

Active Travel and Schools in Montreal and Trois-Rivières

An analysis of active travel by elementary school students in Quebec

Summary report



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Groupe de recherche Ville et mobilité

ACTIVE TRAVEL AND SCHOOLS IN MONTREAL AND TROIS-RIVIÈRES

AN ANALYSIS OF ACTIVE TRAVEL BY ELEMENTARY SCHOOL STUDENTS IN QUEBEC

Summary report

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Active Travel and Schools in Montreal and Trois-Rivières

The research reported here was conducted by the [Groupe de recherche Ville et mobilité](#) (research group on mobility in the city) between 2006 and 2008 as part of a program of concerted action on the development of public policies directed at acquiring and maintaining healthy living habits. The program was initiated by the [FQRSC](#) (Quebec fund for research on society and culture), in partnership with the [FRSQ](#) (Quebec health research fund), the [MSSS](#) (Quebec department of health and social services) and the [CPRO](#) (centre for research on obesity prevention). The [MTQ](#) (Quebec department of transport) and the [INSPQ](#) (Quebec institute of public health) also contributed to funding the research.

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SUMMARY

The starting point for the research reported here was the observation that active travel—walking and biking—are on the decline in Western societies, part of a global trend toward sedentary lifestyles and an increased use of motor vehicles. Children attending elementary school are directly affected: the habit of walking to school has seen a very significant drop in the past thirty years.

The decline in active travel has consequences for the environment and for health. Walking or biking between home and school can provide significant physical activity for the young, too few of whom are getting the recommended amount (Kino-Québec 2000).

Current conditions are not conducive to active travel. Our research analyses the actors involved in school travel in Quebec in order to understand the context within which active travel occurs, with a focus on the viewpoint of parents. The framework for the research has largely been taken from the model of Tracy McMillan, who has looked at the influence of the environment on how children travel to school from the perspective of parental control (McMillan 2005). Parents are thus the focus of our analysis. Our objective was to understand how they see active travel, in particular with regard to the trip to school, and how the trip to school fits in with the rest of the family's travel.

Key results

Origin-Destination (O-D) surveys¹ carried out in the Montreal region confirm a major decline in walking between home and elementary school. From 1998 to 2003, walking dropped from 40.5% to 34.2% of travel while trips to school by car rose from 22.0% to 30.7%². In Trois-Rivières in 2000, walking accounted for barely 36% of home-school travel³. Not only are elementary school students walking less to school, but also those who do walk are walking ever shorter distances. Thus between 1998 and 2003 in the Montreal region, the average one-way distance walked dropped from 550 m to 480 m (as the crow flies).

Our survey shows that while regular active travel has declined, many children are still walking or biking occasionally: only a third of children walk or bike regularly, but another third do so occasionally. These figures demonstrate a strong potential for active travel by elementary school children, despite recent developments.

¹ O-D surveys have been conducted about every five years in the Montreal region since 1970. For more information, visit the AMT site at www.cimtu.qc.ca/enqOD/Index.asp. (In French)

² Figures calculated by us based on level 2 files from the O-D surveys in the Montreal region. The files were obtained under licence from the AMT (Montreal metropolitan transportation agency).

³ Only one survey has been conducted to date in Trois-Rivières, in 2000. For more information: www.mtq.gouv.qc.ca/portal/page/portal/ministere/ministere/recherche_innovation/modelisation_systemes_transport/enquetes_origine_destination/trois-rivieres_enquete_2000. (In French)

The decline of active travel can be explained by a number of factors. At the top of the list is the impact of the urban environment and of social change. Our survey confirms the highly dissuasive effect of home-school distance (in line with the observations of Ewing, Forinash and Schroeer 2005) and the existence of a tolerance threshold for active travel: 80% of elementary students who walk to school cover less than 600 m. Beyond 600 m, more travel by car than by foot.

The practice of active travel varies greatly with the type of school attended, because of the greater geographical dispersion of private schools and special schools⁴. Children who attend regular schools, which are generally located near their homes, are more likely to walk or bike. According to our data, 83% of children who attend a regular Francophone school live less than 1.6 km from school (this being the generally recognized threshold above which a child is entitled to use a school bus), as compared to 45% of children attending special schools and just 29% of children attending private schools.

Our research has thus revealed the impact of changes in the education system on the trend toward greater use of motor vehicles. Home-school distances are growing, a result of changes in urban form as well as demographic changes in recent decades. Schools are differentiating: there are more private and special schools, and attendance at the neighbourhood school is no longer the norm. More and more, parents are choosing an elementary school on the basis of the program offerings, the school's reputation or the child's needs; proximity of the school to home is no longer the sole criterion. This phenomenon of "school shopping" is increasing the number of students from outside a school's catchment area, and as a result the number of students arriving by car is growing.

An elementary student's travel is heavily dependent on parental control. The trip to school is strongly related to how the adults in the family get to work. The children who are most likely to walk to school are those who have at least one parent who walks to work or uses public transit⁵. Also, a great many students are accompanied to school, on foot or otherwise, by an adult. Accompaniment is particularly common when parents and children leave home at the same time. Accompaniment is then almost automatic, particularly since the distance in question is generally quite short and does not require parents to spend a long time or go far out of their way. Accompaniment is a response to parents' assessment of risk. Safety takes pride of place over health. Part of the reason children engage in little active travel is that it may hard to incorporate walking or biking into the logistics of parents' trips. A further reason is that parents may feel that their children will not be safe if they walk or bike.

⁴ Special public schools, unlike regular public schools, have an "educational project", that is, a specific pedagogical approach or a special program of study, or a particular way of organizing the curriculum. In some cases, the "project" applies to only a part of a school.

⁵ A public transit user is of course a pedestrian at both ends of the trip, and sometimes the distance walked is greater than the home-school distance.

Main recommendations

The purpose of the research was not to develop an action program to increase active travel but rather to come to an understanding of why active travel is declining. Nevertheless, our analysis does suggest three sorts of action that could be taken.

First, the education system needs to become a health promoter. It must more clearly act with the health of students in mind. Active travel can contribute to students' health in the broad sense, and it should therefore be encouraged, provided that it can be done safely. This means that the potential for active travel needs to be taken into consideration when opening or closing schools or when making decisions about program offerings.

Second, active travel will not increase unless the walking and biking environment is radically transformed. Our existing urban forms have their risks, and increasing the number of young pedestrians and cyclists will simply increase the risk of accidents unless the urban environment is radically modified. The organization of city space must be rethought to increase children's safety. Making the approaches to a school safe is vital, because this is a symbolically important location frequented by parents and by other drivers. But that is not enough, especially if large numbers of students continue to arrive at school by car or bus. A more radical approach is required. Changes must be made along the entire route children are likely to take to get to school, and this must be done in every neighbourhood. In short, a more comprehensive approach is required that will increase a neighbourhood's walkability for everyone, not just elementary students, if we want to increase the proportion of trips routinely taken by foot. If we want more children to walk, other people will have to walk more.

To increase active travel by elementary students, adults' access to public transit and active travel must increase. Children's travel habits are strongly determined by those of their parents. Encouraging active travel among children requires reducing their parents' dependence on cars. Elementary students are already the biggest practitioners of active travel. We will not succeed in increasing the number of children walking or biking to elementary school if parents persist in using cars or have no other choices.

Third, safety is not just a matter of how space is organized. Along with changes in urban form, there must be changes in the behaviour of drivers, pedestrians and cyclists so as to improve the conditions under which they jointly occupy travel space. This in turn will encourage active travel by children. There is also a need for increased surveillance of compliance with speed limits and the rules of the road, so as to make drivers more careful when they are near young pedestrians and cyclists.

INTRODUCTION

Obesity, as the World Health Organization recently recognized (WHO 2003), has become epidemic. This has multiple consequences for health and it also represents an economic burden on society (Katzmarzyk and Janssen 2004; Starky 2005). There is thus a need to identify ways of increasing the amount of physical activity people engage in, especially children, many of whom are not getting the recommended minimum of 60 minutes a day.

Fewer and fewer elementary school students are walking or biking to school even though the distance from home to school is usually fairly short. This reduction in active travel⁶ can be explained by urban form, and more specifically by reduced densities, scattering of activities across the city (and thus greater distances to travel) and more hurried life styles. In addition, the school a child attends is now determined less by its proximity than by a desire on the part of parents and children to select the public or private school that best meets a child's needs.

Many public health authorities (Kino Québec 2000; WHO Europe 2002) believe that walking or biking between home and school has good potential for increasing the amount of physical activity. However its effectiveness in increasing physical activity over a whole population remains essentially unknown due to a lack of research⁷.

If walking or biking to school is to be promoted, there is first a need to identify the set of factors that affect trips to school. This report describes the results of research on the attitudes, strategies and policies of the various parties involved in home-school trips, with a view to seeing how active travel is currently being helped or hindered and how to get children to do more of it.

