



Game Design

Investigations of medium specific, lightweight game design methods for early stages of game design (pre production phase)

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Abstract

Die Diplomarbeit beleuchtet frühe Phasen des Designprozesses von Videospielen und setzt sich hierbei mit der Frage "Wie und wo beginnt man, wenn man ein neues Spiel entwirft?" auseinander. Im Zuge dessen werden Design-Methoden und Tools betrachtet die in frühen Designphasen eine Rolle spielen. Neben Literaturrecherche stellt die Befragung von Personen aus der Praxis (Game Designer, Game Entwickler) einen zentralen Bestandteil der Arbeit dar, da in der Praxis oft individuelle Ansätze, Inspirationsquellen, Designmethoden und Tools genutzt werden.

Das Generieren von Ideen und Konzepten ist ein aktiver kreativer Prozess der auf Erfahrung, (technischem) Know-How und theoretischem Wissen basiert. Hierfür existiert eine Vielzahl an Ansätzen, Methoden, Techniken und Werkzeugen auf die zurückgegriffen werden kann. Ob diese für den Prozess relevant und geeignet sind, ist von Faktoren wie Größe und Zusammensetzung des Entwicklungsteams, dem Budget, dem Genre und Setting des Spiels, der Hardware (Eingabegeräte, Kapazität, ...) sowie vom Entwicklungs-Fortschritt des Prozesses abhängig.

Die Arbeit konzentriert sich auf die Anwendbarkeit von Methoden und Tools in Bezug auf Game Design. Dazu werden deren Verwendbarkeit, Schwerpunkte, Stärken und Schwächen in Verbindung mit dem noch verhältnisweise neuem Medium herausgearbeitet.

Abstract (english)

The thesis deals with early stages of the design process of video games and looks into detail on the question on “How to start designing a video game?” In the course of this thesis design methods and tools which play a role in early design phases are examined. Due to the fact that in many cases very individual approaches as well as personal sources of inspiration, design methods or tools are applied, interviews with professionals (game designers, game developer) constitute, next to literature research, a central part of this thesis.

Generating ideas and concepts for games is an active creative process enhanced by experience, (technical) know-how and game theory. However there is indeed a variety of miscellaneous suggestions of approaches, techniques, methods or tools available. Which of them are recommendable and meaningful is dependent on various factors as the composition and size of the development team, the budget, the game’s genre and setting, the computing and interacting system (controlling devices) and the design progress. Their applicability, focus, strengths and weaknesses in regard to the relatively new medium ‘games’ is analyzed.

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2. Introduction

2.1. Game design

- ▶ ‘It’s a job that requires coming up with a theme or concept with a hook.’,
Fumito Ueda, game designer of ICO and Shadow of the Colossus¹

In only one short sentence game design can be resumed to the process of designing the content and rules of a game.² This far-ranging process varies in its practical realization from designer to designer as well as from company to company because of the fact that approaches to design and creativity depend strongly on personal preferences, practices and habits. As video games tend to become more and more complex, elaborate, bigger and expensive it has become common that a multitude of designers who are responsible for different aspects of game design are assigned to work collaboratively on the design of a game. Creative designers or game designers therefore have to possess the ability to not only conceive ideas, but also to manage their implementation, execution and application in a collaborative manner.³ Being creative and coming up with good ideas is therefore just one of many tasks of a game designer.

In order to manage the transformation from a great idea into a likewise great game, knowing the media’s specific characteristics and requirements, is a huge and important necessity. Regardless whether the initial idea is an original idea a single designer or a team came up with or whether the game is based on a movie title and is supposed to act as an accompanying merchandising product - game design means to create and assemble various elements such as the setting, the gameplay, the challenge, the character(s) and the story (if existing) to a compelling interactive system.

¹ Guidance from Fumito Ueda, <http://www.rabbitsnare.com/?p=6#more-6> (as at 09/14/07)

² Wikipedia, Game Design, http://en.wikipedia.org/wiki/Game_design (as at 09/11/07)

³ Jason Weesner, (2007), On Game Design: The Designer, http://www.gamecareerguide.com/features/378/on_game_design_the_.php (as at 09/12/07)

To sell numerous pieces of the game on the market a game must be appealing to gamers. This mainly includes the necessity of making the gamer's or target group's individually varying 'pleasures of gaming' and expectations efficiently come true. These can be among many others: fun, challenge, reward, control, power, learning, winning, prove of something (such as ability, or prowess), excitement, adventure, anxiety, release, relaxation, agency, the fascination of play, meaningfulness or an escape to differing virtual worlds. So what are games and how are they able to achieve these pleasures? The next part will therefore shortly introduce this media.

