The Future of Computer Games

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In this book, I have explored computer games from a number of angles. I have presented my claim that computer games constitute an as-yet untapped art form. Implicit in this claim is the hope that this art form will someday be tapped. Unfortunately, history bears out the fears of cynics more often than the hopes of dreamers. I must therefore separate hopes from predictions. Where are computer games going? How will they change in the years to come? Will we see them emerge as a true art form? There are a number of divergent trends apparent now; analysis of them is complicated by conflicting interpretations of the current state of computer game design. I shall begin by addressing the most commonly cited arguments, and proceed to the framework I prefer.

Fad Or Fixture?

The first and most important question concerns the very survival of the computer games industry. One school of thought maintains that computer games are merely a fad, a temporary infatuation that will quickly pass when their novelty value is exhausted. Proponents of this view compare the computer game to other fads that swept into society with equal force. They maintain that computer games lack sufficient fundamental appeal to insure any staying power. Eventually, these people say, computer games will go the way of the hula hoop.

This line of thought is breezily rejected by all members of the industry, but I fear that the confidence people express is little more than the Titanic syndrome—the confidence that arises from mere size. They tend to blindly extrapolate into the future the astounding growth rates we have experienced in the past. It is certainly hard to give credence to doomsayers when the curve of growth slopes upward so steeply. However, few industry optimists can provide justification for their extrapolations. Just because the industry doubled in 1982 does not mean that it will double in 1983 or 1984. Indeed, it cannot continue to annually double much longer; if it

did, only eleven years' time would be needed for Atari alone to engulf the entire Gross National Product like some monstrous Pac-Man.

Furthermore, size alone generates negative forces that will certainly reduce the growth rate. In the simple days of the seventies, when computer games were counted by the thousands rather than the millions, nobody much cared about their effects because they were a minor component of our society. But now, they are everywhere. They are such a powerful force that they are affecting society in such a way as to generate negative feedback. We now have a backlash developing against computer games, with ordinances against arcades popping up all over the country. Parents are beginning to restrict their children's access to the games. Editorialists warn against the dire effects of playing the games. Already several preliminary studies have been undertaken to determine the effects of computer games on children; so far, the as-yet speculative results have been mildly favorable, but the day will certainly come when the crap game we call research comes up snake-eyes, and a blockbuster report is issued demonstrating that computer games cause cancer in laboratory rats.

Bigger critters than Atari have bitten the dust; bigger industries than ours have shriveled and died. Size and past success are no guarantee of permanence. We need substantive reasons for confidence in the future rather than simple extrapolations of past history. I am convinced that substantive reasons for optimism exist; the full presentation of my reasoning will come later in this chapter. For now let me say that computer games satisfy a fundamental desire for active recreation, and as such are assured of a bright future.

The Technological Extrapolation

The most commonly cited future for computer games is the technological extrapolation. Adherents of this school point to the undeniably steady march of technology and the rapid improvements that we have seen in the hardware for delivering games. They then extrapolate these trends directly to project a future populated by supercomputers with fabulous games chock-full of unbelievable graphics and incredibly realistic experiences. These people emphasize technological factors as the primary agents of change. They claim that the big breakthroughs will come with the use of bigger and faster processors, megabytes of RAM, new languages, and better display hardware. Holography, trackballs, laserdiscs, body sensors—these are the coin of the realm among the technological extrapolators.

I cast a jaded eye on such predictions. This is the same line of thought that extrapolated computer development in the late 60's to predict ever-larger, ever-faster mainframes as the primary avenues of development in the computer industry for the 70's. Computers did indeed become larger in that decade, but the development of larger computers was not the dominant event of the 70's. Instead, the maturation of minicomputers and the genesis of microcomput-

ers were the major developments of the 70's. The extrapolators never foresaw the coming of microcomputers, because micros didn't fit into their "bigger and better" extrapolations.

I do not deny that technology will improve; it will. The real issue is not whether or not technology will improve, but whether or not technological limitations are the primary constraints on the game designer. I do not deny that technological limitations do impose severe constraints on all computer games, and I readily acknowledge that technological advances will remove many of these constraints. Thus, technological immaturity—the weakness of current 8-bit, 64K, 1 MHz systems—is a crippling limitation. Yet I maintain that artistic immaturity is an even more crippling limitation.

Consider two extreme hypothetical future worlds. The first world has no technological development and the second world has no artistic development. In the first world I am stuck with an Atari 800 as my sole medium for game design. This does not worry me too much; I could explore the possibilities of this machine for five or ten years before beginning to feel trapped. The second world, though, is a bleak place indeed; I am doomed to write ever-fancier variations on STAR RAIDERS and BREAKOUT, with more colorful explosions, snazzier sounds, and 3-D photon torpedoes, but never anything new or different. I would feel trapped immediately.

Neither of these worlds will happen; we will have both technological development and artistic development. Yet, we must remember that the technological development, while entirely desirable, will never be the driving force, the engine of change for computer games. Artistic maturation will be the dynamo that drives the computer games industry.

