

- **WHAT IS SOUNDBEAM?**

Soundbeam is a highly accessible musical instrument which uses movement sensors and wireless touch switches to enable individuals and groups at any level of cognitive or physical ability to become expressive and communicative using music and sound. Unlike simpler interfaces Soundbeam offers the user the opportunity to personalise the material using sophisticated yet easy-to-navigate composition functions, but there is also a wealth of pre-loaded activity for users who aren't ready for this and the interface can be easily calibrated to accommodate the level of confidence and playing skill that the user has reached. Soundbeam has evolved over a period of thirty years. During this time it has established itself as the pinnacle assistive technology resource for music for people with learning and physical disabilities, with over 5000 passionate user organisations in more than twenty countries. Soundbeam 6 is the latest iteration of the technology. Launched in 2017 it represents a massive leap forward from its predecessors: easy to use with a minimum of wires and connections, and with hugely enhanced functionality.

- **WHY IT WOULD BENEFIT OUR RESIDENTS?**

For anyone with compromised physical or cognitive function, providing activity that people can actually do – but which is at the same time age-appropriate, non-patronising, challenging and consistently enjoyable – has to be of value.

- **IMPACT MEASURES**

Evidence for the efficacy of Soundbeam is primarily anecdotal though there is a substantial body of academic research (see bibliography) notably by Professor Phil Ellis at the University of Sunderland and Dr Kim McCord at the University of Illinois, as well as numerous Master's and PhD theses.

“We love our Sound Beams! That’s probably the best way to start this thank you note. We have had it now for just over two months and residents, staff and families are all enjoying it! It is absolutely incredible to watch the residents open up and engage in its use. Some of the residents using it had been quite passive residents before and are now fully engaged when they use it. We do appreciate your co-operation in seeing that the staff were trained to use it and your willingness to come back and give updates. It’s nice to know that if we have any problems, you’ll stand behind the product. I have received only positive feedback from the Sound Beam and would definitely recommend it to others. Thank you so much for all of your help!”

Shari Ecclestone, Program Manager, Leisureworld Caregiving Centre, Muskoka, Canada

“Before I go about blogging about my gadget and gizmo Xmas presents, I shall tell you the story that bought a little bit of magic to my festive period.

The Tunbridge Wells Care Centre is a recently built nursing home, housing around 70 beds, and is situated in Tunbridge Wells in the UK.

Alongside local charity Compaid, those lovely so-and-so’s at the care centre arranged some for cutting edge music technology Soundbeam sessions, including some jazz, classical and easy-listening for residents.

Soundbeam devices allow people to make music, regardless of their level of cognition and mobility. The ‘touch free’ apparatus uses sensor technology and beams of light to translate body movement into music and sound.

Throughout the sessions, instructors assisted some of the residents in using the touch free device, with the nature and sensitivity of the beam allowing even the most immobilised residents to ‘play’ independently.

Activity manager at the care home, Bill Blackford, praised the use of Soundbeam technology:

“This technology liberates participants from both the expressive limitations and the physical challenges of more traditional percussion-based approaches.”



Lovely ladies at the care home using the touch free device to make their own music

When further discussing the benefits of Soundbeam for his residents, Bill stated:

“It is particularly applicable for those with dementia.” Adding “Music triggers our memories and has the ability to transport us back to emotive times in our lives, which can really give everyone a boost.”

With all the recent negative press about the state of carers and care homes in the UK, this little story bought some joy to my heart, and some faith in the kindness and ingenuity of those who are entrusted to look after our disable and elderly, especially after seeing this little quote on their website:

“This provision of our meaningful activities is all about enabling rather than disabling.”

Keep it up team!”

<https://technartidotcom1.wordpress.com/>

Transcript of interview with Chris Lees, Soundbeam musician

q. Have you had many opportunities to be creative?

CL: *when I was of school age, when most people are thinking about being creative....my whole life was focussed on getting me to walk. Music or intellectual creativity didn't come into it, because the general philosophy of the public was that I wasn't going to have anything like a social life, attending concerts or anything of that sort because the general public were of the opinion that I should be put somewhere and looked after, in terms of my physical condition.. and the emphasis was that one day, when you've learned to walk, you can start to have a life; until then you put it on hold until that magic button gets pushed by somebody somewhere, whereby you are a fully functional human being.....*

q. tell me about the first time you played Soundbeam?

