Welcome

“Welcome to all our members. The Mary Kitzinger Trust aims to meet the objective of advancing and furthering education, training and research in the psychology of children with visual and/or other developmental difficulties primarily via workshops. More recently we have started producing a biennial newsletter to involve those who live further afield and may struggle to attend workshops. We have chosen to focus on mobility and navigational skills, a theme which we hope will be topical for many of you in your work supporting children and young people with visual impairment (VI). Following the themed section of the newsletter we have research updates from some of our members and we’re sure you’ll all agree that it is fantastic to see the growing interest in research with young people with VI. Planning is currently underway for our next workshop in May 2015 and details will follow very shortly or see: www.marykitzingertrust.org

Wishing you all a relaxing festive season and we look forward to seeing many of you at our workshop in May.

Rebecca and Elena”
Guide Dogs are now introducing guide dogs for children and young adults. How long have you been running this?

Guide Dogs removed the lower age limit for someone with sight loss to apply for a guide dog in 2010, before then you had to be at least 16. Currently the youngest guide dog owner we have is 11. When a child or young person applies to us for a guide dog, we assess each case individually, just as we would when an adult applies.

You are also offering a 'buddy dog' service. How are buddy dogs different from guide dogs and what are the main aims you are hoping to achieve with this new service?

We introduced the buddy dog service in January 2012, and use dogs that haven’t quite made the high standard needed to become a guide dog. The buddy dogs service differs from our guide dog service in that buddy dogs are not trained to assist with mobility or to perform specific tasks. Therefore, buddy dogs are not classified as assistance dogs and do not have statutory access rights to public places (restaurants, shopping centres, supermarkets, hotels, public transportation, etc).

There are two types of buddy dog partnership, one where a buddy dog lives with a child or young person and their family, and the other is when a buddy dog is assigned a school or other organisation.

Having a buddy dog can improve the quality of life of a child or young person with sight loss by contributing to sensory and physical development, enhancing their confidence and self-esteem, countering isolation and depression, increasing levels of exercise and improving their communication and mobility skills. In some cases, a buddy dog can help to assess whether a young person could benefit from a guide dog in the future.

What kind of training does a dog require in order to work with a child, and how long does it take for training to be completed?

As buddy dogs are not trained to assist with mobility or to perform specific tasks, they are not trained for this specific role. However, they are bred by Guide Dogs and so their character and suitability to become a buddy dog has been very carefully assessed.

How can I find out more about the guide or buddy dog services?

Visit Guide Dogs’ website: www.guidedogs.org.uk or you can get through to your local team by calling 0845 372 7499.
What are the advantages of your approach over existing tactile maps for individuals with visual impairment?

Since most of the tactile maps are handmade by sighted experts, the number of maps available for blind individuals are quite limited. However, analogously to maps for sighted persons which are generated on-the-fly from digital map databases (e.g., by Google Maps) it is also possible to automatically generate tactile maps. Of course, handmade maps may be of much higher quality, but automatically generated maps offer the important advantage of high availability. Our approach addresses the question of how to generate tactile maps automatically without the need of manual processing and how to print them on media such as microcapsular paper or by 3D printers in a user-friendly way.

The approach describes semi-automatic generation of tactile maps, what stops it from being fully automatic?

Provided that the desired map section has already been defined, the approach automatically generates a 3D model which can be used with consumer 3D printers. However, two remaining tasks have to be addressed in the future. First, the selection of the desired map section should be done autonomously by blind persons and second, the 3D model obtained from our automated process should be printable by blind users without the need of sighted persons. To address these open issues we recently started a webpage www.BlindWeb.org where we will announce user studies and publish our first version of a web service for the aurally supported exploration of maps.

What features do these maps include?

In principle, each map feature stored in electronic maps such as OpenStreetMap can be included. However, it makes sense to select only a small subset of map features for tactile maps. In this approach, the tactile maps include area features such as buildings and their entrances, line features such as streets and paths, and points of interest such as traffic lights with sound or vibration signals.

