

School of Communication
Sciences and Disorders

The University of Sydney



Multi Sensory Room

Technical Solutions Australia Pty Ltd

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History

Carers and Therapists have been experimenting with the concept of Multi Sensory Rooms for a long time. These rooms were often called "The Quiet Room", or something similar. Various combinations of furniture, lighting and sound were subsequently added to modify the atmosphere of these rooms.

In Europe, The White Room has become very popular as an environment in which gentle stimulation and relaxation can be provided. The walls of these rooms are painted white, providing a surface to project coloured images and patterns onto.

Equipment ranging from effects projectors, music systems, illuminated bubble columns, vibrating devices and aroma diffusers can be combined to alter the environment in many ways.

Relaxation

Originating in Holland, the term Snoezelen was created to describe the use and development of White Rooms to provide "people who have sensory and learning disabilities with appropriate relaxation and leisure facilities"¹. The Snoezelen approach emphasises relaxation, leisure and the relationship between participants and "enablers". The "essence of the Snoezelen approach is to allow the individual the time, space and opportunity to enjoy the environment at their own pace, free from the expectations of others. ²" The name 'Snoezelen' is now a registered trademark of the Rompa Company in England.

Active educational programs

Technical Solutions has developed Multi Sensory Rooms that can be used for both relaxation and more active training sessions. These rooms have added switch interactivity to most of the equipment. This allows Multi Sensory Rooms to be used in more active educational programs, where switch skills, cause-effect understanding, concentration and memory abilities can be developed in a focused environment.

The design for the Multi Sensory Room (MSR) evolved from a number of meetings and discussions between Staff and Technical Solutions. It was felt that facilities built into the room must be as flexible as possible to ensure a wide range of programs and uses could be accommodated.

The end result is an environment which will undoubtedly appeal to both clients and carers, as well as provide a very distinctive addition to the centre's curriculum.

1. R. Hutchinson & J. Lewin , Sensations & Disability , U.K., ROMPA, 1994. pp8

2. Ibid.

Supervision

The Multi Sensory Room is intended as a joint experience between the clients and carers, therefore supervision should not be an issue.

It may be appropriate to leave some clients to explore or experience the room on their own.

We urge caution, and recommend clients only be left unsupervised if there is no risk of them causing harm to themselves or the room.

Upholstery and Furnishings

Padded floor mats can be included as part of the room furnishing. These can provide a comfortable, secure area to move, crawl, roll or simply sit in.

Cleaning the mats

Vinyl upholstery should be cleaned using a soft, non-abrasive cloth and soap or a gentle detergent. Cleaners such as "Spray & wipe" or "Mr. Sheen" can be used, but avoid any strong solvent or abrasive cleaner as it will damage the vinyl.

Equipment Switching

Special wiring has been installed in the Multi Sensory Room (MSR) to enable equipment to be easily used, and to save staff locating switches and power points scattered around the room. Most of the circuits are operated from a single point just inside the door.

Master Switches

These turn off all activities and equipment. Make sure the Master switches are off when you have finished with the room.

Individual Circuits

Each piece of equipment has its own switch and each switch is clearly labelled.

NOTE:

The Master Switches must be on in order to operate the individual circuits

Switches/Dimmers

Coloured reflector lamps are mounted in the ceiling to give ambient light levels. These run through a dimmer, and can be adjusted to suit the activity planned.

A Master Light switch is fitted which turns all the reflector lamps off and on at once.

Tactile Musical MIDI Mate

Tactile Musical MIDI Mate is small enough to fit on a table top and features 8 different tactile squares on the front panel. Great for sensory exploration, as well as music play and therapy - simply press a textured panel to play a note. The Tactile Musical MIDI Mate works with a MIDI instrument. (normally a keyboard which can be purchased separately from Technical Solutions) When the textured panel is pressed a sound or combination of sounds, generated by the midi keyboard, will be heard.

The keyboard can be programmed to play a range of different musical instruments; and can play individual notes, chords, percussion or sound effects. A control button on the rear of the Tactile Musical MIDI Mate can be used to step through various musical options.

The Musical Instrument Digital Interface (MIDI) is a language that allows different electronic instruments to talk to each other. In the music industry, this system lets musicians make keyboards sound like guitars, and guitars sound like bass drums. Our MIDI Mate draws on this industry standard, to make a special switch sound like anything from a pipe organ to a telephone!