CL: *...on the first occasion that I played it...it took me a long time to actually trust it and realise that you can make proper music with it rather than an uncoordinated musical noise....*

q. If I came from Mars, how would you explain SB to me?

CL: *to look at it, it's not very interesting, not like a Stradivarius violin or a harp....the thing that entices you to try to get some decent noise out of a Soundbeam is the fact that you don't have to argue with yourself to make it work. You see, when I'm living my normal life there is always a sort of inner conflict which says 'what I want to do is a good idea but it won't work because my body won't cooperate'....there is always a gap between what goes into my head and my physical ability to get my body to behave itself, but with SB all that can disappear, cos you've only got to wave your arm in any way that you're physically able to, and this conflict disappears, which is one of the joys of using the damn thing, and that's what makes it a joy to use, after a while.*

q. how does it feel when you're playing?

CL: *when I was a lot younger there was this magic idea that if I could only relax then my body would start to be a little more cooperative with Soundbeam I don't have to have that argument with myself...because as soon as I wave my hand under the beam it starts to work all by itself and I don't have to go through this internal frustrating turmoil to kick the thing into gear. If I were for example*

to pick up a recorder and expect my fingers to hit the holes in some sort of coordinated fashion, it's never going to work.

q. in the time you've been playing SB is it something you've got more skilful at?

CL: I've been told by other people that I have become more skilful and I have to think back to what it sounded like when we started which was an uncoordinated row....I was told to move my arm about...and it sounded awful...couple of six year olds would be able to produce a more cohesive noise than we were able to produce at the beginning, but as we learned to settle down and relax, because we don't have to fight with it, we just have to use it and begin to enjoy it. When you get rid of that argument that's inside your head it all starts to come together and achieve the kind of noise that you wanted in the first place.

q. would you describe it as therapy?

CL: No...it's a bit synthetic with somebody standing in the background saying 'what you have to do is this'. The reason we get most joy out of it is because there's no script to it, there is when we attack a concert, but we can have the most marvellous time just doing our thing.

q. concerts?

CL: We've done one or two concerts, the audiences haven't been vast, but on the occasion that we've done concerts at the Birmingham Conservatoire...the noises we produced were not at all unpleasant. It hasn't got the depth and intensity of a full-blown orchestra but if you learn to be happy with it you can make some quite passable noises.

q. sounds like playing in a group has been exciting?

CL: you don't have to work to a script and that again means that...none of us can actually read music because when you have got a disability your possibility of doing two things at once – keeping your body under control and coping with the beam would be too much of an effort if it was too complicated. For a moment when it really comes together you can almost forget that you're in a wheelchair, and that is the most marvellous thing on the planet. I can forget about all the junk that I have to live with....in those terms what I have to live with might seem quite substantial to you...what you seek to do is forget about the fact that you're surrounded by a lump of metal, that – like all the gadgets you have to use, will take up quite a much of your life ...personally I regards it as a lump of junk that I've got to have.....

q. what have you learned through playing SB?

CL: it may sound a bit extreme but I've learned that it's perfectly legal for me to just sit here and enjoy myself, I don't have to ask anybody for any help, I don't have to justify the kind of noises I'm getting out of the thing, I can just enjoy it, without any (?) trimmings of somebody saying 'you're not doing this properly, or 'it ought to be louder or softer'...it just works.

q. have you discovered any new music?

CL: before I got involved with the Soundbeam, my musical taste and appreciation of music was fairly static, in that the only music that to me made any sense was classical music, I have to reluctantly

admit that it's not to everybody's taste. What I was taught through the Soundbeam and the people I used it with is that other people's music is just as valid as my own, but I couldn't have reached that point unless I had used the damn thing without too much tension running through my body. Because I don't have to write a script and say 'that turned out not quite as I wanted it but it sounds almost right and I promise the next time I do it I'll do it properly'. You see, you don't have to worry about that kind of thing when you're just playing around with it and enjoying it.

q. can you see a time when you start to compose with SB?

