

Alternative Keyboards for Pre-school Children with Neurological conditions and Physical Difficulties”

The standard PC keyboard is designed to be used with two hands, it favours right handed people (the numeric keypad is on the right), and can be “over sensitive” so that it is easy to get a string of letters if a key is held down for slightly too long.

This factsheet provides information on Keyboard alternatives that have been used throughout the Play NI project and have been very successful for individuals who were experiencing difficulty with the standard Keyboard. We have also provided case studies demonstrating how some of the equipment has been successful. It is also important to note that when we try out the alternative Keyboard we treat each child as an individual, so for example just because a compact keyboard worked for a child with a physical difficulty it does not necessarily mean that it will be suitable for another child presenting the same diagnosis. It is important to try a range of options out with an individual.

Modifying the Keyboard Response

The way the keyboard behaves can be changed, this can be done on Windows and Apple computers as these things are generally built in. The following feature, from our experience of working with pre-school children has been really helpful.

FilterKeys

This allows you to alter the length of time a key needs to be held down before it initially appears or repeats on the screen.

We have a training video that give a step by step guide to tuning the response of the keyboard to assist pre-school children experiencing difficulties trying to use a keyboard and to make the keyboard more responsive for them, giving them a more positive experience. Please visit our website <http://www.abilitynet.org.uk/playni/factsheets.htm>

Lower Case high visibility stickers

Keyboard stickers are a cheap, simple way to convert a standard layout keyboard into a lower case and high visibility keyboard. Lower case letters on a keyboard can really help early learners to find the letters they are looking for and the high visibility colour contrasts can help individuals with sight problems.



Product	Supplier
Keyboard stickers	Primary teaching Company, Inclusive Technology,

Keyguards

These are rigid plates with holes designed to work with specific keyboards. The holes are positioned over each key and they make it impossible to press two keys at once. As a further benefit it is possible to rest hands and arms on the guard without pressing keys. They can be removed and fitted for use only when required.



Keyboard with keyguard

It can often be easier to purchase a keyboard and guard together rather than get one to fit a specific keyboard. The keyboard will come with a keyguard that can be placed over the keys. This will allow the user to rest and drag their hands across the keyboard to then press the key letter they are looking for. A Keyguard is really useful for pre-school children who have a physical difficulty controlling and moving their hands.

Product	Supplier
Keyboard/guard combinations, standard and small keyboards	Maxess Products, Inclusive Technology, Keytools

Different Sizes and Shapes

There is a wide choice of keyboards to replace the standard keyboard. We have chosen examples of keyboards here to illustrate the ideas described.

Small Keyboards



Cherry G84

Product	Supplier
Compact keyboards	Inclusive Technology, Maxess, The keyboard Company, and Keytools

Keyboards with Larger Keys

The large keyboard that was really successful through out the Play NI project is the **Jumbo XL Keyboard**. It has all the functions of a standard keyboard except that it has no number pad. It has lower case letters on the 1” square keys which can help early year’s children to find the letters on the keyboard and to press the keys more easily.

The keys are also colour coded: Numbers are red; vowels are purple; consonants are green; punctuation is yellow and everything else is blue. This can really make a difference when learning the layout of a keyboard and the colours also make it very appealing to young children being faced with a keyboard for the first time.



Product	Suppliers
Jumbo XL Keyboard	SpaceKraft, Inclusive Technology and ITtools

Switches

If the user is physically or cognitively unable to use any keyboard or pointing device, then a basic starting point may be to use switch input. A switch is simply a button which, when activated, sends a signal to the computer. This signal can then be used to drive various software packages. We have a number of factsheets on our website that goes into more detail regarding types of Switches and using switches.

<http://www.abilitynet.org.uk/playni/factsheets.htm>



Case Studies

Compact keyboard plus Key Guard

Billy is 3 years old and attends Playschool.

Billy has a diagnosis of Spinal Muscular Atrophy Type 2, which affect the strength and tone of his arms. His fine hand skills are limited as they are generally weak and lack the strength to apply the right pressure when using a pencil, for example.

Billy's communication is appropriate for his age and has normal intellect and excellent learning ability.

