



Console Games in the Age of Convergence

Mark Finn

Swinburne University of Technology
John Street, Melbourne, Victoria, 3122

Australia

+61 3 9214 5254

mfinn@swin.edu.au

Abstract

In this paper, I discuss the development of the games console as a converged form, focusing on the industrial and technical dimensions of convergence. Starting with the decline of hybrid devices like the Commodore 64, the paper traces the way in which notions of convergence and divergence have influenced the console gaming market. Special attention is given to the convergence strategies employed by key players such as Sega, Nintendo, Sony and Microsoft, and the success or failure of these strategies is evaluated.

Keywords

Convergence, Games histories, Nintendo, Sega, Sony, Microsoft

INTRODUCTION

Although largely ignored by the academic community for most of their existence, recent years have seen video games attain at least some degree of legitimacy as an object of scholarly inquiry. Much of this work has focused on what could be called the textual dimension of the game form, with works such as Finn [17], Ryan [42], and Juul [23] investigating aspects such as narrative and character construction in game texts. Another large body of work focuses on the cultural dimension of games, with issues such as gender representation and the always-controversial theme of violence being of central importance here. Examples of this approach include Jenkins [22], Cassell and Jenkins [10] and Schleiner [43].

Little attention, however, has been given to the *industrial* dimension of the games phenomenon. While other media industries such as film and television have large bodies of literature devoted to them, there has been comparatively little scholarly work done on the games industry, despite its increasing prominence and often staggering revenues. Those studies which have been done (for example, Cohen [11], Lavroff [27], Sheff [45]) tend to focus mainly on individual companies, and as such fail to fully explore the complex interactions which occur at an industry-wide level. This paper will attempt to redress this issue to some extent by examining the development of the games industry over the past 15 years, focusing specifically on the relationship between console gaming and the wider phenomenon of convergence.

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GAMES AS A CONVERGENT FORM

The notion of convergence has come to occupy an increasingly central position in the field of media studies, driven primarily by the wide-spread acceptance of digital information. As Barr explains, digitisation has allowed previously disparate media and information forms to merge, creating new hybridised entities that combine many of the features of the old form, as well as creating new ones [4]. This process is occurring at both a technical and institutional level, to such an extent that, as Dizard argues, “the era when phone, video and data traffic were carried over separate network is coming to a close” [12]. For Dizard, the technological dimension of convergence offers consumers much greater choice in terms of both content and how that content is accessed, heralding the arrival of what he terms “interactive media” [12].

Although usually ignored in most accounts of convergence, it can be argued that games consoles actually represent an *archetypal* example of convergence. Long before the Web became popular, home video game consoles were already positioning computer technology as entertainment, by functionally integrating it with the established medium of television. Games were in fact offering a form of interactive television decades before the term became fashionable.

Some of the early attempts at this took the form of personal computer/console hybrids, often combining a cartridge port and a keyboard. The most prominent examples of this format were devices from hardware manufacturers such as Commodore, whose success in the 1980s has been widely accredited with launching the home computer industry. Commodore and its rivals attempted to combine a games console and an office computer aesthetic, creating devices that used joysticks and keyboards as their primary mode of interface. These machines were functionally “computer-biased,” and positioned gaming as an almost a secondary concern.

Other companies adopted a different approach, with dedicated console makers like Sega and Nintendo taking their aesthetic cues from earlier industry leaders like Atari. These machines dispensed with the keyboard

entirely, preferring to use joysticks as the primary way of interacting with the console. In some ways, the lack of a keyboard and other computer attributes helped distinguish the Sega and Nintendo units as ‘serious’ gaming machines, unlike the hybrid computer/consoles from Commodore. Furthermore, as dedicated gaming consoles, Sega and Nintendo were able to develop game-specific peripherals that greatly expanded the potential of the machine. For example, while users of the “computer-biased” Amiga had to be content with a single button joystick, owners of Sega consoles could choose from a variety of official and 3rd party add-on devices.

Although hugely successful throughout the early years of the decade, by the late 1980s computer/console hybrids like the Commodore 64 were in caught in a serious slide. Unable to compete with the dedicated games consoles in terms of graphical sophistication, they were also technically outpaced by dedicated business machines such as those from IBM [1]. More importantly, their use of proprietary operating systems meant that consumers were faced with a meager selection of software titles, compared to that offered by Apple and the fast-rising Microsoft. In effect, machines like the Commodore attempted to cater to both gamers and professionals, and as such produced a machine that was not ideally suited to either application.

