

Personal Mobility Books for Children Lesley Newton – Mobility Specialist

Background

I work as a mobility specialist for Cambridgeshire schools both in mainstream and special schools. I cover an area of approximately 300 square miles. On a few occasions I cross over into neighbouring counties on an advisory basis, to undertake a short term mobility programme or to set up a mobility programme for staff. The age range I cover is between 4-18 years and the children have a wide range of abilities, visual impairment and additional needs. Some of the children I work with are wheelchair users, cane users or use other aids to help them move around. A number of these children also have very little or no speech and some use switches or various signs and sounds for communication. This means that because of the wide range of differences every child benefits from having their very own personal mobility book.

I am in contact with the specialist teacher during the child's pre-school years and sometimes go along on a visit to meet the child and parents and to see what work and progress the child is making. During their time at school I keep in close contact with the specialist teacher, class teacher, teaching assistant, other professionals and parents. Some mobility programmes are short term and some are ongoing. I visit some children once or twice a week and others fortnightly or termly. Some children may receive a short mobility programme and I will not be called in again until later when a new programme is thought to be necessary. My role is also advisory as I work closely with the teaching assistants that work with these children so that they can continue the mobility programme that I set between my visits.

My workload usually consists of around 30+ pupils during an academic year. Two thirds of these children are in mainstream schools. I have worked with some children who use a wheelchair in mainstream schools but the majority of wheelchair users that I work with attend special schools. Some of the children I work with in special schools also have a speech or hearing impairment. Several children are totally blind and of these a few attend mainstream schools. Most mobility sessions take place in the school environment or around the school area but some mobility sessions are also undertaken at home and in the home area. Older children often have mobility sessions which include using transport and learning routes between home and college, the town or city centre or work experience placements.

The focus of my teaching is mainly mobility and environmental awareness which also includes independence skills. I do not think these skills can be taught totally independently of each other as they are all skills that are needed in every day life and are integrated with each other.

Personal Mobility Books

During mobility sessions I have introduced personal mobility books for most of the children that I have worked with and they seem to be a success with both the children and staff. They are personal to that child and take into consideration their age and abilities. Having a mobility book also gives the child something to keep and to show the work that has been done. To begin with I show and describe the area to the child and then allow the child to explore. We then discuss together how to put the map or diagram together and the child can look at and choose different textured/coloured materials, paper or simple, clear photos or symbols that can be used. Depending on the child's age and ability s/he will cut out and stick onto paper, Braille or type letters/names for the map/diagram and key. The children enjoy being involved with making their own mobility books. I encourage as much as possible the child's own work so as to develop skills. I work with children of varying abilities so some of these children will quickly respond to sequencing routes and will be able to use their writing, typing and Braille skills.

These personal mobility books came about as I felt they would help a child understand their environment. It crossed my mind that for almost every other subject the child would have some form of book showing a record of work they had done so why not do the same for mobility. It started with one simple map to explain a certain area. This was successful and so I then decided to make several maps and bind them together as a book which I did for each child. The books then not only consisted of maps but also began to include charts and written, typed or Brailled routes or timetables. The books were discussed with the children and it was their positive response and their increased understanding of their environment that has kept it an ongoing part of our mobility programmes. Over the years I have learned to adapt and expand ideas in the way these books can be used. They may now include scripted routes, some being accompanied by photographs showing the sequence of landmarks on a route.

Enhanced Learning and Other Benefits

These personal mobility books I feel have enhanced learning in a number of ways which include:

- when preparing to follow a route the pupil may have difficulty remembering what the important reference points (landmarks) are – a books help memory
- he/she might have difficulty putting these reference points in the right order – books help sequencing
- perhaps most importantly, he/she may have difficulty getting the idea of reference points in the first place, because they have little or no speech, because some of them are not curious about their surrounds, because some of them are happiest not to take any responsibility for going anywhere preferring to be led by the hand – books help to develop communication about travelling (mobility)

- some pupils have difficulty in understanding conventional maps and overall layout of areas – simplified maps using materials appropriate for the child helps him/her to see and understand the layout of the area – helps to understand places and self in relation to each other

