

Recap: A Learning Computer at the Bad Game Arcade

As early home computing technologies became more available and affordable in the 1970s and 1980s, manufacturers experimented with various ways to introduce these objects into the home. They concurrently marketed these technologies as entertainment devices, as machines to facilitate home economics, and as educational tools that could not only assist children with their school curriculums but also instruct them on how to use computers themselves.



The Commodore VIC-20 (1980) positioned itself as a device for household budgeting, personal improvement, student education, and financial planning on top of “play[ing] great games too!” This blog post reflects upon some of our work centred around early home computing technologies as teaching tools. In

February 2023, we exhibited several items from the Residual Media Depot's collection at the Bad Game Arcade hosted at Concordia University's 4th Space. Combining box art and advertising materials with a hands-on demonstration of emulated educational software, the goal of our installation was to complicate assumptions about early computing technologies.

Who were the imagined users of educational hardware and software? How effective were these technologies as teaching tools? And how does this history impact how we approach videogames today?

Videogames Before Videogames

When we talk about early videogame consoles, we often do so in a way that's inherently anachronistic. Contemporary discourse on videogames—coloured by the entertainment industry—tends to overlook decades of use in homes, schools, and other venues that predates what we think of as videogaming.

Radio Shack® makes your TV the best game in town with our exclusive electronic TV SCOREBOARD™

14 12

Play Tennis! Play Hockey! Play Handball! Practice! See and Hear All the Fun on Your Own TV Screen!

- Individual Slam, Slice and Serve Controls
- Different Visual Display for Each Game and Practice
- Automatic Digital On-Screen Scoring with Sound
- Triple Audio-Effects for Sports Realism
- Connects to Antenna Terminals of Any TV Set

99⁹⁵

New! Made by us in the USA! A truly deluxe game center at a budget price, TV SCOREBOARD turns your TV into a game room for the whole family. It's a real challenge that develops skill, coordination and timing. Sophisticated solid-state circuitry and separate remote control panels give you complete command of your player or players on the screen—you can vertically position them and also adjust for a fast or normal ball, slice or natural angle, small or large paddle, manual or automatic serve. And on color sets you can see the action and background in brilliant color! Built-in speaker creates authentic scoring and game sounds. Each unit, 21x8x7". Complete with U.L. listed 120 VAC adapter, or use 6 "C" cells (not included). Ask for 60-3050. Sold only where you see the Radio Shack sign!

FCC Type Approved

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Low-Cost Family Fun—Exciting TV Games

6 Fast-Action Games for One or Two Players **39⁹⁵**

Choose Hockey, Tennis, Squash, single-player Practice, Target or Shoot with Radio Shack's ELECTRONIC TV SCOREBOARD! On-screen digital scoring, electronic sound effects, automatic serve, game restart button, variable ball speed, paddle size, and bounce angle. Has master control unit and remote player units including photo-electric pistol. Connects to any TV set. Requires 6 "AA" batteries. FCC approved. 60-3061 39.95

4 Sports Games, 2 Shooting Games **29⁹⁵**

Hand-Held Remote Control Units
• Attaches Easily to Any TV Set
• Automatic/Manual Serving

Play Hockey, Tennis, Squash, or Practice with TV SCOREBOARD. Has master control and remote unit, on-screen automatic scoring, sound effects, game restart button. Adjustable ball speed, paddle size, bounce angle. Requires 6 "AA" batteries or optional AC adapter #60-3053 at left. FCC approved. 60-3060 29.95

Go Racing or Trucking—All by Remote Control **17⁹⁵**

• Control All Vehicle Actions with Hand-Held Radio-Control Unit
• Runs on Any Smooth Surface, Indoors or Outdoors
• Realistic Race-Car and Trailer-Truck Styling

12⁹⁵

Grand Prix Racer. Have race-day fun with this exciting replica of a Porsche Grand Prix racer. You're in command of forward-reverse-turn action with easy-to-use remote control. Red backup light shows when car is in reverse. Quick-disconnect antenna for easy storage. Requires four "AA" and two 9V batteries. For children 8 and up. 60-3008 12.95

21⁹⁵

Formula-1 Racer. You're the driver of this replica of an open-cockpit Formula-1 car! Completely detailed—racing wheels and tires, detailed "engine" with air scoop, air-foil "wing," racing mirrors. Take the remote control's wheel and command forward, reverse and turn action. Crystal-controlled car and transmitter. Requires two 9V and four "AA" batteries. For kids 8 and up. 60-3013 21.95

3-Function Remote

Radio Shack Has Any Batteries You Might Need on Pages 125-127

www.RadioShackCatalog.com

Radio Shack Catalogue (left 1977, right 1979). Neither

catalogue mentions the word videogame. They're concerned with positioning the object as something that provides "low-cost family fun."

