

Chapter 13

Digital Games

13.1 Console and PC Games

Let us, first and foremost, make a terminological distinction. When we talk about games in this book, we refer to results from **game research** (Simons, 2007), which is only marginally related to **game theory**, a mathematical theory concerning rational decisions in the presence of several agents.

Digital games require hardware in order to be played at all. Here we distinguish between console games (when using a console or a cell phone) and PC games, which are (alone or—using internet services—with others) played on one’s computer (Kerr, 2006, 54 et seq.).

Console games can be distinguished into three main groups. Console games, narrowly defined (e.g. for PlayStation or Wii) require an external screen (e.g. a television). Handheld consoles have an integrated screen (e.g. Gameboy, Nintendo DS or PlayStation Portable). Cell phone games are generally simple games of skill (e.g. *Nature Park* or *Snake*), which only require the smallest displays.

PC games are either “simple” board or card games or games of skill, which are also played in the real world, games of chance equally transferred from the real to the digital world (if legally dubious), video games (with several genres), “Massively Multiplayer Online Role Playing Games” (MMORPGs), Social Games (generally as extensions to social networking platforms) as well as “games with a purpose”, which are games that serve the indexing of Web resources, for instance. A classification of digital games is provided in Figure 13.1.

In accordance with our definition of the information market (Table 1.2), in this book we will exclusively consider PC games. Our delineation is blurred, though, since several console games have internet compatibility by now. Until the advent of MMORPGs, the market for digital games was dominated by console games (Nielsen, Smith, & Tosca, 2008, 13 et seq.), even though these were more expensive, compared to their PC counterparts. This is because for PC games, the game manufacturers’ licensing fees to the console manufacturers disappear. Nielsen, Smith and Tosca (2008, 17) assume that the easy (illegal) copiability of PC games resulted in a certain pricing pressure, which had a favorable result on consumer prices.

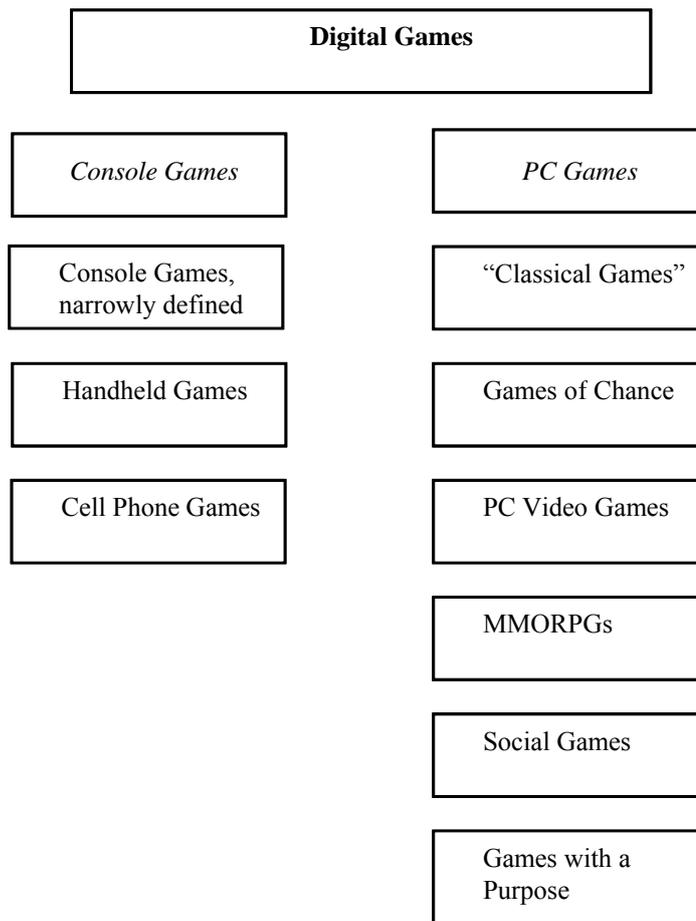


Figure 13.1: Classification of Digital Games.