The maps described can be printed using typical consumer 3D printers, when do you predict 3D printing will be more widely available?

3D printing is a fast growing market; today, there is already a considerable variety of low-cost 3D printers on the market. However, their usability (even for sighted users) and reliability are still rather limited. Leading market research companies predict enormous growth of this market in the next couple of years. By targeting end-users, their usability will also increase. We want to contribute so that blind users will be able to participate from this development.

What is the ultimate goal of your research in this area?

Our goal is to contribute approaches to the scientific community which help blind people to autonomously access media such as 2D and 3D objects which are already available for sighted users. The ultimate goal would be to allow blind users to benefit from these electronic resources by reducing barriers to the correct use of 3D printers.

What is echolocation?
Echolocation is the remarkable ability to detect and obtain information about nearby objects by producing bursts of sound, and listening to the returning echoes that bounce back. Dolphins and bats use this ability to navigate, and humans can also learn to echolocate as well. Echoes from self-produced sounds, such as cane-tapping or mouth clicks, are used by some blind people to navigate during daily activities. Some blind people develop expert skills with echolocation, so that they can use this ability for playing basketball, hiking, mountain biking, or exploring new environments, which can increase their independence and quality of life.

How good are people at echolocating and how much experience do you need to be able to use echolocation?
Echolocation abilities tend to vary across individuals. Some people quickly pick up on listening out for the sound echoes while others require more practice, but this skill can be improved by suitable training, even if you have no prior experience.

How does visual impairment affect echolocation ability?
On average, blind people are better echolocators than sighted people. One of our recent studies showed that people with severe visual loss develop an increased sensitivity to sound echoes. Some blind people develop echolocation skills to a high standard, and display remarkable spatial abilities. One blind boy was able to use echolocation to avoid obstacles when riding a bicycle by making clicking sounds with his mouth, and listening to the returning echoes.

What aspects of the environment does echolocation allow you to perceive?
Sound echoes can tell you the distance, position, size, shape, and even the material of an object. Studies have shown that following training, people can use echoes to distinguish between objects made from fabric, plexiglass, wood, or carpet. When asked how they were doing the task, participants reported that they used changes in the sound pitch and timbre (the sound quality). Other work has shown that listening to the intensity of the sound echoes allowed listeners to discriminate between the shapes of various objects, such as a circle, triangle, or square.

How does the brain process echolocation information?
Although very little is currently known about the neural bases of echolocation, scientists in Canada have recently shown that the part of the brain that processes visual information is activated to process clicks and echoes in blind echolocation experts. This ‘visual’ cortex activation was stronger in one blind participant with early visual loss than in one late blind participant.

Have there been any studies on navigating through sound for children with vision loss?
There has been work showing that children with visual losses can use changes in ambient background sound to detect large objects in the local environment, such as walls. Sound pressure builds up near boundaries in a room, along the walls, floors, and ceilings. Acoustic information about the wall is available from about a metre away, and visually impaired children can listen for this in order to walk parallel to walls, avoiding the need to shoreline by tapping a cane periodically to check the wall position.

You are currently conducting studies on mobility aids. Can you tell us a little bit about this research and your findings?
Mobility aids are electronic travel aids for the blind. These devices work on an echolocation principle, using an ultrasound or optic source and a receiver to detect reflections. The reflections are converted into either sound or vibration information. So for devices that use sound, the device might start beeping when an object is detected, and beep at a faster rate when it is moved closer to the object, like a car parking sensor. Haptic aids that use vibration work in a similar way.
way, where the device vibrates more the closer the user is to an object. These devices are able to detect obstacles at head height, such as overhanging tree branches, which using the white cane does not detect. They are also able to provide information about the surroundings at greater distances than the white cane, and some can be set to detect objects up to eight metres away. We recently tested two commercially available devices at the Vision and Eye Research Unit (VERU), which is part of the Postgraduate Medical Institute at Anglia Ruskin University. These handheld devices worked very well at providing information that allowed people to pass safely through narrow gaps such as doorways without bumping into the sides, and we are currently testing whether mobility aids are useful for safely avoiding obstacles that are in the path of travel.