As far as notions of convergence are concerned, the decline of the hybrid computer/game console appeared to indicate that consumers preferred dedicated units to devices that performed several functions. This trend was to continue throughout the early years of the following decade, with the games industry seemingly following what could be termed an “anti-convergence” strategy in the development of its hardware.

THE RISE OF THE DEDICATED CONSOLE

As the hybrid device manufacturers like Commodore continued to decline throughout the late 1980s and early 1990s, dedicated games consoles created by companies like Nintendo and Sega continued to increase in popularity. By 1989 the industry had come to be dominated by these two companies, with the former commanding just over 80 percent of the United States market and 90 percent of the Japanese market with its Nintendo Entertainment System (NES) [16].

Both the NES and Sega Master System of the mid 1980s were based on 8-bit technology, the bit being the basic measuring device for information processing. The more bits a console could process, the more sophisticated its graphics could be, and thus the aim of most game hardware developers has been to develop faster chips which could help create more immersive game environments.

Sega was the first company to exceed 8 bits with the 1988 release of the 16-bit Genesis console [18], and quickly began undermining Nintendo’s dominance in all the markets in which it competed. To counter the threat posed by Sega’s more powerful machine, Nintendo rushed its own 16-bit system (dubbed, the “Super Nintendo”) into production, aiming for a

September 1991 launch. This meant that in terms of the new generation of consoles Nintendo and Sega would be on a more or less even footing, with Sega having a slight advantage due to the fact that its 16-bit machine reached the market earlier.

Both the Genesis and the Super Nintendo represent good examples of the “anti-convergence” ethos pervading the industry of the period. While there were some exceptions, the technology produced by the key manufacturers made no attempt at expanding upon their basic architectures. These were effectively game-playing computers which denied their computing origins, wrapping their processors in shells the design of which owed more to the aesthetics of consumer electronics than computing. A good example of this was the Sega Genesis, whose black casing and rounded exterior closely resembled other devices such as video cassette recorders and home stereo units.

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The marketing of the consoles of this period also seems to confirm the desire to de-emphasise the actual technology underlying the systems. Although some advertisements mentioned the relative performance of each system (a tactic often employed in relation to Sega’s Genesis), by far the most prevalent form of advertising avoided emphasizing the technology at all, preferring to focus on brand-recognition through characters. To this end, Nintendo entered into a series of licensing agreements, which saw characters from its games placed on a wide variety of consumer items, from t-shirts and magazines to lunchboxes. The aim here was to saturate the market with the Nintendo brand, with this strategy proving most successful with the still-popular “Super Mario Brothers” franchise [37]. Sega responded with a similar character-based campaign, releasing a range of Sega-branded merchandise featuring the “Sonic the Hedgehog” character. Thus even though the two main manufacturers were matching each other bit for bit in terms of processor power, it was the software which remained the primary selling point.

THE “RESURRECTION” OF THE HYBRID

The similar strategies employed by Sega and Nintendo worked to split the 16-bit home console market fairly evenly, although Sega claimed to have gained supremacy in the European market, selling 918 000 units compared to Nintendo’s 655 000 [53]. Clearly, any company attempting to break into this market would have to try something different, and this was exactly the dilemma facing Sony when it entered the console games market in 1995.

Rumors that Sony was planning to enter the game market had been circulating since the start of the decade, but the first firm indications came in November 1993 when Sony announced the formation of Sony Computer Entertainment Incorporated. According to a company press release, the venture was established to develop and market hardware for what would eventually be called the Playstation, a device that would feature a 32-bit operating system capable of producing high-speed graphics. More

importantly, the system would be designed to take advantage of the high data capacity offered by the CD-ROM format [31].

The fact that this early press release focused on the power of the hardware is significant, and marked a shift away from the brand-centred marketing that had characterised the preceding five years. The tactic was in fact an obvious one for Sony, for while the company had a well-established reputation in consumer electronics, it was an unknown entity in the highly-specialised arena of video game consoles. To compensate for this, Sony initially focused on what it did best: inserting cutting-edge electronics into consumer goods and then selling them at extremely competitive prices.