All digital games run through three phases in their **development** (Nielsen, Smith, & Tosca, 2008, 18 et seq.). In the conceptional phase, the idea for the game is formulated, its (hopefully) attractive functions explained. Added to this are a market analysis and budget planning. The design phase is dominated by software development, in which the functional and technical specifications are discussed and realized. At the end of the design phase, there is a preliminary prototype, which

represents a fragment of the envisioned game containing all its essential features. Only in the production and testing phase is the prototype equipped with graphics and sound. The users expect games to employ 3d technology and color (“3D true color graphics”) (Choi & Kim 2004, 21). The alpha version thus created now runs through a series of tests regarding simplicity of usage and playability, leading to a “Gold Master” and thus to the first commercially distributed version of the game.

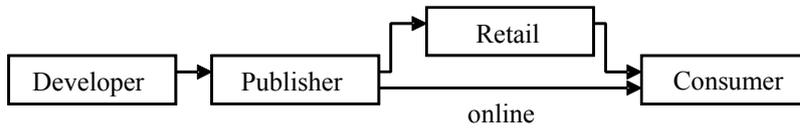


Figure 13.2: Value Chain of the Digital Gaming Industry

The Gold Master is either marketed by the developer itself or—particularly in the case of smaller developing companies—by a publisher. The game *Rez* (a shooter), for example, has been developed by UGA and distributed by Sega, whereas in the case of *The Sims*, Maxis assumed both roles (Nielsen, Smith, & Tosca, 2008, 16). Finally, the games are sold either via stationary retail (as DVDs) or online, or on a subscription basis (e.g. with monthly usage fees). Several online games can be played for free. The value chain of the digital gaming industry can be seen in Figure 13.2.

The evaluation of information systems has been working with two variables that cause the systems’ user acceptance ever since Davis’ (1989) classical results: *Perceived Ease of use* and *Perceived Usefulness*. Not so for the evaluation of digital games: ease of use is still there, but the usefulness factor is replaced by *Perceived Enjoyment* (Hsu & Lu, 2007). **Fun** becomes the critical success factor. Castonova (2007, 82) even laments the lack of an “economy of fun”, which he believes is required here.

13.2 Digital Versions of “Traditional” Games

We will now speak of PC games. A first group among these consists of games that are also played outside the digital sphere and have only been turned into digital copies. These are board games (such as chess or Go), card games (e.g. Solitaire; Figure 13.3), games of skill (pinball) or other simple games (e.g. Battleship). Some of these games are preinstalled on new (Windows) computers. Such games have been developed by Microsoft, partly in cooperation with Oberon Games.

There are single-player games (such as Solitaire), multi-player games, where players take turns (pinball), multi-player games played on the WWW (e.g. chess

against a player somewhere in the world) and man-against-machine games (also in chess).

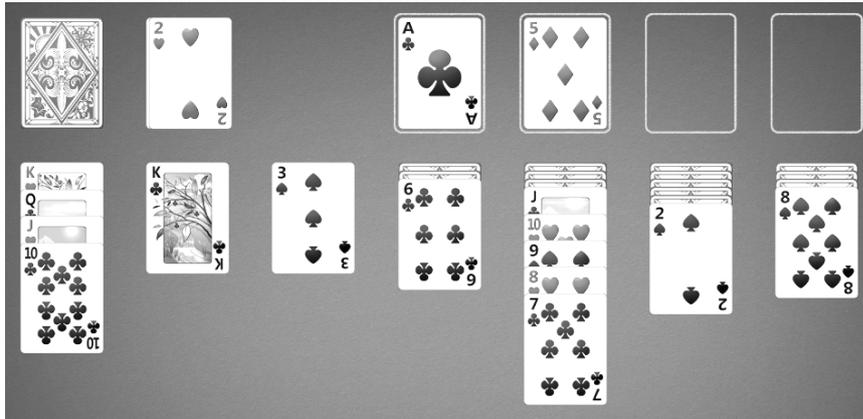


Figure 13.3: PC Version of Solitaire (Oberon Games / Microsoft)—a Typical Single-Player PC Game.