OPERATION

- Connect a MIDI lead between the MIDI out socket on the MIDI Mate and the MIDI in socket on your keyboard or synthesiser.
- Turn on the keyboard, and if needed make sure it is set to receive MIDI commands.
- Turn on the MIDI Mate. You will hear a brief arpeggio if everything is working.
- Select the mode you want the MIDI Mate to operate in by pressing the MODE switch (refer to the chart below) The MIDI Mate will always start in Mode 1.
- Press the textured plates to make music!



Optional Switch access

For making music with external switches:

An optional break out box with eight switch sockets can be plugged into the accessories socket on the unit. Plug up to eight switches into break out box and several students can form a band. Plug in our Mat Switch Set or Cushion Switches to create a musical walk way!



PROBLEM SOLVING

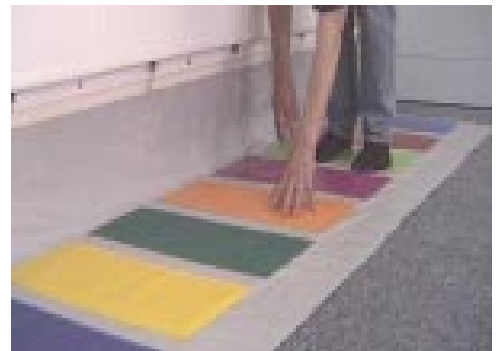
No Sound?

- If you hear nothing, and the Mode light is not showing, check that the power supply is plugged in.
- If you hear nothing, and the Mode light is showing, check the switches and the MIDI lead to the synthesiser. Check the keyboard is turned on and the volume is turned up.
- If the sound from the synthesiser is distorted, the problem will be in the synthesiser, and not the MIDI Box/Mate. The MIDI Box/Mate only tells the synthesiser to make a sound; the actual sound is made in the synthesiser.

Mat Switch - set of Eight

Simply plug the eight switch leads from the Mat Switches into the MIDI Box.

Please refer to Upholstery and Furnishings for suitable cleaning techniques and materials.



Common musical setup

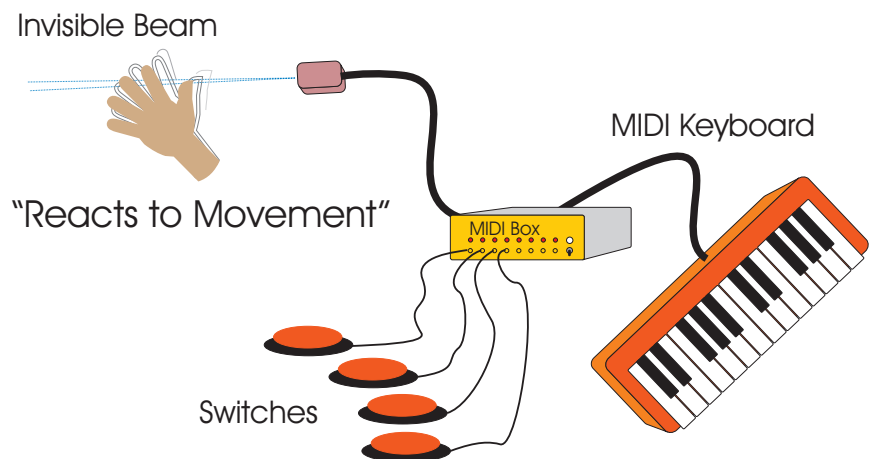
Choose preferred scale - mode 3,4,5 or 6 - Then program the keyboard for the desired instrument sound.

| Mode | Effect | Switch 1 | Switch 2 | Switch 3 | Switch 4 | Switch 5 | Switch 6 | Switch 7 | Switch 8 |
|------|---|----------------------|---------------------------|----------------------------|-----------------------|--------------------------|-----------------------|-----------------------|--------------------------|
| 1 | Sequence of notes - each switch plays a different instrument | Celestea | Jazz Guitar | Tinkle Bell | Trumpet | Voice Oohs | Charang | Piccolo | Telephone |
| 2 | Each switch plays a different percussion instrument | | | | | | | | |
| 3 | C Major scale, one octave below middle C | Note: C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: Middle C |
| 4 | C Major scale, starting at middle C | Note: Middle C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: C |
| 5 | C Major scale, one octave above middle C | Note: C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: C |
| 6 | C Major scale, playing a 3 octave chord | Notes: C | Notes: D | Notes: E | Notes: F | Notes: G | Notes: A | Notes: B | Notes: C |
| 7 | Arpeggio | | | | | | | | |
| 8 | Instrument change. This changes the type of instrument you will hear when using modes 3 - 7 | MIDI patch 8 Celesta | MIDI patch 26 Jazz Guitar | MIDI patch 112 Tinkle Bell | MIDI patch 56 Trumpet | MIDI patch 53 Voice Oohs | MIDI patch 84 Charang | MIDI patch 72 Piccolo | MIDI patch 124 Telephone |

