continual process improvements, and the option to involve yellow school buses. Lastly, quotes pertaining to the Outcomes domain are presented in Table 4. Themes pertaining to outcomes included benefits of student socialization and health promotion, positive perceptions of the program from parents, students, and school staff, as well as whether the program was likely to continue. Four outlier concepts remained that were each present in one interview: safety as a concern, communication with parents was a barrier, parents/students were automatically enrolled and had to opt out of the remote drop off program if desired, and volunteer retention was a barrier.

4. Discussion

4.1 Interpretation of Findings

Given the currently low rates of walking to school (Kontou et al., 2019), more efforts are needed to support increases in walking to school, particularly among the large portion of students not reached by most walking to school interventions due to living far from school (McDonald et al., 2014; Pang et al., 2017; Stewart et al., 2014;). Remote drop-off programs appear particularly promising for reaching students and families that are often not reached through other more commonly used Safe Routes to School-related strategies due to living an “unwalkable” distance from school (Larsen et al., 2009; Panter et al., 2013; Rodriguez & Vogt, 2009; Timperio et al., 2005; Trapp et al., 2016; Wilson et al., 2018). Although remote drop-off programs have potential to contribute to increases in youth’s physical activity (Vanwolleghem et al., 2014) they appear to be uncommon in the U.S. In accordance with principles of implementation science (Damschroder et al., 2009; Nilsen, 2015; Proctor et al., 2009; Rabin et al., 2008) it is critical to identify the factors that may inhibit or support implementation success, to inform efforts to improve uptake and success of such programs. Findings from the present study point to particular factors that support successful implementation of school remote drop-off programs, as well as implementation challenges that new programs may face.

There appear to be multiple benefits to remote drop-off programs, including non-health benefits. Schools benefited from decreased traffic around the school, which aided in the

arrival/dismissal process. Parents benefited from decreased traffic and increased convenience by using a remote drop-off location. Direct benefits to students in addition to physical activity included enjoyment, socialization, and improved behavior and focus in the classroom. These non-health benefits noted should be considered when supporting adoption of remote drop-off programs, because health is only one of many factors school leaders and other decision makers need to consider when deciding whether or not to adopt a new program (Lau et al., 2016). The fact that remote drop-off programs can support both physical and psychosocial health in youth highlights the value they can provide in the school environment. Focusing on the range of health and non-health benefits remote drop-off programs provide for students, parents, and teachers can help program leaders advocate for their adoption and implementation.

Contextual barriers to implementing a remote drop-off program appear similar to barriers of other walk to school efforts in the U.S. (*e.g.*, the Walking School Bus; Kerr et al., 2006; Kong et al., 2009) and other countries (*e.g.*, noted barriers of traffic and neighborhood safety for walking/cycling travel active travel to school; Nikitas et al., 2019; Panter et al., 2010). Particularly relevant barriers noted in the present study were safety (primarily safety from traffic), weather, and engaging older students. Thus, implementation of a remote drop-off program is likely to be most successful and effective when the neighborhood environment is generally safe for walking. In areas where pedestrian safety is a concern, remote drop-off programs could be paired with walking school buses and/or advocacy efforts to improve the neighborhood environment around the school and drop-off area. The latter could be accomplished by accessing Safe Routes to School-related funding for infrastructure improvements or tying into “Complete Streets” initiatives which aim to design and operate streets that are safe and usable for all users (Burden & Litman, 2011). Strategies for overcoming weather-related barriers included providing gear such as rain jackets and umbrellas, which was noted by some interviewees. To keep older students engaged, schools may consider having older students form a separate group that could still be supervised but provide a means of connecting with same-age peers on the walk.

Facilitators to implementing remote drop-off programs included having strong leadership through a program champion, buy-in and support from school administration, and community involvement. These factors appeared critical for starting and maintaining programs. A program champion can be instrumental in engaging the support of both the school administration and community, as well as recruiting and organizing volunteers to serve as route leaders and overseeing day-to-day operations. Sustainable program leaders were typically individuals who were internal to the school, such as parents and/or teachers who advocate for, organize, and lead the program. Support from school administration and leadership involved task-forces and continued focus on the remote drop-off program as a priority of the school community. A task-force could be initiated by a parent or teacher who identifies as the program champion, but then expanded to include consistent involvement from school administration. Community involvement and support appears important because it can lead to acquisition of resources as well as increase visibility of a remote drop-off program. For example, community support may lead to more volunteers interested in becoming involved in the program as route leaders.

