

What About Fun and Games?

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Introduction

Looking around in Scandinavia in the Spring of 1949, the new-born Bo Dahlbom could not see very many computers. In fact, since the number of computers in the world was very small, and since most of these were situated across the Atlantic – far away from the toddler who is today celebrating his 50:th birthday – it was probably only many years later that the young Dahlbom first came even close to any form of computationally enabled machine.

Had Bo Dahlbom been born today, in 1999, however, it is likely that he would have encountered more computational power during the first hour of his life than what existed in the whole world 50 years ago. Every maternity ward will now contain a multitude of computerized devices, and everything from toys to baby food heaters will contain a microcontroller of some sort. Computers were once monolithic machines only available to the selected few, but now computer processors figure as standard components in just about all the electronic and mechanical devices we encounter in our daily life. These devices may not always conform to the traditional view of a computer, but there can be no doubt that they are indeed computationally enabled machines.

Hospitals are just one example of places where computers of various kind are controlling a multitude of functions and equipment, without there being anything like a traditional “information system” in sight. Even in our homes, computers have taken the rein of devices such as CD players, microwave ovens, TVs and so on. Dahlbom (1997) called such computerized devices “tools” and claimed that the “development of such tools [is] a fairly uncomplicated process”. He went on to say that this development “simply means more and, hopefully, better tools, instruments, gadgets. Life will go on in pretty much the same way, only it will be more comfortable and fun.” We think there are reasons to question Dahlbom’s view. Developing tools that make life more comfortable and fun may in fact be quite important, and, as we will try to show, is not at all a trivial pursuit.

We believe that it is time for the discipline of informatics – old or new – to start acknowledging the variety of things that people do using computers that do not conform to the characteristics traditionally associated with information systems or computer use in this discipline. In particular, and in line with our claim that an important goal of technology is to make life more comfortable and fun, we are interested in those activities that may have little or nothing to do with so-called “work”. To make this point clearer, we will chart one of the most important, but surprisingly often neglected, components in the history of computing: that of computer-based entertainment.

A Different Perspective: Computers and Entertainment

The entertainment sector has long been a driving force for the development of new technology – transistors for radios, cathode ray-tubes for television sets, and so on. In later years, the entertainment sector has become one of the most important driving forces in the development of new computer technology. Looking at the typical desktop PC being used in companies today, it is easy to see that most of its power and capabilities is in fact wasted on office work. A high-end PC will have a high-resolution color screen, stereo speakers, a soundcard, a very fast processor and often even specialized 3D graphics capabilities. This functionality has little or nothing to do with the tasks that computers are traditionally expected to perform in the office – the hardware is there because it is needed to play the latest games. This “spill-over” effect, where technologies developed for entertainment purposes find their way into office equipment, should in itself be worthy of further study.

Looking at the research community, entertainment and games is a growing area for the funding and application of academic research. Areas such as artificial intelligence and computer graphics are becoming more and more dependent on computer games for the application of results, and the driving force for developing super-computers has shifted from the needs of the American defense department to those of the major Hollywood studios.

With the home computer boom and the ever-decreasing price and increasing power of game consoles, it is not unlikely that many people spend as much time playing computer games as they do performing traditionally computer-based tasks such as word processing and accounting. Yet, looking through the pages of journals such as the *Scandinavian Journal of Information System*, or conference proceedings such as those of the IRIS conference, it is evident that the Scandinavian research community has given very little attention to the impact that computer-based entertainment has on people’s lives.

Our Alternative History of Computer Use

Dahlbom (1997) gave an account of the history of computer use, divided into a number of stages. We would like to offer an alternative history, based on the development of *computer-based entertainment* and its use. This “shadow” history gives a picture that is in many ways surprisingly consistent with Dahlbom’s conclusions, and as we will see it also foreshadows the topics of *New Informatics* (Dahlbom 1997) and *Mobile Informatics* (Dahlbom & Ljungberg 1999). At the same time the story is told very differently, since the perspective is that of the individual user, finding use of the technology for her own purposes and on her own terms. Here we find a technological evolution dictated not by the interests of large organizations, but by what ordinary consumers have been willing to spend their money on. (In the following sections, most facts and years are taken from Herz (1997), chapter 2.)

