

Results of questionnaire addressed to visually impaired persons concerning the use of hearing and vibration sensations for orientation and mobility in a big city- continuation

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Introduction

Method of teaching and training of spatial orientation and mobility is an important element of education of visually impaired persons. The first step to elaborate the method was an analysis of results of a questionnaire addressed to the visually impaired persons. The basic tool for the method of training will be 'a library of sound events and vibrations'.

Profile of respondents

The largest group of respondents included those who always use remainders of sight (30.4 %), but the group of blind respondents without light perception was also considerable (24 %)- figure 1.

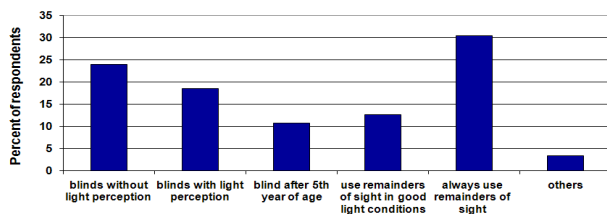


Figure 1: Types of visual impairment of respondents.

Over 80 % of respondents leave their homes at least several times a week –figure 2.

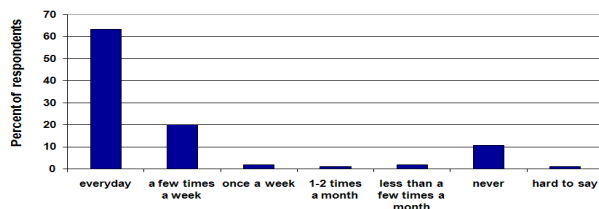


Figure 2: Frequency of events of home leaving by respondents.

More than 50 % of respondents took advantage of acoustic information. As much as 79.5 % of the respondents relied mainly on the mixed system information i.e. on the information from at least two sources- figure 3.

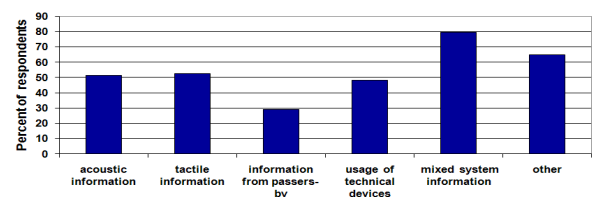


Figure 3: The most important information used in independent orientation and mobility.

More than a half of respondents answered that sound or acoustic information provided the most important information about environment- figure 4.

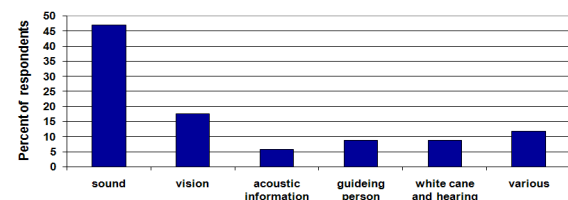


Figure 4: The most important sources of information in a mixed system.

Importance of hearing in orientation and mobility

For over 90 % of respondents the information about environment perceived by hearing was very important. More than 70 % of the visually impaired persons tested were interested in training skills of environment interpretation on the basis of the sound heard. Almost 80 % of them noticed significant change in perception of sounds caused by weather condition- figure 5.

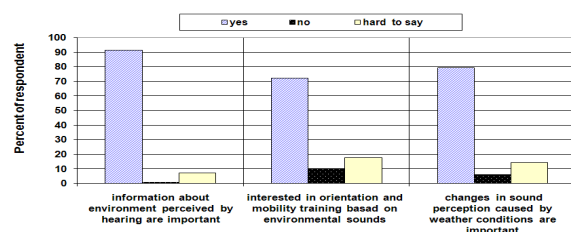


Figure 5: Importance of information about environment perceived by hearing.

City and environmental sounds

The most important sound helping the spatial orientation was the sound signaling on pedestrian crossings (69.5%), the most disturbing was sounds of building machines (64.3 %). Interestingly, the same sounds can be helpful or disturbing in spatial orientation and mobility (e.g. sounds of trains or building machines), depending on the acoustic situation - figure 6 and 7.

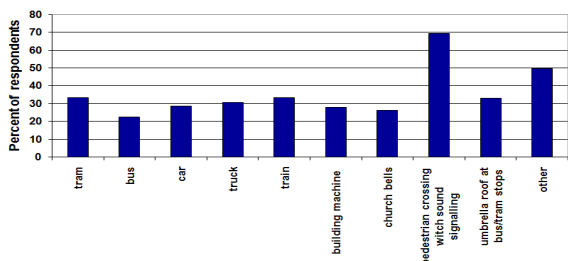


Figure 6: City sounds helpful in spatial orientation and mobility.