13.3 Gambling

Online gambling involves virtual adaptations of games of chance known from the real world. The main difference to casino and sports gambling lies in players' ability to keep playing around the clock (Griffith, 2003). We distinguish between two main groups of online games of chance:

- Casino Games (LaBrie et al., 2008), among them Blackjack, Roulette, slot machines and Poker (LaPlante et al., 2009) (see Figure 13.4) and
- Betting, particularly on sports events (LaPlante et al., 2008).

In games of chance, the danger of addiction is particularly high compared with other games. McBride and Derevensky (2009) report that in a random sample of customers of online gambling sites, around a quarter are to be regarded as “problem players”. These play—compared to “hobby players”—longer sessions and bet higher sums—and losing more money in consequence. Problem players have a tendency toward “Problematic Internet Use” (PIU) (see Chapter 4 above).

Online gambling (including bets on future events, among them sports) are illegal in many countries. In Germany, the prohibition is regulated by the Interstate Gambling Treaty (GlüStV) (since 2008). In the U.S.A., there has been an “Unlawful Internet Gambling Enforcement Act” (UIGEA, 2006) since 2006, which prohibits financial transactions (e.g. credit card payments) in favor of (domestic or foreign) organizers of such games (Morse, 2009). In certain countries, though,

online gambling is legal; among them Gibraltar (home of PartyCasino), Malta and several Central American countries. In Canada, the Kahnawake Mohawk First Nation (in Quebec) has declared itself independent in gambling matters and legalized these activities. Kahnawake is, at the moment, the host of the most internet gambling sites in the world (Williams & Wood, 2007, 11).



Figure 13.4: Selection of Online Games of Chance on PartyCasino.

13.4 Video Games

Video games tell a story and allow the player to actively participate in the events they depict. Occasionally, the objective is even to anticipate the “real” plot and to control the characters one plays accordingly. We distinguish five genres of video games:

- Sports Games (e.g. *Snooker* or *Formula 1*),
- Action Games (e.g. *Tomb Raider*, *Call of Duty*),
- Adventure Games (e.g. *Myst*, *Monkey Island*),
- Strategy Games (e.g. *Dune II: The Building of a Dynasty*, *Command & Conquer*),
- Process-oriented games (e.g. *Ultima Online*); this also includes all MMORPGs, whom we will grant an entire section.

It must be noted that “storytelling” has another meaning in video games than it does in novels or films. In the traditional case of **narrativity**, the recipient is outside of the plot—however badly one wants, one cannot help Luke Skywalker fight Darth Vader. In video games, this is possible (even if—compared to film—only in

short, select sequences). Video games' interactivity influences their narrativity, however, which is why Jesper Juul (2001) emphasizes:

You can't have narration and interactivity at the same time; there is no such thing as a continuously interactive story. (...) The relations between reader/story and player/game are completely different—the player inhabits a twilight zone where he/she is both an empirical object outside the game and undertakes a role inside the game.

For Tavinor (2005, 202), online video games form a hybrid genre consisting of narrativity and interactivity: "Video games are *interactive fictions*".

If a video game is based on a film (like the game *Enter the Matrix*, based on *The Matrix*), licensing fees must be paid to the rights holder (Kerr, 2006, 69 et seq.). This, of course, also works in the opposite direction (e.g. for the film *Lara Croft: Tomb Raider*, based on the *Tomb Raider* games).

Especially for first-person video games (e.g. shooters), it is important to provide the player with as realistic an impression as possible of the game's world—from the "subjective" point of view of the avatar (Steinicke et al., 2009). Research into the direct translation of the player's movements (in the real world) into the actions of the (virtual) avatar is ongoing (Mazalek et al., 2009).