Invisible Keyboard MIDI Box

The Invisible Keyboard detects a person near the sensor and creates music as the person moves. The MIDI Control Box then sends MIDI signals to trigger notes, chords, percussion sounds and effects - when plugged into any MIDI instrument (normally a keyboard or synthesizer).

- Anyone can make music:
- Responds to full body movement
- or just slightest finger or facial twitch.
- Encourage and reward movement
- Simple to set up and operate
- Plus, all the same features as our standard MIDI Box



OPERATION

- Connect a MIDI lead between the MIDI out socket on the MIDI Box and the MIDI in socket on your keyboard or synthesiser.
- Plug the infra red sensor into the socket at the back of the Midi Box. (It only fits one socket!)
- Plug as many switches into the switch input sockets on the front of the MIDI box as you need.
- Turn on the synthesiser, and if needed make sure it is set to receive MIDI commands.
- Turn on the MIDI Box. You will hear a brief arpeggio if everything is working.
- Select the mode you want the MIDI Box to operate in by pressing the MODE switch (refer to the chart below) The MIDI Box will always start in Mode 1.
- Press the special switches, or move in front of the sensor to make music!

Operating Modes

A rocker switch changes between Invisible Keyboard mode and MIDI Switch Box.

- In Invisible Keyboard mode, moving in front of the sensor produces the main sounds, while operating the switches will make percussion sounds. The mode lights flash when in Invisible Keyboard Mode.
- In MIDI Switch Box mode, with up to 8 switches plugged into the sockets labeled switch 1 - 8. Operating these switches will activate different sounds depending on the mode that has been selected. The switch chart lists the many options. The mode lights are steady when in switch mode.

Invisible Keyboard MIDI Box Modes

Operating Modes

A rocker switch changes between Invisible Keyboard mode and MIDI Switch Box mode.

After selecting Invisible Keyboard or MIDI Switch Box as above. The MODE button can then be used to select the types of sounds generated by the MIDI Box. Pressing the MODE button cycles through the eight options. A LED on the front panel shows which mode is currently selected.

INVISIBLE KEYBOARD MODE (Mode switch ON)

| Mode | Invisible Keyboard Effect | Switch Sounds |
|------|--|-------------------|
| 1 | Full range of notes, on MIDI channel 1. Instrument sound is set on MIDI unit. | Percussion sounds |
| 2 | Pitch Bend. Step into the beam, then wiggle to make the pitch vary. Instrument sound is set on MIDI unit. | |
| 3 | Restricted range of notes. (Larger movement required to change sounds) Instrument sound is set on MIDI unit. | |
| 4 | C Major Scale (one octave). Instrument sound is set on MIDI unit. | |
| 5 | Space Choir | |
| 6 | Recorder sound | |
| 7 | Wide range of percussion sounds. (Small movement makes lots of different sounds) | |
| 8 | Restricted range of percussion sounds. (Larger movement required to change sounds) | |

MIDI SWITCH BOX MODE (Mode switch - Invisible Keyboard OFF)

| Mode | Effect | Switch 1 | Switch 2 | Switch 3 | Switch 4 | Switch 5 | Switch 6 | Switch 7 | Switch 8 |
|------|---|-----------------------|---------------------------|----------------------------|-----------------------|--------------------------|-----------------------|-----------------------|--------------------------|
| 1 | Sequence of notes - each switch plays a different instrument | Celestea | Jazz Guitar | Tinkle Bell | Trumpet | Voice Oohs | Charang | Piccolo | Telephone |
| 2 | Each switch plays a different percussion instrument | | | | | | | | |
| 3 | C Major scale, one octave below middle C | Note: C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: Middle C |
| 4 | C Major scale, starting at middle C | Note: Middle C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: C |
| 5 | C Major scale, one octave above middle C | Note: C | Note: D | Note: E | Note: F | Note: G | Note: A | Note: B | Note: C |
| 6 | C Major scale, playing a 3 octave chord | Notes: C | Notes: D | Notes: E | Notes: F | Notes: G | Notes: A | Notes: B | Notes: C |
| 7 | Arpeggio | | | | | | | | |
| 8 | Instrument change. This changes the type of instrument you will hear when using modes 3 - 7 | MIDI patch 8 Celestea | MIDI patch 26 Jazz Guitar | MIDI patch 112 Tinkle Bell | MIDI patch 56 Trumpet | MIDI patch 53 Voice Oohs | MIDI patch 84 Charang | MIDI patch 72 Piccolo | MIDI patch 124 Telephone |