Other benefits that personal mobility books can provide are:

- they provide a link with other enjoyable classroom activities
- they help to reinforce the idea that it is good to sit down and plan a route before you set out on it
- they build more rapport with the mobility specialist
- they enhance communication and the working relationship with the pupil
- they provide something tangible to share with school staff (particularly the class teacher), and with parents
- they promote creative thinking

Skills and Cross Curricular Subjects

Mobility books can include diagrams to help children understand position and direction and become better orientated. Using descriptive words like middle, in front, behind, backwards, forwards, left, right and opposite can be used with simple diagrams. They can help explain how one moves around and how certain objects stay in the same place and how after turning around a certain object will be on a different side to them.

These books support cross curricular subjects and children are involved with many different projects where they are also able to use their writing, typing and Braille skills. Maths can also be introduced by counting, making and using charts and graphs. There are also occasions when other subjects such as history, geography and science can be integrated. There are many opportunities to include maps, photos, timetables and charts. Some children have ongoing mobility programmes with me and so I usually introduce a new mobility book for each project. This allows the child to build up a library of personal mobility books that can be shared with class friends in school and family at home. Even on short term programmes individual maps, diagrams and timetables are useful for familiarisation, for example, preparing a child to move to a new school. They benefit from having their own school map and timetable. Sometimes the child needs to use public transport and needs a timetable. Some children need to become familiar with their home and/or school area including shopping areas and so maps and diagrams can be very useful in this area.

Materials

Depending on the child different materials are used in these books. Many children with some sight like to choose different coloured paper or materials. Good colour contrast is important to children who can make use of their sight. Clear, bold, lower case print is chosen for labelling. Other children use raised shapes along with Braille labels. Another way of presenting maps and diagrams is to use different textured material. This method is usually used

with very young children and children with complex needs. Very often older, able children also benefit from and prefer to use this style of presentation. It is important to be as consistent as possible when choosing materials to identify objects or places.

Time and experience will show what types of materials can be used and by which pupils. As materials and items can drop off or be pulled off it is a good idea to have in a pencil case or work bag some type of glue for any repair work.

Materials that can be used other than card, felt, sponge etc are items like a button, to maybe represent the position of a sink in the layout of a toilet area, or, a small hook to represent a coat peg.

If you are making a tactile map it is best to close your eyes and feel the map or ask others to feel and say what they think. More importantly ask the child what is easy or difficult for them to understand about the map. Their opinion is an important one. What looks good to us does not always look or feel good to the child.

Research into Tactile Maps and Advantages

Tactile maps can play a large part during mobility sessions and there are plenty of opportunities to produce map work for their mobility books. I can across an article in The British Journal of Visual Impairment by Simon Ungar, Mark Blades and Christopher Spencer. They were involved in a series of studies done in 1991/2 and found that visually impaired children can understand a simple map and use it to make spatial judgements in a large-scale environment. The study showed how valuable it is to introduce formal mobility training including maps from an early age. Maps were used with children as young as four years old. They found that maps and small-scale models are effective in facilitating these children in understanding of large-scale layouts.

Mapping kits have been produced and I have used these but I usually make my own maps with the children to suit the individual child. Tactile maps can be presented in a number of ways by using lego, thermoform, microcapsule paper or different textured materials. These maps help children to improve their spatial awareness and understanding. They give an overall awareness of the area and relationships between places. It has sometimes been useful to use "objects of reference" on the map and then to allow the child to locate the same "object of reference" at that particular area.

One good point about using a map is that the child has time to concentrate and explore the environment without being distracted by the real environment. They are able to increase their skills of memorising, scanning and use of strategies.

Areas in which maps have been useful are of the classroom and playground layout, various areas in school including the toilet, hall and library and routes

in school from one place to another. The skills of understanding and using a key can also be introduced which gives opportunities for reading text, Braille or moon. Further afield children have used maps of the outside environment around the school area or a plan of their village, town or city centre.

One important point that stands out in my mind while reading different articles is that the best results are achieved when very young children are taught skills at an early age. I would like to quote from a Report of Symposium organised by the International Cartographic Association Commission VII (Tactile and Low Vision Mapping) in association with the Royal National Institute for the Blind, held at King's College, London University, 20-22 April 1988.

