

Skating: An Emerging Mode of Transportation

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Abstract

This paper is about street skating, also known as skating for transportation. Urbanization, the spread of pavement, and major advances in skate design now make it possible to skate for many purposes beyond recreation. The number of skaters has increased rapidly in the past decade and the trend is likely to continue, with more and more people skating to run errands and get around town. As the number of skaters grows, injuries and deaths are expected to rise further and the safety of skaters will become a more central issue for transportation planners and the public at large.

Inline skating is still a relatively new phenomenon -- rarely considered when designing streets, sidewalks, and multi-use trails. Rather than ignoring skaters or considering skates as toys and designing facilities to discourage novice skaters, progressive planners are urged to consider skates as a possible link in an intermodal transportation system. On the feet of a veteran street skater, inline skates can serve as an effective 8-wheeled vehicle, useful for getting around town and even commuting to work or school. Inline skates can and do fill a transportation niche for certain people in some cities. As future roadway facilities are built, considering the needs of inline skaters will become more important. Smooth pavement and flat terrain help, but cobblestone, sand, train tracks, and street debris make skating difficult. Special attention to pedestrian bridge crossings, ramps, and grates could be beneficial.

Keywords: street skating, transportation planning, intermodal

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From Recreation to Transportation

Although roller skates have been around since 1770 (Trap 1980), it was not until the development of modern inline skates in 1980 (Rollerblade 1999), that skates started to be used for transportation. Unlike the bicycle, invented in 1863 and immediately seen as a new mode of transportation, roller skates remained largely recreational for over two hundred years. Bicycles can be ridden on rough dirt paths, but skates require a fairly smooth surface. Pavement was rare and skating was done mainly at skating rinks, and occasionally in a ballet or tavern (Trap 1980).

Not long ago a college student who skated to class might have been considered unusual, even eccentric. Today, however, many teens and young adults skate to school or college and use skates to travel in urban areas. This paper is about street skating, or skating for transportation; street skating is defined “in the literal sense; i.e., getting about town on one’s skates. It does not refer to curb grinding and stair bashing” (Skatecity 1999).

Innovations in skate technology have made skating easier to learn, more comfortable, and more efficient. Skates have changed a great deal in the second half of the 20th century. Shiny aluminum strap-on skates with metal wheels have evolved into sleek city-skates with high-grade ball bearings and polyurethane wheels. Clip-on skates (Figure 1), all-terrain skates, and better braking systems could broaden the skate market even further.

Figure 1



Once used primarily at the roller rink or in the driveway, now skates are used on city sidewalks and streets. Commuters can be seen skating -- women skating to work in skirts, men in shirts and ties carrying briefcases and even skaters with large musical instruments. With young people now growing up on inline skates, and with more veteran adult skaters, the numbers of competent, controlled skaters is rising. For instance, rather than take a taxi, a friend recently insisted

on skating to the airport from downtown Washington, D.C., pulling his carry-on baggage for the 4.7-mile trip (Figure 2).

Figure 2



Not surprisingly, Rollerblade™ is now marketing skates as a new form of transportation: “Rollerblade™ skates have become a legitimate form of transportation on college campuses and city streets. There are skating students, skating doctors, skating priests, skating skiers, skating grandmothers, and skating rock stars” (Rollerblade 1999).

Despite the near-stampede toward inline skating, transportation practitioners have not paid attention to this trend. For instance, a text search of the Transportation Review Board (TRB) 1999 Annual meeting disk revealed that skates were mentioned only twice (very briefly) in 913 documents (TRB 1999). A text search of the TRB 1998 meeting disk revealed that skates were not mentioned at all in the 801 documents that year (TRB 1998). Similarly, of 172,556 articles in English on the OECD Transport CD-ROM, only two articles were on skates -- one on skate helmets and the other on skating as an emerging form of transportation in Canada (OECD 1988-1998). Additionally, a reliable source at one of the leading transportation journals (Transportation Quarterly) says that no skating articles have appeared in that journal (Dunleavy 1999).