Vibrating Bed - with music & voice

The Vibrating Bed provides tactile stimulation which compliments the auditory and visual features of our Multi Sensory Rooms. The Bed can be used as an activity on its own, or in conjunction with other effects.

Setting the Timer

The Vibrating Bed is designed to run for an adjustable time period then turn off automatically.

- With the switch set to *Seconds*, the Bed will run for 1 to 60 seconds, depending on the position of the *Timer knob*.
- With the switch set to *Minutes*, the Bed will run for up to 10 minutes, depending on the position of the *Timer knob*.



Starting the Bed

- Set the Timer as above then press the *Start* button. (For *Interactive Control* plug in an extension switch to the switch input)

Stopping the Bed

- Turn the *Timer knob* to the minimum time (anticlockwise).

Using the Vibration Function

- Adjust the *Vib. Volume* knob, set the timer and press the *Start* button.

Using the Microphone

- Plug a microphone into the Vibrating Bed and switch on the microphone.
- Adjust the *Mic. Volume* knob, set the timer and press the *Start* button.

Controlling the Music

- Requires connection to a sound source - see next page.
- Turn on the stereo sound system and start some music playing.
- Adjust the *Music Volume* knob, set the timer and press the *Start* button.

IMPORTANT:

Always turn all the Sound Volume knobs, except the sound/s that you are using, to the minimum setting.

If the power to the sound system is turned off, a hissing sound may be heard in the Vibrating Bed. Remedy this by turning the Music Volume to the minimum setting.



Vibrating Bed - Wireless audio link

The Vibrating bed can be connected to most sound systems (Radios CD players etc.) provided that the sound system has a suitable audio output.

The music from the sound system is transmitted to the Vibrating Bed via a wireless audio link.

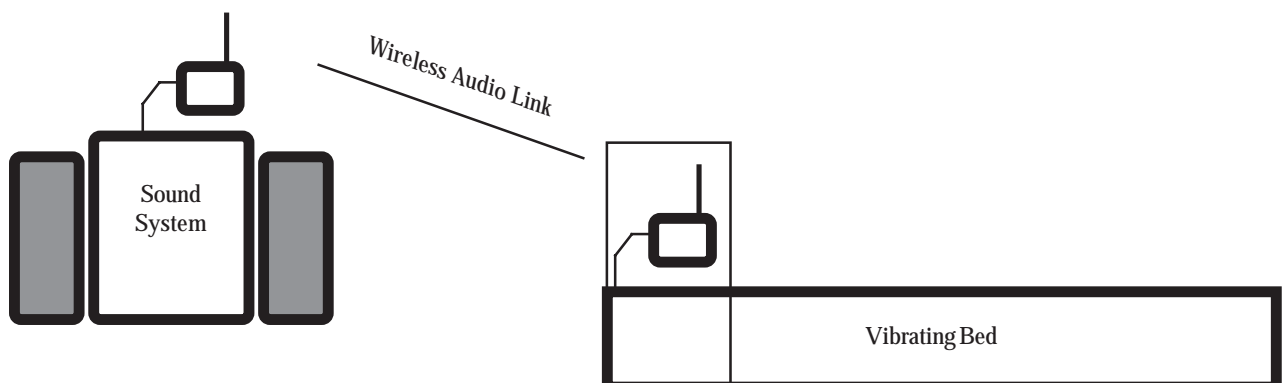
Setup:

- Plug the lead from the 12Volt DC plug pack Power Supply into the Power Input socket on the Vibrating Mat Audio Link.
- Connect the 12Volt DC plug pack Power Supply into a 240 Volt power point.
- If the sound system has an RCA Audio Out, Line Out or Aux Out, connect the RCA lead from on of these outputs to the Audio Input on the Vibrating Mat Audio Link.
- If the sound system DOES NOT have an RCA Audio output, as described above, connect the 'RCA to headphones' lead from the headphones jack on the sound system to the Audio Input on the Vibrating Mat Audio Link. Note that this is a less satisfactory arrangement as this will usually disable the sound system speakers.