The research was carried out by the *Groupe de recherche Ville et mobilité* (research group on mobility in the city), on the basis of an idea of Lucie Lapierre, a researcher at the INSPQ (Quebec institute of public health). This report owes a great deal to the work of Marion Carlier, who wrote up the initial version. The research was done in 2006-2008⁸, as part of a program of concerted action on the development of public policies directed at acquiring and maintaining healthy living habits. The program was initiated by the FQRSC (Quebec fund for research on society and culture), in partnership with the FRSQ (Quebec health research fund) the MSSS (Quebec department of health and social services) and the CPRO (centre for research on obesity prevention).

⁶ Active travel includes all forms of transportation in which the energy is provided by the traveler; the term refers mainly to walking and biking.

⁷ See on this subject www.thecommunityguide.org/PA/PA-INT-POLICY-TRANSPORT-TRAVEL.PDF.

⁸ An ethics certificate was issued by the multi-faculty research committee of the University of Montreal.

Following adoption of section 54 of Quebec's Public Health Act (R.S.Q., chapter S-2.2) in the early 2000s, the partners of the above-mentioned concerted action program identified a need to carry out research on the issues, barriers, strategies and impacts associated with government policies directed at acquiring and maintaining healthy living habits. In this regard, the research reported on here fills a void in our knowledge. Aside from the funding provided by the FQRSC, the research has received financial assistance from the MTQ (Quebec department of transport) and the INSPQ (Quebec institute of public health), organizations which share our concerns. Also, Transport Canada is paying for this English translation of the report.

Our research on active travel by elementary school students will provide food for thought on the question of how to incorporate physical activity into daily life (MSSS 2006). It also testifies to the interest in expanding our thinking about health beyond the public health framework. Finally, it calls on those responsible for health to foster the adoption of suitable public policies. The research reported on here is certainly directed at school officials but it also concerns those who work in the area of land use planning. The decisions made by both groups will have direct impacts on the health of children. The research thus clearly falls within the framework set out in section 54 of the Public Health Act.

A more detailed version of the report will be available in French in January 2009 at www.villeetmobilite.ca, and at the INSPQ site www.inspq.qc.ca. Both these sites will also have this present English translation of the summary version.

1. ACTIVE TRAVEL AND THE TRIP BETWEEN HOME AND SCHOOL

1.1 The decline of active travel

The research started from the observation that we are seeing a decline in active travel as more trips are taken by car. In 1971, some 80% of Canadian children aged 7 and 8 walked to school. In 1998, only slightly more than a third of children aged 5 to 13 walked to school at least half the time (Kino-Québec 2005), and in 2004, barely 14.5% of 6-year-olds walked or biked to school (Desrosiers and Eid, 2007). Today's children take a school bus (sometimes public transit) or go to school by car. This is part of a broader trend toward a more sedentary life style, especially among youth.

Mobility is now mainly provided by the car. As Gabriel Dupuy explains (Dupuy 1999), in our society, cars are no longer a matter of choice; we have become dependent on them. This dependency causes problems, which explains the renewed interest in the past few years in public transit and active travel. The interest arose in the first instance from a concern for efficiency, since public transit and active travel often allow trips to be completed faster, and at a lower cost. They also have public health benefits, because vehicle emissions are reduced while physical activity is increased. Finally, the decline in active travel has a negative effect on children's independence since they then engage less often in the sort of solitary travel that enables them to explore their immediate environment.

Many observers believe that active travel should be fostered among children, especially since many of them are not engaging in the required minimum of daily physical activity. Walking or biking between home and school has the potential to create significant physical activity, with concomitant benefits for health (Kino-Québec 2000).

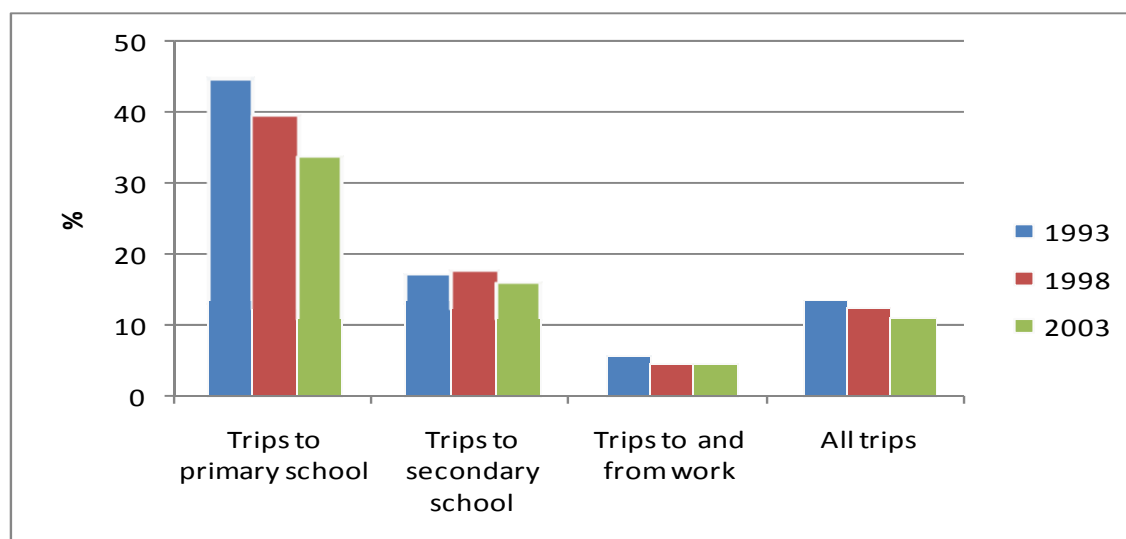
Data from the last three Origin-Destination (O-D) surveys⁹ carried out in the Montreal region (1993, 1998, 2003) do show a decline in active travel, as can be seen on Figure 1. Certainly walking is still a much used method of getting to and from school in the case of elementary students, as compared to other age groups, but it has nonetheless seen a very significant decline in recent years as more students travel by car, school bus or public transit. This trend is rather surprising in view of the fact that the distances traveled are generally quite short, especially for elementary students.

Active travel is in the first instance related to features of the urban environment: the increased dispersion of activities over the city as a whole, and neighbourhoods which are less and less conducive to active travel (Ewing et al. 2003). Three features are seen as essential for a sustainable city that fosters public transit, and hence active travel: the *density* of the built-up area, *diversity* of functions, and user-friendly *design*—the three D's (Cervero 1998; Ewing 2005). Cities have become so well adapted to the requirements of

⁹ See the Web site of the AMT (Montreal metropolitan transportation agency) for a presentation (in French) of the O-D surveys: www.cimtu.qc.ca/enqOD/Index.asp.

cars that these are all too often the only efficient way of getting about. Poor public transit also works against active travel.

Figure 1 – Proportion of trips walked (over one full day), for children traveling to/from elementary and secondary schools, and for people traveling to/from work, Montreal region, 1993-2003



Source: Enquêtes O-D Montréal 1993, 1998 and 2003. Comparable area. Data processing: Sébastien Gagné.

However the urban environment is not the only factor explaining the decline in active travel. In Montreal, the data from the O-D surveys show that active travel has declined even in central neighbourhoods where it was a major means of getting about in the past. The decline in active travel is also due to the transformation of our life styles. People are increasingly rushed, and this works against walking and public transit.

Trips to and from school differ from other trips in that they are compulsory, they involve very short distances, and parents are the ones making the decisions concerning the trips (Ewing 2005). The urban environment does not therefore play the same causal role as it does with trips by adults. An analysis of studies on school travel reveals that three sets of factors have been proposed to explain the lack of interest in active travel: the increasing distance from home to school arising from the restructuring of the school system; fears of parents with respect to traffic; and the travel habits of the parents, who in most cases choose to travel by car.

1.2 Impact of parent-child relationships

Parents exercise control over their children, making decisions about their physical activities and how they travel (Armstrong 1993 ; Lam 2001). Thus parents' perceptions of dangers in the urban environment will inevitably play an important role. While parents may well be concerned about matters of health, they will mainly be concerned about their

children's safety. The problem of home-school travel has to be understood in terms of this conflict between health and safety.

Children's existence is characterized by a lack of control over their environment and their lives (Blakely 1994). Still, children are in a process of becoming independent, in particular during the years when they attend elementary school. During these years, there is a tension between dependence and independence (Kytä 2003 ; Merom, Tudor-Locke et al. 2006). Independence with regard to mobility is essential to the acquisition and development of skills (Davis and Jones 1996; Dixey 1998; Fotel and Thomsen 2003)—what Rissotto and Tonucci (2002) call “environmental competence”. The neighbourhood plays a vital role as a learning place, alongside family and school (Prezza et al. 2005).

