

Living My Song

Making Music Accessible for All

Switch-Users and the Music Teacher

Many disabled pupils, unable to make music in any other way, can participate in a musical performance if they have switch access. In the music classroom, switch systems may be used in two ways: they are communication aids, used as controllers for speech synthesisers, text writers, etc., and they also serve as virtual musical instruments, controlling various sound-making devices.

How switches work

Nowadays, we are all switch-users! We press a switch to turn on a light, for example. If the light switch were connected to our stereo system, we could use that self-same switch to set a CD playing. If it were connected to a midi-controller programmed to play a cymbal, we could make the cymbal crash each time we set the switch to the 'on' position. To switch on the bathroom light, we pull a chord. This is another example of a switch that makes a single event happen. These are termed 'single' switches.

We may have 'dimmer' switches on our lighting system. Typically, these work by rotating a knob: as we turn in one direction the light gets brighter, while turning back the other way makes the light more subdued. This is what we term a 'proportional' switch. The same principle controls the volume on our stereo system. It could, equally well, control the pitch of a synthesized sound. Wired up, appropriately, we could use the dimmer switch from our lounge to play a scale on a 'clarinet'.

Individual Switches Requirements

A disabled person may be unable to use our light switch. Perhaps eye-blinking is the only movement a child can control. If so, there are both single and proportional switches that can respond to this

tiny movement. There is a tremendous range of switches and a system can be found to match individual requirements.

An individual's method of operation

It is unlikely to be the music teacher who, in the first instance, identifies appropriate systems and trains the youngsters in their use. It should be realised that each discipline brings to switch selection distinct professional knowledge, aims and responsibilities. The communication specialist's priority will be ease and quality of communication, rather than a preferred method of operation. The physiotherapist will be concerned to restore, or maintain, the best possible physical functioning and will be alert to the possible effects of long-term use. In a musical context, there will be yet another set of criteria to consider. For example, someone who operates a communication device with single switches may be better able to make music with a proportional switch, which makes a greater range of pitched sounds available.

Switches as virtual instruments

In the music classroom, there is an additional form of communication, through the language of music. For the severely disabled individual this may necessitate access to a new set of hardware. The music hardware is also switch-operated and is based around a midi-controller.

A midi-controller is a mini computer, which can be programmed to work with single or proportional switches. Controllers can be purchased with a range of preset programs and adaptors, so all a teacher has to do is to select the program and plug in the switches. Any switch can be connected to it (by means of an appropriate adaptor), so it would be possible to use our press-switch or chord-pull to play a single instrumental sound and we could use our dimmer switch, volume-slider, etc. to play a scale.

If necessary, a highly specialised switch can be unplugged from a pupil's communication device and connected to the music hardware. Colleagues may have no idea that it can be used to control the music

equipment and the music teacher can perform a valuable service to the child by requesting that an appropriate adaptor be obtained.

Switches for music

A range of switches for music performance can be purchased from the suppliers of midi-controllers. Although switch control is particularly suitable for severely disabled individuals, this method of operating synthesisers, etc., was introduced to meet the needs of mainstream musicians and a range of suitable switches developed. Drum pads, for example, are large touch-sensitive switches for connecting to a drum machine; foot-pedals are proportional switches to control volume, etc. There are large pads, activated by walking or stamping on them or passing over them in a wheelchair. A vast range of on-off switches can be used to trigger events and there are infra-red devices, joysticks, etc., for proportional control.

Two useful links to switch -related information for musicians are:

<http://www.midicreator.com>

<http://www.drakemusicproject.org>

The music teacher may be the first to explore switches not hitherto encountered by colleagues or to observe a pupil's superior performance with a new device. By feeding back this information, the music department can make a valuable contribution to cross-curricular resources. Some schools might find it very beneficial to test new switches in the music department, where the motivation of disabled pupils is often particularly high.

Using switches to maximum effect

When pupils can do very little, it is important that what they can do is made to count. The pupil who can't sustain a rhythm but can activate a switch infrequently, will find it more agreeable to independently trigger a crash on the cymbals, or to introduce a tune with a descending peal of bells, than to have someone 'assist' them by continuously using a beater, 'hand-over-hand'. In those cases where the 'hand-over-hand' method is necessary, even to operate a

switch, great sensitivity must be exercised by the attendant, picking up on the pupil's intentions.

The choice of instrumental sounds and where they appear in a musical arrangement can have a powerful effect. It is good to invite suggestions from the pupils in this respect and to experiment. Non-specialist teachers may need help in applying the principles of orchestration, in order to use switch-activated instruments to maximum effect. It may be possible to obtain support from a local authority advisor. Materials are also available, from Living My Song's distributor, at <http://www.fullpitcher.co.uk> .

Changing switch settings

A useful aspect of virtual, and other electronic instruments, is the degree of control that the teacher has over them. Volume can be raised or lowered, the latter sometimes saving disruption to a performance. The output can often be transposed to another key, enabling a less able performer to play in otherwise inaccessible keys. Instrumental sounds can be changed to fit in with the desired orchestration. Several players can, simultaneously, play a single multi-timbral keyboard.

Taking turns

Lack of physical stamina is characteristic of most physically-disabled pupils, although it is most acute in those who are so disabled as to require switch access. They need to have the physical demands of performance broken up into small chunks. We can make a virtue of this necessity by linking the contribution of individual groups of pupils to the structure of the music they are performing. As musicians know, "It's the rests that are most difficult to play!" By taking turns and learning to start and stop at appropriate points, pupils' attention is sharpened and they develop musical skills and confidence that might otherwise elude them. At various times, there are opportunities to focus on the musical parameters of timbre, pitch, volume, etc..

One child, several switches

Sometimes, a child with insufficient range of movement to play several instruments may be able to play several, suitably positioned switches. In this way, for example, a pupil with limited reach could play all the instruments of a drum-kit. A child lacking the fine motor control to play a conventional melodic instrument might play a row of, suitably-spaced, switches sounding all the notes of a scale.

Playing chords

If there are several switch-users in a class, they can share a chordal accompaniment between them, each switch being set to sound a different chord, or a note from the chord. Of course, conventional instruments can also fulfil this role. Here, we have another good opportunity for training in listening skills - less really can be more!

Switches as a general resource

We should mention the desirability of letting able-bodied children use the switches. Switch-users should also play conventional instruments, whenever this is feasible. It might be a good class project to explore the use of switches by professional musicians. The switch-controls are real, if unusual, instruments. They must be played with the same musicality as any other and afforded the same respect.: quality of performance on virtual instruments requires just as much practice and concentration. Proportional switches, in particular, can require considerable patience and work before they yield consistent result!