The proposed machine represented the next wave in processor development, and once again doubled the power of existing units. Sega had already experimented with the 32-bit architecture with its 32X, an add-on peripheral that attached to the cartridge port of the standard Genesis console. The 32X had been released in late 1994 but was generally seen by the industry as a stop-gap measure designed to minimize the damage the Sony Playstation might do to its sales [46]. The 32X was poorly supported by both developers and consumers, and was discontinued after little more than a year.

Sega's real competitor to the Playstation would be the Saturn, a true 32-bit console that mirrored the technology of Sony's machine in many ways. Like the Playstation, the Saturn would be based on CD ROM technology, the extra capacity allowing for a much richer game environment than was possible with cartridge-based technology. The Saturn was released in early 1995 accompanied by an intensive media campaign, with print advertisements running in a wide variety of publications ranging from *Wired* to *Playboy* [32]. However, despite this expenditure on advertising, initial sales in the crucial United States and European markets remained slow, and resulted in revenue to the parent company actually declining in the period from 1993 to 1996 [49].

The decision by both Sony and Sega to base their consoles on CD technology is important, representing a clear break with the cartridge-dominated console tradition. The move to CDs also meant that the new generation of games consoles would have much more in common with personal computers than did their earlier counterparts, as by this stage CD technology had become an integral part of the PC platform. Perhaps more importantly, the computer industry had also recognised the potential of the CD format for storing more than just data, and had been installing music-playing software on machines for some time. Sony and Sega planned to follow this lead by giving their consoles the ability to play music as well as games, hoping that their machines would form the basis of a user's entertainment centre.

Perhaps surprisingly, Nintendo opted to retain cartridges as the preferred storage medium for its next generation console, but also planned to out-power its rivals by bypassing 32 bits entirely in favour of a 64-bit architecture. By mid-1994 Nintendo were already heavily promoting their

new device, especially through trade exhibition such as the Consumer Electronics Show in the United States [20]. However, while Nintendo was able to attract considerable attention through its bold pronouncements, delays in production meant that it was almost another two years before the actual hardware began arriving in stores. In fact, Nintendo's 64-bit console (often referred to as the N64) did not reach the market until July 1996 [50], by which time Sega and Sony had already established firm positions in the increasingly lucrative market.

The delays in producing the N64 and the damage done to Sega's reputation by the poorly-supported 32X allowed Sony to gain a strong foothold in the market, with aggressive pricing giving it an edge. While Sega managed to get its console to the market first in both Japan and the United States, its American debut was undermined by a Sony announcement that when it was released, its Playstation would cost significantly less than the Sega machine [20]. Within a year of its release, the Playstation had already secured over 20 percent of the entire games market, a result at least partially due to the comparatively large inventory of game titles available for the unit [26].

Sony's success came at the expense of other console manufacturers, with Sega in particular losing market share. By the middle of 1996, Sega found itself in a price-war with Sony, with each company selling their consoles for less than their manufacturing costs [3]. The developers of the Playstation, however, were better equipped to absorb the losses on their console, both through their relationship with the Sony parent company, and through the revenue generated through their larger catalogue of game titles.

Sega's problems were further compounded with the eventual release of the Nintendo 64. While Nintendo had lost some customers due to the repeated delays in releasing the hardware, the company's solid reputation combined with the N64's technological advantage were enough to ensure a positive reception. In its first week of sales in the United States, the N64 sold more than the combined total of all its competitors for the entire month [25].

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DIFFERENT STRATEGIES, DIFFERENT OUTCOMES

The success of Nintendo's console indicated that while producing a device that can perform several functions has its advantages, consumers were still willing to choose a device, which only performed one function, but performed it well. Just as the games market of the 1980s had been characterised by a split between models of convergence and divergence, the market of the 1990s seemed to be developing along similar lines. Whereas machines like the Commodore 64 attempted to be a synthesis of games console and computer, the modern hybrid embodied by the Sony Playstation and the Sega Saturn attempted to combine game consoles with other forms of entertainment media. Nintendo represented the exception here, not

only rejecting the increasingly ubiquitous CD format, but also the multi-functionality that accompanied it.