The decline of walking means a loss of potential physical activity, even if the trip to school is short. The decline also leads to a slower development of independence, for instead of discovering the neighbourhood on their own, children are increasingly being accompanied by their parents or other adults.

The trip to school and back takes place in a specific institutional context. It is therefore necessary to analyse the strategies and policies that are part of this context, with a view to deploying public health and other actions that will foster active travel between home and school. Our research looked at the attitudes, strategies and policies of the various stakeholders, with special attention to the point of view of parents.

1.3 Methodology

The research had five major steps: a literature review; an analysis of institutional frameworks based on documentation and interviews; an analysis of data from Origin-Destination surveys in Montreal and Trois-Rivières in order to have a measure of the role of walking and biking in elementary students' travel; a survey of parents of elementary students in these two regions; and discussion groups with stakeholders involved in active travel between home and school.

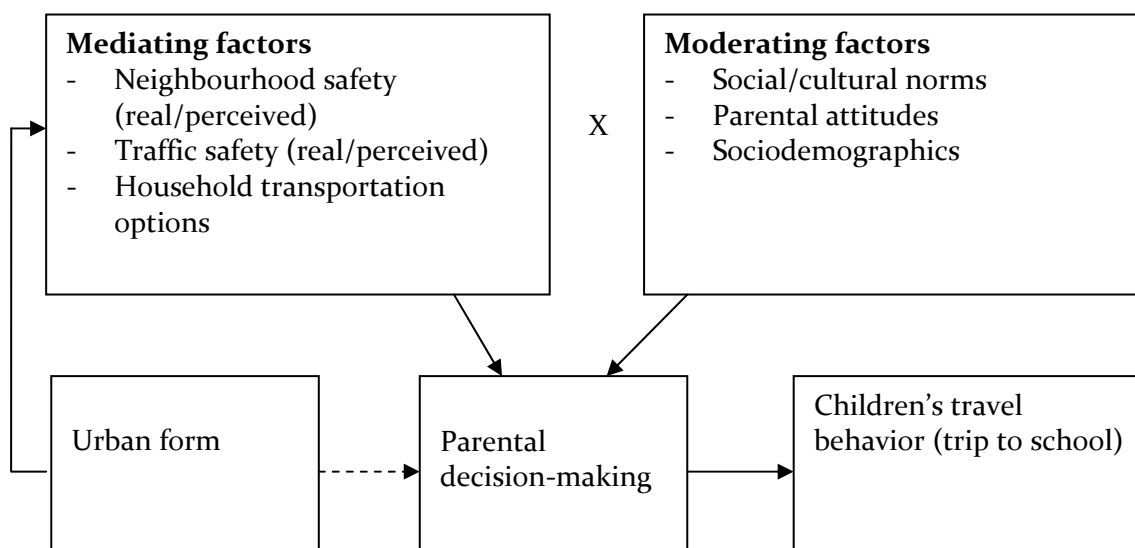
1.3.1 Analytical framework

The research was inspired by the model of Tracy McMillan (McMillan 2005), shown in Figure 2. This is a conceptual model which situates the influence of the urban environment on children's travel through the prism of parental control. According to the model, parents are the central actors. They determine how their children will travel, though of course the children may attempt to influence their parents' choices.

Parents' decisions arise from urban form (neighbourhood design), mediating factors (safety and the household's transportation options) and moderating factors (attitudes and norms). The model needs to be amended to explicitly incorporate the education system, which is an extremely important factor, particularly in Quebec where there is relatively easy access to private schools and ongoing diversification of the public schools. Schools are now chosen less for their proximity to home and more on the basis of parents' desire

to find the school best suited to their children's needs. Our research took a multidimensional approach, with consideration given to all the above factors, in order to best determine how to go about fostering active travel by elementary school students.

Figure 2 – Diagram of the Conceptual Framework of an Elementary-Aged Child's Travel Behaviour



Source: McMillan 2005.

1.3.2 Trips by elementary students in Montreal and Trois-Rivières

Our empirical work concerned two urban areas: Montreal (the largest metropolitan region in Quebec) and Trois-Rivières (a city of average size north of the St. Lawrence)¹⁰. In both cases, we looked at downtown neighbourhoods, the older inner suburbs, and the (usually) newer outlying areas. We surveyed the parents of 1495 students from 67 schools (see Figure 3 for locations). This gave us a picture of the role of active travel and of the factors that have contributed to its decline and might play a role in promoting it.

The factors leading to the decline of active travel are more or less the same everywhere. Much of our analysis is applicable to Quebec generally and indeed to all Western societies, since they have followed a similar path with respect to mobility.

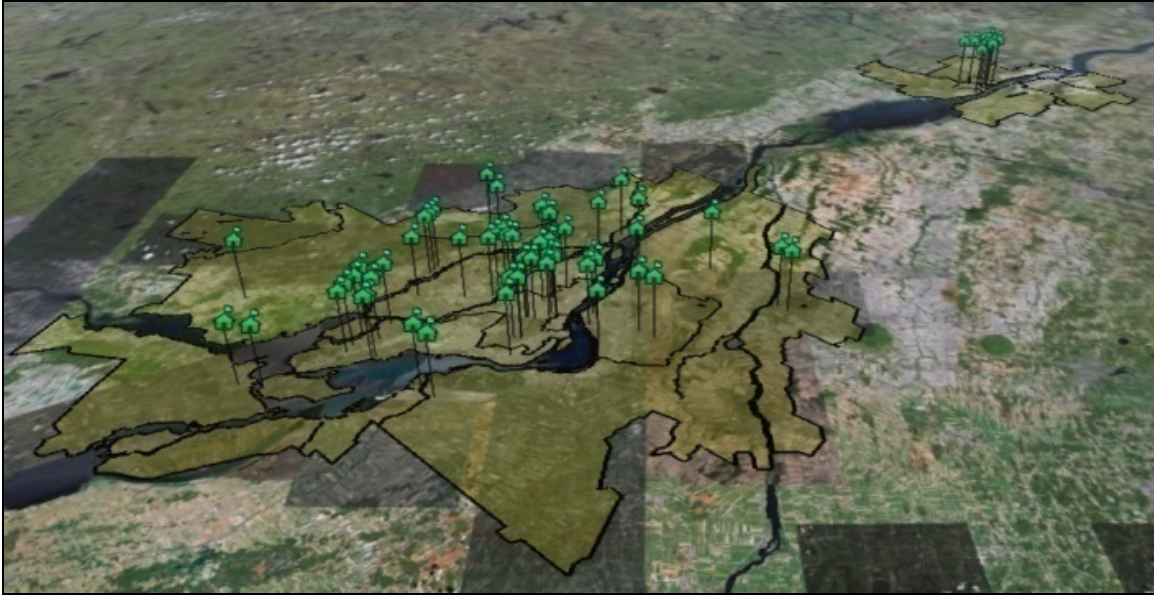
Both the Montreal and the Trois-Rivières regions are institutionally complex¹¹. Both have distinguishing characteristics with respect to urban form, public transit and school systems. As a result, our analyses are only in part transferable. Trois-Rivières is

¹⁰ Originally, we had selected Montreal and Sherbrooke. The latter had devoted considerable attention to the matter of school corridors in the late 1990s (Phaneuf 2003). However the Sherbrooke school board was unable to become involved in our research. We then turned to Trois-Rivières, which is comparable to Sherbrooke in size and urban features.

¹¹ For example, the two regions have nearly 100 municipalities, 5 public health branches and over 15 school boards.

comparable to several other medium-sized Quebec cities: Saguenay, Gatineau, Sherbrooke, even Quebec City. Our results for Trois-Rivières are generally speaking applicable to medium-sized cities across Canada.

Figure 3 – Locations of sample schools in Montreal and Trois-Rivières



Montreal, however, does not resemble any other city in Quebec. Thus some of our analysis applies to Montreal only; it cannot be generalized, except perhaps to other big North American urban areas where the situation may be more or less comparable. Still, the problems seen in Montreal are relevant to all cities: growing pressures from automobile traffic, ever tighter household schedules, and a tendency toward differentiation of schools. Also, the growth of cities and the decline of the rural population suggest a universalization of these trends in the future.

A good portion of Quebec's population live in towns where public transit is not well developed and where it is easy to drive because there is no congestion and plenty of parking, most often free. Here the potential for active travel is limited except for those who live near their schools and workplaces. Since there is little demographic growth, home-to-school distances will clearly be increasing, which will reduce the potential for active travel. Thus solutions that may be applicable in large and medium-sized cities would be less suitable in smaller centres. Still, the question of how street space is shared between cars, cyclists and pedestrians remains a crucial one.

2. ACTIVE TRAVEL BY ELEMENTARY STUDENTS IN MONTREAL AND TROIS-RIVIÈRES

This section sets out the main results of our research, in four parts. First, we discuss the decline in active travel. Next, we look at the potential for active travel. The third section is about parents and mobility. Finally, we discuss active travel as a system of actors.