CL: I've no wish to compose. What I appreciate most is the absolute freedom it gives me, I can make it work with very little effort, and the kind of level of relaxation and comfort that it gives me even for a brief couple of hours is absolutely fantastic. If I could bottle it – I would!

q: do you prefer playing in a group or solo.....

CL: I get most of my pleasure I prefer to use it in a group because my previous experience of music other than classical has been so structurally tight that it takes me a little longer to learn that I can bounce off other people, if you've got one person playing the guitar and another person playing the cymbals or whatever they happen to have, recorder or tin whistle, whatever, the fact that I can just join in when I feel like it and the whole thing is so loose and relaxed –

it's magic, like I said if I could bottle it I would.

Links,

Chris Lees -

<https://www.youtube.com/watch?v=jjolGyKnsvQ&index=10&t=120s&list=PL3577B28918C5D460>

Phil 1 –

https://drive.google.com/file/d/0B-fCoEp4pFv4eUpGcWlUQUFuUDA/view?usp=drive_web

Phil 2 –

https://drive.google.com/file/d/0B-fCoEp4pFv4VGRxZWtEYlExUkk/view?usp=drive_web

I'm Soul Inc –

<https://www.youtube.com/watch?v=7J0AWLvx18Q>

Etta – (watch from 0.30-0.45)

<https://www.youtube.com/watch?v=FtSt3Rnncrs>

Photos





Image Courtesy of I'm Soul Inc - Singapore



Image Courtesy of I'm Soul Inc - Singapore



Image Courtesy of I'm Soul Inc - Singapore



Elm View Nursing Home - Clevedon

Music to their ears

Residents who previously had difficulty participating in activities are now enjoying them, with aggressive behaviour and the use of PRN psychotropic drugs reduced - following the introduction of sound beam therapy at Aldersgate Aged Care in Klemzig, South Australia.

Sound beam therapy is a computerised system which emits sound beams between two receivers. The computer is programmed to create a large and varied selection of musical instrument notes and musical compositions. The music and sound is then made with movement. Residents who can't speak or who have cognitive impairment can create music by raising a finger or moving their hand.

The project began a year ago when Aldersgate Aged Care had the opportunity to observe sound beam therapy being used with young children and young adult disability clients.

Sound beam therapy has also been used in the United Kingdom with elderly dementia residents in residential care and as part of stroke rehabilitation programs in a couple of the major hospitals there. Research showed positive results. Residents with cognitive impairment began to interact with the sound beam and those with speech impairment began to form

words associated with the sounds created.

Aldersgate Aged Care decided to conduct a pilot study in their low care secure dementia area using the sound beam technology - the first known use of sound beam therapy in an Australian residential aged care facility. The study aimed to measure behaviour outcomes for residents with dementia and to establish if residents' resistive aggressive behaviour diminished and less PRN psychotropic drugs would be needed.

The initial phase of the pilot study involved purchase of sound beam equipment, training of lifestyle staff and a demonstration to staff and families of residents in the dementia area to explain sound beam research, usage and expected outcomes. All families of residents in the dementia area gave consent for their relative to be part of the trial. Nine residents took part in the trial. All of the residents in the trial had documented behaviours.

To date all residents participating in the sound beam therapy have shown the ability to interact with the sound beam therapy despite their level of dementia or physical disability.

One resident with severe dementia repeatedly used to bang on the table. Individualised care

plan interventions had minimal effect in managing and reducing this behaviour. When sound beam therapy was introduced to this resident, he very quickly recognised that by the movement of banging his hands on the table musical notes were achieved. Gradually his banging of hands on the table decreased and the waving of his hands developed, still creating musical notes, sound and composition.

Sound beam therapy is now a regular part of the activities program within the unit and is currently being rolled out across the facility involving both high and low care residents.

As part of this project sound beam therapy has expanded into a wellness and harmony program that involves assessment of residents using sound, vision and auditory swatches to ascertain the individual's positive responses. This is being used together with sound beam therapy in the management of resistive and aggressive behaviours. This will also extend to residents in the palliative phase of life. ■

This is an extract from 'Improving Well-Being and Quality of Life for the Elderly through Vibroacoustic Sound Therapy' by Professor Phil Ellis, Sunderland University:

A was 96 years old, and had low mood and depression. She was mobile with a Zimmer frame, quite hard of hearing and maintained as much independence as possible. It is quite extraordinary to see the transformation in her during the sessions. There were numerous episodes of infectious laughter, smiles and real appreciation of the music – both from the beam and the pre-recorded music. These sessions also caused her to reminisce - the remembrance of family and the war being very precious to her - and she obviously enjoyed the opportunity to speak about them. Many residents with a variety of conditions have reacted in a similar way following, or during, listening to the music tapes, often talking about family and experiences from their past.