Because of the weakness in his hands it is more difficult for him to sustain holding a pencil to draw and to form letters and therefore using a keyboard would be an ideal solution. However even having the option of using a keyboard it may cause him to experience fatigue and therefore we needed to look at options available to him to help him overcome these difficulties. His nursery support worker mentioned that because of his physical difficulties he has not been able to begin working on the alphabet etc, although she did feel he is ready to do this.

I suggested that we try out a keyboard with him so that he has the opportunity to record letters that he may already be beginning to recognise. I set up the computer with a software program called "**First Keys3**" (Available from <http://www.widgit.com/products/firstkeys3/index.htm> Please note you can download a 21 day trial of the software) .

I set the level of the activity to work on "*Initial letter matching*", this activity has the first letter shaded out and a picture of the object. E.g. a "*Box*".



We began with Billy using a Jumbo XL lower case keyboard because of it's large keys and lower case letters, we felt that he would recognise the letters. We also used the keyguard attached as this will allow him to drag his hands across the keyboard to get to the letter he wants to use without the frustration of accidentally pressing other keys in the process. It will also allow him to rest his hands on the keyboard when they begin to fatigue.

However although he used the keyboard very effectively and could recognise the lower case letters, because the keyboard is large the physical area that he had to move around was causing him to tire very quickly. So we tried out a compact keyboard that is

much smaller in size using lower case letter stickers on the keys and attaching a keyguard. This was a much better solution for him and this setup was much more appropriate for him.



I also felt that he would benefit from changing the settings on the computer so that if he did not take his finger off the keystroke immediately he would not experience repeated keys. This can be stopped by using the “accessible options” in Windows called “**Filter Keys**”. (A training video is available on our website that demonstrates how you set this option up <http://www.abilitynet.org.uk/playni/factsheets.htm>). Having the “**Filter Keys**” switched on will allow you to press and hold down a key for as long as you wish and no repeat keys will appear on the screen.

I placed the keyboard with keyguard in front of Billy and using vocal support by saying the letter, we asked him to look at the letter of the first word showing on the screen and then find it on the keyboard and to press that key so the first letter appears in bold on the screen. He showed us that he is already beginning to have good letter recognition and eventually found every letter we asked him to find. He was able to use the keyboard very well in this task. We then opened Microsoft word and let him free type which he thought was fantastic and when we said that we would save his work and send to his mum he was very keen to show his dad and also said he could stick it on the wall!

We agreed that the **Cherry compact keyboard with lower case letter stickers and the keyguard** will be very suitable for Billy.

Case Study demonstrating a Jumbo XL Keyboard

Samuel is 3 ½ years old and is on the high functioning spectrum of Autism. However he finds it difficult to engage in any games and finds it difficult to concentrate on activities and tends to flit from one thing to another. The assessment was carried out to see if ICT could possibly engage him in activities. His nursery feels that he may have some letter recognition but to date he does not engage in paper or board activities.



We introduced Samuel to the keyboard using a Jumbo XL lower case letter format. The keys are nice and large and the letters are easy to identify. Samuel amazed us all with his letter recognition. He only needed a little help when I asked him to find certain letters and he was really enjoying engaging with me to find the letter and press it so that he could see it on the

screen. We believe that if he has access to a keyboard with some activities to build his familiarity of where the keys are he will very quickly progress from this keyboard to a standard keyboard. To aid this transition it may be helpful to use lower case keyboard stickers on the standard keyboard and gradually introduce him to the capitalised keys.

Samuel really enjoyed the following software program and it really engaged him in a timed activity. We then allowed him to use the keyboard, like a child who is engaged in using crayon and paper to “create” writing, he really enjoyed this activity and was keen to show us what he had produced.

Easi Keysi



Easi Keysi is an interactive program that helps to develop childrens' basic typing skills and reinforce spelling patterns. Including over 100 differentiated typing lists and 1000 different words, this program enables you to provide stimulating typing practice at a language level relevant to each individual's needs. (available from a range of suppliers on the web, even Amazon. We suggest you google search for the best competitive price)

Conclusion

Samuel engaged in the activities we were playing on the computer for the whole assessment. Through using the ICT and playing the activities he also demonstrated that he was already developing skills that previously he was not able to show. For example through using the keyboard he demonstrated that he was beginning to recognise letters and also experimented with “creative writing” by using the keyboard to type information into a blank document .