2.1 Decline in active travel

The decline of active travel among children traveling to and from elementary school is part of a trend toward motorized travel affecting all types of trips in most industrialized and emerging countries. According to the Origin-Destination surveys carried out in the Montreal region between 1974 and 2003, the proportion of non-motorized trips declined from 20.4% to 11.3%—nearly a 50% drop in less than 30 years.

The decline was particularly strong for travel between home and elementary school. In Montreal between 1998 and 2003, walking dropped from 40.5% to 34.2% and biking from 1.8% to 1.2%, while travel to school by car rose from 22.0% to 30.7%. In Trois-Rivières in 2000, walking accounted for 35.9% of home-school travel. The proportion of active travel varied little with the area of residence¹². The great majority of trips to school are now made by public transit, school buses or private vehicles. Still, despite the decline in active travel, elementary school students continue to be the age group that walks the most; they walk more than adults, more even than high school students.

Not only are elementary school children walking less than they used to, but the distances they are walking to school are also growing shorter. Between 1998 and 2003, the average distance walked between home and school in the Montreal region declined from 550 m to 480 m, a drop of 13% in just five years. Figure 4 shows that even for very short distances, walking declined between 1993 and 2003, while car use increased for all distances. In 1993, the line representing car travel moves above the line representing walking at a home-school distance of 1000-1199 m, while in 2003, this happens at 600-799 m, testifying to a major reduction in tolerance for walking.

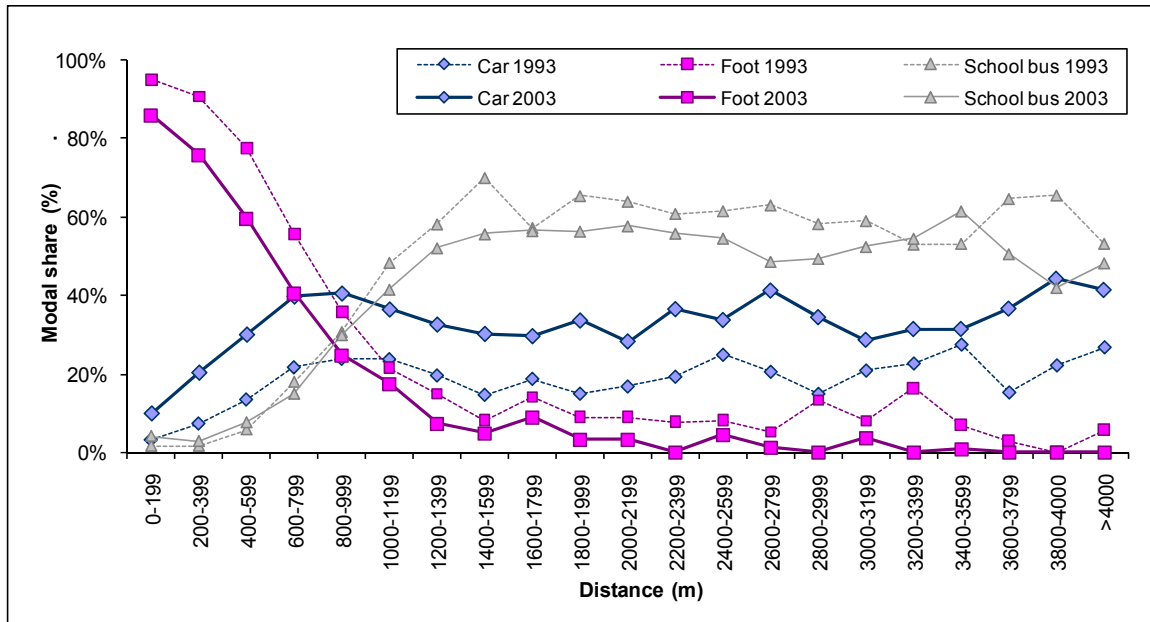
2.2 Potential for active travel

The data from our own survey confirm the results of the O-D surveys. For all the children in Montreal and Trois-Rivières, some 30% regularly walk or bike to school in the morning (see Figure 5¹³). Contrary to what might be expected, winter does not seem to have the dissuasive effect on walking which it has on cycling.

¹² Montreal was divided into eight areas: downtown; central Montreal; east end of Montreal Island; west end of Montreal Island; the near South Shore; Laval; Northern Ring; Southern Ring. Trois-Rivières for its part was treated as a single area corresponding to the part of the region north of the St. Lawrence River.

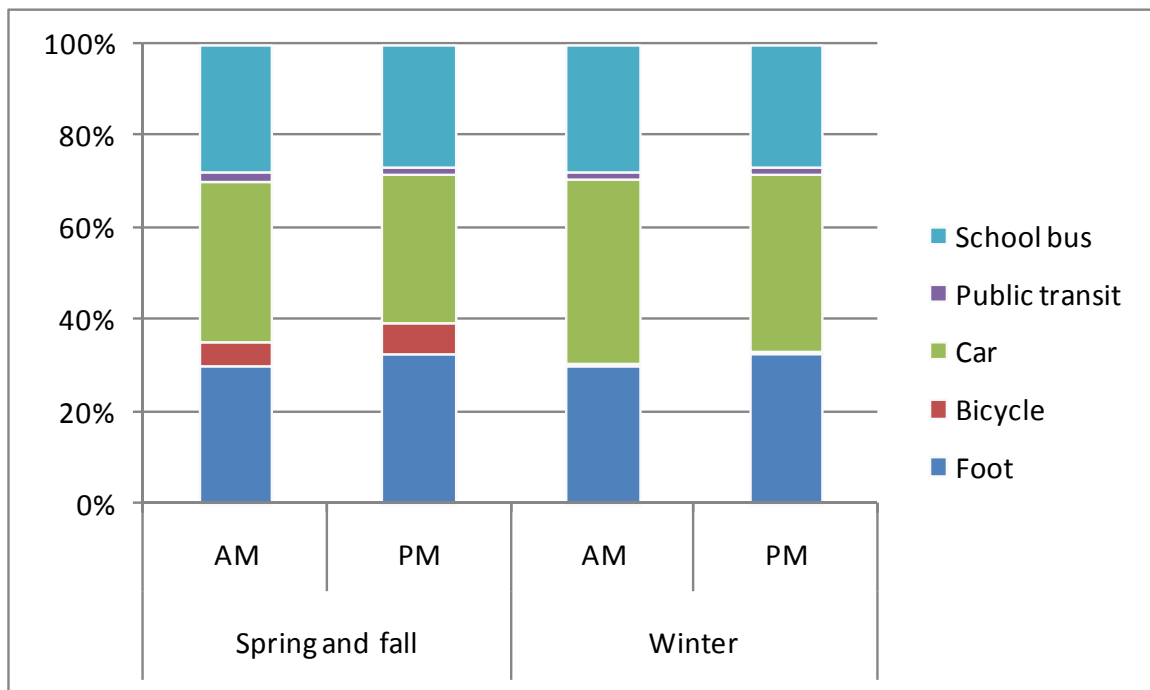
¹³ All of the figures that follow come from our own survey.

Figure 4 – Proportions of travel to elementary school by car, foot and school bus, by home-school distance, Montreal region, 1993 and 2003



Source: Enquêtes O-D Montréal 1993, 1998 and 2003. Comparable area. Data processing: Sébastien Gagné.

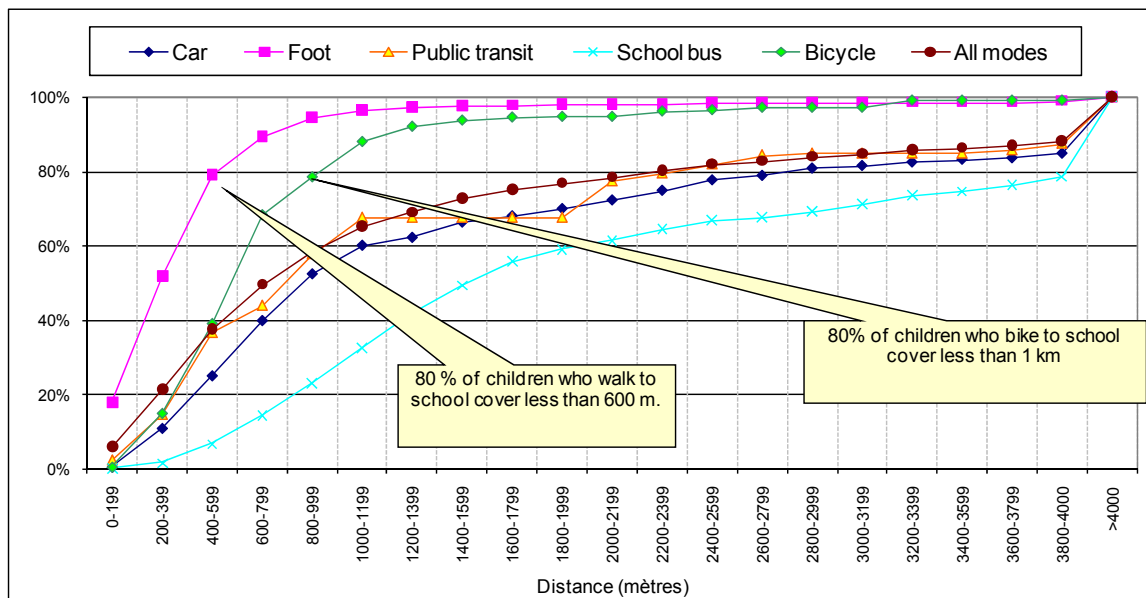
Figure 5 – Proportions of travel to elementary school by mode and by time of day and time of year, Montreal and Trois-Rivières, 2007



Source: Groupe de recherche ville et mobilité, 2007 survey.

