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## Children's independent mobility in urban, small town, and rural environments

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### Introduction

Children's environment is not restricted to home, home yard or playground: the whole neighbourhood acts as a stage, that either affords or restricts children's activities and development. Children are actually among the largest consumers of public outdoor environments. Still their needs are often forgotten in the planning and renewal processes or they are suppressed by the needs of other – louder – interest groups.

According to the theories of Ulric Neisser (1980) and Jean Piaget (1956) the independent mobility is essential for the development of cognitive representations of environment. The role of exploratory activities is especially important for children under 9-years-old before they reach a coordinated system of reference. However, these theories put little emphasis on analysing the role of the environment in this cyclic process. J.J. Gibson's theory about affordances, i.e. the functionally significant properties of the environment, offers a psychologically

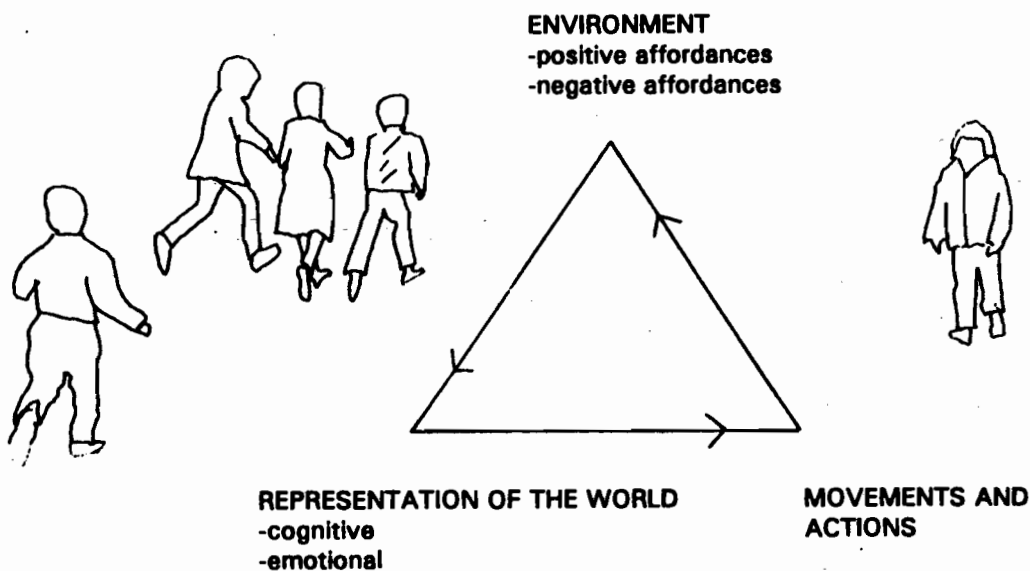


Figure 1. A tentative model for the development of the relationship between children and the environment.

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meaningful way to estimate the qualities of different environments. In figure 1 the basic ideas of the theories of Neisser, Piaget and Gibson are combined into a tentative model for the development of the relationship between children and the environment.

In Western Europe the possibilities of children to move around freely have narrowed down during the last decades. In a large survey carried out in England, a dramatic decrease of the freedom of children to move around was found between 1971 and 1990 (Hillman et al., 1990). The researchers of the study have been worried about the so called 'pattery children', overprotected children, who are not active and independent in their environments. If the contacts with the environment are regulated by adults, how does that affect the emotional and cognitive level of environmental relationship? Because environmental restrictions seem to concern girls more often than boys (Hillman, 1992), how will these developmental influences affect especially women in their later life course?

How free to move around are Scandinavian boys and girls in different environments? How many children actually use their freedom? What is the role of the environment in this process? Can children still move freely or are they kept 'safe' in their own playgrounds, wonderlands or institutions? In Sweden (Björklid, 1994) there is an ongoing research about children's independent mobility and further international comparisons are recommended. Children in Scandinavia probably move more independently than in England, where only nine percent of 7- and 8-year-old schoolchildren come home from school by themselves (Hillman et al., 1990).

