Push. Play: An Examination of the Gameplay Button*

Stephen N. Griffin
Georgia Institute of Technology
stephen@looptyloop.com

Abstract

At the center of the video game experience is the interface. Before a player grabs the first power-up or meets the first obstacle, the would-be-adventurer must accept the limitations of the encounter. Only the controller can lead to action in the game space. A life in motion must be reduced to input. Modern games have developed a great deal since their early days as quarter-seeking cabinets. However, despite their graphical, dramatical, and technical development, one of the defining features of the video game basically remains unchanged. This essay reveals the importance of the ever-present button while examining the limitations of its current embodiment.

Introduction

In one of the first treatises devoted to digital game design, Chris Crawford discusses the complexity of creating an input / output computer control structure that provides both "expressive power" and "expressive clarity" (Crawford, 1982). Due to the difficulty of creating a simple communication language that affords a rich set of meaningful game-play choices, he argues for the use of simple input devices and deep sets of interrelated, interactive game elements (Crawford, 1982). His solution is to develop rich interaction solely in software (Crawford, 1982). It is an implicit acceptance of a cognition-centered approach to game design, and one that appears to be the preference of many digital game developers (Church, 1992; Sieberg, 2000). Unfortunately, this approach, along with controllers based on this approach, doesn't allow developers to explore the full gamut of game-play opportunities.

Civilization has a long relationship with systems of play, one that goes at least as far back as ancient Egypt (Tylor, 1979). During this time, there have evolved a large variety of games, many of which are not activities based upon symbolic action or the application of preset input to a defined game space. There are also large numbers of games in which the abilities and idiosyncrasies of the body are essential to the play and enjoyment of the game. There are systems of play that involve not only thinking but also ones that involve locomotion, performance and prop usage (Redl, Gump & Sutton-Smith, 1979). Consequently, there is no apparent reason why video game interaction should be restricted to an approach or to an input device defined by symbolic input.

The Button

The button is a central feature in the short history of video games. Of the thirty or more home gaming systems released since the debut of the Odyssey, all have included one or more buttons on the system's game controller. The Atari VCS had one button; the Nintendo game pad had

four; the current Playstation controller has ten. Personal computers, another prominent means for playing video games, are also reliant on button-based input. Both the keyboard and the mouse employ variations of the device. Over the last 30 years, games such as Tank, Space Invaders, Asteroids, Donkey Kong, Street Fighter II, and a large assortment of other video arcade systems have also made the button a primary means of taking action. Going even further back into game history, the button was also prominent in the play of one of the video game medium's more immediate ancestors. It was instrumental in the transformation of pinball from a game of chance to a game of control. Buttons were first used to activate "flipper bumpers" in 1947's Humpty Dumpty. No longer left to the fates, players were finally able to control the roaming protagonist of pinball's stylized worlds. The button was the player's sole link to an electromechanical microworld, perhaps leading to the current, long-standing relationship between video games and the biased switch (Demaria & Wilson, 2002; Kent, 2001).

Fictive Potency

All games are artificial. The play of a game is made possible by the carefully created boundary between the real and the unreal world (Huizinga, 1955). It allows the actions and events of a game to take on meaning and to have significance apart from what they typically signify (Huizinga, 1955). For example, to an observer of a session of Tony Hawk's Pro Skater, the player may only be pressing buttons while watching a screen, but to the player, each button press is the calculated move of a master street skater. The button sits at the border of what Salen and Zimmerman call the "Magic Circle" (Salen & Zimmerman, 2003). As a special time and place, the magic circle enables the elements and events of a game to acquire significance (Salen & Zimmerman, 2003). However, it is not an objective phenomenon, external to a player. It is an artificial reality established by agreement to the rules of a game (Salen & Zimmerman, 2003). Consequently, a player's voluntary engagement with a button is not only a means to an end but also an act of participation. It is an acceptance of the limits and artificiality of the encounter. It is a commitment to "play" the game.

The button is a catalyst for the transformative power of the video game medium. Combined with the phenomenon of play, it enables the player's actions to take on many meanings in the feedback loop of an on-going game (Poole, 2000). Equally important, it offers the player little resistance when moving from intent to action in the game space. Due to the established limits of the encounter and the simplicity of the control method, the player is permitted to forget about the physical device in order to concentrate on interacting with the events of the game (Church, 1999). Generality and clarity are the reasons for the button's fictive potency and perhaps the causes of its continual use in game-play control.

Physicality

Put to use in many everyday products, the button is an excellent means for reducing the need for skillful engagement. It consolidates multiple actions to one point of control, reducing the potential for user error (Shneiderman, 1983). However, it offers little opportunity for natural, human-scaled interaction (Buxton, 1986). In its most common form, the button is a biased electrical switch. Used in a video game system, it enables a monitoring computer program to recognize press and release commands. However, it also has another less obvious function. The button is an artifact of automation. It reduces gesture to symbolic action. Used for jumping, punching, grabbing, rapping and even raping in video play-spaces, the button reduces complex action to a matter of choice. The idiosyncrasies and pleasures of the body are extraneous when interaction is equated to functional value (Ryan, 1992). Automation values productivity and efficiency not physical expression
(Ryan, 1992).

While the button successfully affords video game "play", its lack of support for embodied interaction

possibly impedes the development of the medium. Current buttons are not suitable for intimate, performance-based play. They are incapable of capturing the nuance of corporeal expression. The hand's movements are situated in time and space while the biased-switch is instantaneous. Consequently, the button is unable to participate in a dialogue with the fingers. The pleasures of the hand can play no part when the control structure is defined by the symbolic nature of button-based input (Focillon, 1934; Gibson, 1962).

The significance of the interface's physicality is a well-understood point for musical performers. Effort and expression are recognized as being deeply linked phenomena (Ryan, 1992). The tangibility of the instrument affords discovery at the interface, and gestural interaction affords affective responses by the performer (Wessel & Wright, 2001; Wanderly & Battier, 2000). The physicality of an instrument contributes to the musician's intimacy with the sound and ultimately the expressiveness of the music (Moore, 1988). The inability of the modern controller button to support embodied interaction is a significant limitation and possibly an obstacle to the medium's growth as an expressive activity.

Conclusion

From the homemade control boxes for Steve Russell's Space War, arguably the first video game, to the state of the art controllers for the Nintendo Gamecube, the button has been continually employed for video game "play" (Graetz, 1981). With such a long-standing association, one has to wonder if the relationship between the button and the video game is more than mere scaffolding in the development of the medium. Perhaps the button is the quintessential video game control. If so, revision not replacement would be the way forward.

The dependency of video game control on the button reflects a disregard for the body's abilities. By relying on this artifact of automation, the video game medium must adopt a cognition-centric approach to interaction – giving up the pleasures and benefits of physical involvement. However, the modern controller button is not without its merits. It is a catalyst for the transformative power of the video game medium. An opportunity exists for the development of a button system that maintains the generality and clarity of modern controller buttons while providing a tangible structure suitable for both supporting playful interaction with the hands and capturing the resulting input. Whether or not this is a contradiction remains to be discovered.

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