The distances covered by children walking or biking to school are generally short: 80% of walkers cover less than 600 m, while 80% of bikers cover less than 1 km (see Figure 6).

Figure 6 – Cumulative proportions of travel to elementary school by mode and by home-school distance, Montreal and Trois-Rivières, 2007



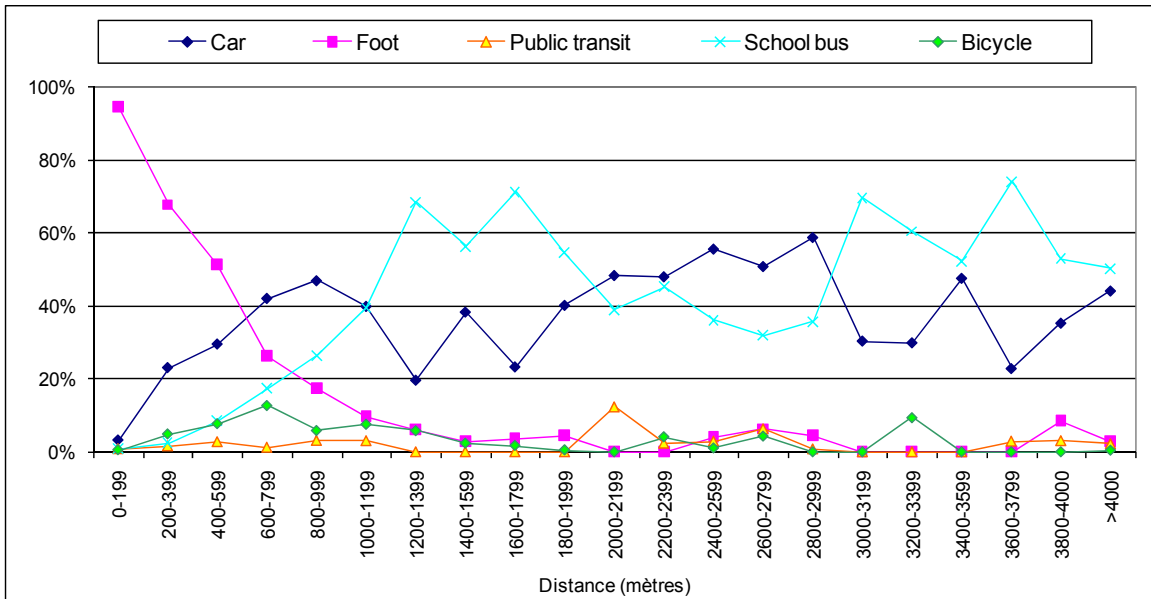
Source: Groupe de recherche ville et mobilité, 2007 survey

Up to 400-599 m, the proportion of travel by foot is greater than the proportion of travel by car; above that distance, the opposite is true (Figure 7). These results suggest that there is a tolerance threshold for active travel to school, at about 1.2 km for biking and about 1 km for walking. Above 1 km, walking is no longer the sole main mode of travel.

The practice of active travel appears to be related mainly to the type of school attended. As can be seen from Figure 8, a higher proportion of children walk or bike to regular schools than to private or special schools.

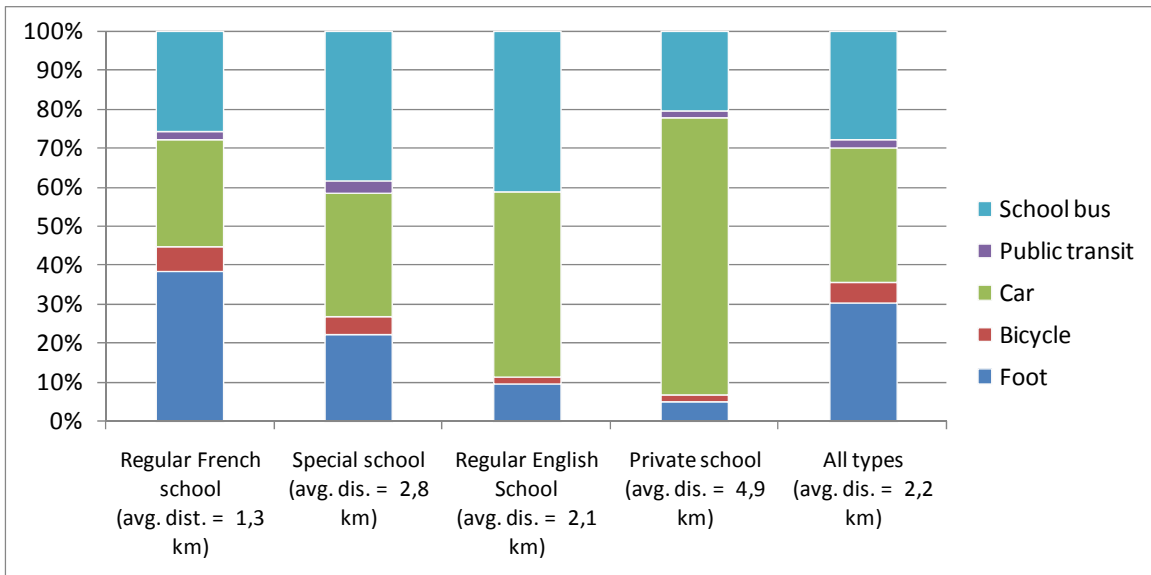
The potential for active travel continues to be significant in that most children attend a nearby school, one that is within walking distance. According to our data, nearly three-quarters of the Montreal and Trois-Rivières students live less than 1.6 km from the school they attend. Also, while the proportion of students who *regularly* walk or bike to school may be low (despite the relatively short distances that are involved in a good many cases), a considerable number of children walk or bike *occasionally*, as is shown on Figure 9. This testifies to a high potential for active travel. These are children who should be the initial targets of efforts to promote active travel, since they have already demonstrated a willingness to walk.

Figure 7 – Proportions of travel to elementary school by mode and by home-school distance, Montreal and Trois-Rivières, 2007



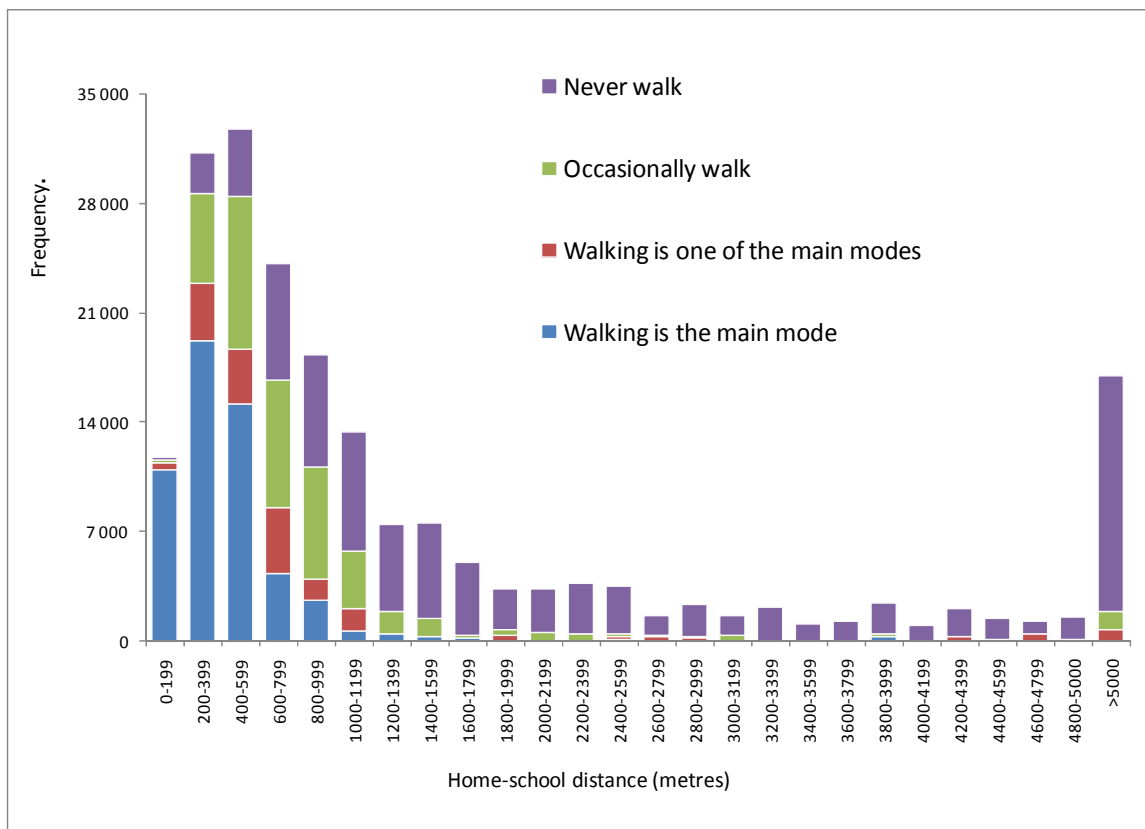
Source: Groupe de recherche ville et mobilité, 2007 survey