13.5 Massively Multiplayer Online Role Playing Games (MMORPGs)

A dominant position in the online gaming world is currently held by Massively Multiplayer Online Role Playing Games (Achterbosch et al., 2008). What exactly are such games? Let us decipher the abbreviation MMORPG (Chan & Vorderer, 2006, 79):

- M (Massively): lots of players play a game simultaneously,
- M (Multiplayer): the game is principally played with other people; there are thus no offline versions of the game,
- O (Online): the game is played on the internet,
- RP (Role Playing): every player assumes a certain role in the game, which he can—within a certain set of rules—freely define and which is represented in the game by an avatar,
- G (Games): here the definition becomes a little blurred, as there are definitely games in the narrow definition of the word (such as "World of Warcraft"), but also digital worlds with no predominant gaming character (such as "Second Life") or pedagogically oriented "Serious Games" (Zyda, 2005; Bellotti et al., 2009), such as the edutainment world "Wissenheim" (Baeuerle, Sonnenfroh, & Schulthess, 2009).



Figure 13.5: Scene from *World of Warcraft*. Source: Blizzard Entertainment.

We will briefly describe the rules of probably the most successful of the MMORPGs, “**World of Warcraft**” (WoW) (Figure 13.5), developed by Blizzard Entertainment. In an environment reminiscent of medieval legend or J.R.R. Tolkien’s “*Lord of the Rings*”, the player chooses one of the two factions “Alliance” or “Horde”, then selects one of the races available (e.g. blood elves or night elves) and a class (e.g. mages, warlocks or hunters). The game is played on decided servers that are not interconnected. There are servers on which persons play against persons (and can kill each other), and servers on which persons play against the software. Furthermore, it is possible to engage in role-playing games on the servers. The goal here is to perform tasks (“quests”), in order to be rewarded with pieces of equipment, playing money (“gold”) and experience. Experience points gained by fighting avatars or exploring uncharted territory affect a player’s “level”. Currently, one can work one’s (avatar’s) way up to level 80. Players mostly form groups (“guilds”) and perform their tasks together. Communication with members of one’s own faction is possible via chats; communication with members of the enemy faction, though, is not an option. Another aspect worthy of mention is the “raids”, where the players must (mandatorily) meet at certain times, since the tasks cannot be performed otherwise.

Experience points make the avatar increasingly valuable, and are translated into a player's renown within the game (Smahel et al., 2008). Playing in a guild and—particularly in the case of raids—collaborative actions may increase the feeling of solidarity, but they require a not inconsiderable amount of playing time. Thus, the possibility of MMORPGs such as WoW leading to **problematic internet usage**—depending on each player's disposition and motivation (Yee, 2006)—cannot be dismissed.

Let us expand our view a little and consider digital world in general. Edward Castronova (2005, 22) defines “**virtual**” or “**synthetic worlds**” as

any computer-generated physical space, represented graphically in three dimensions, that can be experienced by many people at once.

For Castronova (2005, 18), the connection of game and massive computer usage forms the basis for the creation of something like a “new Earth”:

Add computing power to a game world and you get a place that's much bigger, much richer, and much more immersive. The robots running around in it, humanoid and unhumanoid, are smarter and act more and more like real people and real monsters (if there is such a thing). Add immense computing power to a game and you might get an incredibly realistic extension of Earth's reality itself. The place that I call “game world” today may develop into much more than a game in the near future. It may become just another place for the mind to be, a new and different Earth.

In virtual worlds, there exists a “**virtual economy**” (Castronova, 2003). In contrast to the “normal” economy, in an “avatar economy”, an authority can determine and regulate the prices for the (digital) goods. The work (of the avatar) is fun (otherwise there would be no players). A thing like economic growth is not even mentioned. In the final analysis, the normal economy confines people to certain roles, whereas in the avatar economy, a change of profession or race, and even the decision as to whether one wants to live or, rather, be dead for a while (of course with the option of changing this status at any time) is always possible.

Societal and legal **norms** in virtual worlds—i.e. in the underlying software—are seen as particularly strongly regulated. Thus, Lessig (2006, 24) argues:

In MMOG space is “regulated”, though the regulation is special. In MMOG space regulation comes through code. Important roles are imposed, not through social sanction, and not by the state, but by the very architecture of the particular space.

Whether this is science fiction or merely fiction is anyone's guess. The question of whether such a parallel digital world is even worth striving for should also be an open one. However, the quotes by Castronova and Lessig hint at the direction in which game research is currently being conducted.