The ability for programs to make changes and accommodations based on student and parent needs also appeared to lend to its sustainability. Such processes can include adjusting meeting times at the drop-off location or creating new routes based on where students live. Regarding incentives, tracking participation and providing motivation or rewards for consistent involvement (*i.e.*, monitoring and feedback/reinforcement) can be powerful in sustaining behavior (Michie et al., 2009; Rosenstock et al., 1988). Examples of such incentives include punch cards for walks and having students and volunteers work up to a large reward at the end of the semester. Incentives in the form of weather-related resources (*e.g.*, gloves, hats, etc.) could be doubly useful, as they can provide motivation as well as help address the noted weather-related barriers. Activities and incentives tailored to students' ages may also be beneficial. It is also possible that additional behavior change interventions that incorporate goal-setting, self-monitoring, problem-solving, and feedback could help students, parents, and leaders involved in such programs to overcome barriers to participation and sustainability (Michie et al., 2009). Interventions of this nature can be administered by a trained health behavior interventionist, or through digital interventions (Cushing & Steele, 2010; Ritterband et al., 2006). Some remote drop-off programs that had higher reach and level of systematization at the school also used opt-out systems and involvement of yellow buses. This included strategies such as having all yellow buses utilize the remote-drop off location and providing families with specific information about the remote-drop off process that would be implemented for their students unless they opted out of participation. These factors appeared to facilitate implementation of the remote drop-off programs by making participation more automated and integrated in typical school transportation procedures.

4.2 Strengths and Limitations

This is the first study to examine implementation factors of remote drop-off programs, a novel program that has the potential to impact population health through supporting increases in active travel to school and overall physical activity in youth. The qualitative methodological approach used provided a depth and richness of information, and the investigation of existing programs provided a better understanding of these programs when implemented in real-world contexts. The sample was limited in size and likely not representative of all remote drop-off programs due to difficulty identifying such programs and potential participation bias, thus limiting generalizability of the findings. However, remote-drop off programs appear to be rare and similar implementation evaluation studies of program/setting-level characteristics (rather than characteristics of individual participants) have also been based on a small number of programs/settings (Benson et al., 2020; Damschroder & Lowery, 2013; Kong et al., 2009). All measures relied on key informant reports, which could be subject to bias in some cases and causation cannot be established.

4.3 Implications for Policy and Practice

The information presented in this paper can guide efforts to improve school health practices. The array of physical and psychosocial health benefits noted, including increased physical activity, socialization, and focus for students, can be highlighted in advocacy efforts around remote drop-off program adoption. Moreover, the results of this paper provide guidance for successful implementation of remote drop-off programs. Specifically, schools adopting a

remote drop-off program are recommended to identify and develop a program champion who can make a long-term commitment to championing the program. Support from volunteers and school administrators should be leveraged, as volunteers support day-to-day operations and administrators help make the program a priority at the school. Student and route leader involvement can be reinforced by providing incentives in the form of prizes, awards, and/or financial compensation. Schools may also think proactively about addressing barriers to implementation. For example, schools could seek donations of raingear, coats, gloves, and other gear so that the program is feasible to continue in rain, snow, and colder temperatures. Schools can address neighborhood barriers, such as poor quality sidewalks by working with community leaders in advocating and/or applying for Safe Routes to School-related infrastructure improvements. Ultimately, providing more opportunities for students to walk to school, such as through the adoption of a remote drop-off program, has numerous benefits for schools and families and should be explored in more communities.

4.4 Conclusions & Future Directions

Remote drop-off programs are a feasible option to support active school commuting for students who may not live in walking distance of a school. Implementation strategies that focus on support factors and address barriers may improve implementation success of remote drop-off programs. Studies using objective measurement of program benefits are needed to create a more convincing story to potential adopters and funders. For example, objective physical activity data gathered through student accelerometer wear could provide information on the increases in physical activity facilitated by students' participation in the program. Additionally, deliberate measurement of changes in student behavior, such as through coding systems and teacher-completed measures, would support more rigorous evaluation of the influence of the program on student focus and behavior. Experimental studies that test various implementation strategies for addressing barriers such as weather, traffic, and student engagement are needed to support program reach, success, and sustainability. Overall, more research is needed to identify and test promising implementation strategies (Powell et al., 2015) for overcoming noted barriers to implementing remote drop-off programs, and useful frameworks exist for guiding such research (Powell et al., 2017).