2.2. A short overview on video games and game design

Video games or computer games are electronic games that involve interaction with a user interface in order to generate visual feedback on a video device.⁴ Nowadays video games are mostly action-, adventure-, role-playing-, strategy-, family-, sports games or shooters which are played on computers and on platforms or consoles as *PlayStation 2*, *PlayStation 3*, *PlayStation Portable*, *Xbox*, *Xbox 360*, *Nintendo Wii*, *Nintendo DS* as well as increasingly on diverse mobile systems as handhelds or mobile phones.

'Everything Can Change. [...]

In 30 years we have gone from a black and white dot on a screen in Pong to rich HD graphics - where will we be in another 17 years?', Tetsuya Mizuguchi, game designer, 17 years in game business⁵

The new medium started to evolve in the early 1970s out of scientific computer research and experiments. The term 'video game' is for its very early titles misleading as they were electronic games displayed on merely graphical devices since the screens the games utilized were not yet raster video screens but oscilloscopes. The early exemplars, as *Tennis for Two* (1958) or *Spacewar!* (1962), were accessible to only a very limited number of people as the systems they were based on were not nearly comparable to the actual, even for home users affordable, computer systems. *Tennis for Two* was actually never commercially released as it was not intended to be an actual game but an electrical experiment. As recently as the late 1970s/early 1980s, when personal computers and the first game consoles began to become available to home users video games were introduced as a commercial entertainment medium playable for numerous people. Back then the computer game

⁴ Wikipedia, http://en.wikipedia.org/wiki/Video_game (as at 09/07/07)

⁵ Tetsuya Mizuguchi, (2003), GO3: Mizuguchi Says Through Games, 'Everything Can Change', http://www.gamasutra.com/php-bin/news_index.php?story=13348, (as at as at 09/06/07)

industry, which started to form from a hobby culture, became the basis for an important entertainment industry in the United States, Japan, and Europe. The need for game designers has not yet arisen these days. At the beginning the limited graphic display techniques as well as the small storage capacity, which restrained the complexity of games, made it possible that games were being developed only by single game programmers or small teams who would handle all aspects of a game's development.⁶ A state that has nowadays nearly completely changed. Especially the development of nowadays state-of-the-art titles requires large teams of game designers, graphic designers, programmers, sound designers, musicians, and other artists and technicians. Most of the teams number anywhere from 20 to 50 people, with some teams exceeding 100. But not only the average team size has grown. Also average costs and development time of games increased along with the size of the industry and the technology involved in creating games.⁷ Of course the still existing small and independent development teams shall not be disregarded and underestimated. I will come to talk about the advantages of not being as much dependent on the mass markets pressure in later parts of the text. An essay on the development from titles of 'the golden age of arcade games' to nowadays AAA titles (games with extraordinary high production efforts and costs, mostly leading to extra intense graphic experiences) shall not be task of this text as this topic fills whole series of books. The processing of video games from simple 2D arcade games to complex 3D games played mostly at home on miscellaneous systems, which is still widely seen as being in the fledgling stages, had nevertheless a huge impact on their design and design approaches.

⁶ Jason Weesner, (2007), On Game Design: The Designer, http://www.gamecareerguide.com/features/378/on_game_design_the_.php (as at 09/12/07)

⁷ Wikipedia, http://en.wikipedia.org/wiki/Video_game (as at 09/07/07),
Wikipedia, http://en.wikipedia.org/wiki/History_of_video_games (as at 09/07/07)

Even though video games have existed for about thirty years they are still a young medium that holds huge and by far not yet explored and exploited possibilities. The still ongoing alteration of game's features, possibilities as well as game's social responsibilities requires more than ever an establishment of conceptual rules and methods to permit designing enjoyable and emotional interactive experiences. For the production of video games the industry takes advantage of a variety of techniques borrowed from different disciplines such as software development, the movie industry, and traditional games. The borrowed techniques can however only address parts of video game design challenges as the medium differs strongly in several extends from other media such as film or from traditional games.