The battle between Sega, Sony and Nintendo continued to intensify throughout the mid to late 1990s, with Sony and Nintendo gradually forcing Sega into an increasingly marginalised position. During this period the Playstation continued to rise in popularity, with Sony selling more than twice as many consoles as Sega within the first year of its release [30]. This trend continued in the years that followed, with the Playstation outselling the Saturn three to one in the US market in 1997 [29]. Nintendo also suffered comparatively poor sales in the US market during this period, though strong sales in Japan and Europe helped its overall standing. By the end of 1998, Nintendo had sold an estimated 11 million units worldwide, compared to the 14 million sold by Sony [24].

Facing dwindling sales, Sega gambled on being the first company to produce the next generation of games console, aiming to release a device that would be based upon a 128-bit architecture. The new machine, called the Dreamcast was released at the end of 1998 in Japan, and was initially well received [35]. The September 1999 launch of the American version of the technology also went well, with 300 000 units being pre-sold to consumers [21].

In releasing the Dreamcast, Sega also gambled on being the first manufacturer to take convergence to the next level, by including an in-built modem, which would allow users to search the Web as well as participate in online games. To facilitate the latter, Sega also established a dedicated gaming portal on the Internet under the title “SegaNet” [28] which also served as a venue for advertising upcoming titles and other Sega-related merchandising. While Sega was not the first console maker to utilise the Internet in marketing its product, it was the first to position networking as a key component of its sales strategy.

Sega’s heavy emphasis on online gaming is extremely interesting in terms of convergence, in that it clearly positions the games console on similar terrain to that traditionally occupied by the personal computer. This notion is further substantiated by Sega’s choice of operating system; rather than develop its own system in-house, Sega decided to license the Windows CE operating system from Microsoft [6]. Although usually only seen on handheld computers, Sega believed that using a Microsoft operating system would make it much easier to transpose content made for the PC platform to the Dreamcast.

Sony’s response to the early success of the Dreamcast was to promote the virtues of its own next-generation system, the Playstation 2, even though the device itself was still months away from being released. Building on the popularity of the original Playstation, Sony was able to convince many consumers that waiting for its new 128-bit machine was a better option than purchasing a Dreamcast [8]. One of the key selling points here was the fact that the Playstation 2 would be backwards compatible, allowing gamers to still play their original Playstation titles.

Sony, however, also decided on a different approach in terms of its own view convergence strategy. While online gaming was hinted at as a future extension of the Playstation 2, more emphasis was placed on the fact that the console would be able to play Digital Versatile Discs (DVDs) without the need for additional hardware. In contrast to the Dreamcast, this move clearly positioned the Playstation 2 as a home entertainment unit rather than a personal computer substitute, a fact highlighted by releasing the device in an all-black casing which closely resembled many dedicated DVD players.

The intensive marketing campaign launched by Sony had almost immediate impact on Sega's sales, which continued to decline despite a series of price cuts [41]. For the 2000 fiscal year Sega reported losses in excess of US\$398 million [2], with the Japanese launch of the Playstation 2 in March 2000 further compounding Sega's problems. In February 2001, Sega announced that it would cease production of the Dreamcast unit entirely, and sell off remaining stock at drastically reduced prices to clear its inventory [47]. Sega would then refocus its energies on game design, producing titles for the companies against which it once competed.

In some respects, it is possible that the decision to focus so heavily on the online capacity of the Dreamcast actually worked against Sega, as the poor take up of the SegaNet service indicates that few consumers felt this was a strong selling point for the unit. Part of the problem here was technical; the slow transmission speeds of Sega's 56 kilobit internal modem meant that the online gaming experience would be limited at best. This in turn discouraged developers from writing games for the Dreamcast unit, and the lack of games worked to further retard the device's take-up. In addition to this, while online gaming had long been a feature of the PC gaming culture, network-based games were still a foreign concept to console game players. Thus for the Dreamcast to be successful, Sega would have had to have overcome both the technical limitations of the current network infrastructure, as well as the cultural biases of its target user-base.

The demise of the Dreamcast allowed Sony to further entrench itself as the dominant force in the console game market. With over 70 million units sold, Sony now controlled more than two-thirds of the entire console market [52], and aimed to extend this lead with a massive capital investment in the new 128-bit machine, with an estimated US\$1.2 billion being dedicated toward chip design and manufacture alone [9].