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Highlights

- Remote drop-off programs support health as part of active school travel
- This study identified implementation factors specific to remote drop-off programs
- Barriers are traffic, weather, and student engagement
- Facilitators are program champions, community support, and process improvements
- Improving uptake of remote drop-off programs may increase youth's physical activity

Starting the program	1. How did the program come about at your school?
Program procedures	2. What are the procedures for the program at your school? OR Please tell me how the program works at your school.
Logistical considerations	3. What logistical considerations were necessary when planning and implementing a remote drop-off/park and walk program?
Benefits	4. What benefits have you noticed from using this program at your school?
Barriers & downsides	5. What barriers or downsides have you noticed from using this program at your school?
Feasibility	6. How feasible do you think it is for schools to implement remote drop-off/park and walk?
Perceptions of the program	7. As far as you know, what are parents/families' (teachers', students') perceptions of this program?
Equity implications	8. Are there any challenges that make it hard for some children at your school to participate in a remote drop-off program?
Continued implementation	9. How likely is it that your school will continue using the program?
	10. Are there any changes or improvements that you would like to see for your school's program?
	11. Would you recommend that other schools implement a remote drop-off/park and walk program? Why?

Figure 1.
Main Questions from Semi-structured Interview of Remote Drop-off Key Informants



Figure 2.
Description of Consolidated Framework for Implementation Research (CFIR) Domains
Used in Organizing Interview Themes
Figure Note: *Outcomes domain informed by Proctor et al., 2009; all other domains
informed by Damschroeder et al. 2009

Table 1.

Characteristics of programs included in study sample

Descriptive Information Reported in Interview	<i>n</i> Schools (total = 7)
Duration of Program at the School	
<3 years	4
3–9 years	2
10+ years	1
Number of Participants	
<100 students	4
100–300 students	2
300+	1
Program Types Available	
Remote Drop-off only	4
Remote Drop-off + Walking School Bus	3
Program Initiation Source	
School/District	1
Parent	2
Teacher	1
External Organization	3
Distance from School	
0.25 miles	2
0.5 miles or greater	5
Number of days per week	
<5 days	5
5 days	2
Times per Day	
Morning Only	4
Morning and Afternoon	3
Attendance Taken	
Yes	3
No	4
School Buses involved in program (i.e., yellow bus)	
Yes	2
No	5
Location Type (participant reported)	
Urban	3
Suburban	2
Rural	2
Sociodemographic Information *	% students or <i>n</i> schools

Descriptive Information Reported in Interview	<i>n</i> Schools (total = 7)
White Non-Hispanic	Mean=36.8% (range: 11.8%–66.4%)
Free/Reduced Price Lunch	Mean=49.3% (range 4.4%–91.8%)
Location Type	
Urban	6
Rural	1

Note.

* Five of the seven schools had accessible data pertaining to Free/Reduced Price Lunch and racial/ethnic demographics.

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Table 2. Identified Themes, Summaries, and Representative Quotes from Interviews (Intervention Characteristics, Inner Setting, Outer Setting, Outer Setting)