'We spent a lot of time learning about cinematography, camera shots and the way to convey information to somebody for those times where we do have to use cut-scenes. I say that's not something we really want to, but we want to have these enormous kind of grateful sweeps through the landscape setting the scene. All the tricks movies use in terms of communicating ideas visually are very inspirational in the game's world - when you are looking at the big graphic games.',
Mark Morris ⁸

Hence there is some concern among professional game designers that a developed design discipline for digital games is lacking.⁹ Unlike film studies, which have provided filmmakers for decades with guides and methodologies, games do not yet possess these sets of conceptual tools for thinking about them¹⁰ - even less for designing games. Lantz (2004)¹¹ addresses the nowadays existing theories rather as an emerging 'Babel of competing methodologies' whereas most of them focus basically only on nuts-and-bolts questions of the creative process of game design. 'Only few of them have attempted to ground their insights in a general theoretical system.'

If a game integrates narrational aspects, film studies can provide useful insights which can be valuable for the creation of a story line, tension and feelings as well as for providing and revealing meaningful visual informations (for instance for hints or suggestions for walking directions). Doors, hints, switches, etc. are therefore very often introduced and pointed to with the usage of camera sweep techniques. The film industry's know-how is also frequently adopted for the creation of cut-scenes. Cut-scenes are in the meanwhile a controversial narrative technique of 'short films in a game'. But even if film and narrational techniques can be re-used

⁸ Interview with Mark Morris, Introversion Software, GDC 2007, San Francisco, March 7, 2007

⁹ Björk, S., Lundgren, S. & Holopainen, J. (2003) Game Design Patterns. In Copier, M. & Raessens, J. (Eds.) (2003) Level Up - Proceedings of Digital Games Research Conference 2003, Utrecht, The Netherlands, 4-6 November 2003

¹⁰ Frank Lantz, (2004), Foreword of Katie Salen, Eric Zimmerman, (2004), Rules of Play: Game design fundamentals, p.ix

¹¹ Frank Lantz, (2004), Foreword of Katie Salen, Eric Zimmerman, (2004), Rules of Play: Game design fundamentals, p.ix

for games the media nevertheless differs strongly from film. One differing aspect is that the purpose of narration of games is often not the unfolding of events (even if a lot of games do on purpose tell stories). The game's narration rather provides a meaning, set-up and fictional framework for the performed actions in a game in order to provide a compelling gameplay.¹² Storytelling is therefore used for a new pragmatic purpose - for underlining not always predictable actions and story lines. Narrative design as applied in film must therefore be adapted and remodeled for utilization in game design. However aspects such as narration, creation of feelings or visualization are only parts of the media's specific features as not all games use narrative frames. *Tetris* for instance is a good example of one of many remarkable games which do not point to a story-world.

In order to create appealing games questions like, 'What are the specifics of games?', 'Why do people play games?', 'What makes a game a good game?' come to the front and need to be examined. Therefore I will focus on the question what features or elements can help to achieve good games and why some ideas and concepts are capable to be turned into a challenging and functioning game and why others are not. At first I will therefore look more deeply into the media specific characteristics of games and on the pleasures that games can achieve - a key concept which makes playing games so appealing. As these pleasures are a concept to which many designers oftentimes refer to when generating ideas for games they are also addressed before focusing on the central part of the thesis.

12 Rune Klevjer, (2001), Computer Game Aesthetics and Media Studies, Paper presented at the 15th Nordic Conference on Media and Communication Research. Reykjavik, Iceland, 11-13 August 2001, University of Bergen, Department of Information Science and Media Studies

2.3. Media-specifics of games

Two constitutional items, that strongly distinguish video games from other media such as film or books, are the form of representation of space and timing. Films and books predetermine the order in which informations or clues are revealed - which therefore are the same for every reader. Films and books are also easily capable of restraining information from the viewer or reader, by, for instance, simply not showing details or elements in the actual camera pane, in order to create tension or suspicion - a method which cannot easily be adopted by games that allow free movement. The possibility of moving freely through environments which can be discovered in a (to a certain extend) not predetermined order are two of many delightful features of video games. Hence this holds huge design challenges. Exploration is open to player's choice and therefore differs from player to player.¹³ 'Everlasting run-arounds' in order to find hints or exits, 'mouse-over-scanning' to find interacting objects as well as thoughtless combining of objects for new possibilities of use, as in for instance some less outstanding point-and-click adventure games, soon get annoying and have to be avoided by all means. Designing for video games is a tightrope walk as key elements must be on one hand highly visible but shall be on the other hand not too apparent or shallow.