For its part, Nintendo began work on a next generation console, which would allow it to compete on even terms with Sony. For its 128-bit "GameCube" (originally known as "Project Dolphin"), Nintendo enlisted the help of computer giant IBM to design the chip architecture [39]. The machine was originally scheduled to be ready for sale for the Christmas 2000 season, but like the N64, a series of delays in production meant that Nintendo was forced to continually push-back the product's release date [13]. There was also some confusion over the format the GameCube would use for media, with initial reports implying that the device would feature DVD playback, as did the Playstation 2. Later reports refuted this, with official statements

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from Nintendo revealing that while the GameCube would employ DVD technology, the discs themselves would be proprietary optical discs [36]. As such, Nintendo once again chose to go against the prevailing trend toward convergence, preferring to focus its energies on a stand-alone platform.

However, just as the entrance of Sony into the console market resulted in the radical redistribution of power within the industry as a whole, the arrival of another new player threatened to unsettle the virtual duopoly shared by Sony and Nintendo. Microsoft had long been involved in producing games for the home computer, but in early March 2000 the company officially announced it would be developing its first dedicated games console [38].

Indicative of Microsoft's commitment to the games market is the amount of money directed toward the development and promotion of the Xbox. Microsoft allocated over US \$500 million just for the Xbox launch campaign, making it the most heavily promoted product in the company's history [40]. More importantly, Microsoft entered into agreements with over 150 game developers to ensure that the platform would have a sufficient base of titles to attract consumers, aiming for 20 titles being available at the console's launch [15].

Microsoft's convergence strategy is predictably the most wide-ranging of all the console makers to date, and arguably makes the Xbox the most truly hybridised device to enter the games market. Like the Playstation 2, the Xbox has the ability to play DVDs, although users first have to purchase an add-on remote control unit and software drivers. In addition to this, the Xbox also features many characteristics which can be attributed to Microsoft's personal computer background, with the inclusion of a dedicated high-capacity hard-drive being the most obvious. Perhaps the most interesting decision by Microsoft concerns the Xbox's online potential; while the platform does not support traditional dial-up modems, it does support broadband access through Digital Subscriber Line (DSL) or cable modem connections. This indicates that Microsoft is predicting a surge in online gaming, but unlike Sega it believes that users will come only when access speeds are sufficient to create a rich gaming environment.

LOOKING BEYOND THE TECHNOLOGY

While it is still too early to gauge the success or otherwise of the new consoles, early figures suggest that the market is fairly evenly split between the manufacturers. Perhaps the best indication of this are the Christmas 2001 sales figures for the American market, with Nintendo selling 1.3 million GameCubes and Microsoft selling 1.4 million Xboxes. Sony, with a year's head start in the market also sold 1.4 million Playstation 2 consoles in the fourth quarter [7], indicating that its previous dominance of the industry is perhaps coming to an end.

What is clear, however, is that the relationship between game consoles and convergence has undergone several transitions over the past 15 years. In many ways, the technology seems to have come full circle, with ability of

games consoles to perform multiple functions again serving as a key selling point. The questions which now must be asked are “what brought about this change?” and “what does this mean for the console games market of the future?”

Although some of these changes may be attributed to the simple fact that the technology itself is now sophisticated enough to perform multiple functions well, it is unlikely that this is the only cause for the resurrection of the hybrid game console. For their time, machines such as the Commodore 64 were able to perform their tasks as well if not better than similar stand-alone devices, and the same can be said of contemporary machines such as the Playstation 2 and the Xbox.

A more credible explanation might be found by taking a wider perspective on convergence, one that looks beyond simple technological aspects to encompass factors such as corporate alliances and agreements. From such a perspective, the emergence and subsequent success of Sony in the console games market can be attributed, not so much to the technological sophistication of the Playstation hardware, but to the ability of hardware manufacturers to draw on the wider resources of the parent company.

Sony was well aware that no matter how sophisticated a piece of hardware was, it would not survive in the market if its accompanying software was not of a high enough standard, and not plentiful enough to cater to diverse user tastes. During the 1980s the company had seen its technically superior Betamax video players pushed into obsolescence by the less-sophisticated VHS format, primarily due to the number of titles available on the later system [34]. To avoid a similar thing occurring with its entrance to the gaming market, Sony decided upon a three-pronged approach, utilising aggressive pricing, software licensing and advertising to carve out a niche in an industry.