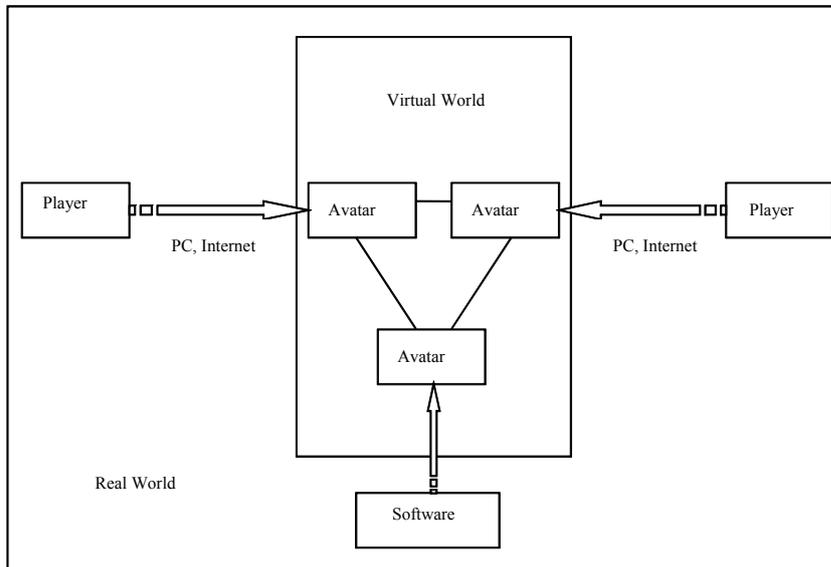


Figure 13.6: Elements of an MMORPG. Source: Following Kolo & Baur, 2004.

In a virtual world (schematically simplified in Figure 13.6), there are both human **players** who play with or against each other via their **avatars**, but there are also avatars who join the action as “non-player characters” (NPCs), exclusively controlled by the **software**. The real world in which the players reside is explored by empirical game research via surveys of players. Thus, we know that subscribers of WoW play for ten hours a week on average (Ducheneault et al., 2006, 286) and that the gaming time rises in tandem with one's experience level (Ducheneault et al., 2006, 287). However, it is also possible for game research to observe the “behavior” of the avatars in the virtual world (knowing, of course, that real people are behind their actions). Ducheneault et al., observed, for example, WoW's “in-game demographics”. The ratio of Alliance avatars and their Horde counterparts is two to one. As for the races, humans (25%) and night elves (23%) dominate, while orcs only account for 7% of WoW's virtual world's inhabitants (Ducheneault et al., 2006, 293). The largest proportion of female avatars is represented by night

elves (with around 40%), whereas 90% of dwarves are male. Ducheneault et al. (2006, 296-297) cite aesthetic reasons to explain this situation:

The aesthetic preferences ... seem to be reinforced when taking in-game gender into account, with players clearly favoring the “sexy” female Night Elves (...) to their perhaps less visually pleasing Dwarven counterparts.

When regarding both worlds, the “identity tourism” (Ducheneault et al., 2006, 297) between player and avatar catches the eye; this tendency is expressed by male players choosing female avatars and vice versa.

Such virtual worlds are—economically speaking—a product (the software as such) as well as a service (insofar as the software offers “services” within the game) (Ruch, 2009). Both product and service are entirely useless, however, if the players do not interact. MMORPGs function exclusively in the triangle constellation of product–service–player. This is also emphasized by Ström and Ernkvist (2007, 641):

The major difference between MMOG games and stand alone games are the social interaction on a massive scale and the persistent nature of the world.

How large is the number of participants in MMORPGs? A game like WoW is subscribed to by several million people, but in actuality, only a small number of people (between five and sixty) play with each other. The “right” players must find each other in order to really take part in the game.

Another form of MMORPGs is represented by virtual worlds with no predominant gaming ingredient. The great difference to the games (like WoW) lies in the absence of goals (e.g. defined by the rules of the game). The best-known example of such a virtual world is probably the platform **Second Life** (Kumar et al., 2008), created by LindenLab (Malaby, 2009). Here, a “mingling” between the real and the virtual world is definitely in evidence, insofar as real-world institutions (libraries, universities, companies etc.) create dependencies in Second Life.