D was 76 years old, with manic depression and independent mobility. She had short-term memory and obviously experienced extreme highs and lows. Her mood affected her decision whether or not to come to the sessions. She would frequently talk obsessively and until recently it would appear that she was paying little attention to the sound or music, and had no interest in playing the beam at all. However, she really enjoyed singing with the microphone.

Towards the end of her programme of VAST she demonstrated enjoyment of both the music tapes and the vibration. She has been eager to attend the sessions, and most recently has sat quietly, albeit fidgeting, for several minutes. She frequently made positive comments about her feelings at the end of the sessions.

M was 80 years of age with dementia and very little in terms of quality of life – limited sight, quite deaf, totally dependent, with swallowing difficulties, being physically 'rigid' and often awkward with the staff.

It was established quite early on that M would only benefit from the effects of the relaxation tape and vibroacoustic chair, and so this was his experience each week. Anecdotal evidence suggested that on occasions his lunch time meal was more easily accepted, and that he became relatively more alert and amenable following VAST.

Results

After therapy sessions all those involved would often seem happier and would smile more, with greater awareness of other people. This affect could last overnight and sometimes for some days. When talking with residents at the conclusion of therapy sessions they would often make positive comments, saying that they felt better, happier, generally more comfortable, and that physical aches and pains were reduced.

Careful observation of the video recordings of individual's VAST experiences extending over several months, and in some cases in excess of two years, indicates improvement in:

- mood
- level of distress
- level of depression
- level of aggression
- level of anxiety
- level of relaxation

and also has been seen to:

- encourage eye-to-eye contact;
- develop vocal communication, both verbal and through inflection;
- improve hearing ability, sometimes beyond the immediate Sound Therapy environment;
- develop listening skills;
- encourage and develop physical movement;
- provide opportunities for individual exploration and control;
- enable deep relaxation and pleasure;
- provide opportunities for cathartic recollection and happy reminiscence;
- promote a general feeling of physical and mental well-being;
- re-energise and motivate;
- develop positive self-esteem;
- produce smiles, happiness and a positive outlook which can permeate other aspects of experience.

It is possible to mark progression over time. From the tapes produced through Layered Analysis, there are often gradual changes in behaviour and response revealed, and there may be a change from *dependency*, to becoming *responsive*, leading to a more *independent* form of behaviour where the resident takes some control and initiates activity. We can trace changes over time which show this gradual process:

Progression Observed

Dependent		Responsive		Independent
isolated		aware		contributing
indifferent		reactive		expressive

frowning	smiling	laughing
crying	laughing	expressing
silent	content	receptive
withdrawn	thoughtful	communicative
inward	poised	interactive

These data are of course qualitative. By contrast, a recent short study of five residents over the final ten weeks of a series of VAST sessions was conducted by Stephen Dennet of ATH Consultancy Ltd. This study was based on the Well and Ill Being Scales (WAIBS) devised by the Bradford Dementia Group. It was a very small-scale project, partly designed to see whether this data collection methodology would further validate the therapy, and consequently the results can only be seen as indicative, although they certainly support the evidence from video analysis and day-to-day observation.

Table 1: Summarized WAIBS well-and ill being scores for five participants (average age 82) over 10 weeks in which VAST was provided.