The questions of this study concern:

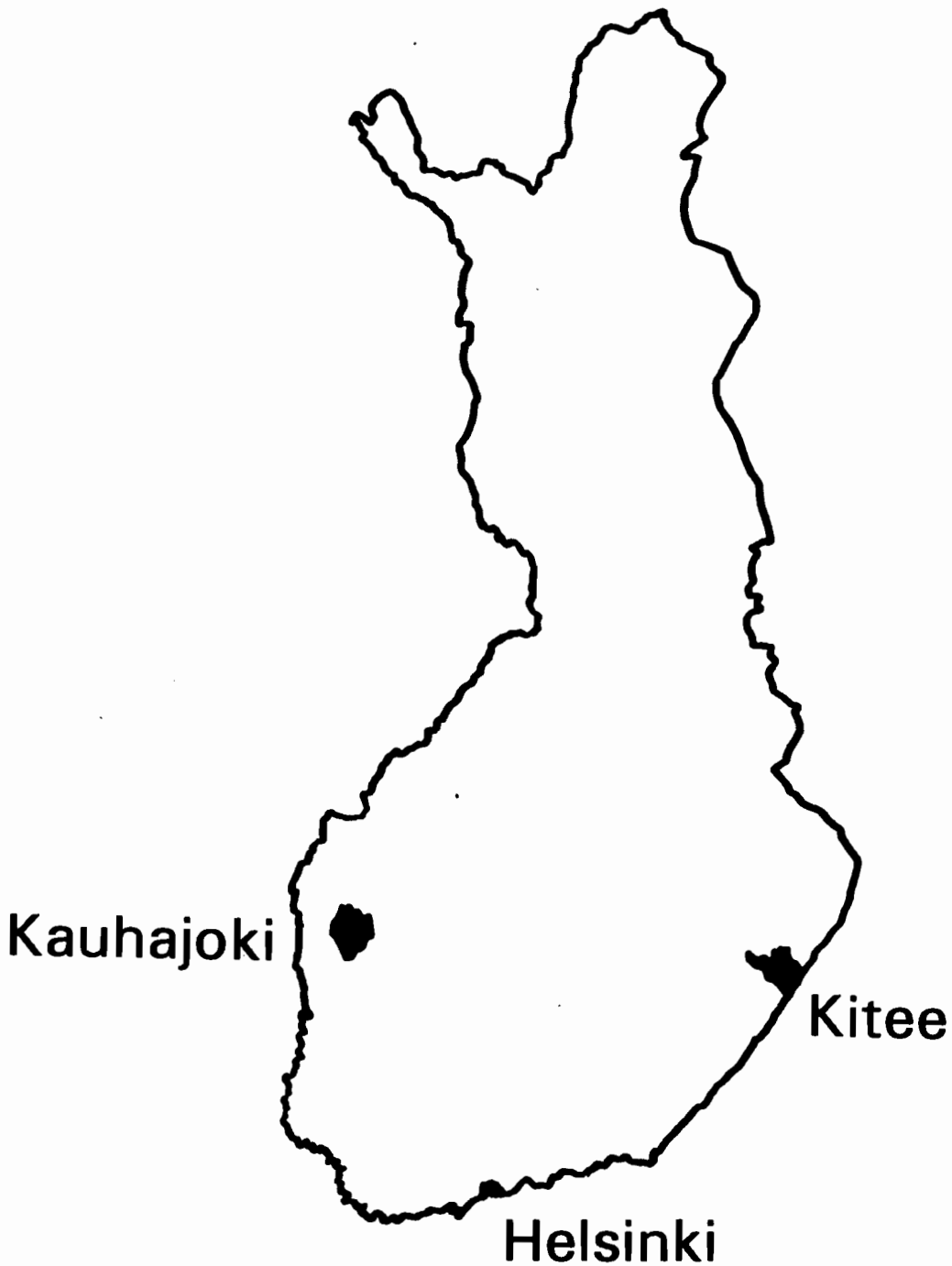
- The effects of urbanization on the freedom of children
- The effects of urbanization on the actual use of this freedom, i.e. children's outdoor activity
- Gender differences in children's independent mobility
- The independent mobility of Finnish children compared to German and English children

### **Communities**

The study was carried out in three communities in Finland, which varied according to the degree of urbanization. In each community the local elementary school and the teachers of grades two and three were cooperating in the study. The three towns are marked on the map of Finland in figure 2.

Töölö district from the centre of Helsinki (500,000 inhabitants) was selected to represent the most urban environment that can be found in Finland. Töölö district is a densely built area intersected by three big streets with intensive traffic. Töölö has about 26,000 inhabitants and it is mainly built in the 1920s and 1930s. The majority of houses are six-storeyed.