The possibility of interaction and of moving freely through virtual environments are characteristics that distinguish games from all other entertaining media. These are only two out of many entertaining factors that video games can offer for its audience, but which are highly responsible for the media's success and popularity. Merely these two basic features actually permit a lot of delightful and challenging possibilities. Games are not restricted to unfolding of stories as in films or exploratory sights as in documentaries but they let its players experience compelling activities which can normally only be achieved in real life by rather expensive and complex means or which can not or shall not be performed in real life at all. Most of the markets available games are based on these acts. To name only a small couple out of a whole bunch of games based on this strategy there are for instance race(car) games, sport games, flight simulators, fighting games, shooters, role playing games, etc. Very popular is also the sector of games that allows to act like someone mighty and powerful who is in charge of various subordinates. These in-

¹³ James Paul Gee, (2005), Why Video Games are Good for Your Soul: Pleasure and Learning, p1, http://books.google.com/books?hl=en&lr=&id=nG2uugIdH3wC&oi=fnd&pg=PA1&dq=%22video+game%22+pleasures&ots=cumZauVTqw&sig=vu-G_pOzSETsfrIyDtpQsLBQ8Y0#PPA1,M1 (as at 09/07/07)

clude games where the player takes for example on the role of god controlling populations (*Black and White*, *Populous*), the role of a head of state or theme park manager putting up diverse buildings (*SimCity*, *Civilization*, *Zoo Tycoon*, *Railroad Tycoon*, etc.) or the role of a military leader commanding troops and units (*Command & Conquer*, *Warcraft*, *Starcraft* etc.).

Activities are not only based on wielding power but also assuming hardly achievable or even completely unachievable roles that eventually possess special skills. These can be roles of heroes, rock- or pop-stars (*Rock Band*, *Guitar Hero*, *Singstar*) surgeons (*Trauma Center: Under the Knife*), magicians or sorcerers (*World of Warcraft*, *Harry Potter and the Order of the Phoenix*, etc.) or those of superheroes (*Spiderman*, *Superman Returns*, *Marvel: Ultimate Alliance*, etc.). Especially favored by children and by Japanese gamers are titles which enable interacting with animals as well as possessing and taking care of 'own' but virtual pets such as *Nintendogs*, *Animal Crossing*, *The Sims 2 Pets Expansion* or *Viva Piñata*. In short: games vary greatly, not only in content and game play, but also for the reason they are played.¹⁴

2.3.1. Game pleasures & fun

Today's games can elicit deep emotional engagement. It therefore seems clear that there are meaningful motivational dynamics that lie at the heart of a player's enjoyment.¹⁵ In order to go not beyond the scope of the introduction of this thesis I will focus on a crucial cause why people play games: they are fun and entertaining - they are a 'source of enjoyment'. Even serious games, whose primary purpose is not pure entertainment, take on entertaining elements in order to keep people playing. Fun is also one of the biggest distinguishing factors between games and other media as well as between playing games and practicing other activities and hobbies as for example sports. People watch TV, read books and magazines or use the internet not merely for entertainment but also to retrieve news and information. While activities such as sports are a surely very entertaining and challenging experience a huge amount of people rather practice sports in order to stay fit, to keep the body in form and for training purposes. An essential task of game design, which - as later observed in more detail - holds a huge impact on game designer's approaches to idea generation, is the molding of fun factors. Hereby it is necessary

¹⁴ Björk, S., Lundgren, S. & Holopainen, J. (2003) Game Design Patterns. In Copier, M. & Raessens, J. (Eds.) (2003) Level Up - Proceedings of Digital Games Research Conference 2003, Utrecht, The Netherlands, 4-6 November 2003.