**Stage ONE (Sessions Running)
Well-being Scores Summary Table**

	Participant Number	Period 1 Mon	Period 2 Wed Pre	Period 3 Wed Po	Period 4 Wed En	Period 5 Frid
	1	51	59	64	38	68
	2	30	53	81	82	69
	3	21	15	25	26	27
	4	29	38	71	72	66
	5	17	24	68	72	59
Total		148	189	309	290	289

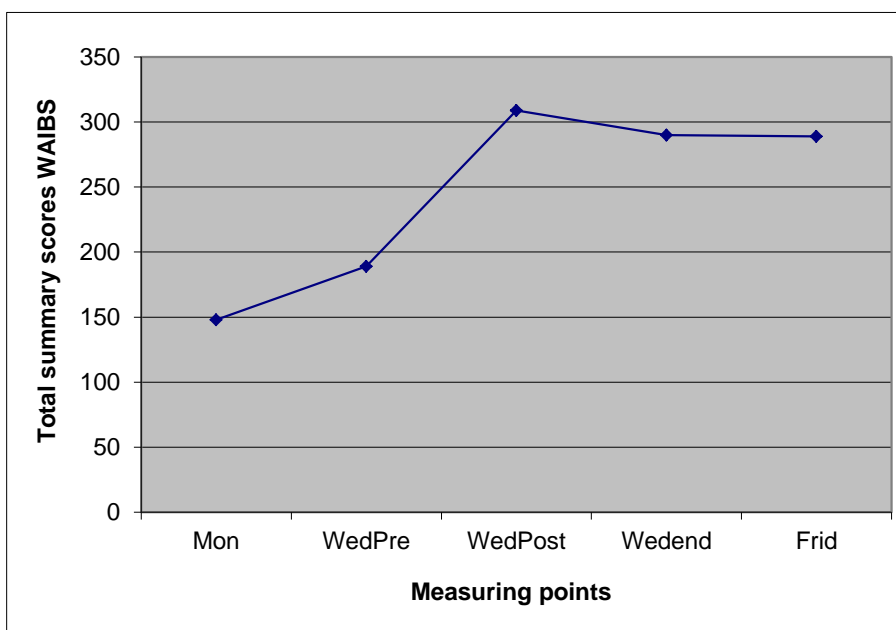


Figure1: Total of summarized well- and ill being scores for five participants (average age 82) over 10 weeks in which sound therapy was provided.

From this we can see that there was an overall increase in well-being in the hour after the sessions for all participants. There was also an unexpected indication of expectation. A reading of the total scores over the ten weeks reveals that this positive change effect remained high and only dropped off over the following days.

REFERENCE LIST

- APPLEYARD, ANNE: 'Magic' Soundbeam frees children from their silent prison'. Independent on Sunday, 24/8/97, p.8.
- AYLING, PAM Soundbeam 5 product review in Classroom Music magazine, Spring term 2011.
- BARR, EMILY: 'Sounds of Movement' in The Guardian, 4.2.97
- BROCKHOUSE, JOHN and SWINGLER, TIM: 'Getting better all the time: using music technology for learners with special needs.' Australian Journal of Music Education, 2009, 2.
- BURBEDGE, JOHN: 'Beams, Bells...Bedazzled!' In Special Children, Nov/Dec 2001, pp. 38-39.
- CARTER, CHRIS: 'Music and Movement' in Sound on Sound, October 2001, pp. 144-148.
- CHESNER, ANNA: 'Dramatherapy for People with Learning Disabilities - A World of Difference. P.44; p.58.
- DILKES, HELEN: 'Gestures and Sounds: experiences with Soundbeam' conference presentation - 'Sensory Stimulation: enhancing communication and participation'. Melbourne, Australia, Sept 2001.
- ELLIS, PHIL: 'Sound Therapy' in Special Children, Nov/Dec 1995, pp 36-39.
- ELLIS, PHIL: 'Incidental Music' video with booklet, The Soundbeam Project, 1996.
- ELLIS, PHIL: 'Special Sounds for Special Needs: Towards the Development of a Sound Therapy'. International Society for Music Education 1994 Conference proceedings.
- ELLIS, PHIL: 'Developing Abilities in Children with Special Needs - A New Approach' in Children and Society, '95,9:4, pp.64-79.
- ELLIS, PHIL: 'Sound Therapy' in Primary Music Today, issue 3, September 1995.
- ELLIS, PHIL: 'Incidental Music: a case study in the development of sound therapy' British Journal of Music Education. (1995), 12, pp. 59-70
- ELLIS, PHIL: 'The Music of Sound: a new approach for children with severe and profound and multiple learning difficulties'. British Journal of Music Education, 1997, 14:2, pp. 173-186.
- ELLIS, PHIL: 'Soundbeam !' in Music in the Curriculum, issue 31, 1996, p.8.
- ELLIS, PHIL: 'The Sound of Movement' in I3 Magazine, European Network for Intelligent Information Interfaces, University of Edinburgh, issue 4, March 1999.
- ELLIS, PHIL and VAN LEEUWEN, LIESELOTTE: 'Living Sound: human interaction and children with autism'. Paper presented at ISME commission on Music in Special Education, Music Therapy and Music Medicine, Regina, Canada, July 2000.
- ELLIS, PHIL: 'Moving Sound' in MacLachlan, M. and Gallagher, P. (eds.) 'Enabling Technologies – body image and body function. Churchill Livingstone, 2004. Part 1, chapter 4, pp. 59-75.
- FARRELL, HELEN J. : 'Plan, develop, implement and evaluate: a music education programme and policy for students with disabilities and impairments in the state of Victoria,