Before there were videogame aisles in big box stores or even videogame stores themselves, developers contemplated multiple potential uses for computing technologies. While we're very familiar with their early use as entertainment devices—who, for instance, hasn't played *Pong* or some sort of reimagining of it?—this was not always its sole use.

As hardware became increasingly sophisticated, developers began to imagine roles beyond play, ranging from productivity to education. For instance, early home computing technologies could be business machines to aid with work tasks, personal finances, and even recipe organization; or else they could be teaching tools for children.

Since early consoles circulated well before the marketing category of "videogames" existed, companies had to guide consumers on how, where, why, and by whom their objects should be used. This meant conceptualizing and visually articulating a set of imagined uses and users.

Thinking About the Box

Packaging, such as box art, instruction manuals, and other paper ephemera, helped companies construct the imaginaries of early computers. They did so through images that depicted idealized users interacting with the hardware, guiding potential consumers of these new devices on their vast array of promised uses.



Magnavox Odyssey 100 (1975) The box art depicts the hardware at the centre of happy, white, heteronormative nuclear family. Early box art began—as did popular images of televisions prior—by positioning these new technologies at the heart of the nuclear family, suggesting that such devices could help foster togetherness. Beyond play, however, box art also depicted women sorting recipe cards and young boys using the computer to help them with their homework, problematizing assumptions about early home computing technologies as belonging exclusively to the realm of gaming.



Bally Professional Arcade (1981). One of the images on the box depicts a boy completing homework with the aid of the machine.

Are We Having Fun with Numbers?

The early era of home computing was rife with what we now call educational games, such as *The Oregon Trail* (1974), *Cross Country Canada* (1986), and *Math Gran Prix* (1982). For our installation at the Bad Game Arcade, we invited the audience to play the latter's predecessor, a prototypical example of educational games at the time.

Originally released as *Basic Math*, *Fun With Numbers* was one of the Atari 2600's 1977 launch titles. Today, we might think of it as a game only in the loosest sense of the term. Each match consists of a succession of ten arithmetic problems at the end of which the player is given a score based on how many they answered correctly. Players can choose between table (1-4) or randomized (5-8) versions of addition, subtraction, multiplication, or division for a total of eight riveting game modes.

GAME PROGRAM™

- TABLE PROBLEMS
- RANDOM PROBLEMS



One of the most interesting aspects of the game's packaging is the way the instruction booklet refers to Atari 2600 assemblage as the "Computer Teacher," which explicitly frames it not as an entertainment device but as an educator. But how

effective is it as a teacher?

(Hint: The symposium we attended was called the **Bad** Game Arcade.)

When the player inputs a correct answer, they receive a beep and a melodic tune in response. Wrong answers receive a different beep and tune before disappearing as the right answer flashes on the screen. Then, the “Computer Teacher” moves on to the next problem.



Basic Math (1977). Screenshots of the gameplay.

The Computer Teacher informs the player of the correct answer, but it doesn't “show its work” or otherwise explain to the student how to refine their logic to solve the math problem. (Given that I'm a humanities scholar who goes through life with a supercomputer perpetually in their pocket, I certainly would have benefited from a reminder of how to do double digit multiplication.)

Educational materials are equally absent from the instruction manual; the manual teaches the player the mechanics of the game, but not the mathematical processes with which to play it. *Fun with Numbers* is neither particularly fun nor particularly useful as a teaching tool.

What *Fun With Numbers* effectively teaches isn't math; it's the affordances of the Atari's hardware. The game is a terrible math instructor. As a launch title, however, the game teaches both developers and apprehensive consumers (read: parents)

what the Atari 2600 can offer families within the home: not only entertainment but also the promise of learning.

Flash Forward to the Flashback

One of our primary goals at the Residual Media Depot is to make a case for how emulators (pieces of hardware or software that enable one computer system to behave like another) can operate as useful teaching tools. Consequently, a significant portion of our collection consists of videogame consoles that have been designed or modified to facilitate emulation.

Developed by AtGames under license from Atari, the Atari Flashback series consists of plug-and-play versions of the Atari 2600 that allow users to engage with dozens to hundreds of pre-loaded videogames. Designed to resemble smaller versions of Atari hardware—the console as well as its iconic joystick—the Atari Flashback series explicitly markets itself as a way to look back at residual hardware.



Atari Flashback 6 (2015).