Skates are not expected to replace motor vehicles or bicycles any time soon. However, skating is becoming more common and it appears to be an emerging form of transportation (Allingham and Mackay 1997; Callé 1994; Ellis et al. 1995; Osberg et al. 1998; Seldes et al. 1999).

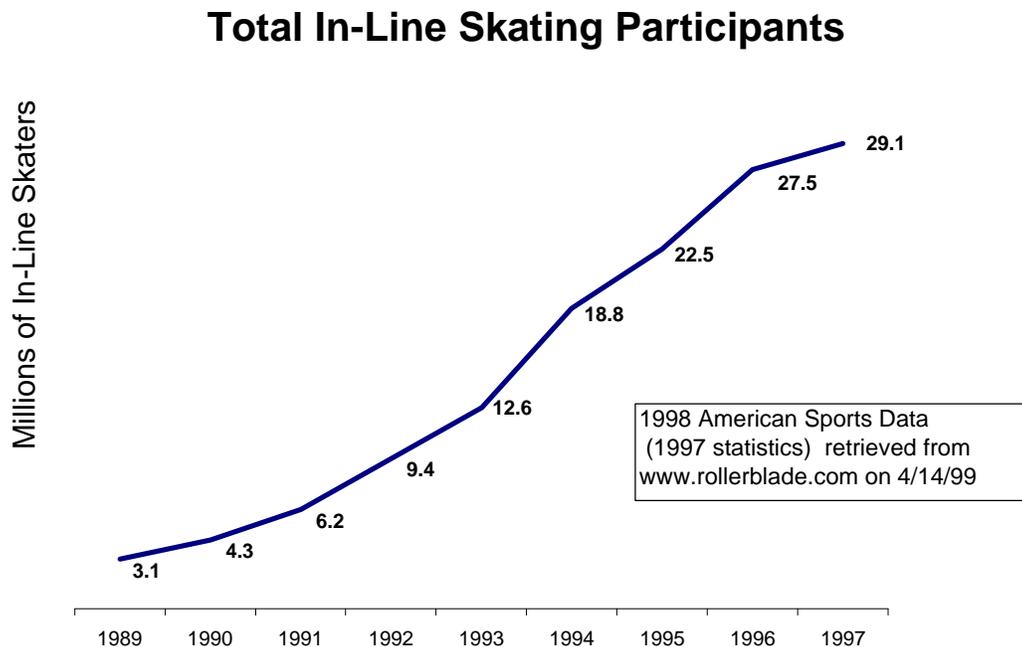
It is clear from the responses received through the survey that in-line skating is considered to be a viable and valid mode of transportation and that it is not just a recreational activity or fad (Allingham and Mackay 1997, p. 40).

Future generations of transportation professionals will need to understand skating and plan for its inclusion in the transportation infrastructure.

Data on Growth of Skating

According to American Sports Data, Inc. (1998), "inline-skating is the fastest growing sport in the country." Figure 3 shows their estimates of the number of people skating over time. From 1989 to 1997, a period of 8 years, the number of inline skating participants grew from 3.1 to 29.1 million, nearly a tenfold increase. These data were reported on the Rollerblade™ Web site and the definition of participants is not specified.

Figure 3



Many studies of skating injuries are based on National Electronic Injury Surveillance System (NEISS) data, which is maintained by the Consumer Product Safety Commission (NEISS 1996). Figure 4 shows NEISS data on the number of inline skating injuries from 1992 to 1997. There is almost a tenfold increase in injuries, from 10,825 to 99,550, then injuries plateau beginning in 1995 (NEISS 1997).