Australia'. Paper presented at ISME commission on Music in Special Education, Music Therapy and Music Medicine, Regina, Canada, July 2000.

FRIEDLANDER, PAUL: 'Science Lightforms '98.' <lightforms98.html@home.clara.net>

GAERTNER, MAY: 'The sound of music in the dimming, anguished world, of Alzheimer's Disease' in Wigram, T. and De Backer, J (Eds.) Clinical Applications of Music Therapy in Psychiatry, Jessica Kingsley Publishers, 1999. Pp. 244-264

GEE, SUE: 'Connected by Music' in Times Ed. Supp. 29/8/97, p.34.

HASSELBLAD, STEFAN, PETERSSON, EVA and BROOKS, TONY: 'Empowered Interaction through Creativity'. Digital Creativity, 2007, vol. 18, no. 2, pp.89-98.

HILLMAN, MICHAEL: 'Introducing Soundbeam' in Tomaino, Concetta M. (Ed.) Clinical Applications of Music in Neurologic Rehabilitation, MMB, 1998, chapter 6.

JACKSON, DAVID: 'Ark in Performance' (video interview transcript). Soundbeam Project 1992.

JACKSON, DAVID: 'Soundbeam Artistry' creative user manual, Soundbeam Project 1995.

JACKSON, DAVID: 'More than the Music' in Special Children, Nov/Dec 1994, pp 31-32.

JACOBS, CYNTHIA: 'Investigating non-tactile MIDI controllers for severely disabled children' University of Western Sydney, Nepean, Australia. 1997.

JOHNSON, LIZ: 'Something Afoot at Birmingham Children's Hospital' The Soundbeam Project, 2001

JOHNSTON, CHRIS: 'Disabled sound out the music' in Times Higher Ed. Supp. 21/6/96, p.7

KOENIG, ANNE: 'Tapping into Creativity' in Philadelphia Sunday News, 16/3/97

McCORD, KIM: 'Moving Beyond "That's All I Can Do": Encouraging Music Creativity in Children with Learning Disabilities' Bulletin of the Council for Research in Music Education. 2004. pp.1-10.

McPHAIL, PETE: 'The Soundbeam in Special Education – Movement into Music'. Soundabout, 2003.

McPHAIL, PETE: 'Let's Communicate'. Soundabout, 2002

OCKELFORD, ADAM: 'Music and visually impaired children', RNIB 1993

OCKELFORD, ADAM: 'Music for children and young people with complex needs' OUP 2008. pp. 17, 22, 23, 48.

PEGGIE, ANDREW; 'Soundbeams breach symphony hall' in Sounding Board, Spring '94, pp 12-14.

PERRY, BETHANY G. and WOLSLEGEL, WENDY M.: 'Assessment of effectiveness of Soundbeam to Elicit Movement and Social Interaction'. University of Wisconsin Eau Claire, 1997.

PETERSSON, E and BROOKS, A: 'Non-formal therapy and learning potentials through human gesture synchronised to robotic gesture' . Aalborg University, Esbjerg, 2007.

DEL QUIARO, ROBERT: 'Notes and Beams' in The Guardian, 9/1/98, p.14.