¹⁵ Scott Rigby, Richard Ryan, (2007), Rethinking Carrots: A New Method For Measuring What Players Find Most Rewarding and Motivating About Your Game, http://www.gamasutra.com/features/20070116/rigby_01.shtml (as at 10/09/07)

to take into account that the term ‘fun’, if not qualified in more detail, is a very un-specific characteristic. A source for fun for somebody might not be fun at all for someone else. Games for kids are for example often not appealing and entertaining to adults and vice versa. Some gamers find fun and challenge in contemplating on strategies, others prefer platform games which require skills for jump and run movements or again others enjoy games supporting fighting and aiming in various forms.

Hereby I would like to anticipate that the following theories on games and fun and on the occurrences and causes of people playing different sorts of games shall not only give an overview of different aspects of video games. When designing a game it is crucial to be able to estimate whether upcoming ideas can be of use for games. It is apparent that regardless every game or every idea will very unlikely appeal to everyone as it is probably impossible for it to do so.¹⁶ Nevertheless it is important not only to estimate but rather to clarify whether an into a game converted idea is going to be fun to play as well as whether an idea has potential to keep the target player interested over a certain period of time. Especially massive multiplayer on-line games which eventually demand monthly fees need to be attractive for a long time in order to be financially viable and must therefore take the players likes and needs heavily into account. Long term game pleasures have to be created and evaluated. When looking for example at the success of *World Of Warcraft* the question of why people play this game for a long amount of time arise. Would a massive multiplayer *Tetris* be similarly popular and addictive? These requirements do of course not only concern this special genre but actually all games whose costs need to bargain. It is therefore necessary to understand what makes people play games, what fun means to different target groups or paraphrased, what do players enjoy and how it can be achieved and kept over a period of time. It is a needful and even helpful constraint for coming up with game ideas, functionalities, puzzles, obstacles, settings, etc. and when evaluating them.

Fun can be paraphrased as ‘our brains feeling good’, a sensation that can be caused from physical stimuli, aesthetic appreciation or direct chemical manipulation. All of them lead to a release of endorphins. In reference to games the most important moments when endorphins are released happen on triumph when a task was mastered or when something was learned. As learning is a necessity for survival, our body bestows us with rewards in order to keep us learning and exercising. Raph Koster therefore concludes that fun from games arises out of mastery and out of

‘Science has shown that the pleasurable chills that we get down the spine after exceptionally powerful music or a really great book are caused by the same sorts of chemicals we get when we have cocaine, an orgasm, or chocolate. Basically, our brains are on drugs pretty much all the time.’,

Raph Koster ¹⁶

¹⁶ Raph Koster (2005), *A Theory of Fun*, Paraglyph Press, p.104

comprehension. 'In other words, learning is the drug.'¹⁷ This conclusion is especially interesting as lot of people do not tend to reconcile learning and fun. It also leads to the insight that games that stop teaching and therefore include no new challenges become boring.

But games do not only have to stop providing challenges to become boring - if they are from the start on too easy to beat, as for example games for children tend to be for adults, they will have a hard time to attract gamers. At the same time games that are too hard to master will be left aside all the same, especially if no chance to learn how to master the challenge is in sight. Whether a challenge is too hard or too easy depends on the experience and skills of gamers. People that play games of a certain genre frequently do self-evidently tend to classify a game of the same genre less challenging than less experienced players would do so. The level of difficulty must therefore be appropriate for the target group of a game. All the same the game shall provide an increasing learning curve to stay of interest. But not only the experience achieved by the amount of already played games or invested time determine the varying judging on whether a certain game or elements of games are fun.

People's varying definitions of fun as well as their different biases to game types and game genres can be ascribed to different forms of intelligence, which are, according to Howard Gardner, linguistic, logical-mathematical, bodily-kinesthetic, spatial, musical, interpersonal and intrapersonal intelligence. Raph Koster suggests that these forms of intelligence, which affect people's natural talents, are a crucial factor when reasoning whether a game is of interest or not. This conclusion is based on the observance that people likely select problems that they think they have a chance at solving.¹⁸ Other theories which shall aid to understand people's divergent approaches to fun are not based on forms of intelligence but on sorting people into various categories based on for instance differing learning styles, different personalities and different brain types as 'systematizing brains' or 'empathizing brains'. Observances showed for example that on average men tend to learn by trying and have systematizing brains, whereas woman tend to learn through modeling another's behavior and have empathizing brains.¹⁹ As all this is a very complex and psychological thematic it shall therefore not be examined in more detail in this thesis. I will rather come back to the pleasures of games itself and how they can be achieved. This is essential as a lot of designers already hark back on them when coming up with game ideas.