“One of the factors which may increase ability to handle graphical materials is early exposure to it, and this was clearly brought out by Kim Morsley (Sheffield University) in the second paper of the day. Young children were able to make markedly improved performances in her tests using maps, whereas the performance of older children improved less markedly, or even declined. As I was to suggest at the end of the session it seems that the learning of graphically, like that of literacy and numeracy, must be started early and practised frequently. It seems that a major effort may need to be made in this direction amongst the teachers and instructors, who are, after all, not selected for their ability in this single aspect of their work.

Kate Adams (Priestly Smith School, Birmingham) showed a video of a child being helped to recall spatial location by making a map using Lego bricks. The value of reinforcing the awareness of spatial relationships in this way was demonstrated in a charming manner, but nonetheless clearly.”

Case Studies

The following five case studies cover a range of age, ability and visual impairment. Three children attend a special school. Two children attend mainstream schools, one at primary school and one at secondary school. Three children are wheelchair users although one of them uses his wheelchair for just long journeys but uses his walking stick for short journeys. One child is a cane user.

Case Study 1

Adam is an 11 year old boy attending a special school. He has optic atrophy with light perception and although he finds it difficult to walk is able to use sighted guide. Adam takes part in group activities, listens to instructions and can make choices. He has limited speech and uses gestures. Although Adam is still a little tactile defensive there is an improvement in this area. Recently he has been introduced to objects of reference and moon symbols and uses these in connection with his object timetable. I discussed with the class teacher which of these and other objects of reference I could use when making Adam's map of the school corridors.

Aims

- explore and become familiar with the layout of the classroom
- understand direction and improve spatial awareness and orientation
- improve trailing technique
- improve independent walking
- make use of landmarks and cues
- identify areas around the school
- understand sequencing of landmarks and simple routes
- use simple maps
- introduction to roller tip cane

Using the mobility book

This part of the programme started by walking sighted guide with Adam around the square shaped corridors. I encouraged Adam to trail with his right hand while holding above my elbow with his left hand. At each of the four corners we stopped to identify and name the four corners that went into different areas of the school. They were: classroom, hall, playground and library.

As Adam is rather heavy handed I decided to thread the four objects of reference onto thick card to make them more secure. The Moon symbol for A represented the name Adam for his classroom; a mini cassette represented music for the hall; a small soft polystyrene ball represented play for the playground and a small piece of card folder in half represented a book for the library. In an envelope I had a sample of each of the four objects and passed each one to Adam to explore and talked about what the object referred to. I then showed him the map and helped him to trace along the square and locate the objects at the four corners. We then walked around the corridors again to locate the four corners and at each corner located the object of referenced on the map.

From this session we progressed on to moving from each corner to explore each of the four areas represented on the map. This gave us further opportunities to link to other areas of school activities that take place in the hall, playground and library.

Along with my weekly visit records that list areas of mobility we have been working on I was able to share the map with other members of staff so that teaching points would be consistent.

Pupils response and achievements

- Adam was interested to explore the objects of reference which seemed to encourage him to be less tactile defensive.
- He was able to match the objects of reference from the envelope to those of the map.

- He improved on his sighted guide and trailing techniques and was able to locate the corners of the corridors.
- He was able to follow a sequence of landmarks which improved his orientation so that he was able to anticipate where he was going.
- There was a slight improvement on his independent walking skills and I was able to introduce the roller tip cane.

Case Study 2

Martin is a 12 year old boy, with light perception only, who attends a special school. He also has cerebral palsy with very limited hand functioning and uses a wheelchair. He has limited communication and uses a few recognised sounds along with gestures and switches to communicate. I have worked with Martin for several years and he is always keen to learn and has made good progress with his mobility, orientation and environmental awareness both in school and in the local environment around the school area.

Aims

- to increase environmental awareness around the school area
- to identify landmarks and cues
- to sequence and remember the route between school and the local shopping area
- to be made aware of traffic and make use of the pelican crossing
- to take an active part in the journey
- to make decisions

Using the mobility book

I helped Martin identify the tactile map and remember the sequence of landmarks to identify on route from school to the shopping area. At each landmark I would stop and allow Martin to feel and identify the landmark and to show him where we had reached on the map.