According to Sony’s executive vice president in America, Jeff Sagasky, the games would be the key to Sony’s success: “It would not make sense for us to just make the (Playstation) machines. It is the ownership of content – the games themselves – that ultimately convinced us that Playstation was a wise business to go into” [34]. For this reason, the Playstation became the product of a joint venture between Sony music (which was already involved in handling computer software as part of its distribution network) and its parent company, with the consolidated revenue streams meaning that the profitable software stream could be used to subsidise the loss-making hardware [44]. Interestingly, the close relationship with the music division of Sony also had a side-benefit, with many artists signed to Sony-associated labels being cross-promoted through their inclusion on the soundtracks of Playstation game discs.

Other console manufacturers have formed similar alliances in recent times, although not in such a vertically integrated fashion as Sony. In producing its Xbox hardware, Microsoft drew heavily on its close relationship with the personal computer industry, using parts supplied by manufacturers such Intel and graphics card producer Nvidia. As noted earlier, Nintendo adopted a similar strategy in the design of its GameCube, sourcing critical

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hardware from computer manufacturers like IBM. Nintendo has also entered into licensing agreement with Panasonic, which would allow that company to produce DVD players that could also play GameCube discs, although at the time of writing the device has only been scheduled for a Japanese release.

A third potential influence on the resurgence of multi-functional games consoles is what could be termed cultural convergence: the trend in recent years for convergent technologies to both initiate and accelerate the coming together of previously disparate social groups. This is perhaps the most difficult factor to identify, as its influence is inherently subtle, but by focusing on what could be termed “true” multi-media content traces can be detected.

Perhaps the best example of this phenomenon is the relationship between games consoles and cinematic film. While there has always been some cross-over between the two media, the past decade has seen a remarkable intensification of the interaction. More importantly, we are now seeing an emerging trend of game-to-film translations; a trend which reverses the traditional model. In films such as *Tomb Raider* and *Final Fantasy*, digital technology is used to bring game characters and environments to “life,” while also stripping them of the interactive possibilities inherent in the game form.

From a cultural perspective, what this trend does is expose a non-gamer audience to game content, in a format that is both familiar and non-threatening. At the same time, traditional cinema audiences are also exposed to the peculiar aesthetics of the game format; an emphasis on spectacle, low reliance on narrative and preoccupation with the technical sophistication of special effects. In the short term this might translate directly into increased profits for both game and film producers, but in the longer term it is likely that we will see a continuing blurring of the technical, aesthetic and indeed cultural boundaries of the two forms.

CONCLUSIONS AND FURTHER RESEARCH

This paper has attempted to provide a brief overview of the relationship between console games and the phenomenon of convergence, by examining the history of the form from the mid-1980s to the present. While a much larger piece would be required to fully do justice to this topic, this initial study has been able to identify three important aspects of this relationship.

Firstly, the overall trend in the console games industry over the past two decades has been one of convergence-divergence-convergence, although some manufacturers have always defied this pattern. While the 1980s were characterised by devices which were part console game and part computer, the early 1990s saw a move away from this, with the appearance of more games-only device on the market. This trend was reversed in the second half of the 1990s, although manufacturers still preferred to de-emphasise the hardware in their machines, instead highlighting their ability as multi-

function entertainment units. The early years of the new century saw a continuation of this trend, combined with a renewed emphasis on the notion of console-as-computer, as evidenced by attempts at making games consoles internet compatible.

Secondly, while it is relatively easy to trace the development of the console games platform in terms of technological advances alone, it is important to recognise that technological advances always take place within specific institutional environments. The Playstation did not succeed just because it offered superior technology, nor did the Dreamcast fail because it was technically unsophisticated. These events were the result of a large number of factors, not the least of which being the different strategies employed by the companies in question. A key part of these strategies involved establishing relationships with various content providers, for as the Sony experience clearly demonstrates, sufficient quantities of quality software is often more important than the hardware itself. Unfortunately, the relationship between hardware and software was beyond the limited scope of the present paper, but will no doubt be the subject of future research.