17 Raph Koster (2005), *A Theory of Fun*, Paraglyph Press, p.40

18 Raph Koster (2005), *A Theory of Fun*, Paraglyph Press, p.100

19 Raph Koster (2005), *A Theory of Fun*, Paraglyph Press, p.104

‘Fun’ is still a very unspecific and ambiguous characterization when describing games. It is the holy grail of games, but an ill-defined term for purposes of game analysis.²⁰ In order to provide a more directed vocabulary when talking about motivations, emotions, pleasures and player experiences games can provide more distinctively game designer Marc LeBlanc has evaluated ‘eight types of fun’. LeBlanc proposes, when describing a game to focus on the components that create the respective player experience:

- Sensation - Game as sense-pleasure
- Fantasy - Game as make-believe
- Narrative - Game as drama
- Challenge - Game as obstacle course
- Fellowship - Game as social framework
- Discovery - Game as uncharted territory
- Expression - Game as self-discovery
- Submission - Game as pastime

Commonly games focus on multiple but not necessarily on all of the listed types. There exists no formula defining which amount of the particular ingredients has to be used in order to create an enjoyable game due to the before examined fact that different players enjoy and prefer different themes. Preferences to game types and fun types do not only differ between players but games do also appeal to the same player in diverse ways at different times.²¹ Games which are fun when playing with friends can be bland when played alone and vice versa.

Games can focus on multiple of the listed player experiences in order to attract different target groups. *Quake* bases for example on Challenge, Sensation, Competition and Fantasy whereas the main elements of *The Sims* are Discovery, Fantasy, Expression and Narrative. *Final Fantasy* builds on Fantasy, Narrative, Expression, Discovery, Challenge and Submission. Hunicke, LeBlanc, Zubek ²¹

Jesper Juul took up LeBlanc’s ‘eight types of fun’ of fun and associated them with gameplay elements and more significant information. His following list describes ways in which players often derive pleasure from games.²² The explanations are slightly shortened and the examples are eventually updated. Taking these known approaches and possibilities into account when designing for games can contribute to a creation of enjoyable games.

20 Jesper Juul referring to Marc LeBlanc, (2003), The Ludologist weblog, The Words of Game Design: The Terminology of Ion Storm, <http://www.jesperjuul.net/ludologist/?p=34> (as at 09/29/07)

21 Robin Hunicke, Marc LeBlanc, Robert Zubek, (2004) MDA: A Formal Approach to Game Design and Game Research, <http://www.cs.northwestern.edu/~hunicke/pubs/MDA.pdf> (as at 10/04/07)

22 Jesper Juul referring to Marc LeBlanc, (2003), The Ludologist weblog, The Words of Game Design: The Terminology of Ion Storm, <http://www.jesperjuul.net/ludologist/?p=34> (as at 09/29/07)

► **Clearing / Clean up a scattering of interactive elements.**

Players seem to get simple pleasure from 'Hoovering' their way across a room full of gold coins or revealing the blacked out sections of the maps in real time strategy (RTS) games or role playing games (RPG's).

► **Collection / The act of accumulating things.**

Examples: Collecting coins in *Mario*. Collecting *Magic* cards. Buying things in *The Sims*.

► **Creation / Bringing something into existence.**

Examples: Constructing and growing a city in *SimCity*. Creating own levels in *LittleBigPlanet*.²⁴

► **Discovery / Space to explore and gain mastery over.**

Sometimes conceptual space, like the rules to a new game. Examples: It is fun to range over a new (often blackened-out) map in many strategy games like *Warcraft* or *Sacrifice*. In order to satisfy the gamer's exploratory lust new levels, new environments, new weapons, new enemies, etc. are continuously introduced as a game unfolds.²⁵ Shannon Appelcline [01]²⁶ for these purpose suggests, 'Constantly Offer New Experiences. [...] Players love to solve brand-new puzzles, to explore new rooms, to find new objects, and to meet new NPCs. They love to see plots develop that slowly change the landscape of the land that they're familiar with. In other words: change is good.'

► **Diversion / Pleasure derived from performing routine game system activities.**

The mechanical act of manipulating a game. Examples: Playing an hour of *Solitaire*.