Domain and Theme	Summary	Representative Quote(s)
1. Intervention Characteristics: Initiation purpose was to reduce vehicle traffic.	A main purpose of the program was to reduce vehicle traffic around the schools, in order to promote a safer environment for the students. Also, to improve the drop-off process by making the process of kids getting to school more time efficient for their parents and guardians.	"When they initially started, they were running buses from different parts of the county and the parents could take them to the bus and then they could be bused in. But, that courtesy bussing went away, so that meant that, after that happened, all of those kids that were attending that school were then driven to school. So, you had a school of six or seven hundred in a small, you know, locked neighborhood and so you had a lot of traffic a couple times a day."
2. Intervention Characteristics: Initiation purpose was to promote physical activity and green travel.	A main purpose of the program was to promote physical activity for students, which would promote physical well-being, better performance and focus in school, and promote a method of green travel to school.	"I think to increase physical activity with the kids. We were -- I think we were going for the Alliance of Healthier Generations, the Silver Award, and so we needed, you know, that just fell into, you know, the wellness part of our school."
3. Intervention Characteristics: The program was feasible to start and maintain.	The program was noted as being feasible to run and maintain. They did not take a substantial amount of work, time, or funds to initiate.	"I think it's pretty feasible. I mean, especially only having myself and my other coordinator who kind of lead them, you know, I think it's pretty easy as part of the school district to be put kind of in the policies to make that an offering and see it kind of improve and make a point with getting kids a little bit more active and then also helping with, you know, buses and traffic control. I think it's pretty easy to put in there once you have the school buy-in."
4. Inner Setting: Support from school leaders was necessary.	The principal or school administration (e.g., school board) needed to support the program in order for successful implementation and continuation of the program. Support could include a task force that includes administrators, direct participation of administrators in the program, and more.	"So, we have a taskforce that's not just parent-driven. It's -- this taskforce, we meet quarterly and it has, you know, members of the school administration." "I think it was a collaboration of the school district and just someone who was in the -- like, a mom who kind of had her kids in the school, the school system. So, getting the school support was like kind of the huge point that we needed to get to get the program running."
5. Inner Setting: Incentives were incorporated.	The program incorporated incentives to promote student and volunteer participation. These incentives took the form of items such as scarves, hats, gloves, key chains, etc., given to the students. Other incentives included food and large social events provided for the students. Awards were also given to the volunteers and program coordinators to promote their continued participation.	"We do like a punch card where every week that kids join they get a little punch on a card and then once they reach I want to say it's like six punches they get to pick out a prize. So, that definitely helps motivate the kids."
6. Outer Setting: A program barrier was vehicle traffic.	Traffic was noted as a common barrier for students and the program. Many of the schools were located close to busy roads and intersections, creating a safety risk for children. Also, some parents did not buy into the program and allow their kids to participate because they worried about the vehicle traffic.	"We do have the major highway is right off the school and it's a major highway that runs through town, so, really crossing that major highway is a huge concern and currently we don't have any infrastructure in place that makes that accessible for kids. So, we had to stay with like our walking and pickup kind of all on the south side of the school, where all those kids live, in hopes anyone who lives on the other side would still be able to drop them off."
7. Outer Setting: A program barrier was weather.	Weather was noted as a barrier for the program. Unpredictable weather was noted as a driver of communication issues between parents and program coordinators. Also, due to extreme weather changes in northern areas of the United States, many programs were not able to run year round.	"I just -- I think the weather sometimes is a little -- you know, because we're in Minnesota. So it's always -- some mornings, it's like do you cancel or do you not cancel? So I always -- in the fall, if it's fifty at all, I cancel, just because I don't want it to, like, be pouring rain and the kids and caught in it, and then all the parents are, like, upset... So I'm a little bit more cautious in the spring about cancelling. But there's -- the weather's probably the only barrier."
8. Outer Setting: A program barrier was engaging older students.*	Students in older grades were less likely to participate, or students stopped participating in the program as they get older.	"I would say, because the school is pre-K through sixth, we definitely get more of the younger kids than the older kids."

*Three themes added during the coding process

Table 3. Identified Themes, Summaries, and Representative Quotes from Interviews, continued (Process)

Domain and Theme	Summary	Representative Quote
9. Process: The program needed a champion.	The program needed a champion. The champion was most often the parent or teacher who initiated and runs the program. This individual typically approached other stakeholders, such as the school administration and the community, and they coordinated the program.	“...you have to find that one champion, that one person that is going to be your school lead, you know, and is going to be willing to do that and recruit more parents and do the schedule and make sure that there’s volunteers out there to cover the trail and everything, you know, the route.”
10. Process: Support from the community was necessary.	Having community support (e.g., organizations, neighborhood residents) resources, and partnerships was reported as helpful for program implementation and coordination.	“And, then, of course, we do like sometimes through our program we recruit like special guests from our community to walk and so I think that this has helped us solicit some broader support of just walking to school in general. Like, we’ve had, like, our city planning department in particular join my kids’ school or we’ve had a local university baseball team. So, that, I think it’s a benefit for those teams to just see what’s happening in our community and having some interaction with kids but then our kids see that, like, wow, if other people think this is important, too, like, teaching them about healthy behaviors and why walking to school is important.”
11. Process: Continual process improvements were employed.	It was common for continual process improvements to occur throughout the program. Accommodations and changes were made as needed to help the program run successfully, such as adjusting the drop off location or meeting time.	“...because we have -- we’re covering one end, there’s a whole other end of the school where we’ve been trying to get another kind of drop-off area and I think that’s still in the plan to get somebody to kind of man that, get it situated, because we have a lot of students coming from the other end of the school as well.”
12. Process: Program involved yellow school buses.*	The school had yellow buses that used the program, as in they use bus stopped and then students walked the rest of the way to school.	“So and we were able to use that restaurant’s parking lot, and that’s where the buses come. And they have a certain loop, you know, that they -- they go through. So they just pull in and then pull out.”