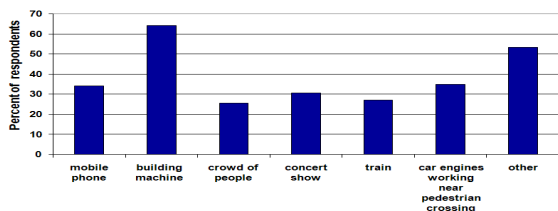


Figure 7: Typical city sounds disturbing spatial orientation and mobility.

This sounds and weather conditions made spatial orientation based on acoustic sounds rather difficult, and in some cases - impossible. Thus the library of sounds events and vibrations should contain both: recordings of isolated environmental sounds as well as recordings of these sounds together with additional sounds and atmospheric condition which may be disturbing for orientation and mobility - figure 8 and 9.

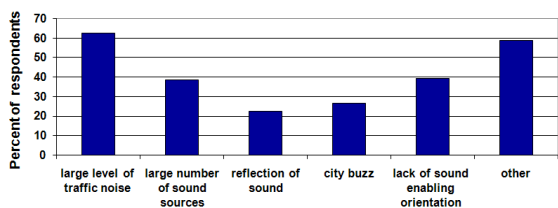


Figure 8: Sounds generating problems in spatial orientation.

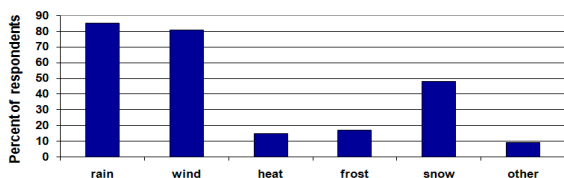


Figure 9: Disturbing effects of weather condition on spatial orientation.

Others sounds and skills which improve orientation and mobility

Places and objects related to everyday life most often visited by respondents e.g. shops and markets; places visited occasionally e.g. health centers, office; places they wanted to

visit for fun or meditation, e.g. sport objects, culture centers, churches and other places- figure 10.

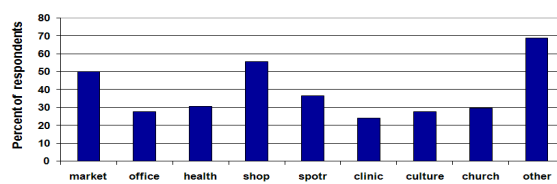


Figure 10: The most frequently visited places and objects.

The category of “other places and objects” included mainly those characteristic of the city of Poznan, like the Old Market, airport, central roundabout, main communication passages, tram stations- figure 11.

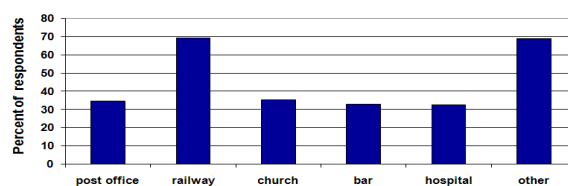


Figure 11: Places and objects emitting characteristic sounds.

Considerable part of a visually impaired persons training is developing skills of recognizing features of rooms, buildings, different architectural objects and obstacles by hearing- figure 12.

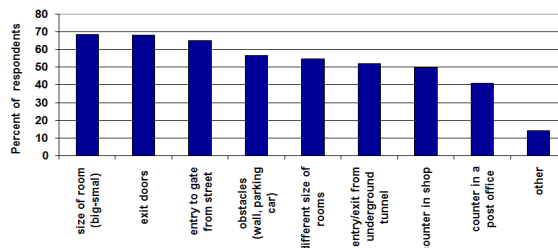


Figure 12: Recognizing by hearing different objects and situations.

The largest percent of respondents (55 %) took advantage of sounds produced when sticking the white cane on the ground- figure 13.

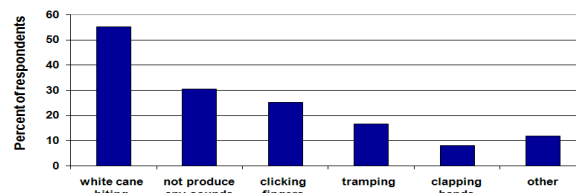


Figure 13: Sounds self-generated by blind persons helpful in obstacle localization.

Notes

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