Figure 8 – Proportions of travel to elementary school by type of school and by mode, Montreal and Trois-Rivières, 2007



Source: Groupe de recherche ville et mobilité, 2007 survey

Figure 9 – Frequency of walking to elementary school in the morning by home-school distance (except in winter), Montreal and Trois-Rivières, 2007¹⁴



Source: Groupe de recherche ville et mobilité, 2007 survey

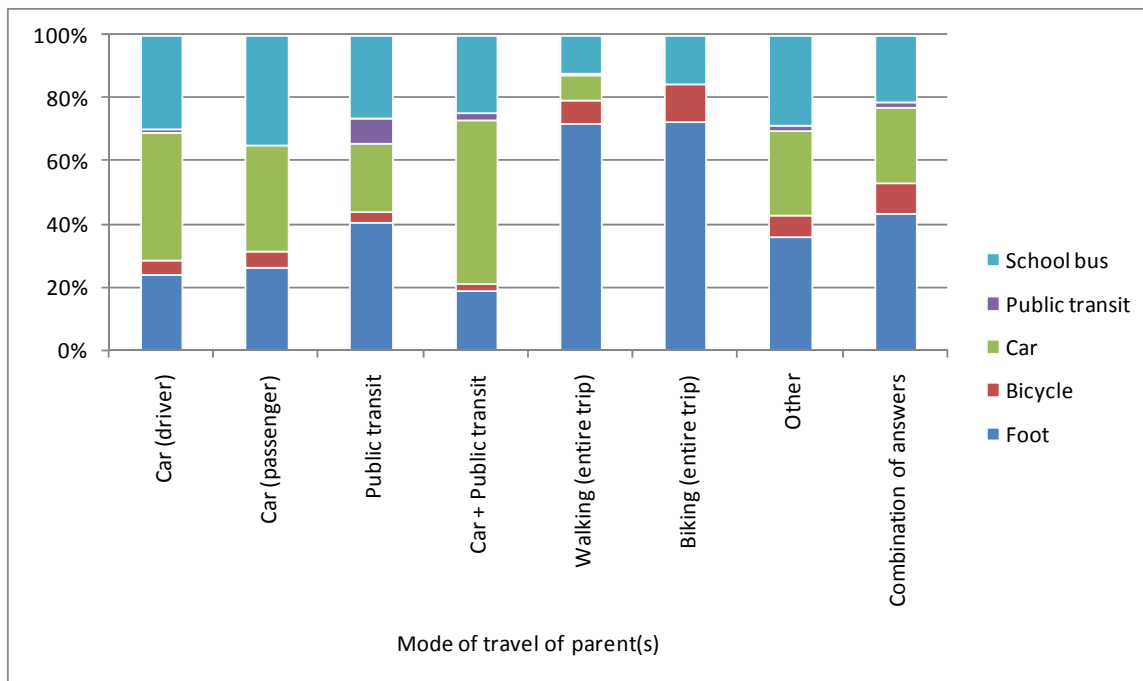
2.3 Parents and mobility

The mobility of an elementary school student is strongly dependent on parental control. Parents play two roles in this respect. First, they are models, passing on to their children certain attitudes and habits about modes of travel. Most parents travel by car and are thus not very good models for walking and cycling, even though most parents walked to school when they themselves were children.

Second, parents decide on how their children will travel. Two observations arise quite clearly from the survey. In the first place, a child's mobility is tied up with how the parents travel to work, as can be seen from Figure 10. The children most likely to walk to school are those with at least one parent who walks or takes transit.

¹⁴ The graph estimates the actual number of children in the Montreal and Trois-Rivières regions by home-school distance and frequency of walking. The estimate is based on data obtained during our survey.

Figure 10 – Mode of travel of elementary school students between home and school, by main mode of travel to work of their parent(s), Montreal and Trois-Rivières, 2007

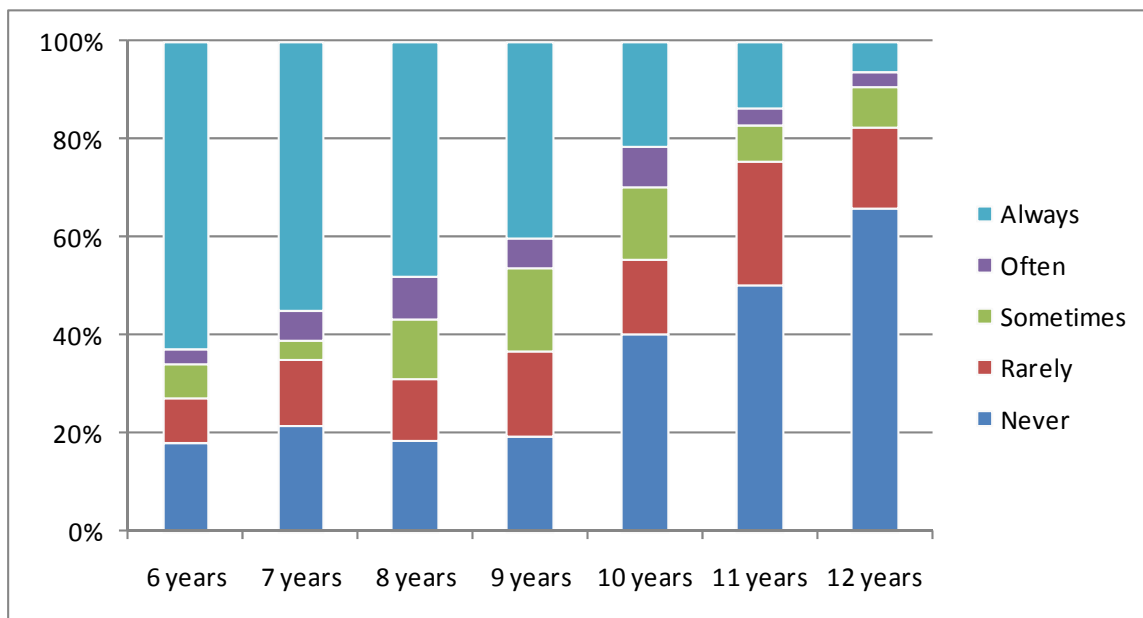


Source: Groupe de recherche ville et mobilité, 2007 survey

In the second place, many children go to school accompanied by an adult, especially when the child is walking. A child's independence is strongly dependent on age (see Figure 11). It is also related to place of residence. Parents are far more concerned with safety on Montreal Island and the near South Shore (Longueuil, i.e. the highly built-up area) than they are in the more suburban parts of Montreal or in Trois-Rivières. Consequently children are more frequently accompanied in those locations. Parents' fears, combined with a limitation on the child's movements alone or with friends within the neighbourhood, may limit the child's exploration of the immediate environment and thus the potential for learning.

With all modes of travel, accompaniment is especially common when parents and children leave home at the same time. Accompaniment is then in a way almost automatic, especially since the distance in question is generally quite short and does not require the parents to spend a long time or go far out of their way. Cars make it easy for parents and their children to travel together, which explains why cars play a determining role in the child's trip to school. The presence of a car in the household makes accompaniment possible, and therefore it reduces the probability that the child will walk or bike. Conversely, when there is no car present, more children will walk or bike to school. According to the data from our survey, two-thirds of children from car-less households walk or bike to school.

