

A Brief History of Video Game Accessibility: The 1970's

By Barrie Ellis of OneSwitch.org.uk – May 2009

The Bronze Age

Let's drop some [Electric Light Orchestra](#) on our virtual turntables and travel back to the 1970's: A time of intense civil rights activity, an energy crisis that threatened all civilisation and The Brady Bunch.

Of course the best thing about the 1970's is that video games in all their black and white glowing glory entered the public consciousness. It was exciting and maybe even [a little bit frightening](#). Many kids of the 70's would get involved with video gaming in one way or another, a world which was completely alien to their parents.

Imagine the frustration felt by those wanting to play but unable to due to disability. That frustration remains nearly 40 years on for many, but that's another story. It's not all gloomy. Let's start at the beginning where it all went wrong for a year...



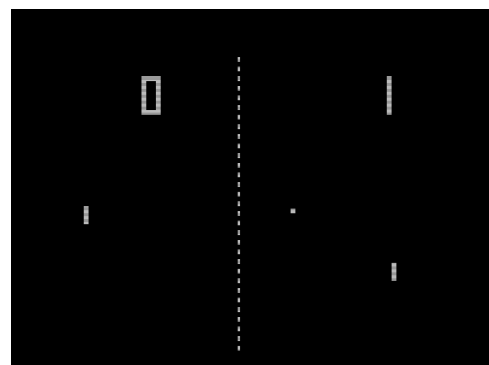
“What the blinking flip is that?”

In 1971 the North American public had their first taste of a video game courtesy of Nutting Associates' "[Computer Space](#)". For most it was also a first taste of an *inaccessible* video game. They walked away bamboozled and didn't come back.

So what went wrong? Well, for those new to video games (i.e. everyone) the point of the game was a bit of a mystery, the graphics were messy and the controls were hard to fathom. In short it was not much fun. Computer Space bombed.

**“DEPOSIT [COIN]
BALL WILL SERVE AUTOMATICALLY
AVOID MISSING BALL FOR HIGH SCORE”**

Learning from this failure the mastermind behind Computer Space, Nolan Bushnell, looked at bringing a more accessible gaming experience to the world.



In 1972 under the guise of Atari he released a tennis themed game called Pong, featuring simple controls, distinct graphics and clear instructions. Pong was new, fun and much easier to grasp. It was a massive success.

With all this said, Pong was certainly not accessible to all, even in its home console forms where speed control and bat width options typically featured.

"Esther played against Tom, but the two of them were so clumsy, and the speed of the ball so relatively fast, that they had no chance of stopping it, or of scoring points against each other except by chance".



Quoted from the novel 'Skallagrigg' by William Horwood where Esther (born with Cerebral Palsy) and Tom (born with Down Syndrome) struggle with Pong in 1980.

Later in the passage Tom quickly gives up frustrated with the game. Esther perseveres, fascinated by the possibilities, if only she could better access it.

With no facility to use an alternative controller and only narrow difficulty level adjustment being available, Pong proved to be just as inaccessible for some as a real game of tennis.

If you couldn't play Pong you were probably going to remain a passive observer of 70's video gaming. Depressing. Unless of course you were one of the lucky few to come across isolated pockets of engineers who had the skills to adapt games machines for better access. People such as Barrie Woods in Christchurch, New Zealand:

"My first involvement would have been in the late 1970s. I was working for the Spinal Injuries Unit at [Burwood Hospital](#) here in Christchurch. Dedicated games consoles that plug into a TV set were very popular then and some of the spinal injury patients were keen to play them."

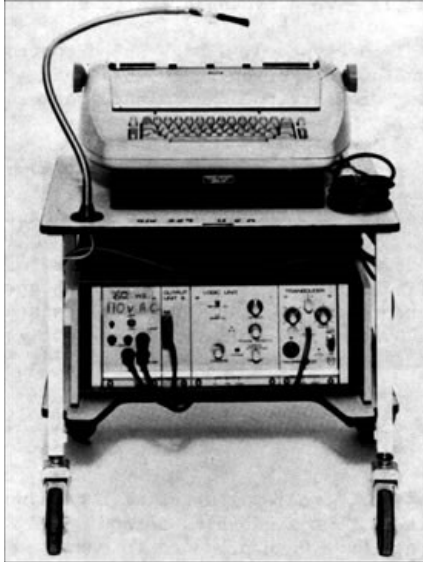
"One mod I recall was making a large joystick that a person's hand could be strapped into. A few times I connected easy access switches to the controllers, often externally so as they could be used with one hand and the joystick with the other. I remember one chap who used a modified joystick with his mouth and it worked very well. I would always get to see the person try the modification out. The adaptations were not always successful, so I suppose some people were disappointed, but in most cases we eventually came up with something that would work reasonably well, in which case they had a lot of fun. The occupational therapists in the hospital saw these games as a useful tool for upper limb rehabilitation."