The town of Kitee in eastern Finland represents a small town environment in this study. The town was selected because of an ongoing research conducted at this location. Kitee is a typical Finnish rural town with about 11,000 inhabitants of



*Figure 2.* The communities of the study.

which 6,000 are living in the main village, the centre of the town. In the centre there are no buildings with more than three storeys.

A small village, Harjankylä in Kauhajoki in the western part of Finland, was chosen to represent a rural environment in this study. Harjankylä has about 740 inhabitants and the whole community, Kauhajoki, about 15,000. In the village there is a small elementary school with four grades but not many other services, not even a store. The majority of houses in the village are small wooden one-storeyed farms.

## Subjects

The sample consisted of 94 8-year-old children, who were studied using three methods. The sample of 8-year-old girls and boys was supplemented by 9-year-old children in some parts of the study, namely children's and parents' questionnaires. In table 1 are shown the numbers of girls and boys, who participated in the different parts of the study. All the children aged eight or nine in the three communities were included in the sample. Seventy-nine percent of the 8- and 9-year-old children returned the questionnaire and 75% of the parents returned their questionnaires.

The number of children was small in the rural village, although the sample was collected during two years, so that all 8-year-old children during two years took part in the study. The small number of rural children makes statistical analysis more difficult. One possibility to avoid this problem would have been to combine data from several rural villages. Differences across villages would nevertheless create other problems. That is why it was preferred to gather data during two years and to use statistical tests to estimate the significance of differences between groups.

Table 1. Subjects of the study.

|               | activity diary |      | children's questionnaire |      | parents' questionnaire |      |
|---------------|----------------|------|--------------------------|------|------------------------|------|
|               | girls          | boys | girls                    | boys | girls                  | boys |
| city          | 17             | 19   | 34                       | 42   | 27                     | 25   |
| small town    | 21             | 24   | 39                       | 40   | 33                     | 33   |
| rural village | 4              | 9    | 4                        | 9    | 4                      | 8    |
| subtotal      | 42             | 52   | 77                       | 91   | 64                     | 66   |
| total         |                | 94   |                          | 168  |                        | 130  |

## Measures and Procedure

*Outdoor activities* of children were studied by using activity diaries. The method was further developed from the diaries that were used in an earlier Finnish study (Kyttä, 1988). Also Hart (1979) has used a similar method when he analysed actual movement patterns of children. During two weeks the children marked all their outdoor activities after school. From each journey, the meaning of the journey, the company, the vehicle and the duration were written down. Half of the children found it very difficult to code time; therefore time was not analysed in this study.

The researcher taught children to complete the diary on the first day and if necessary their teacher helped them in the following days. The children completed their diaries in the mornings before regular school work and they recol-

lected the activities of the previous days. The diary started on Monday and during the next weekend the children were asked to try to complete the diary at home. To minimize the effects of varying weather conditions in different parts of Finland, the two-week diary was kept in May (weeks 19 and 20) in 1993 and 1994.

Children's freedom to move around was studied by using questionnaires. The questionnaire of Hillman et al. (1990) was translated from English into Finnish. Some minor changes were made to adjust the questions to Finnish culture. The questionnaire was distributed among all students aged eight and nine and their parents in the schools of the selected communities. The children answered the questions at school under the supervision of their teacher and they were asked to take another questionnaire in an envelope to their parents. The parents returned the sealed letters containing the completed questionnaire to the school teacher who sent them directly to the researcher.

Statistical tests were used to estimate the significance between the sexes, between the two age groups and among the three communities. The T-test was used to test the differences between means and a z-ratio was used to test the differences between proportions.

### The effects of urbanization on children's outdoor activity

According to the activity diaries the number of daily journeys outdoors was smallest in the city (1.42) and equally high in the small town (1.69) and in the rural village (1.66) (figure 3). The differences among communities were not significant. When the company in each journey was analysed, i.e. if the journey was made alone, with friends or with adults, children in each community made most of the journeys with friends. The proportion of these journeys was highest in the city and lowest in the rural village (figure 4). The differences of the proportions among the communities were not significant.