At the road I explained the sequence for using the pelican crossing and helped Martin to locate the button. We then stood at the curb and listened to the traffic. Martin then listened for the traffic to stop and for the pelican crossing to bleep and would make a verbal sound to let me know when it was safe to cross the road. We then looked at the tactile map that showed the layout of the shopping area and pelican crossing to give Martin an idea of the distance between them.

At the shopping area we identified and explored the post box and telephone boxes. We did some number work and counted in sets of ten from this area to the post office, the bakery and the supermarket. We looked at the tactile map that showed the layout of the shops, phone boxes and post box. This also helped Martin to understand distance. I then left Martin with his teaching assistant at the phone boxes and he listened to my footsteps as I walked to each of these areas and shouted across the open space once I had reached

these. This also helped him to understand distance, direction and to be generally orientated within this area.

Martin's teaching assistant accompanied us on most of these journeys so was able to carry out the same procedures when he and his class took regular trips to the shopping area.

Pupils response and achievements

- Martin thoroughly enjoyed these sessions.
- He was able to understand the simple maps and relate them to the actual journey and places.
- He was able to learn the simple sequence of the route between school and the shopping area and anticipate the next step in the sequence
- On the journey and at the shopping area he was able to make use of landmarks and cues to help him identify where he was.
- At the shopping area he was able to indicate that he understood where he and places were by moving his head towards the post office, bakers and supermarket.
- At the pelican crossing he could press the button, listen for traffic to stop and the bleep to start and would then make a decision and indicate when it was safe to cross by making a verbal sound.

Case Study 3

Helen is an 11 year old girl with light perception only as a result of Retinopathy of Prematurity. She also wears hearing aids. Helen is a cane user and she uses Braille and raised textured maps and keys. Helen is a sociable girl and willing to participate and contribute and likes to do things to perfection and receive praise. Some formal mobility training had been given earlier in her mainstream primary school and now these mobility sessions needed to resume so that she could become familiar with and settle into mainstream secondary school. Several visits were arranged in the summer term before she transferred and an ongoing programme set up once she started her new school in September.

Aims

- to explore and become familiar with layout of school
- to become well orientated between school buildings
- to learn routes and areas throughout the school
- be independent in toilet and locker areas
- make good use of landmarks and cues
- improve generally on cane skills
- learn cane techniques for ascending and descending stairs
- make good use of tactile maps and keys

Using the mobility book

I showed Helen the Minolta map (raised map) of the layout of the school buildings. This allowed her to have an idea of how big the school site is and how many separate buildings there are and where they are in relation to each other. We then visited each of these named buildings. Over the next few sessions we visited each building in more detail. We discussed subjects taught in each area and identified landmarks and cues that would help Helen to identify where she was.

After looking at the map and key of a toilet area Helen then trailed around the perimeter of the room. This helped her locate the different areas and be able to put into sequence the cubicle, hand basin and hand dryer.

I kept in close contact with Helen's VI teacher, teaching assistant and SENCO so that they were aware of the routes and areas that we were covering and could be consistent with these between my visits.

Pupils response and achievements

- Helen was keen to become independent and showed a mature attitude throughout her mobility sessions.
- After her first year at secondary school she had an extremely good understanding of the layout of her school and was extremely well orientated.
- She had learned many route which included going from one building to another.
- Her cane skills improved and she was able to manage busy corridors and negotiate doorways, steps and stairs.
- After a very short time she was able to be totally independent in the route between her taxi area and registration room as well as in the toilet and locker areas.

Case Study 4

Rachel is a 9 year old girl with albinism attending a mainstream primary school. In the past she has received a mobility programme to help her settle into school and become familiar with the layout. Her parents expressed a desire for her to have mobility and environmental awareness sessions around her home/school area in preparation to increase her independence in the near future. Rachel is a quiet, intelligent girl who enjoys participating in mobility sessions.