The relative importance of technological development and artistic maturity is made clear by a comparison of modern movies with the silent movies. The modern movies boast gigantic technological advantages—sound, color, and fabulous special effects. When used with skill and artistry, the new technologies are indeed magnificent. Yet, all these advantages cannot make up for a lack of artistic quality: the computer-graphics blockbuster TRON compares poorly with any of Charlie Chaplin's movies. If Chaplin could do so much with black and white film and no sound, why cannot we do good work with 8 bits and 48K?

Assessment: Technological Revolution

To explain my own assessment, I must present some background about how I view technological revolutions. The first great technological revolution I will draw on is the revolution in transportation that swept American society in the first half of the twentieth century. The automobile was invented in the late 1800's; by the turn of the century it was available as a consumer product. However, many problems plagued the automobile. It was expensive and unreliable. It lacked the software (support services such as service stations and appropriate roads) to make it truly practical. It required considerable skill and dedication to operate. Furthermore, it was

unnecessary; American culture had developed quite successfully without it, so there was little existing need for it. Thus, the automobile was not a practical tool; it was a plaything of the wealthy.

With the passage of time, these problems with the automobile lessened in severity. Mass production lowered the cost and increased the reliability; more service stations and better roads became available. More and more automobiles were purchased; by the late twenties the automobile was a common fixture of American life.

The third stage became obvious in the 1950's. The automobile changed the face of American society. Housing patterns began to change. Commuting became practical. Urban sprawl, drive-in restaurants, and theaters became common. The technology changed the society.

The fourth stage began asserting itself at about the same time. As the automobile changed American society, so too did society change the automobile. Originally designed as a device to transport people and property from point A to point B as quickly, safely, and reliably as possible, it was transformed into a form of self-expression, a recreational device, and ultimately an end in itself. Could Henry Ford have anticipated dune buggies, vans with waterbeds, low-riders, and naked-lady hood ornaments? I doubt it.

Let me summarize the four stages that occurred in this transportation revolution. First, the technology was initially desirable to only a small part of the public. With time, conditions improved and the technology conquered society. Then it began to change society. In the process, society began to change the technology. The direction of this change was away from the pragmatic and towards the recreational.

Let us now examine the second great revolution of this century, the entertainment revolution sparked by the television. When television first became available in the late 1940's, it was expensive, unreliable, and lacking sufficient software (programs) to make it anything more than a toy for the wealthy. With time, these problems were overcome. Televisions became cheaper, more reliable, and offered more programming. They swept into society with great force. In the process, they dramatically changed the lifestyles of the American people. Nighttime entertainment was now readily available. Leisure time activities changed accordingly. But the public worked its will on television. It evolved from "visible radio," or a means of presenting lectures, plays, and speeches, into a medium with its own personality. Thus, the same four stages outlined for the automobile occurred with television: pioneer, conquest, transformation of society by the technology, and transformation of the technology by society.

The same sequence of stages is occurring with computers. At the moment, personal computers are still expensive, unreliable, hard to use, and lacking software. The situation is changing rapidly; prices are failing, machines are becoming friendlier, and software availability improves daily. All observers agree that personal computers will take society by storm. The only differences of opinion

are those of magnitude. Will 1990 see 5 million computers in American homes, or 10 million, or 20 million? No one knows, but everyone agrees that the figure will be large.

We therefore expect that personal computers will change the face of American society. We expect that networking will allow more Americans to participate in economic activities from the home, decreasing the load on transportation and accelerating the pace of economic life. The ease of manipulating information will give information an even more prominent role in our society. Our financial system will become less dependent on currency. Our lives will be changed by these machines.

But we ourselves will not be changed. The computer will change our habits and our leisure time, but it will not change our personalities, for emotionally we are still the same people who built the pyramids, fought the Crusades, and colonized the New World. Our analysis of the two previous revolutions leads us to expect that the relationship between society and the computer will be one of reciprocal transformation. We further expect that the nature of this transformation will be a shift from the pragmatic toward the recreational, from the functional to the frivolous. This leads us to suspect games as the primary vehicle for society to work its will on computers.

Ten years ago, even five years ago, this suggestion would have seemed ridiculous. Computers were the awesome creatures of humanity's cleverness, the intelligent progeny of the machine age. They were perceived to be powerful, endlessly capable, and not a little fearsome. Most people's only concern with computers was whether they would be people's slaves or their masters. The possibility that they might be their playmates never crossed anyone's mind.

We were wrong, for the computer game has already established itself as a primary form of use of the computer. By any number of measures, computer games are already a major portion of the world of computers. Consider, for example, the number of computer games in existence. What is the most reproduced program in human history, the one program with more copies in existence than any other program in the world? At the moment, the #1 program is undoubtedly *Combat*, the game cartridge supplied with every ATARI 2600. Millions and millions of copies of this cartridge have been distributed. Perhaps you object that this measure is unfair because nobody buys the program by itself. Very well, then, consider *Pac-Man*, *Asteroids*, *Space Invaders*, and *Missile Command*, each of which has sold millions of copies. Indeed, were we to compile a "Top Forty" list of the best-selling programs of all time, I very much doubt that *Visicalc* (trademark of Visicorp) or any serious piece of software would make the list. Games dominate. Perhaps you object that numbers alone do not adequately measure social significance. Perhaps you would prefer to measure economic significance. Very well, let's try a comparison. *Visicalc*, the most successful and serious personal computer package, has sold, say, 400,000 copies at, say, $200 apiece. That amounts to $80 million

gross. By contrast, if Atari sells, say, 5 million copies of *Pac-Man* at $30 apiece, that's $150 million. And that's just one title; there are many other games generating large sales figures.