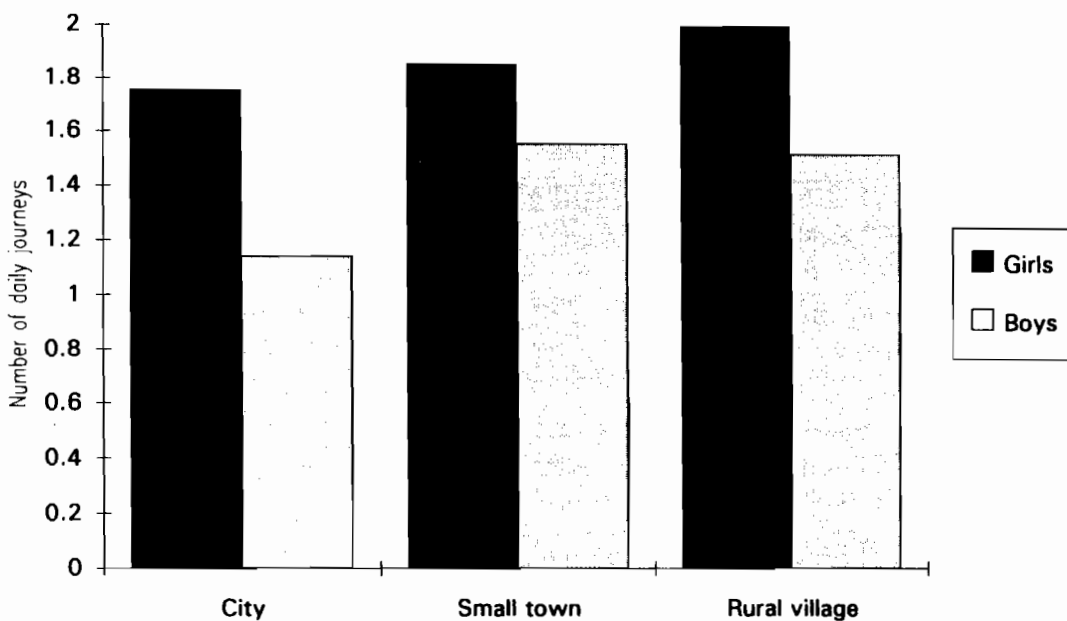


Figure 3. The average number of journeys in the city, in the small town and in the rural village.



Figure 4. The proportions of journeys that were made alone, with friends, and with adults.

### The effects of urbanization on children's freedom to move around

Children's freedom, their 'licence' to move around was greatest in the rural village and least in the city environment in most measured dimensions: rural children were most often free to go alone to spend leisure, come home from school, cycle on roads and go out after dark. The licence to go home from school was about as high in every three communities (98 – 100%). To cross roads alone and to go to spend leisure was allowed for all rural children and for 88 – 92% small town and city children. The license to ride buses alone was as high in the city as in the rural village (see figure 5). The differences between the city environment and the rural village were significant in two cases, to cycle on the roads ( $z_{cr}=3.8$ ,  $df=87$ ,  $p<0.001$ ) and to go out after dark ( $z_{cr}=4.0$ ,  $df=63$ ,  $p<0.001$ ). In these cases the differences between the city and the small town were also significant ( $z_{cs}=4.5$ ,  $df=153$ ,  $p<0.001$ ;  $z_{cs}=4.3$ ,  $df=116$ ,  $p<0.001$ ). Other differences were not significant. Half of the dimensions of freedom to move was asked in the questionnaire of children (to cross roads, to cycle on roads, to ride buses) and the other half in the questionnaire of the parents.

The freedom of 8- and 9-year-olds are compared in figure 6. The older children more often hold license to go out after dark, to ride buses, to go home after school and to go to spend leisure. The only significant difference was in the licence to ride buses ( $z_{89}=1.8$ ,  $df=166$ ,  $p<0.05$ ). The exceptions for the greater freedom of 9-year-olds were on cycling on the roads and crossing roads where the younger children had a little more freedom. These differences were not significant.