Finally, it must be remembered that there is a cultural dimension to convergence; technical and institutional factors alone do not guarantee success for any platform. Although much has been written about games cultures in themselves, there appears to be little research into the relationship between these developing social groupings and the other factors that influence the medium's development. Such research, I would argue, is becoming increasingly important in the current socio-political climate in which games are frequently targeted as the cause of a variety of social problems. The recent Australian decision to ban a Playstation 2 game, as well as the ongoing debate over game content in the United States, clearly points to a lack of understanding on the part of policy makers of sophistication and complexity of the modern game form. What is required to inform these debates is more intensive research into what role is played by games in the wider trend of convergence.

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REFERENCES

1. Annett, W. (1999) "Commodore: Overview," <http://www.digitalcentury.com/encylo/update/commodr.html> (accessed 12/1/02)
2. Asiaweek (2000) "Game Set and Match: Once the Market Leader with Its Sonic the Hedgehog, Sega Now Seems Trapped in a Virtual Slide" in *Asiaweek*, July 1, 2000, p. 11744299.
3. Atwood, B. (1996) "Low-priced Gear Should Boost Game Sales" in *Billboard*, Vol. 108, No.22, p. 77.
4. Barr, T. (2000) *Newmedia.com.au: The Changing Face of Australia's Media and Communications*, Sydney: Allen & Unwin
5. Billboard, (1997) "Sega's Sales Slump" in *Billboard*, Vol. 109, No. 4, p. 26.
6. Buechener, M. (1998) "Sega Strikes" in *Time*, Vol. 151, No. 21, p. 94.

7. Business Week (2002) "Video Games: The Sky's the Limit" in *Business Week*, January 14, 2002, p. 100.
8. Business Week, (2000a) "Is There Life Before Playstation 2?" in *Business Week*, January 10, 2000, p. 93.
9. Business Week, (2000b) "Sony's Samurai" in *Business Week*, March 20, 2000, p. 28
10. Cassell, J, and Jenkins, H. (1998) *Barbie to Mortal Kombat: Gender and Computer Games*, Cambridge: MIT Press
11. Cohen, S. (1984) *Zap: The Rise and Fall of Atari*, New York: McGraw Hill.
12. Dizard, W. (1997) *Old Media, New Media: Mass Communications in the Digital Age*, Longman: New York.
13. Doyle, A. (1999) "Game Wars" in *Computer Graphics World*, Vol. 22, No. 12, p. 46
14. Eisenstodt, G. (1991) "The Charge of the Hedgehog" in *Forbes*, Vol. 148, No. 42, pp. 42–43.
15. Elkin, T. (2000) "Gearing up for Xbox Launch" in *Advertising Age*, Vol. 71, p. 16.
16. Fannin, R. (1989) "Zap? More bits could mean a big bite out of Nintendo's dominant market share as two high powered contenders introduce the next generation of videogames" in *Marketing and Media Decisions*, Vol. 24, No. 11, pp. 35–39.
17. Finn, M.J. (2000) "Computer Games and Narrative Progression" in *M/C*, available from <http://moby.curtin.edu.au/~ausstud/mc/archive.html#game> (accessed 12/1/01)
18. Foulger, C. (2000) "Sega Megadrive Frequently Asked Questions" http://www.Gamefaqs.com/console/sms/file/sega_master_system_a.txt (accessed 19/3/01)
19. Gillen, M. A. (1994) "Sega, Nintendo Bring Big Plans to CES" in *Billboard*, Vol. 106, No.28, pp. 70–72
20. Gillen, M.A. (1995) "Sega's Saturn Gets Jump at E3" in *Billboard*, Vol 107, No. 21, pp. 7–8
21. Graser, M. (1999) "Dreamcast Reboots Slumping Sega" in *Variety*, Vol. 376, No. 3, p. 23.
22. Jenkins, H. (2000) "Art Form for the Digital Age" in *Technology Review*, available from <http://www.technologyreview.com/magazine/sep00/viewpt.asp> (accessed 7/8/01)
23. Juul, J. (2001) "Games telling Stories? A Brief Note on Games and Narratives" in *Game Studies*, Vol.1 No. 1, July 2001. Available from <http://www.gamestudies.org/0101/juul-gts/> (accessed 15/12/01)
24. Konish, N. (1998) "Video Game Giants are Neck and Neck For the Profit" in *Electronic Design*, Vol. 46, No. 21, p. 32a
25. Krantz, M. (1996) "64Bits of Magic" in *Time*, Vol. 148, No. 23, pp. 73–76
26. La Franco, R. (1996) "Take That, Nintendo" in *Forbes*, Vol. 157, No. 11, pp. 96–98.
27. Lavroff, N. (1994) *Behind the Scenes at Sega: The Making of a Video Game*. Rocklin, CA: Prima Publishing
28. Lipschultz, (2000) "Let the Games Begin" in *Internet World*, Vol. 6, No. 18, p. 36.
29. Marketing (1997) "Has Sega Lost Game Power" in *Marketing*, May 22, 1997, p. 16.
30. Marshall, S. (1996) "Sony's Game Plan For Victory" in *Marketing*, January 4, 1996, pp. 9–11.
31. McClure, S. (1993) "Sony Ventures into the Video Game Biz" in *Billboard*, Vol.105, No. 47, p. 67.