‘Everyday mobilities of visually impaired young people’

Dr Jennie Middleton, Professor David Banister (Transport Studies Unit, University of Oxford), Professor Harry Daniels (Department of Education, University of Oxford), John Harris (RLSB)

Project summary:
This one year project, funded by the John Fell Fund, University of Oxford, examines the relationship between urban transport and the everyday lives of visually impaired young people in London. It responds to a lack of in-depth research engaging with how young people with VI negotiate and manage their journeys between different transport modes at different moments and how these experiences are more broadly related to other aspects of their everyday lives.

The research will use a self-directed video technique/methodology in order to provide a more holistic understanding of the challenges facing young people as they move around cities and, in doing so, move beyond a series of pre-defined assumptions about what the barriers to ‘independent’ mobility actually are. In collaboration with the RLSB, the project will recruit 8 – 10 young people with a range of VI levels to be involved in conducting self-directed videos of their everyday journeys. Over the period of a month participants will record their everyday transport experiences as a means of reflecting on how their journeys unfold. In-depth follow up interviews will then be conducted using the video data as a resource to reflect on these journeys.

It is hoped that the project will not only produce a tangible outcome/resource for planners and policymakers to gain a greater understanding of key issues associated with transport and VI in young people but will facilitate the development of a much larger collaborative grant involving a wider range of relevant stakeholders.

Further information:
The project is currently seeking project participants who are visually impaired, between the ages of 18 – 25 and live in London. Please contact Dr Jennie Middleton (jennie.middleton@ouce.ox.ac.uk) for further information.
Habilitation training includes: the teaching of early movement skills; sensory, spatial and body concepts; cane training, route learning and independent living skills; and can significantly help a child or young person with a vision impairment to develop the necessary skills to get around and care for themselves safely and independently. However, habilitation training is not currently available for all children and young people in the UK. Guide Dogs and Blind Children UK fervently believe that all children and young people with sight loss in the UK should have access to habilitation training that adheres to the Habilitation Quality Standards as and when they need it – be it, in school, the home or the community.

With the above in mind we have recently scoped two projects.

Firstly, we commissioned Dr Clare Thetford and team from the University of Liverpool to carry out a qualitative exploratory study in relation to Habilitation services for children and young people with vision impairment in the UK. The aim of the commissioned work was to explore the accessibility and quality of current habilitation provision through detailed case studies as examples of current practice across the UK in the provision of habilitation services to children and young people with vision impairment aged 0 to 18 years. This work provided 12 context-rich examples, benchmarked against the Quality Standards in the Delivery of Habilitation Training (Quality Standards) (Miller et al., 2011).

The above case studies provided examples of excellent services and supports available to children and young people with vision impairment and suggested that in some areas at least, there have been considerable improvements in recent years. However, they also highlighted that provision remains wholly inadequate in some areas and that access for some groups is likely to become more difficult in the future as eligibility criteria may be tightened.

Secondly, we are currently undertaking an in-house research project involving young people with sight loss aged 12 to 25 years, and parents of children with sight loss aged 1 to 12 years. Our project sample is made up of the service users of Blind Children UK, which amounts to almost 4,000 children and young people and their families.

We wish to obtain children and young peoples’ first-hand experiences of habilitation training to enable us to gain valuable insight into the quantity and quality of habilitation training in the UK. We also would like to hear from parents/guardians of children and young people with sight loss in order to obtain their experiences and perspectives of habilitation provision.

Our project involves children and young people with sight loss, taking part in a 30 minute telephone interview or completing an online survey, as well as parents/guardians completing a separate online survey.

We hope that the information from both pieces of habilitation research will be used to provide further information to the sector regarding the habilitation training needs of young people living with sight loss.