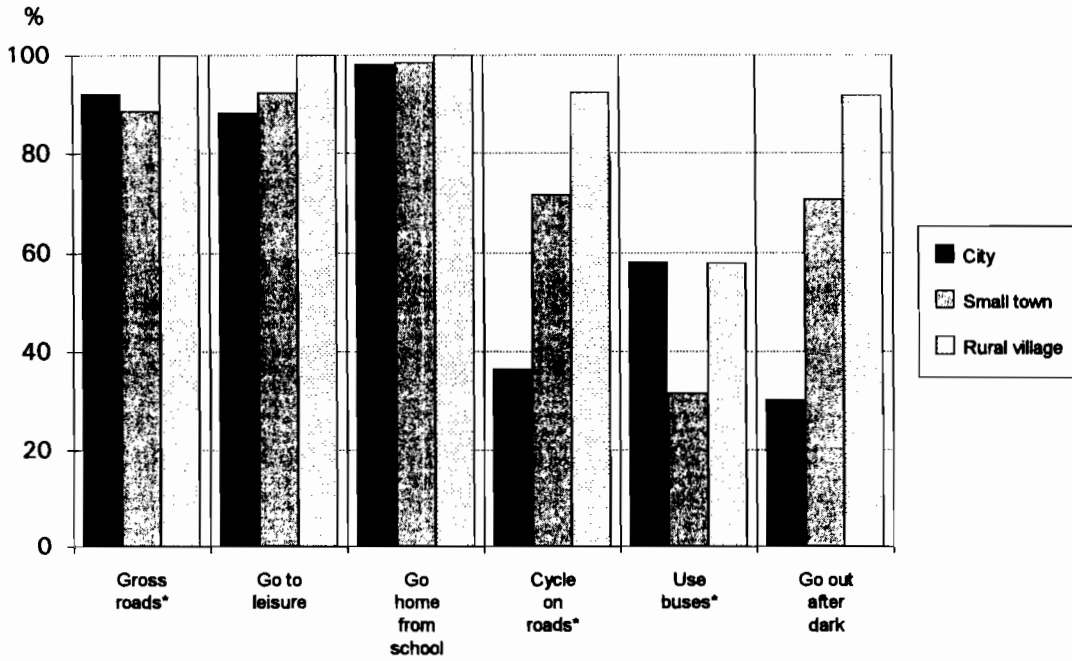


Figure 5. 'License-holding' among Finnish children in city, small town and rural village. In the dimensions marked with \*, the information was obtained from children while the other dimensions of license-holding were reported by the parents.

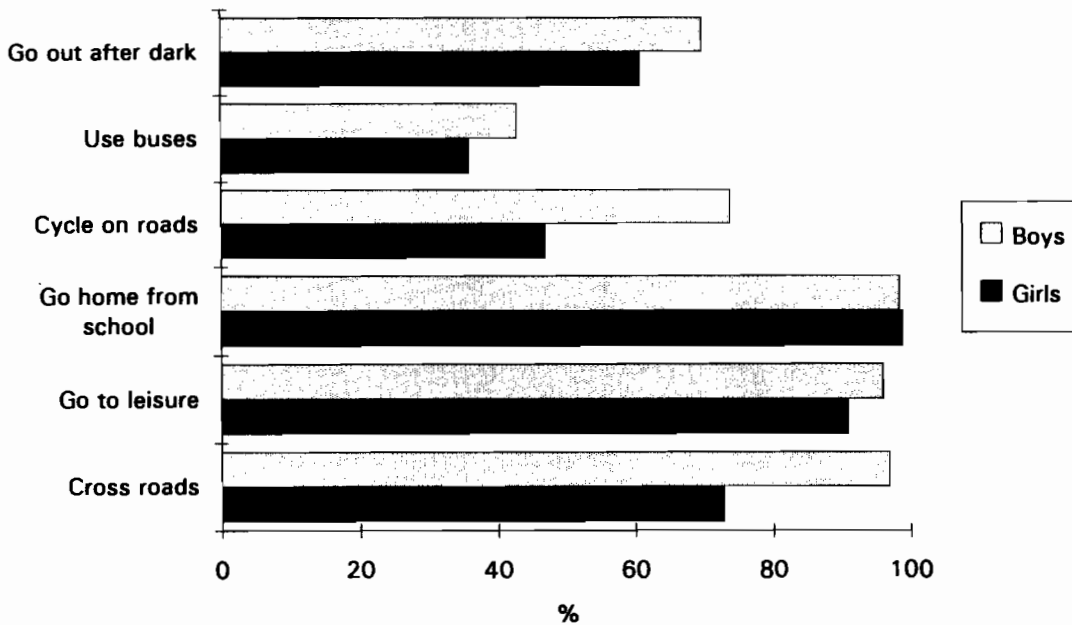


Figure 6. 'License-holding' of eight and nine-year-old Finnish children.