Figure 11 – Frequency of accompaniment of elementary students by an adult on the trip from home to school, by age, Montreal and Trois-Rivières, 2007



Source: Groupe de recherche ville et mobilité, 2007 survey

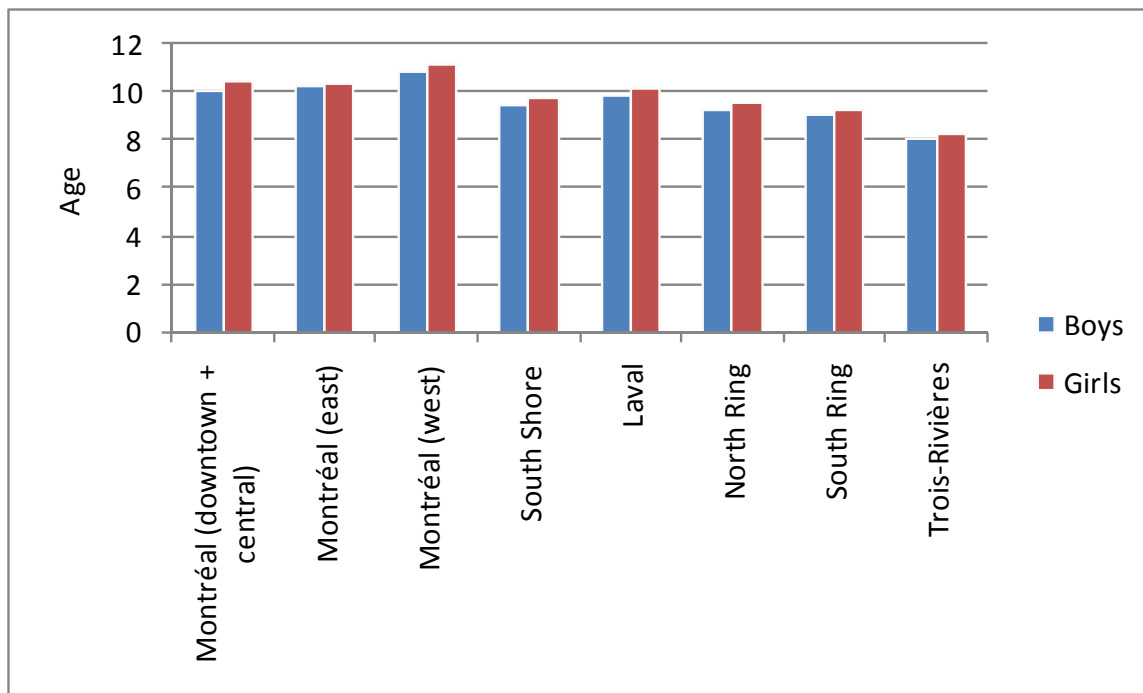
Accompaniment is also a response to parents' assessment of risk. It is interesting to see the age at which parents feel that their children can go to school by themselves. Figure 12 shows that independence in travel comes at about age 10. Aside from the fact that the age is in all cases higher for girls than for boys, it is also higher on Montreal Island (between 10 and 11 years) than in the Montreal suburbs (9 years) or in Trois-Rivières (8 years).

Part of the reason children engage in little active travel is that it may be hard to incorporate walking or biking into the logistics of parents' trips. A further reason is that parents may feel that their children will not be safe if they walk or bike, especially if they do so alone. To minimize risk, many parents will always prefer to drive their children to school, even when the distance is short. This factor creates an essentially irreducible number of car users. But another factor is that parents do not give priority to active travel as compared to other forms of physical activity for their children. Our survey showed that parents take little interest in active travel as compared to other forms of physical activity.

2.4 Active travel as a system of actors

Children walk to school less than they did in the past, and few of them bike either, despite a renewed interest in walking and biking in recent years. However, we need to recognize that walking is less prevalent across society as a whole than it used to be, and that elementary school students are probably the members of society who routinely walk the most (see Figure 1). A number of factors are at work in the decline of active travel among children. Consequently, mere promotion of active travel will not result in it rapidly becoming the main mode of travel for elementary students.

Figure 12 – Age at which elementary students travel alone in their neighbourhoods, by place of residence, Montreal and Trois-Rivières, 2007



Source: Groupe de recherche ville et mobilité, 2007 survey

Active travel has declined rapidly because the urban environment is less and less conducive to it, largely due to the greater (some would say disproportionate) role played in the city by cars. It is clear that the balance between cars on the one hand and active travel/public transit on the other needs rethinking. Priority needs to be given back to pedestrians, cyclists and transit users. And this means a reorganization of urban space.

Institutional factors are also at work, in two ways, as our research shows. First, the education system as a whole is not supportive of active travel. Instead, school buses are seen as the ideal mode of travel, probably because they are an extension of the right to education, and also because they are offered as—and perceived as—a safe way of traveling. Thus school buses have high legitimacy—much more than active travel, which is valued only by actors who are peripheral to the education system and are thus confined to roles as mere promoters of healthy living habits and environmental protection. Actors within the system do not genuinely value active travel. This is true of parents, school boards and school staff, who give pride of place to safety and as a result reject active travel as insufficiently safe. While parents may recognize the importance of physical activity for health—and probably also for children’s development—many of them prefer forms of physical activity other than active travel: activities at school, outdoor sports and games, etc. The debate between health and safety seems to be the determining factor, and too often active travel is downplayed because it is seen as less safe.

Second, changes in the education system are not working in favour of active travel, basically because distances from home to school are gradually increasing. The increase is a consequence of a lower density of children and a deconcentration of residential areas. It is also caused by a process of differentiation of schools. Differentiation has long been present in the form of private schools, and these have been seeing their student numbers grow for many years while the numbers attending public schools decline. In addition, public schools, wishing to maintain their competitiveness with the private sector, are trying to offer an education that is better tailored to children's needs. Thus there are now various types of public school. In addition to general-purpose neighbourhood schools, special schools are being set up by school boards everywhere. Pursuant to Quebec's Education Act, each school is developing its own "educational project". This differentiation of schools does do a better job of tailoring education to what parents and children want, but it has a negative effect on mobility in that it increases the distance from home to school and makes walking or biking difficult or impossible for certain students. Students do not necessarily live within walking distance of the school they attend any more. They no longer automatically attend their neighbourhood school. Instead, a school's performance has become ever more important, reflecting an ideology that is well anchored in society as a whole. People "shop" for a school now, making their selection not on the basis of geographical proximity alone but on the basis of a school's program offerings, its reputation, or the child's needs. It makes little difference whether we approve or not. The fact is that parents are not automatically choosing the nearest school; they are choosing the one they believe to be best suited to their children's needs. As a result, the school can sometimes be reached only by car, school bus or public transit, which limits the potential for active travel.

Thus the overall context within which the education system operates is not conducive to active travel, notably because of the dangers posed by the urban environment. That said, it is the parents who choose the child's school (pursuant to the Education Act). The parents also decide where the family lives, and this determines to a great extent the choice of travel mode for the child. Active travel will be practised only if parents make it a priority and make it the main criterion in selecting a school and a place to live. Aside from the parents' choice of school and place of residence, another requirement is an urban environment that allows active travel to be practised safely. Thus new neighbourhoods should be designed with walking and biking in mind, while existing neighbourhoods need to be redesigned.

3. SOME IDEAS FOR CONSIDERATION

If active travel by elementary school students is to be promoted, and if it is critical to the development of healthy living habits in Quebec, then we must first understand the issues and actors that govern travel to and from school. The chief goal of our study was to identify the obstacles to active travel by elementary students, in order to be in a better position to promote it. Given the central role of parents in decisions about the trip from home to school, our work focussed on the way parents see active travel.

The decline of active travel has many causes. Thus if it is to be encouraged, then a broad strategy will be necessary that covers all aspects of the problem. It will not be sufficient to promote active travel in the schools. It is vital that we understand why active travel is less practised now than it was just a few years ago. If solutions must necessarily deal with all the factors explaining the decline, then all the actors involved must be addressed.

3.1 Encourage children to walk or bike

Active travel is good for health and can thus be seen as a healthy living habit. That is why many people support it, for both children and adults, and that is why every effort must be made to develop it (Agence de la santé et des services sociaux de Montréal 2006). It has great benefits for society and for the students themselves: more and more studies are showing a link between physical activity and improved concentration, which is undeniably important to success at school. Everyone agrees that children are not involved in enough physical activity to enjoy all the potential health benefits. Active travel to and from school could thus serve as an addition to their existing recreational physical activities.

Many people think that when it comes to long-term strategies, the focus must be on children, because healthy habits are learned when young (Kino-Québec 2005). If we want adults to walk, then children must acquire the habit of walking. But that is not enough. Many of today's parents used to walk to school when they were children, but now they rarely walk even though they recognize the benefits of so doing.