Early 1960s to present: Computer-based entertainment by hackers, for hackers

The first computer games, just like the first computers, were developed and used by an exclusive elite. The first “computer hackers” were students who got access to advanced equipment in odd hours, and pushed it to do things the constructors had never thought of. At MIT, the first application developed for the graphic display of the PDP-1 in 1962, was

a game called *Spacewar* – the first real-time computer game. This was a two-player game that simulated a dogfight between two spaceships, complete with a rudimentary simulation of inertia and gravitation. It was developed by enthusiasts who wanted to try out the capabilities of the new equipment, without any regards to marketing potential. To this day, this attitude of trying the limits of new equipment by constructing games and other demonstrations is living on in the international “hacker” community.

Early 1970s to present: Computer-based entertainment in public places

Arriving in 1974 with only two instructions, DEPOSIT QUARTER and AVOID MISSING BALL FOR HIGH SCORE, the arcade game *Pong* quickly became a success in public meeting places such as bars. This was the first time computers were made available to the general public and used for commercial entertainment purposes, and *Pong* together with its many followers was a resounding success. Simple games such as *Pong* gave way to more and more advanced games, exposing whole generations to computers for the first time. An interesting aspect of the early arcade games is that they were a very social phenomenon, where people gathered to play with the new technology cooperatively or competitively. Although the arcade game industry has lost in importance in recent years with the ever-increasing capabilities of home game systems, some of the most advanced cutting-edge applications of computer technology can still be found here.

Late 1970s to present: Computer-based entertainment in the home

The first successful computer game system for the home was the *Atari 2600*, released in 1978. It used interchangeable cartridges to allow a number of different games to be played on the device, effectively moving the arcade into the home and exposing all-new audiences to computer-based entertainment. Soon, many independent companies were created to develop software for this and other home game systems, creating a whole industry in the process. And although early home computers such as the TRS-80, Commodore 64 and Apple II were advertised as being useful for “serious” tasks like balancing the family budget and storing recipes, they were in fact bought mainly for playing games.

The social aspects that were present in the public computer-based entertainment has not been lost, however. Even though many home-computer games are designed to be played by one person at a time, they have kept their social dimension. For example, people gather to play games at each others homes, to cheer each other on and set new records. Most consoles also have multi-player possibilities (for 2 to 4 simultaneous players), enabling players to compete or collaborate in beat-em-ups, racing games and so on. It is worth noting that not even today will a standard desktop computer have the facilities to let multiple users work together manipulating the same information at the same time – something the *Atari 2600* was capable of over 20 years ago!

Early 1980s to present: Computer-based entertainment becomes portable

The continuing miniaturization of computer components made the *Game & Watch*, a simple computer game small enough to be carried in the pocket, possible. This gave way to more flexible systems like the *Nintendo GameBoy*, where interchangeable cartridges could offer many different games on the same machine. The *GameBoy* was launched in the late 1980s and has undergone a number of refinements but no revolutionary changes.

It is still a bestseller, an amazing feat for computer technology, which usually becomes obsolete within a few years.

Recently, the *Tamagotchi*, a small hand-held artificial-life-based game, proved to hold a peculiar power over users, who became addicted to tending for a simulated little creature. Recent “intelligent” stuffed toys such as the *Furby* and *Barney* are even closer to the behavior of real pets. One of the latest portable entertainment crazes is the *Lovegety*, a “match-maker” of Japanese origin. It uses radio communication to match users with similar interest and gives a “beep” when two people of opposite sex with matching profiles are physically close.