According to the parents' questionnaire, the lowest age (4.3 years) when children were allowed to go out alone was in the rural village. In the small town it was 4.5 years and in the city 5.6. The age difference was significant between the city and the small town ( $T_{cs}=4.2$ ,  $df=102$ ,  $p<0.0001$ ).

### Gender differences in children's independent mobility and freedom

According to the activity diaries, girls had a larger number of daily journeys. On average, girls made 1.8 journeys and boys 1.4 journeys daily. The difference was significant ( $T_{gb}=3.2$ ,  $df=92$ ,  $p<0.002$ ). The result was similar in all three communities (figure 1), but the difference was significant in two communities: in the city environment ( $T_{gb}=2.6$ ,  $df=34$ ,  $p<0.01$ ) and in the rural village ( $T_{gb}=3.1$ ,  $df=11$ ,  $p<0.01$ ). The data from all communities indicate that boys undertake more journeys alone than girls, but girls make more journeys with friends. The proportion of journeys with adults is almost the same for both sexes. None of the differences were significant. Boys made more journeys alone than girls in all three communities. Girls made more journeys with friends in the city and in the rural village. Boys made more journeys with adults in the city. In the small town and in the rural village the relationship was reverse (see table 2).

Table 2. Percentage of girls' and boys' daily journeys made alone, with friends, and with adults according to the activity diaries.

|              | girls | City<br>boys | Small town<br>girls | Small town<br>boys | Rural village<br>girls | Rural village<br>boys | All communities<br>girls | All communities<br>boys |
|--------------|-------|--------------|---------------------|--------------------|------------------------|-----------------------|--------------------------|-------------------------|
| Alone        | 26.0% | 29.7%        | 28.8 %              | 35.6%              | 19.5%                  | 30.4%                 | 24.8%                    | 31.9%                   |
| With friends | 55.7% | 36.5%        | 40.9 %              | 44.7%              | 39.6%                  | 35.3%                 | 45.4%                    | 38.8%                   |
| With adults  | 18.3% | 33.7%        | 30.2 %              | 19.6%              | 40.9%                  | 34.4%                 | 29.8%                    | 29.2%                   |

Boys had more freedom to move around alone than girls in five out of six measured dimensions (figure 7). The differences were significant in two cases, to cross roads alone ( $z_{gb}=4.6$ ,  $df=166$ ,  $p<0.001$ ) and to cycle alone ( $z_{gb}=3.6$ ,  $df=166$ ,  $p<0.001$ ). The average age when boys and girls had gone out alone for the first time was higher with boys than with girls in the small town and the rural village. In the city the average age was instead a little higher for girls than for boys.

### Summary of the results and comparison with earlier studies

Children's outdoor activity was higher in the rural village and in the small town than in the city environment. The result is based on the number of journeys in the activity diary the children kept during two weeks. When the journeys were further analysed in terms of the company in each journey, there were no significant differences among the communities in the proportions of journeys made alone, with friends or with adults.