Figure 4

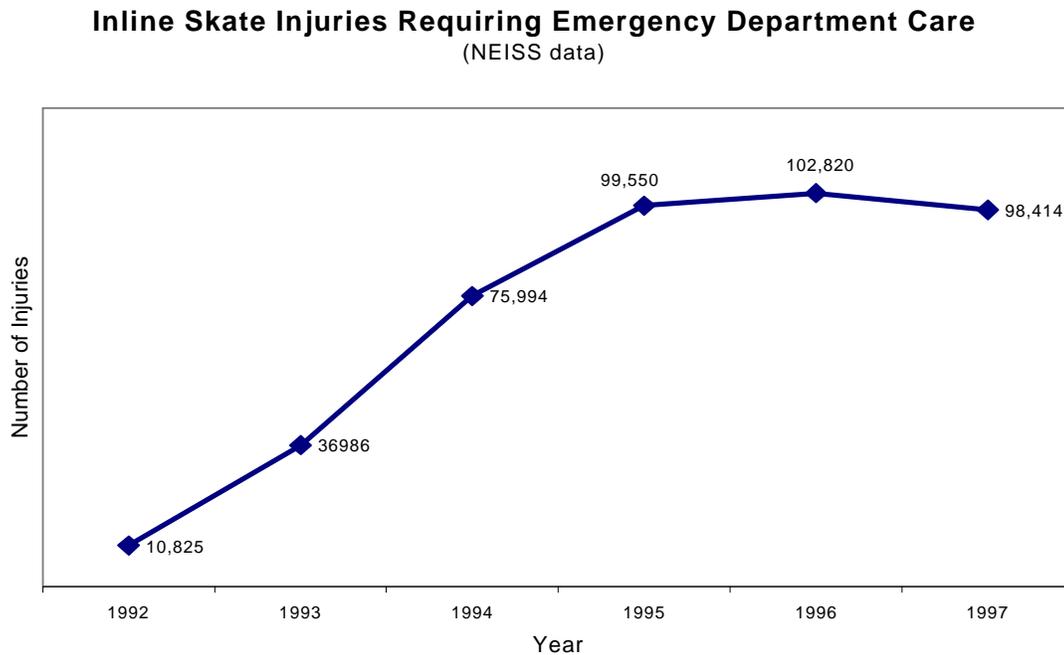
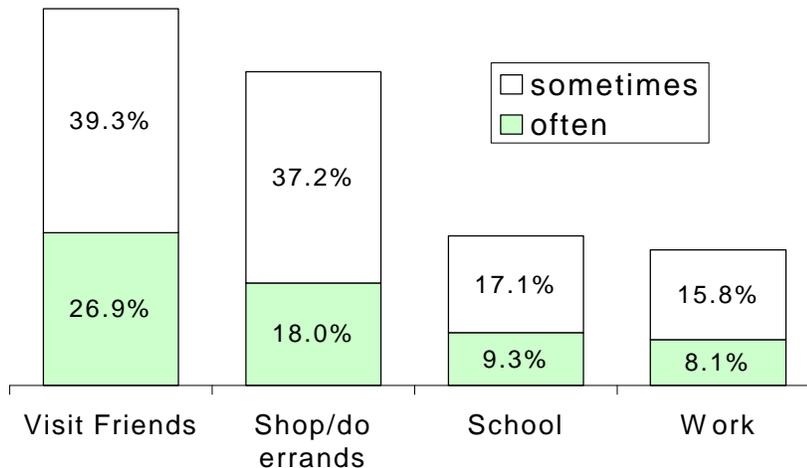


Figure 5 shows some of the transportation purposes for which respondents used skates. These results are based on a convenience sample of 339 Internet travelers who visited the first author's Web site and were sufficiently interested in skating to spend time filling out an online survey.¹ Four questions asked how often respondents skated to visit friends, shop, go to school, and go to work – all examples of street skating. The figure shows the percentage saying they engage in the activity "sometimes" or "often." For instance, 39.3% said they skate to visit friends sometimes and another 26.9% said they skate to visit friends often. The fourth bar shows that 15.8% said they skate to work sometimes and 8.1% said they do so often. These online respondents to a skate survey were probably greater skate aficionados than the average skater, but their responses do suggest an emerging trend toward more skating for transportation.

Figure 5

Skating as Transportation (N=339)



Barriers to Street Skating

Along with geographic and climatic barriers to street skating, there are also human-made barriers. The potential of being injured, skate bans, and skate-unfriendly facilities are discussed next.