* Three themes added during the coding process

Table 4. Identified Themes, Summaries, and Representative Quotes from Interviews, continued (Outcomes)

Domain and Theme	Summary	Representative Quote
13. Outcomes: A program benefit was student socialization.	A common benefit mentioned was the socialization time for the kids. The kids were able to socialize with other students they normally do not get to interact with, their friends, and spend time with their family members during the walking program.	"I also think it has encouraged socialization with the kids. Like, they get really excited to see each other and I hope that when they know their friend is coming that means they are more likely to come too."
14. Outcomes: A program benefit was increased student physical activity and well-being.	A benefit of the program was students increased time of being physically active, which helped to promote physical well-being of the students.	"I think a lot of the kids benefit from getting out and like moving in the beginning of the day to have that like active lifestyle."
15. Outcomes: A program benefit was students having better focus in school.	Not only was promoting physical activity beneficial for the student's physical well-being, but it was noted that the teachers had positive perceptions of the program because it allowed the students to work out some of their energy before class, which helped them remain calmer and focused in the classroom.	"The principal actually told me after it had been running for a while that they had seen some improved discipline, you know, levels of discipline in some of the kids, you know, got better. Some of the kids that participated in the program were less of a discipline problem, let's put it that way."
16. Outcomes: A program benefit was decreased traffic.*	Decreased traffic for school drop-off and pick up was reported as a benefit of the program at the school. This is because some of the vehicles were using the remote drop-off rather than traditional drop-off area.	"But, for sure less traffic and congestion. Secondly, I think it's safer for the students and families and drivers, for that matter, to have these designated areas, the -- you know, less accidents, making sure that -- because, I think, you know, every study has shown that when you have groups of kids walking together in a specific area versus kind of scattered all over coming in different routes, that it's much safer for everyone overall and for drivers sort of expect where they're going to see groups of kids walking and biking is, you know, that part lends itself to the safety side as well."
17. Outcomes: Parental perceptions were positive.	Parents had positive perceptions of the program and were happy with the way the program was run.	"I think that they know the benefits but it also -- they know the benefits for their kids but it's a benefit for them because they can get to work a little bit earlier. Since they can't get to school until 7:30, you can't really drop off until 7:30, but we meet at 7:15, so that extra 15 minutes I think does help some families because it gives them a little more time to get where they need to be or get to work earlier."
18. Outcomes: Student perceptions were positive.	Students have positive perceptions of the program and were happy with the way the program was run.	"I think all strong and positive. You know, again, it probably helps having those events that are really fun and all kinds of fun, you know, awards are given and stuff, so, they like those. And, then, I think -- you know, it's funny, I think that because, again, we are in a pretty active lifestyle type place, I think they see their parents, you know, pretty active themselves and so there's no sort of stigma attached to it at all in terms of walking or riding or any kind of green travel. I think it's a very positive thing, considered positive."
19. Outcomes: School staff and administrator perceptions were positive.	School staff and administrators had positive perceptions of the program and were happy with the way the program is run.	And, certainly, the -- from a teacher perspective, I think, you know they are always very, very supportive of the program because they recognize that when kids come to school with some exercise in them before they get there that, you know, it tends to -- kind of the antisickness out."
20. Outcomes: Program was likely to continue.	The program would very likely continue into the future, based on its status, resources in place, and planned leadership.	"Oh, I think extremely likely. There's no -- this program is not going to go away, I don't think, anytime soon... Because I think it's so integral to just the functioning of, you know, effective drop-offs and pickups in the afternoon."

* Three themes added during the coding process