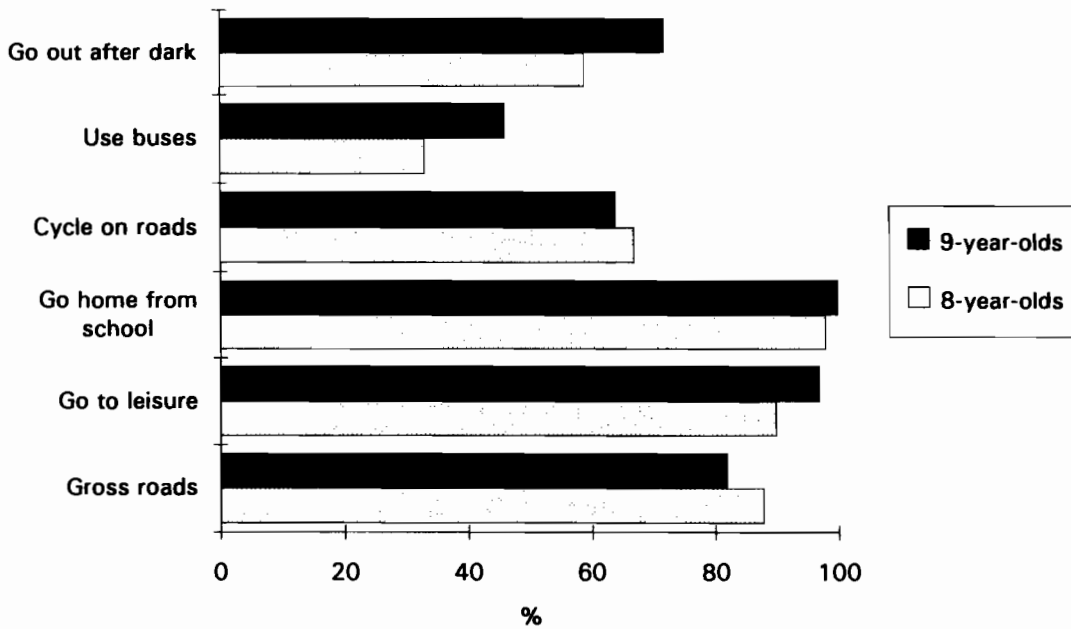


Figure 7. License-holding between boys and girls.

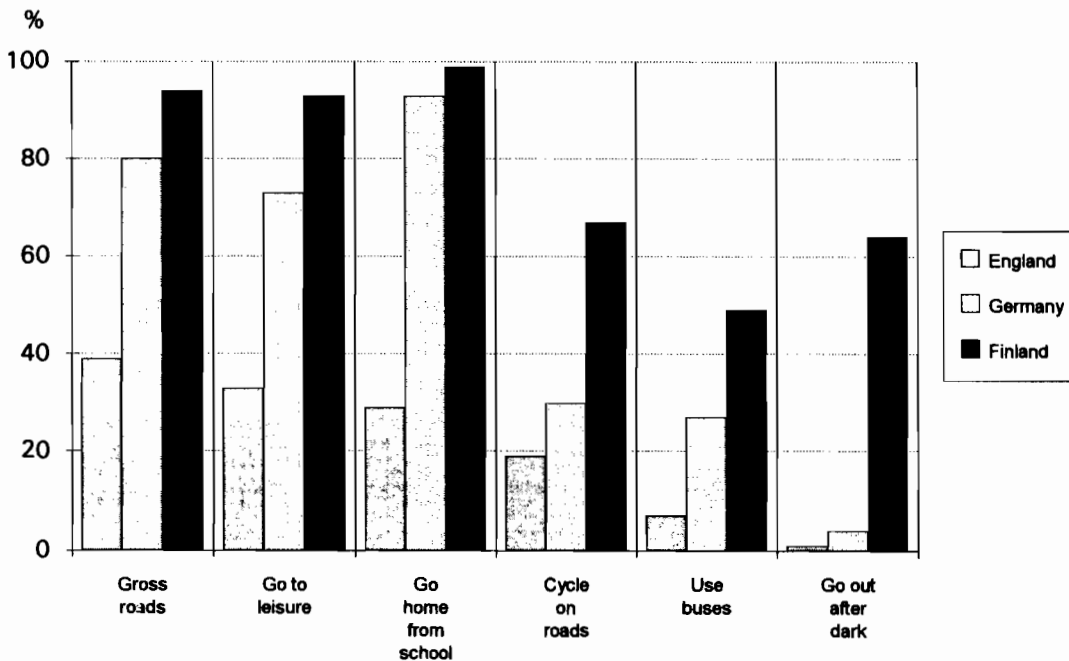


Figure 8. The freedom of Finnish children to move around compared to English and German children.

The children's licences to move around were studied by using questionnaires that were completed both by the children and their parents. The freedom was in general highest in the rural village, and least in the city, with the small town in an intermediate position. The differences among the communities were small in the freedom to cross roads, to go to spend leisure time and to come home from school alone. In these cases the percentages of those children who were allowed

to do these things were very high, between 88% and 100%. There were significant differences in the licence to cycle on roads and to go out after dark, in the city only about 35% were allowed to do these things and in the rural village about 92%. There was one exception to the rule of stronger restrictions for city children. It was the freedom to ride buses alone.

The most conspicuous gender difference was reflected in the greater number of daily journeys for girls. Boys made on average more journeys alone while girls made more journeys with friends in the city and in the rural village, although the differences in these proportions were small. Boys however had greater freedom to move around than girls. The gender difference in the licence-holding was especially large in the licence to cross roads and to cycle alone.