Potential Injuries

The potential for injury is one barrier to wider use of skates for transportation. Street skating is generally perceived as dangerous (Allingham and MacKay 1997) and skating injuries and deaths are frequently reported in the press (Orlando Sentinel 1999, Grad 1996) and in medical journals (Jaffe, Kijkers, Zametis 1997; Schieber et al. 1994). Because skate deaths occur infrequently and because skaters are generally young and healthy, single skate-related deaths often get more media exposure than other traffic fatalities. For instance, the hit-and-run death of an American University student was widely publicized by the local media in the Washington DC area (Fernandez and Strauss 1999).

Although skating safety is an important topic for trauma experts and the media, the lack of attention among transportation professionals is not too surprising. With 35,693 motor vehicle deaths in 1997, 5,307 pedestrian fatalities, and 813 pedal cyclist fatalities (Traffic Safety Facts 1997), the deaths of 25 inline skaters in a 3-year period ending in June 1995 (Jaffe et al. 1997) does not attract much attention from transportation planners.

However, in 1997 alone, all types of skating and skateboarding resulted in about 250,000 injuries requiring emergency department care (NEISS Data Highlights 1998), clearly a considerable cost in health care dollars, and a deterrent to growth of the sport. Viewed from the perspective of injuries rather than fatalities, skating is a much larger problem.

Skate Bans

Bans against skating are another barrier faced by inline skaters. Fear of litigation (Grad 1999) concerns over skaters defacing public property, and safety concerns have led to many local ordinances banning skating on sidewalks and/or streets. There are currently a number of lawsuits against municipalities alleged to have poorly designed or maintained facilities that resulted in skater injuries (Grad 1999).

The International Inline Skating Association lists "17 places where inline skating is either explicitly banned or where existing ordinances are enforced" but acknowledges that there are many more (Cooper 1999). Pittsburgh's ordinance states that "no person shall be permitted to ride a skateboard, roller skates, scooter or bicycle on the sidewalks of any business district within the city" (Three Rivers In-line Club 1999, ord. 20-1998).

Other municipalities give skaters the same rights and responsibilities as bicyclists. For instance, in The Dalles, Oregon skating is defined as transportation. "Any person who uses rollerskates or in-line skates to travel upon a public way or street, or upon a sidewalk, shall comply with the rules and regulations for the operation of bicycles..." (ORS S14.410 to S14.440). Another alternative is to define inline skating as an "assisted pedestrian activity" (Allingham and MacKay 1997).

Local politicians and transportation planners tend to consider skates as toys or specialized exercise equipment, if they consider them at all. For example, the ordinance in Arlington, Virginia reads "No person shall use roller skates, skateboards, toys, on highways where play is prohibited" (Code 1950, s 46.2-932). In towns where skating is defined as play or recreation, it tends to be more regulated, and even seasoned street skaters are grouped with toddlers on big wheels.

Skate-Unfriendly Facilities

Inline skating is a relatively new phenomenon that was not considered when building many of the existing streets, sidewalks, and multi-use trails. Many facilities, such as ramps, were built for pedestrians, bicyclists, baby carriages, and wheelchairs, but not skaters. Moreover, most new facilities are still designed without considering the impact on skaters.

Figure 6 shows a 1980s-vintage ramp on the Esplanade in Boston, Massachusetts. With the rapid growth of inline skating, skaters now share this ramp with pedestrians and cyclists. However, novice and intermediate skaters have different needs from cyclists and pedestrians (Allingham and MacKay 1997). Unlike other users, who are generally in control, novice inline skaters have great difficulty turning or stopping quickly, especially when going down hill.

Figure 6



Figure 7 shows the poorly designed bottom of this ramp that terminates perpendicular to what is often a busy multipurpose trail. There is no flat space at the bottom of the ramp to allow skaters to slow down or stop before merging with speeding cyclists and skaters. Not surprisingly, extensive observation indicates that skate-related crashes and near misses are common at this location.

Figure 7



Some facilities that are built for other transportation users (motorists, pedestrians, etc.) are purposely built to discourage skaters. This is sometimes done in urban tourist areas and shopping districts, often by using cobblestone or other rough pavements. Cycling is less comfortable and inline skating can be nearly impossible. However, many of the physical obstacles confronted by street skaters exist because of ignorance, not ill intentions. Street skating is still new, and urban planners have not considered skaters' needs.