Two fundamental **pricing strategies** have established themselves on the market for MMORPGs (Nojima, 2007). On the one hand, there are fixed monthly subscription fees (as for WoW; currently around €13 per month), and on the other hand sales of digital goods within the game (as in Second Life). Occasionally, both pricing strategies are used jointly. In the case of WoW, there is also the price for the DVD of the game.

It is also possible for players to earn money via MMORPGs. In Second Life, this is a stated objective (Papagiannidis et al., 2008), whereas in WoW this is against the rules. Nevertheless, gold farmers “earn” the WoW currency of gold (which is needed to buy certain pieces of equipment) within the game, and then sell it (e.g. via eBay) to “lazy” players—for real money, of course.

13.6 Social Games

Social Games are digital games that are typically played via **social networks** (such as Facebook)—generally among friends. Examples include games developed by Zynga, such as **FarmVille** (Figure 13.7). Such games are normally free, but also provide the option of buying in-game currency for real money. The in-game currency can also be earned by collecting points (with no monetary but a lot of time effort). Players can make their friends virtual presents or perform certain tasks on their “land”. The player performs services (in FarmVille, for example, harvesting fruit) and is rewarded with points. The points are then used to build houses and cultivate farmland. Thus, a strawberry field can be planted, but after a time the strawberries must be picked. Conformity (here the punctual picking of the fruit) is rewarded (with points), lack thereof (e.g. forgetting to pick the fruit) results in the forfeiture of the currency invested.



Figure 13.7: Private Farm, Surrounded by Friendly Neighbors, in Zynga's FarmVille.

Social Games can certainly be regarded as **complementors** of social networks: Facebook users—who, after all, have a list of defined friends—can play FarmVille with them (and of course with others) in their free time and should also regard this as added value. Social Games lead to a feedback of players' actions, which are

meant to accomplish certain goals in the game, and certain members (particularly friends) in the original social network (Järvinen, 2009). Thus the number of neighboring plots (owned by friends) is of advantage for a player, and he will thus strive to increase the number of his neighbors. Playing social games also leads to increased logins to the respective social network. There are also “gifts” for one’s FarmVille property (such as a stray llama) that appear in the Facebook user’s profile and which must be snapped up quickly before they expire.

Most of the time, though, the user will play alone; this, too, can be viewed as a worthwhile leisure activity. A problem is certainly the time pressure for some actions, which can lead the player—if he cedes to the pressure—into a certain loose dependence of the game.

13.7 Games with a Purpose

Games can occasionally serve a purpose, which is effectively a by-product of the game. In the area of the World Wide Web, there are many tasks that can be better accomplished by men than by machines. This is the point of origin of Luis von Ahn’s and Laura Dabbish’s (2008, 58) “Games with a Purpose”:

Many tasks are trivial for humans but continue to challenge even the most sophisticated computer programs. Traditional computational approaches to solving such problems focus on improving artificial intelligence algorithms. Here, we advocate a different approach: the constructive channeling of human brainpower through computer games.



Figure 13.8: The ESP Game as an Example of a Game with a Purpose.

The players do not play in order to solve an open problem of computer science, they play because it is fun. An open problem, for example, consists of making images and other non-textual documents retrievable on the Web via suitable keywords. This is the approach of the ESP Game (also on Google, licensed as “Google Image Labeler”) (von Ahn & Dabbish, 2004). Two randomly selected players are shown the same image (Figure 13.8). They are asked to find matching words to describe the image’s content. The goal of the players is to collect as many points as possible via high agreement rates in a set period of time; the game’s purpose is to gain content-descriptive metadata for the images. When a threshold value for players’ agreement is reached, the tag thus generated is saved and the document thus made retrievable on the internet. If the same image is displayed again in the ESP Game, tags already generated are displayed as “taboo words” and can no longer be used.

13.8 Conclusion

Only available in the printed version.
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