► **Expectation / Waiting with exciting for some perceived reward or entertaining moment.**

Examples: The thrill of gambling; blindly waiting to see if you've 'won' playing slots.

► **Experience / Allowing to engage in a real-world activity that is beyond practical means.**

Examples: Killing a person with a pistol. Flying a fighter plane in a flight sim. Driving crash-up derby cars in a mud arena car game. Getting to play against Tiger Woods in a golf match.

► **Expression / Self discovery/exploration. Identity expression.**

Examples: Choosing self-gratifying nicknames or character names and/or choosing a character race/group in an RPG that is identified with an archetype or demeanor.

► **Fantasy / Vehicle for imaginative or impossible activity.**

Examples: Flying on the back of a red dragon. Battling the undead. Piloting a space ship.

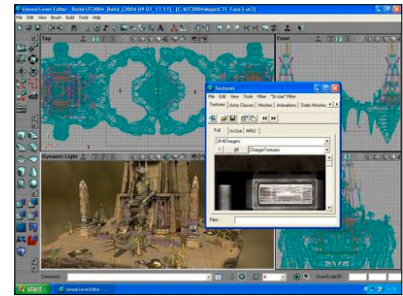


Figure 2.1. UnrealEd 3.0 screenshot ²³

The popularity of modifications for first-person shooters also proves the attraction of creation. Since *Doom* almost all shooters have had editing tools, which allow players to modify different aspects of the game.

²³ Figure 2.1. UnrealEd 3.0 screenshot, <http://en.wikipedia.org/wiki/Image:UnrealEd.jpg> (as at 09/29/07)

²⁴ Pierre-Alexandre Garneau, (2001), Fourteen Forms of Fun, Gamasutra Feature, http://www.gamasutra.com/features/20011012/garneau_03.htm (as at 10/09/07)

²⁵ Pierre-Alexandre Garneau, (2001), Fourteen Forms of Fun, Gamasutra Feature, http://www.gamasutra.com/features/20011012/garneau_03.htm (as at 10/09/07)

²⁶ Shannon Appelcline, (2001), Thinking Virtually #33: The Fun Factor, <http://www.rpg.net/news+reviews/columns/virtually26nov01.html> (as at 10/03/07)

► **Fellowship / Social aspects of gaming.**

Examples: Working with squad mates in *FireTeam* to form a plan and attempt to score a goal. Standing around, chatting in the town in *Diablo*. Fighting in groups or guilds in *World of Warcraft*.

► **Goal-completion / Being given a clear goal**

and actually recognizing that it has been accomplished. Example: Completing a bridge level in *Bridge Builder*. Completing a mission in *Command&Conquer* (in which the player is often given very clear goals, like, 'Build at least 12 tanks.').

► **Investment / Spending time on some game element**

and thus coming to value it. Examples: Slowly building up a 60th level druid in *EverQuest* or *World of Warcraft*.

► **Media-migration.**

Players desire to interact with familiar (and often well-liked) fictional elements from other media. The keys to this are familiarity (with the established fiction) and interaction. For instance, in *Star Trek* games, players get excited at the option of attempting their own solutions to classic problems/encounters posed by the television series. Using a light saber from *Star Wars* carries its own appeal.

► **Narrative / Drama that unfolds over time, creates tension, engages us.**

Examples: Learning of 'Tommy and Rebecca's' situation in *System Shock 2* and finally seeing them run down the hall toward escape. (Embedded narrative.) The dramatic events that occur in a *Quake deathmatch* as a result of the players' actions. (Emergent narrative.)

► **Obstacle / Encountering a challenge and overcoming it.**

Examples: Making a difficult jump in *SSX*.

► **Sensation / Aurally or visually pleasing aesthetics.**

Examples: The first time the player steps out onto a hill and overlooks the world in *Sacrifice*, with its amazing art, he is in sheer awe and feels pleasure.

► **Victory / Competition / Putting the beat-down on an opponent.**

Some people are driven to compete and gain pleasure from winning. Examples: Players love being the top-ranking player in a *Quake deathmatch*.