Elementary school students are probably the members of society who are most engaged in active travel, but the fact that they walk or bike is something which their parents have decided. As a result, the children themselves should probably not be the prime focus of our efforts. As for the parents, they tend to be sedentary, and also pressed for time. Many of them seem to find it hard to incorporate walking into their daily lives, and as a result they have progressively abandoned walking as a mode of travel. In this situation, it would seem unlikely that active travel can be increased much among elementary students unless the parents are persuaded of its importance for achieving the recommended amount of physical activity and for becoming independent, and unless they agree to allow their children to walk to school, whether alone or accompanied.

The practice of active travel cannot be increased unless its safety is increased, for we would then simply be increasing the risk that children will be involved in accidents. This would certainly not be acceptable at a time when traffic in neighbourhoods is increasing. Thus if we want to foster travel by foot or bike, we must enhance the status of pedestrians and cyclists in our cities. Since the end of the Second World War, the city has been adapted to the car. Now we need to adapt it to pedestrians and cyclists, though without denying cars a role.

Thus our city planning practices need to be renewed. We must take another look at how we build our cities if we want active travel to be possible, and safe. At the same time, if we want active travel to become not just a wish but a reality, then the issue of how students travel needs to be integrated into our thinking about how the education system is developing. Also, public transit needs to be fostered. The use of cars for the trip to school is directly related to households' dependency on the car, and this can only be reduced by improving public transit.

3.2 The central role of parents

Parents play a central role in their children's mobility: they determine how the children will travel, and they serve as models. Now, even though parents recognize the benefits of active travel, they do little to encourage it, mainly because they are more concerned about safety than about health, and in this regard, they do not see walking or biking as acceptable solutions either for themselves or for their children. Also, it will be difficult to get elementary school children to walk more if their parents rarely walk. Thus increasing active travel will require a profound change in the habits of society as a whole with respect to mobility. To encourage such behavioural changes, action must be taken in the areas of urban planning and safety.

Whether children walk and bike depends on numerous factors, and notably how their parents see these activities. If, among the various ways of being physically active, parents do not value active travel, it will be very unlikely that children will walk or bike. In particular, they will probably not walk or bike to school because the trip to school is constrained by lack of time and complicated schedules. At the same time, we need to recognize that another factor affecting the potential for active travel is the environment within which trips take place.

If active travel is to increase among elementary students, it must increase among adults, especially parents, for children's' travel habits are strongly determined by those of their parents. Encouraging active travel among children requires reducing their parents' dependence on cars. Elementary students are already the biggest practitioners of active travel; they walk and bike more than high school students and more than their parents. We will not succeed in increasing the number of children walking or biking to elementary school if parents persist in using cars or have no other choices.

Our research has shown us that the overall context of urbanization and of developments in the education system is not conducive to the practice of active travel, the main reasons being increased traffic and the diversification of elementary schools. That said, parents are the ones with the power to choose their children's school. Students will not walk or bike to school unless their parents make it a priority and make active travel the main criterion in choosing a school and a place of residence.

Active travel is valuable both as physical activity and as an opportunity for the child to learn about the urban environment. That is why there must be more of it. However if this is to happen, the environment must be a safe one. Parents worry about their children, and in view of the dangers the city poses for pedestrians and cyclists, they are often right to worry. Action must be taken by those involved, including parents, to ensure a safe trip to school. In particular, parents need to be proactive and demand safe environments, both near the school and in the city generally.

3.3 Responsibilities of public authorities

Parents cannot promote active travel by themselves. Public officials and community groups have a vital role to play. Active travel requires an environment in which it is safe for children to walk or bike. However, active travel is not a priority for institutional actors because many of them, especially school officials, see it as unsafe. Thus both the education system and the urban planning system are constraining active travel.

Active travel is not the responsibility of some single group or agency. It is the joint responsibility of a number of stakeholders. If it is to be encouraged, educational and municipal officials must create a framework that will allow for safe walking and cycling, such as can be found elsewhere in the world. They must incorporate the issue of active travel into the education system's development process and into the public space planning process, so that walking and biking become possibilities.

The education system needs to become a primary promoter of health. It must more clearly act with the health of students in mind. A broader view of student travel is needed. It must not be seen solely in terms of school buses. Active travel must be incorporated into the process for making decisions on the education system and on school programs. As is pointed out by Ewing, Forinash and Schroeer (2005), the choice of a location for a school is not just an educational matter, for it affects land-use planning in general, urban form, travel patterns and, by extension, public health.

To enhance children's safety, urban space planning practices need to be reviewed. The urban environment has been thoroughly transformed, through sprawl and in particular through the re-organization of activities within urban space in a way that fosters car use. As a result, Quebeckers are increasingly dependent on cars, as described by Dupuy (2006). The car has become the main means of transportation, to the detriment of public transit and active travel. Car dependence also means increased traffic in neighbourhoods, which in turn leads to less walking because parents see it as unsafe, especially for young children.

The Montreal O-D survey shows that the number of cars on the city's roads has increased considerably in recent years. In 1987, the survey found 1.205 million cars in the Montreal area. In 2003, there were 1.650 million cars in the same geographical area, which represents an increase of nearly 37%, whereas during the same period, the population increased by only 13%.

The increase in traffic is especially great in the neighbourhoods of the central part of Montreal Island, where a large proportion of trips in the metropolitan area are still concentrated. If we want to promote safe active travel, it is necessary to rethink the planning of city space. This is particularly the case at the metropolitan level, where planning clearly favours the car: the size of the built-up area has increased considerably, often with very low densities, and this means longer trips. Our urbanization models need a fresh look. There is also a problem at the neighbourhood level, where space must be created for pedestrians and cyclists, who are now given little space because the easy flow of automobile traffic is given priority. The balance between cars on the one hand and public transit/active travel on the other needs to be redefined to the benefit of those who use modes of travel other than the car.

Planning measures should not be concerned solely with the area near the school, even if this is a symbolically important location frequented both by parents and other drivers. Measures should also be directed at the entirety of the routes children are likely to take to reach their school. In other words, the measures taken must deal with entire neighbourhoods, not just a few intersections near schools. Making the latter locations safe will not increase the safety of walkers, especially if more and more children are going to school by car. While it may be necessary to pay special attention to the area near the school, because of the large numbers of children present there, it remains that the entirety of the route needs to be safe. And this really means that the whole urban area must be safe for walkers, because children are to be found everywhere. The city as a whole must be rethought in terms of the needs of pedestrians and cyclists, young and old. Finally, planning of urban space is not the only consideration. There is in addition a need for increased surveillance of compliance with speed limits and the rules of the road, so as to make drivers more careful when they are near young pedestrians and cyclists.

Health officials must also get involved, as part of the fight against a sedentary life style and obesity among the young (and the not so young). Actions may need to be retargeted in view of the fact that parents—the main factor in increasing active travel by children—do not themselves walk or cycle a great deal. There is also a need to look at cities of varying sizes when it comes to promoting safe, active travel and improving surveillance.

CONCLUSION

Only a brief overview of the results of our research has been given here. By way of conclusion, three points should be emphasized.

First, there is no clear difference between downtown and suburbs when it comes to mobility between home and school, unlike the case with adult travel. The decline in walking and biking affects all residential areas. In certain suburbs, the proportion of students walking to school is as high as it is in central neighbourhoods. This is probably a result of a built environment that is more conducive to walking, along with reasonable home-to-school distances. More detailed, school-by-school research is needed to gain a better understanding of the situation¹⁵.

Second, parents are the central actors when it comes to travel by elementary school students. They serve as models and they make the decisions. The practice of active travel is determined not so much by the features of the environment as by parents' perceptions of it, and what that means for their own trips. If children are to walk or bike, parents have to pass on to them a positive image of walking and biking. However parents are not very persuasive models in this regard, because they mostly travel by car despite the fact that when they themselves were young, most of them walked to school. Because parents drive, they create in the minds of their children an image of the car as the normal way of getting about, even over short distances. Parents often see walking and biking as not very safe or quite simply unsafe, in part because there is more traffic than there was twenty or thirty years ago. In addition, cars are valued because they seem more efficient to parents who are pressed for time. In the morning, children mostly leave home at the same time as their parents, so driving them to school is the easiest way. In the afternoon, schools have adapted to parents' schedules by looking after the children until the parents arrive to drive them home. The car is the best way of synchronizing the movements of the various members of the family.

Third, despite all the problems, there is a good potential for active travel because elementary schools are generally located within walking distance of home. We found that a high proportion of these students walk in their neighbourhoods at least occasionally. This occasional practice of active travel is an indicator of potential for more, or at any rate, it means that these occasional walkers are a priority target for a strategy to increase active travel. Those who do not currently walk at all will be harder to persuade, even when the distance to school is short.

¹⁵ One of the members of the research group is writing a paper based on a detailed analysis of behaviour near six elementary schools.

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¹⁶ An exhaustive bibliography will be found at our Web site (www.villeetmobilite.ca). It will be included in the full version of this report.

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