NOTES:

Always turn all the *Sound Volume* knobs, except the sound/s that you are using, to the minimum setting.

If the power to the sound system is turned off, a hissing sound may be heard in the Vibrating Bed. This is normal, Remedy this by turning the *Music Volume* to the minimum setting.



Mirror Ball, Spotlight and Colour Wheel



The mirror ball, Spotlight and Colour Wheel combination casts a fascinating pattern of dappled light spots across the room. A special slow speed rotator has been used to give a relaxing, slow movement.

Control

The mirror ball motor and pin spot lamp have individual switches in the control area, and can be switched on separately. Switch off the mirror ball to create a pleasant static pattern of light spots around the room. The speed of rotation of the mirror ball motor can be adjusted. Should this be necessary, contact Technical Solutions for further instructions.

Cordless Remote control

The Spotlight and Colour Wheel combination unit has been fitted with a miniature radio receiver interface which receives radio signals from the Cordless Big Red Switch or Cordless Switch Adaptor and turns the device on or off as required.

See the section on cordless switches (Page 5.) for more information.

Changing The Globe

Unplug the spotlight from the power before releasing the retaining spring at the front of the globe. The globe then drops out of the front of the case. Two wires, which are held in place with screws, connect the globe to the power supply. A small flat blade screw driver must be used to transfer these wires from the old globe across to the new globe.

Effects Projector

A wide variety of visual effects can be obtained from the effects projector. By changing the effects wheel, images ranging from abstract patterns to particular themes can be projected.

Effects wheels are changed by releasing the screw on the wheel hub and sliding the wheel forward. Please consult with staff members who have been trained by Technical Solutions before changing the effects wheels.

To change the lamp, first disconnect the projector from the power supply. Remove the top cover plate. Lift off the lamp cover plate and ease the globe up out of its socket. Refer to the instruction sheet supplied with the projector for full details.

Do not touch the lamp with your fingers as the finger prints will burn and create hot spots on the glass - hold it with a clean cloth or tissue.



Changing Globes in Solar Effects Projectors

Step 1.

ALLWAYS unplug the projector BEFORE removing lamp cover and wait until it is completely cool.

If necessary, remove the projector from the wall by unscrewing the two black knobs on each side. This is easier if a second person helps to hold the projector.



Step 2.

Use a Philips screwdriver to take out the screw holding the lamp cover in place. Tilt the cover up, and then out of its slot.

Step 3.

Pull the lamp straight up and out of the socket. Small sideways “wobbles” may help - it will be fairly stiff. Be careful not to get fingerprints on the glass lens or the reflector.



Step 4.

Break the end of the protective bag and slide the globe half way out - without touching the glass. Never touch a new globe with your skin. The fingerprints will burn on the globe.



Step 5.

Holding the globe with its bag, line up the two pins with the socket, and then ease them down. It will take a bit of downward pressure to get the globe in.

Remove the protective bag and replace the lamp housing cover.

Always keep a spare globe. If you have a replacement globe handy, you won't be stuck without a projector. Replacement projector globes can be ordered from Technical Solutions

Never touch a new globe with your skin.



Activity Wall

Activity Walls are designed to encourage active involvement. Each panel is designed to be appealing and encourage interaction. The educational basis behind each panel includes plain fun, specific dexterity skills, cause and effect relationships, and sensory stimulation.

These walls are based on a 300mm square matrix. It is a simple task to add or change panels so the activity wall can evolve as students requirements develop.

Vibrating Plate

The whole plate vibrates when pressed.



Switch Activated Fan

A stream of air blows against you as you press the switch.



Mirrored Bead Chain

Moving the bead chain aside reveals your reflection in the mirror.



Sensory Bag

Totally non-electronic! Reach into the bag

and see what you can find... Great fun with a range of different coloured tactile objects.



Sparkling Carpet panel

The shimmering, ever changing pattern is like a multi coloured galaxy. The carpet can be safely explored and provides a peaceful visual display.