RICKSON, DAPHNE: 'Soundbeam'. New Zealand Conference on Technology for People with Special Needs. <http://nz.com/webnz/ability/csn_papers.html>

RUSSELL, KATHRYN: 'Imagining the Music, Exploring the Movement: Soundbeam in the Sunshine State'. Queensland Journal of Music Education, 4,1, 1996. Pp 41-48.

RUSSELL, KATHRYN and RUSSELL, NEIL: ' "See that? That's magic": New Sounds and Sights in Music Movement Improvisation - the Soundbeam Experience. ASME, Brisbane, July 1997.

ROBERTS, JIM: 'Breaking the Sound Barrier' in Ninety-Five Percent, Summer 1995, pp. 18-19.

SMITH, HELENA: 'Soundbeam - Seasons and Cycles' in Primary Music Today, issue 24, Spring 2003, pp. 16-20

SOUNDBEAM PROJECT WEBSITE: <<http://www.soundbeam.co.uk>>

SOUTHAMPTON MUSIC SERVICES: 'Beaming with Pleasure – practical activities linking Soundbeam into the curriculum' <s.beckett@southampton.gov.uk>

SPEARE, PAULA: 'The Multiple uses of Soundbeam in the Music National Curriculum for Visually Impaired Students'. Dissertation, University of Birmingham, 1995.

SWINBURNE, CAROLINE: 'On The Airwaves' in *Nursery World*, 16 April 1998, p.22

SWINGLER, TIM: 'Unlocking Musicality: using Soundbeam as a new key to eloquence' in Krout, R. : *Integrating Technology, Music Therapy Perspectives*, NAMT, 1994, 12, 1, pp. 4-5.

SWINGLER, TIM: 'Dinosaurs and Butterflies' in *Extending Horizons*, NCET, 1995.

SWINGLER, TIM: 'Creativity as Therapy using Soundbeam' *National Association of Paediatric Occupational Therapy Newsletter*, Spring 1996, pp. 31-33.

SWINGLER, TIM: 'Movement into Music' *YES Magazine*, issue 11, pp 16-17

SWINGLER, TIM: 'Liberation or Limitation?' in *Extending Horizons* op. cit.

SWINGLER, TIM: 'The drum is not the only weapon' in *Nordic Journal of Music Therapy*, 1995, 4 (2), pp.103 - 107.

SWINGLER, TIM: 'Choreography as Composition - Movement into Music: using Soundbeam as a new key to creative eloquence'. *Proceedings of the Biennial World Conference, ISME*, 1994,

SWINGLER, TIM 'A Special Experience of Hearing, Seeing and Feeling:Combining Sound, Light and Vibration for Relaxation and Interaction' in Laufer, D. and Montgomery, J. (Eds.) 'Music as a Medium: Applications and Interventions' Verlag Dohr Köln. 1998. pp. 129-137.

SWINGLER, TIM 'Extemporisation, Contemplation and Joy: Composing and Performing with Soundbeam – the invisible keyboard in the air' in Laufer, D. and Montgomery, J. (Eds.) 'Resonances with Music in Education, Therapy and Medicine'. Verlag Dohr 2002, pp. 143-149.

SWINGLER, TIM: 'Electronic music interfaces for people with disabilities: do they lead anywhere?' in Craddock et al (eds) 'Assistive Technology – Shaping the Future' IOS Press 2003.

TODD, JULIA: *An Investigation into the Possibilities of the EMS Soundbeam as a Tool for contemporary Choreography*. BA Dissertation, Laban Centre for Movement and Dance, 1993.

VENHUIZEN, A., FIGUEIRA, A., and CRISTÓSTOMO, R. : 'The Impact of Soundbeam in Profound Mental Disability.' APPACDM – Coimbra, 2003.

WALMSLEY, A: 'Music from Movement' in *Music Teacher*, August 2003

WELCH, G., OCKELFORD, A. and ZIMMERMANN, S. 'Provision of Music in Special Education (PROMISE)' University of London Institute of Education / RNIB 2001. Pp. 24, 32, 40-43, 49.

WILLIAMS, EDWARD: 'Introduction to vibroacoustic therapy'. Soundbeam Project 1997.

WILLIAMS, EDWARD: *Soundbeam 2 user manuals (3 vols)* Soundbeam Project 2001.

WILSON-HINDS, ROGER: *An objective appreciation of Soundbeam*. Unpublished field trial.