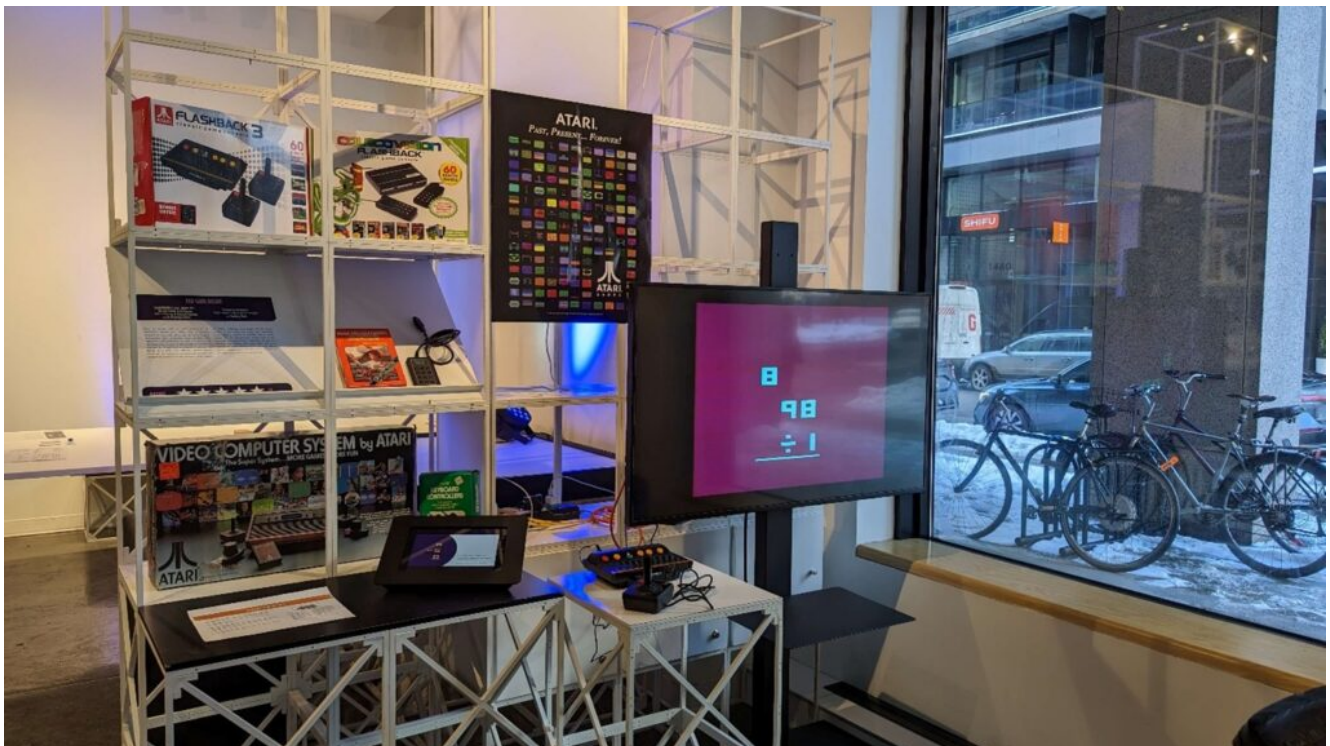
The Flashback also raises interesting questions about the authenticity of our research objects. The first device in the Atari Flashback line doesn't actually run on Atari hardware; it runs on NES-on-a-chip architecture, an implementation of the Nintendo Entertainment System's CPU and the base of the unauthorized "Famiclone" industry. Evidently, this is a step away from the "original" Atari 2600 hardware.

At the same time, the Flashback machines allow us to access out-of-print games that we may not otherwise be able to experience in a university setting. Retailing between \$40-60 CAD, these systems are far more affordable as teaching tools and don't require the same level of maintenance or supervision of the ageing, sometimes fragile, original hardware configurations.

Moreover, the eighth edition of the Atari Flashback also introduced HDMI output. This is important because it makes these systems far easier to connect to modern classroom televisions than an original Atari 2600, which requires numerous converters to translate the analog RF audiovisual signal to something legible to a digital television. (Or else demands that we wheel our own cathode ray tube television around campus, which we have done it and resolutely do not recommend doing in a Canadian winter!).

Teaching Past and Present

While our contribution to the Bad Game Arcade was nominally an introduction to educational games designed for early home computing technologies, it was also a reflection on teaching games in the present.



Our installation at the Bad Game Arcade paired a hands-on interaction with Fun With Numbers on the Atari Flashback with original packaging materials and a slide deck to contextualize the project.

Objects like the Atari Flashback allow us to develop a pedagogical approach in which modding, emulation, and media

archaeology come together to bring about new methods of teaching through computing technologies. Through devices like those in the Atari Flashback series, we can offer participants the ability to engage with early computing software in a hands-on way even if the hardware has been reimagined.

By placing these systems in conversation with early box art, we can explore how videogames positioned themselves as teaching tools in the past and how we can still use them as teaching tools today.