Aims

- to explore and become familiar with the home/school area
- to learn local routes
- to be aware of what is available in the community

- to be aware of traffic flow and learn road safety procedures
- to make use of maps and keys, landmarks and cue
- to be aware of potential hazards
- to integrate curriculum subjects in mobility work

Using the mobility book

We used the roads between and around Rachel's school/home area to highlight road safety. As a revision Rachel filled out a question and answer sheet for her mobility book and to help me to see that she had understood the work we had done.

We then spent a few weeks discussing and working on letters to integrate with English. Rachel wrote two letters and envelopes and we took them to the local post office where she purchased a first and second class stamp. This helped her social skills and to boost her confidence. After studying the timetable she put the letters into the letter box. The purpose of posting one first class and one second class was to see if there was a difference in the length of time it would take for the letters to reach home and Rachel would write the date in on the day they arrived.

On route to the post office Rachel had the opportunity to learn how to make a telephone call using a public telephone.

Throughout these sessions Rachel was able to practice her road crossings which included using a pelican crossing.

Rachel spent a couple of mobility sessions observing the traffic flow and made a tally and bar graph.

To finish this programme she made a map of the field that backs on to her house where she sometimes plays and that her parents felt she needed to explore and become familiar and orientated in.

Rachel shared the work she had done in her mobility book with her class, teacher and parents so that they were aware of the work she had undertaken.

Pupils response and achievements

- Rachel became much more confident in moving around her school/home area.
- She gained a better understanding of what could be found in the community
- She learned how to use maps, keys, timetables and graphs and was able to increase her language and sequencing skills.

Case Study 5

Billy is a 16 year old boy who is registered as partially sighted. He has Bilateral Optic Atrophy with roving eye movements and field defect. He also has cerebral palsy. In school he uses a walking stick for short distances and an electric wheelchair for longer distances. When in the outside environment he is pushed in a manual wheelchair. Billy makes good use of large, dark print and good colour contrast. He undertook a school project called "Places in the Community" which I was able to integrate into his mobility sessions. This gave him good opportunities to increase his skills and to have extra time to study the local area.

Aims

- to integrate school project and other subject areas with mobility sessions
- to increase memory and sequencing
- to make and understand simple maps and keys
- to become aware of the local environment and community
- to be able to learn routes and locate places in the local area
- to become aware of traffic flow and road safety procedures
- to be able to make use of pelican crossings
- to be able to make and understand charts and timetables

Using the mobility book

We walked the route between school and the fire station and onto the police station. On route we stopped to explore and make notes of names of roads and landmarks. We discussed different road crossings and the sequence of using a pelican crossing. Billy was able to press the button and listen for traffic to stop and for the bleep to start and to tell me when it was safe to cross. On the next session Billy helped to choose coloured card and cut out shapes to make the map and key. Then he helped to place and stick the shapes and words onto the paper to complete the map and key. We then spent several sessions doing the same for the route between school and Ely Cathedral and Oliver Cromwell's house which is also a tourist centre.

During these sessions we discussed different landmarks and cues by identifying different textures, sounds and smells as we walked the routes and explored the various places. Billy also collected leaflets and information from all of these places. I read this information to him and he typed up a summary of each place and mentioned how he was able to make good use of landmarks and cues to help him identify where he was. He also typed up the routes to put in to his mobility book.

Throughout these sessions I kept in close contact with Billy's teaching assistant and class teacher to make sure we were on target to complete the work needed for his project.

Pupils response and achievements

- Billy was able to enjoy, concentrate and participate on his project work.
- He was able to make good use of landmarks and cues which helped him to use his memory and sequencing skills.
- After helping to make the maps and keys Billy was able to use these to learn and identify routes and places.
- He was able to use his typing skills on the word processor.
- During these sessions he became aware of the local environment and community.
- He became more aware of traffic and road safety and crossing procedures.

Conclusion

There are many skills and subjects that can be covered and achieved with the support of a mobility book. These books help to reinforce the work being done and are a record of the child's work and achievements accomplished. The book is personal to each child and while putting the book together the process can be flexible. These books have been received positively by children and adults. The children are usually pleased with their achievements and enjoy making the books. I feel that personal mobility books can play an important part in teaching mobility and orientation skills.