Thus, games are already a primary form of use of computer technology. They have established themselves as a major component in the world of computers. In the accelerated world of the 80's, the fourth stage (transformation of technology by society) is upon us even as the second phase (conquest) is beginning.

The Nature Of Change

Games are the vehicle with which society will change the computer. How will the games themselves be changed by society? We can expect two processes to affect games: the mass market and the flowering of heterogeneity. In some ways, these processes work against each other.

The Mass Market

As computer games become a mass market item, they will fall prey to the homogenizing forces of the mass market. The emphasis will not be on originality or creativity, but rather on adhering to the time-honored formulas. Just as movies and television fell prey to the formulas of sex and violence, cops and robbers, sitcoms, and the other mechanical incantations of the mass media, so too will games fall victim to the tyranny of the mass market. (Are my biases showing?) We will see an emphasis on delivering the same game over and over in new clothing. My guess is that we are already caught in the grip of this force, for we are producing little more than variations on a single theme: "blast the monsters!" This has sold well, so we stick with it.

This cynical view of the mass market is countered by the realization that the mass market is occasionally capable of sustaining a real blockbuster. Hollywood may grind out an army of soulless clones, but every now and then something really interesting comes out. When this happens, the mass market responds fabulously. *2001: A Space Odyssey*, *Star Wars*, and *Raiders of the Lost Ark* are examples of original, creative ideas coming out for the mass market and enjoying success. Just because something works in the mass market does not mean that it must be junk.

The Flowering of Heterogeneity

The games market differs from the movie market and the television market in that it is less centralized and has fewer economies of scale. In this respect it is closer to the books market and the records market. For this reason, I expect the games market to exhibit a greater degree of heterogeneity and less slavish obeisance to mass tastes.

I therefore expect a host of baby markets following in the train of the mass market. While the baby markets will never be as lucrative as the mass market, they perform two valuable services. First, they

provide a testing ground for new ideas that, if successful, will be swallowed up by the voracious mass market. Beyond, the baby markets will always provide a haven for the refugees from mediocrity and a playground for those whose tastes aren't average.

You may ask why baby markets have not yet developed very far to date. I answer the question with a little story. Suppose that you were the first astronaut to land on a newly discovered planet, and there you found a civilization every bit the equal of ours, but for a single exception: they had no literature. No novels, no poetry, no children's books, no textbooks, no magazines, nothing that we have, with one exception: they did have comic books. On further study, you discovered the reason for this oddity. Reading was a new discovery only recently popularized by teenagers and shunned by the majority of adults who felt intimidated by this newfangled skill. Thus, literature was used by teenagers to express the fantasies and interests they enjoyed: confronting authority, violent resolution of conflict and so forth. Hence comic books. Could you not look on this situation and recognize the seeds of the future in it? Would not the flowering of other forms of literature be expected as the kids grow up and develop new interests? Would not novels, short stories, westerns, gothic romances, poetry, and other genres be incipient in the situation you found?

So it is with computer games. Until now the preserve of teenage males, these games are bursting into society at large. While they have satisfied until now the fantasies of twisted computer-nerd minds, they will soon blossom into a much richer array of fantasies. We will have country-western games, gothic romance games, soap-opera games, comedy games, X-rated games, war games, accountant games, and snob games. The society that invented the hot tub, CB radio, and dune buggies will have no reservations about impressing its character on computer games.

Eventually, games will be recognized as a serious art form. The exploration of games as a serious art form will be restricted to a tiny fraction of the total activity. Most of the effort will always be more along the lines of pop-art. Yet this tiny group of games-artists will be responsible for creating the future classics of games, the games that endure.

Conclusions

I see a future in which computer games are a major recreational activity. I see a mass market of computer games not too different from what we now have, complete with blockbuster games, spin-off games, remake games, and tired complaints that computer games constitute a vast wasteland. I even have a term for such games—cyberschlock. I also see a much more exciting literature of computer games, reaching into almost all spheres of human fantasy. Collectively, these baby market games will probably be more important as a social force than the homogenized clones of the mass market, but individual games in this arena will never have the economic success of the big time games.

By 1985, software stores will be as common as record stores; by 1990 they will be as common as bookstores. On entering the software store, you will be confronted by racks and racks of games, with serious software occupying a smaller portion of the floor space. Just as in a bookstore or record store, you will see aisles devoted to particular tastes in games. You can browse through collections of cowboy games as your companion explores the latest space games. Perhaps you will look for the latest product of your favorite author, all of whose works are collected in alphabetical order. On the walls you will see posters announcing the latest smash hit games by software superstars. After evaluating a number of games you will make your choices and purchase them. Then you'll go out to the parking lot to discover that some idiot has dented the fender of your car. Some things never change.

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