Ladder Light

A sound-activated explosion of multicoloured lights! The more noise you make the higher the lights climb up the ladder. It features both a built in and a plug-in microphone.

Operation

A sensitivity control knob and socket for external microphone are fitted below and off to one side of the ladder lights.

Sound Activated Mode: Adjust the sensitivity knob to give a suitable amount of activity from the lights. To increase sensitivity, or to provide students with a more tangible point to direct sound to, an external microphone can be plugged into the microphone socket.

Changing light globes: To change a light globe: Turn off the Power. Remove the screws holding the particular panel in place. Ease the panel forward, but do not pull too hard - the panel has wires joining each section together. Pull out the globe holder for the faulty globe, and remove the globe in the same way as you would remove a normal household globe. Replace the globe with another 12 Volt 10 Watt automotive globe. (Available from Technical Solutions and most car electrical suppliers.) *Using a globe rated higher than 10 Watts may overheat and damage the display.*

Press the globe holder back into its hole and reassemble the display.

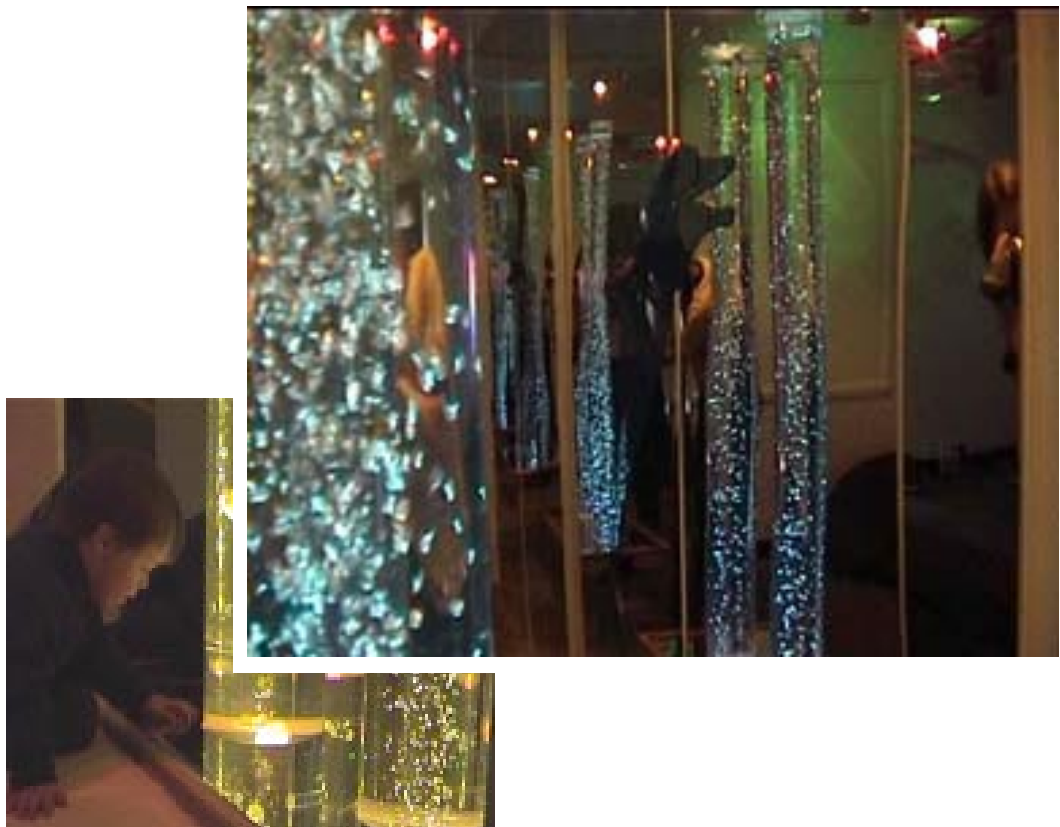


Bubble Column -Cordless Colour Control

With Radio Linked Control

The two metre high Bubble Column is a feature of the MSR. The bubbles gently change colours creating a soft mood which provides a focus point in the room. The effect of the columns is dramatically enhanced by the 2 x 1 metre mirrors mounted behind them.

The Bubble Column can be operated in the display mode for meditation/relaxation, or in the interactive mode as an excellent colourful reward for switch training. Our new radio linked cordless switches offer increased control, simplicity and freedom from tangled switch wires!