"At the start much of this work I did in isolation. There was no Internet to share ideas. I was studying electronics at the time with a fellow student who worked for a company that made 'full size' games for shops and arcades. He and I shared a few ideas and I remember he helped out one or two people locally. I remember him changing the clock crystal on one game console to slow down the play speed, which was moderately successful – the games were a bit jerky. "

"Later on we set up an interest group, that eventually became what we now call the [Computers For Special Needs Trust](#). The initial group was informal and included a few techies who were happy to make adaptations to equipment for people. There were also some parents of children with

disabilities and a few local teachers and occupational therapists who had an interest in adaptive technology. I think most of the modifications we did were things like making the controller buttons easier to use, modifying joysticks for people with poor grip, or just mounting controllers so as people could access them better.”

Alternative Accessible Controllers in the 1970's



Alternative accessible control methods existed prior to and throughout the 1970's. Sip-puff switches, large accessibility switches; gated joysticks; video input and microphone input were all available, albeit to a very limited extent.

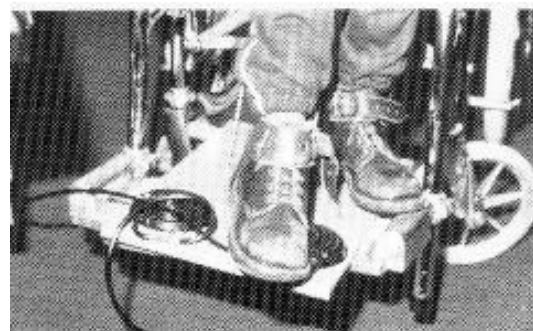
It would be many years until the fields of video gaming, assistive technology (AT) and [human computer interaction](#) (HCI) technologies would converge and evolve into the game accessibility movement as we know it today.

The origins of this movement are rooted in the desire to play married to the ability to find solutions. Some of this can be traced back even before the 1970's:

From the 1950's onwards a wide range of alternative controllers came into being thanks to work carried out in Augmentative and Alternative Communication ([AAC](#)) research. Take a short jump to [AAC Link 1](#) and [AAC Link 2](#) to discover more.

From 1969 onwards [Myron Krueger](#) created revolutionary and immersive methods of interacting with computers. These included video-camera input, which would later heavily influence the Eye Toy.

From 1976 the [Oznaki project](#) saw alternative input devices connected to the latest microcomputers to better enable very young and disabled children. These included external accessibility switches alongside sound based input used to control simple maths and graphics programmes initially.



So that's a long list of stuff that mostly didn't make it into 1970's accessible gaming. Ho hum. But what of the good stuff that was a little more public? Well...

The Good (Game Accessibility) Life:

- 1974 Atari release [Touch Me](#) the world's first electronic audio game that could be played by deaf or blind gamers alike. A commercial failure but went on to inspire MB Games massively popular "Simon".
- 1975 Atari's coin-op [Steeple Chase](#) becomes the first commercial one-switch game. Jump the oncoming hurdles by tapping your single button at the right time. [More here on Steeple Chase](#).
- 1977 RCA create the first ever one-switch playable game for a games console with "[Space War](#)" for the RCA Studio II.
- 1977 Atari release the [Atari VCS](#) games console later known as the Atari 2600. Taking the baton from many Pong consoles, two difficulty level adjustment switches feature, allowing for easier play for some and fairer two-player competitive games. Features interchangeable controllers for a range of different playing styles.
- 1977 Apple releases the [Apple II](#), which would go on to become one of the first popular home computers. Soon after, taxi-driver and hobbyist engineer, Paul Schweda would go on to develop the "[Adaptive Firmware Card](#)" bringing an unprecedented degree of accessibility to disabled users. Features would include one-switch access and the first on-screen keyboard. The AFC would not surface until the early 1980's from Don Johnston however.
- 1978 Taito release [Space Invaders](#), which uses just three buttons to play. The world goes mad for LEFT-RIGHT-FIRE shoot-em-ups. Six year olds like me need a milk-crate in order to see the screen properly.
- 1979 Namco usher in 1980's gaming with their full colour [Galaxian](#).



The 1970's meet the 1980's

The following is a picture of 1970's game tech, the desire to play spurred on by the effects of the United Nation's International Year of the Disabled in 1981. More to come...



Extra links

[ATE Arcade](#) – Making 1970's video gaming accessible today.

[One-Switch Computer Space](#) – Play a close version of Nutting Associate's 1971 Computer Space on your PC.

[Pong museum](#) – The history of Pong.

Many thanks to Dennis Asher of [NanoGames.com](#) and Barrie Wood for their invaluable assistance.