According to the results of this study, Finnish children are more free to move around on their own than children of the same age in England and Germany. 30-100% of the Finnish children in the study are allowed to undertake alone the six activities included in the questionnaire. The corresponding percentages for the children in England are 1-29% and in Germany 8-96% (Hillman et al., 1990).

## Discussion

The results of this study indicate that the Finnish children enjoy more freedom to move around on their own than children in Western Europe, in Germany and especially in England. In Australia the independent mobility of children is still lower than in England (Tranter, 1993). There, the lifestyle resembles an American lifestyle where children are always escorted to school and they can hardly move alone outdoors. This is not yet the reality for Finnish children. Nevertheless, during the last decades, Finnish children have also lost some freedom, which results from the increase of traffic (Syvänen, 1991). Therefore it is time to pay attention to the processes that restrict the environmental opportunities of children. The rural village seems to hold better possibilities for children's independent mobility compared both to the small town and the city. Therefore the study raises the question whether the rural environment can be seen as the best environment for children to grow up in? Before answering, a further analysis is needed of the qualities of environment that encourage children to move around independently. One possibility is to analyse the affordances (Gibson, 1979) that the children perceive in the environment.

Some interesting gender differences were found in this study. The average number of daily journeys was surprisingly enough higher for girls than for boys. Boys on the contrary made more journeys alone than girls and they had more freedom to move around. At first glance these results seem to be contradictory. Why do girls move more if they are restricted by their parents? Unfortunately the number of daily journeys does not tell the whole truth about children's outdoor activity. As the diary is based on writing, it is possible that these skills can affect the results. Boys can be worse writers at the age of eight. In addition this study analysed only the number of daily journeys, not their duration. In my earlier study of a Finnish small town (Kyttä, 1988), girls made more journeys than boys but boys made more journeys alone and stayed outdoors longer. If the duration of the jour-

neys had been analysed, those results might have been proven again in this study. To help the children to code time better is a methodological problem that demands more attention.

The parental restriction was placed more often on girls than on boys in this study. A similar result has been found by Hillman (et al., 1990) in England. In Germany however, in a study also by Hillman, girls and boys had almost equal levels of independent mobility. The researchers explain this as the result of cultural varieties between countries. In Germany, there has traditionally been a so called 'mutual surveillance network' which gives security to children. In England the family life is more privatized and the children in the neighbourhood are not supervised in the streets. To create more secure street life where residents of all ages come together is a challenge for every community.

### Acknowledgements

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Background Street as a socialization environment In international studies, children's independent mobility, or "everyday pedestrian practices" (Horton, 2014, after Middleton, 2010) and their correlation with gender and family socioeconomic status research is the domain of both psychology and transport geography. The scientists recognize the trend reflecting the drop in the amount of children's street activity, and slump in mobility freedom and narrowing down urban. Could it be so that through small episodes of his life, a child gets the same self-enhancing experience as the tale characters do? skills and independence. Further upsurge of independent mobility start age to 10 years in 1990s reflects the increased social tension and pressures of the Soviet Union collapse. Children's independent mobility in urban, small town, and rural environments. In R. Camstra (Ed.), *Growing up in a changing urban landscape* (pp. 41-52). Assen: Van Gorcum. Independent mobility, perceptions of the built environment and children's participation in play, active travel and structured exercise and sport: The PEACH project. *International Journal of Behavioral Nutrition and Physical Activity*, 7, 17. Pellegrini, A. D., Blatchford, P., Kato, K., & Baynes, E. (2004). Children's independent mobility in urban, small town, and rural environments. In Camstra, R. (ed.), *Growing Up in a Changing Urban Landscape* (pp. 41-52). Assen: Van Gorcum. Affordances and independent mobility in the assessment of environmental child friendliness. Publication A 28, Centre for Urban and Regional Studies, Helsinki University of Technology. Kyttä, M. (2004). The extent of children's independent mobility and the number of actualized affordances as criteria of a child-friendly environment. In press, *Journal of Environmental Psychology*. Kyttä, M., Kaaja, M. and Horelli, L. (2004). 2012. Children's independent mobility in urban, small town, and rural environments. M Kyttä. *Growing up in a changing urban landscape* 41, 52, 1997. The last free-range children? Children's independent mobility in Finland in the 1990s and 2010s. M Kyttä, J Hirvonen, J Rudner, I Pirjola, T Laatikainen. *Journal of transport geography* 47, 1-12, 2015.