32. Mediaweek (1995) "Sega Saturn" in *Mediaweek*, Vol. 5, No. 20, p. 36.
33. Meyer, M. (1994) "Fight to the Finish" in *Newsweek*, Vol. 124, No. 24, pp. 56-58.
34. Munk, N. (1995) "Once More into the Breach" in *Forbes*, Vol. 156, No. 6, p. 158.
35. Newsweek, (1998) "Sega's Comeback" in *Newsweek*, Vol. 132, No. 21, p. 10.
36. Newsweek, (2000) "It's Hip to be Square: Nintendo unveils its GameCube. Can it Face the Competition?" in *Newsweek*, September 4, 2000, p. 53.
37. Nintendo Corporation (2001) "Nintendo Company History" <http://www.nintendo.com/corp/history.html> (accessed 07/03/01)
38. Peterson, S. (2000) "Leading Off" in *PC World*, March 13, 2000, p. 9.
39. Price, T. (2000) "Get in the Game" in *PC Computing*, February 2000, p. 190.
40. Ricadela, A. (2000) "X Marks the Box: Microsoft Woos Game Developers" in *Information Week*, October 30, 2000, p. 15.
41. Rosier, B. (2000) "Will New Arrivals mean 'Game Over' For Sega?" in *Marketing*, September 7, 2000, p. 19.
42. Ryan, M. (2001) "Beyond Myth and Metaphor: The Case of Narrative in Digital Media" in *Game Studies*, Vol.1 No. 1, July 2001. Available from <http://www.gamestudies.org/0101/ryan/> (accessed 21/11/01)
43. Schleiner, A (2000) "Does Lara Croft Wear Fake Polygons?" Available from <http://www.Opensorcery.net/lara2.html> (accessed 27/11/01)
44. Schlender, B. (1995) "Sony on the Brink" in *Fortune*, Vol. 131, No. 11, p. 82.
45. Sheff, D. (1994), *Game Over: How Nintendo Conquered the World*. New York: Vintage.
46. Somogyi, S. (1995) "The Gaming of 1995: Battle Lines Drawn for Christmas Show-down" in *Digital Media*, Vol. 4, No. 8, pp. 30-35.
47. Terrel, K. (2001) "The Death of Dreamcast" in *US News and World Report*, Vol. 130, No. 6, p. 68.
48. Tetzeli, R. (1993) "Videogames: Serious Fun" in *Fortune*, Vol. 128, No. 16, pp. 110-115.
49. The Economist (1996a) "Sega's Sonic Hedge" in *The Economist*, Vol. 340, No. 7983, p. 69
50. The Economist (1996b) "Nintendo Wakes Up: Video Games" in *The Economist*, Vol. 340, No. 7977, pp. 55-57.
51. Thompson, R. (1991) "What's Hot: Amiga or Sega?" in *Compute*, Vol. 13, No. 1, p. 32.
52. Time International (2000) "Sony Plays for the Big Stakes" in *Time International*, March 20, 2000, p. 34.
53. Toor, M. (1991) "Sega/Nintendo Battle hots up as Virgin Rejigs" in *Marketing*, April 18, p. 5.

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