Mid 1980s to present: Networked entertainment

As early as the late 70’s and early 80’s, the emerging Internet and primitive bulletin board systems were used to play networked games such as *NetTrek* and text-based *Multi-User Dungeons (MUDs)*. However, it was not until the introduction of *Doom* in 1991, that the concept of the networked game was firmly established in the mind of the public. Now players could also compete or collaborate with other players by modem or using the emerging internet, as physical co-location was no longer a prerequisite for cooperative gaming. The next-generation video game from SEGA, the *Dreamcast*, now shipping in Japan, comes with a built-in modem, and some kind of network capability is likely to figure in all future game consoles developed for the home.

Online entertainment is not limited to games. In the mid-1990s, the emergence of the World Wide Web made it possible for people to tap new forms of entertainment and information on a scale never before possible. Newsgroups, chat-rooms and so on also provided a new way for people to communicate over vast distances, mostly for entertainment purposes.

The Future

When they first appeared, the PC, the World Wide Web, and recently the PDA were dismissed by the mainstream informatics research community as “toys” that could not be used for “serious” tasks, and therefore not worth any attention. The researchers shared this view with most computer professionals, who were at least partly trained by academia. However, researchers have been forced to change their views, at least when people are using the technology to such an extent that they are impossible to ignore. In the research group PLAY, we believe this is a dangerous attitude to emerging technologies, and that such a view on new technology puts severe constraints on how innovative or *avant garde* the research community can be.

It is very difficult to say anything reliable about the future based on the past – such predictions tend to be either too conservative or too extreme. But it is at least obvious that two trends have been important in recent computer-based entertainment: networking and portability. Interestingly, these trends are prominent topics in two recent papers on informatics. In *The New Informatics*, Dahlbom (1997) wants to make sure that informatics researchers become “the *avant garde* of the Internet Era”, and in *Mobile Informatics*, Dahlbom and Ljungberg (1999) argue that IT support for mobile work should be brought into focus.

In fact, as we can see that games-players were ahead of informatics researchers in both these cases. If our community had been paying entertainment attention, it would have

discovered that gamers were forming virtual communities in MUDs and were using their GameBoys on buses and trains over ten years ago. These same game-players (and their younger brothers and sisters) are now looking for new “kicks”. The question is, where will they find them?

One assumption is that a *combination* of networking and portable technology will be important. When a computationally-enabled device is small enough to be carried at all times, and has the capacity to establish communication with other devices in its surrounding “on the fly”, we are approaching a new paradigm for computer use: *informally networking portable technology*. In the research group PLAY, we are experimenting with such devices, and have recently built a platform for informally networking technology. It is not a coincidence that this platform is based on a hand-held videogame, the Nintendo GameBoy, since this happens to be one of the most widespread and cost-effective portable computers to be found.

There are also other trends in current entertainment technology which we believe will shape the future. Persistent behavior based on artificial life techniques (as seen in the Tamagotchi), embodied (even downright “fuzzy”!) interfaces (exemplified by computerized dolls such as Furby and Barney), and portable technology as a social mediator and match-maker (“love-beeper” technology such as the Lovegety); these trends might also make their way into future computing paradigms. In PLAY, we hope to be able to find and evaluate such new paradigms before they are common-place, so that we may in fact become a true *avant garde* of emerging new technologies. In order to do this we believe it is essential, not just for us but for the informatics community in general, to keep a close watch on emerging entertainment technologies, as some of the best ones will migrate into other areas of use as well.

Conclusions

When looking at our alternative history of computing, it is evident that fun and games has played a much larger part in the development of computer use than has hitherto been acknowledged. To explain why this has been the case is not the aim of this article, but we feel the question is important enough to be raised and investigated further. It seems to us that our alternative history of computing is as relevant as the one traditionally acknowledged by informatics researchers. Not despite, but *because* it concerns how individual consumers, rather than large organizations, use computers. Further, we believe that the entertainment sector will continue to be a prime *kindergarten* for new technology, a place where many important innovations are made and presented to the public for the first time. This makes entertainment important for anyone truly interested in the future of computing.

Finally, we would like to conclude that we hope that this paper will give Bo Dahlbom some new inspiration, and that it will serve as a good excuse for him to spend at least some part of his next fifty years having fun and playing games!

References

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