Factors Conducive to Street Skating

Innovations in skate technology have made it possible for skaters to engage in activities beyond recreation and exercise. Even basic skates now have high-grade ball bearings, polyurethane wheels, and form-fitting boots; these improvements reduce vibration considerably over the strap-on metal skates of yesteryear. Velcro and clip-on skates make donning and doffing skates quicker. All-terrain skates and improved braking systems could broaden the skate market even further.

Urbanization and the spread of pavement lend themselves to skating for all purposes, including transportation. Continued escalation in the numbers of street skaters seems likely in certain urban landscapes. For instance, according to The New York City Inline Skating Guide, "despite their variable condition, the streets of Manhattan almost seem designed for skating. There certainly seem to be a lot of people in this town who use Rollerblades for basic transportation" (Skatecity 1999). Along with New York, other big cities for street skating include Minneapolis, San Francisco, Boston, Chicago, Washington, and Philadelphia.

Highway congestion and pollution hasten the drive toward alternative transportation modes. Compared to 208 million in 1997, in 1970 there were an estimated 108 million vehicles on the road (FHWA 1999). As urban population grows and congestion increases, even bicycling can become difficult. For instance, oil shortages in the 1990s led the Cuban government to encourage more bicycling, but “with virtually no bike culture or infrastructure to speak of prior to 1990, the streets became a chaotic mess as new riders followed their own rules...” (BicycleUSA May/June 1999). In Japan, “the demand for bicycle parking in station squares outstripped designated capacity. With low bicycle theft rates, people began crowding their bicycles into any open space near stations, leading to what the authorities branded *bicycle pollution*” (FHWA Case Study No. 17 p. 22). In The Netherlands, one of the most densely populated countries in the world, traveling by bicycle is orderly and efficient. However, due to the sheer volume of bicycles, locating a secure place to lock a bicycle and finding it later can be difficult.

Today, many children learn to skate at an early age, often by skating with parents, friends, or siblings. With further technological advances, future generations are likely to skate even earlier. Already some young skaters seem to be born on wheels, making it easy to imagine a future generation of skaters that are too impatient to walk and too independent to take mass transit. Like the baby boomer bicyclists today, the next generation of skaters are likely to demand skate-friendly streets, sidewalks, and public facilities.

Conclusion

Local governments may be tempted to group all skaters and skateboarders together -- resisting change and discouraging skating. After all, skaters are often perceived as dangerous and out-of-control, injuring themselves and scaring or injuring vulnerable pedestrians (Allingham and MacKay 1997).

However, inline skates can fill a transportation niche for certain people in some cities (Seldes et al. 1999). Cities with young singles and childless couples are ripe for skating as transportation. As the number of skaters grows, injuries and deaths are expected to rise further (Callé and Eaton 1993; Callé 1994; Osberg et al. 1998). With skate-related litigation and legislation on the increase, it seems inevitable that the safety of skaters will become a more central issue for transportation experts.

Rather than designing streetscapes that discourage skating, progressive planners are urged to consider the possibilities for intermodalism. This will require a change in attitude along with some adaptations to urban landscapes. The large majority of urban streets and sidewalks are passable on skates, but that does not mean they are comfortable or safe. Designing facilities with the needs of skaters in mind, retrofitting existing roadways with bicycle/skate lanes, and highlighting dangerous areas will help skaters co-exist with users of other transportation modes (Allingham and MacKay 1997). In some areas, prohibitions may be necessary to protect skaters and/or other travelers. Wider use of skate-friendly surfaces near mass transit stations and adding benches where skaters can remove their equipment prior to boarding are additional ways to encourage skating as an alternate or complementary form of transportation.

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¹ A 28-item survey took about 15 minutes to complete. The bicycle and inline skating safety data collection Web site (Bikes 'n' Blades: The Safety Scene) was launched on April 1, 1997. The full methods and results of the study are available at <http://pages.prodigy.net/sosberg/surveyres.htm>. The online skate survey asks about frequency of certain skating activities, experience level, skate-related injuries and treatment, and use of protective gear.