Automatic Display mode:

A colourful display of bubbles and lights. This mode is activated when the Bubble Column is first turned on.

- To switch from interactive mode to display mode, turn off the power to the bubble column, wait 10 seconds, then turn it back on.
- The speed knob controls the speed of the display
- The Pattern knob changes the sequence of the display as follows:
 - 1 Red, green, blue cross fade
 - 2 All fade up and down
 - 3 All on
 - 4 Red, green, blue random pulse
 - 5 Red, green, blue sequential fade
 - 6 Red, green, blue random cross fade
 - 7 All half on

Bubble Column - Maintenance

Radio Linked Control - Interactive Mode

Set up the Big Red, Green and Blue switches as follows:

- Set the ACTION switch to instant, latching or a delay time.
- Instant- the Bubble Column will go while the switch is pressed.
- Latching- the Bubble Column will start with one switch press and stop with the next.
- Timer- the Bubble Column will start when the switch is pressed then stop after the set time elapses (a 5 or 10 second reward for a switch press can be effective for teaching)



Set the DEVICE switch as required.

- The Big Red switch is factory set to '3' to operate the red light and bubbles.
- Set to '0' for red light only.
- The Big Green switch is factory set to '4' to operate the green light and bubbles.
- Set to '1' for green light only.
- The Big Blue switch is factory set to '5' to operate the blue light and bubbles.
- Set to '2' for blue light only.

Batteries and Storage

The big switches have a 9Volt battery fitted. Do not store the switch in the depressed state or the battery will be drained. For prolonged storage, remove battery.

The Bubble Column is made of acrylic (plastic) tube. They are very strong, but will not stand up to extreme bumps. Mobile clients should not be left unsupervised if they are likely to "aggressively explore" the columns.

Trouble Shooting

- If the lights fail to come on and the bubbles are working: turn off the power to the bubble column, wait 10 seconds, then turn it back on.
- If one coloured light fails: See *Changing Globes* below to replace the suspect globe.
- If the lights and bubbles fail to operate: turn off the power to the bubble column, wait 10 seconds, then turn it back on.

Cleaning

Both the column and acrylic mirrors should be cleaned with a soft cloth and a plastic safe cleaner. (Mr. Sheen or similar products have the added advantage of being antistatic, which helps repel dust.) Do not use paper towels as these are abrasive, and will scratch the plastic.

Sterilising

"Milton Tablets", containing chlorine can be used to sterilise the water - we suggest at least once a week. These tablets can be obtained from chemists. The water should also be changed on a regular basis - the frequency depends on the original water purity and ambient temperature.

Bubble Column - Maintenance

Emptying & Refilling

Bubble Columns should be emptied if they are not going to be used for extended periods, eg. during school holidays. They should also be emptied and refilled if the water has become cloudy due to biological growth such as algae. (If this is an ongoing problem, a more stringent sterilising regimen should be adopted).

Emptying Procedure

Equipment required: 1 x step ladder
1 x 6 metre garden hose
1 x garden hose long enough to reach from the bubble column to a suitable drain.
1 x electric drill
1 x water pump attachment supplied by Technical Solutions

- Carefully remove the lid from the column and feed one end of the 6 metre hose down the inside of the column all the way to the bottom.
- Connect the other end of this hose to the water pump inlet
- Connect the other hose to the pump outlet and run it to a suitable drain.
- Plug in the drill and turn it on to start pumping.

Note: If the pump doesn't work

DON'T RUN FOR MORE THAN 10 SECONDS WITH NO WATER FLOWING

- Make sure that the connections to pump are properly sealed.
- If the drill has forward/reverse gears, try changing the direction of rotation.

Filling Procedure

- With all columns empty, turn on the bubble column.
- Using a hose or suitable container, pour about 1 litre of water in each bubble column.
- Check that each column is bubbling properly.
- Keep the columns bubbling while filling each column to about 2cm from the top.

Changing Globes



The front panel, at the base of the unit, can be removed, giving access to the lights and pump. The lamp assembly for each column can be slid forward a short distance, so the lamps can be reached.

WARNING: The globes may be very hot and the coloured glass filters are very fragile.

They fit tightly into the lamp connector, so it will be necessary to hold the connector steady while the globe is eased out.

A new globe can then be pressed back into place. Only use 12 Volt 20 Watt quartz halogen globes. Do not touch the inside of the globe as oil from fingers will burn on the globe.