Taking these requirements into account as well as examining game theory in some detail can by all means help when creating a appealing and immersive gaming experiences. As a result of this fact Hal Barwood and Noah Falstein proposed a project called 'The 400 Project' which expands the various findings on different areas of game theory to a set of rules. The project aims to provide game designers with 400 rules which help to improve their design. More on this project can be found in chapter 4.1.2. *The 400 Project*. Before dealing in more detail with tips, tricks, methodologies, tools and methods game designers can integrate to the design process I will first of all provide an overview on the process of game design itself.

2.4. The design process

- ‘Design is the process by which a designer creates a context to be encountered by a participant, from which meaning emerges.’, Salen and Zimmerman in ‘Rules of Play’²⁷

Considering the broad range of different design practices the number of definitions of design is hence respectable. I will therefore not go into detail on the definitions on the various design practices as architecture, graphic design, fashion design, industrial design but will straightforwardly approach Salen and Zimmerman’s definition above on game design from ‘*Rules of Play*’. Their definition is based on the creation of meaningful experiences. In terms of games a meaningful design constitutes the creation of a carefully crafted experience which is guided by rules and deliberate forms of interaction. For example the real-life game *Tag* would be chaos without a set of predefined rules which for instance declare one player to be ‘it’ who has to catch and touch others.²⁸ The design process is hence a process during which rules, objects, attributes, internal relationships and environments that enable meaningful play need to be contrived but as well evaluated. Throwing ideas out is therefore just as crucial as the generation of ideas is.

For short the design process is a creative process dominated by generative and reductive aspects. Bill Buxton’s statement ‘Design is choice ...’²⁹ (complete statement on the right) clarifies the fundamental importance of the two aspects which are visualized in two exemplifying frameworks. Figure 2.2., a simple model of the design process by Laseau,³⁰ visualizes this the activity of idea or concept generation as well as the in turn necessary reduction through evaluation with two opposite but overlapping funnels.

‘Design is choice, and there are two places where there is room for creativity: (1) the creativity that you bring to enumerating meaningfully distinct options from which to choose, and (2) the creativity that you bring to defining the criteria, or heuristics, according to which you makes your choices.’, Bill Buxton ²⁹

²⁷ Katie Salen, Eric Zimmerman, (2004), *Rules of Play: Game design fundamentals*, p.41

²⁸ Katie Salen, Eric Zimmerman, (2004), *Rules of Play: Game design fundamentals*, p.41

²⁹ Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p. 145

³⁰ Laseau, P. (1980), *Graphic Thinking for Architects and Designers*. New York: Van Nostrand Reinhold Company, in: Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p. 144

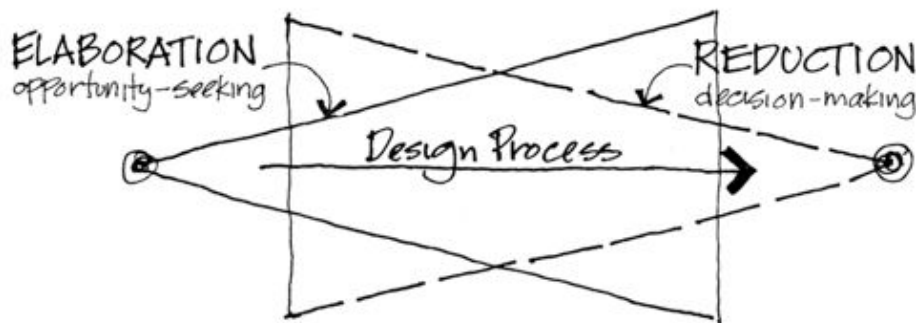


Figure 2.2. The design process by Laseau.

'The reduction that results from decision making is balanced by constant generation of new ideas and creativity that open up new opportunities to improve the design.', Bill Buxton³¹

Laseau represents the generation of ideas with an expanding funnel (elaboration) whilst the second funnel, which is getting narrower at the end, represents the continuous rejecting and cutting down of the generated ideas (reduction) forced by decision making. Though this figure has been created within the context of architectural design it can be as well applied to various other fields of design as amongst others for software design or game design. Oftentimes the number of ideas and concepts which are generated and discarded is much higher than the number of ideas kept. This further concludes that a game designer not only has to come up with a huge number of ideas but must also be able to evaluate them in order to be able to make appropriate design decisions.

Even though the generation of ideas continues through most parts of the process their range is usually narrowed down by the decisions made when getting closer to the final design. This implies that designing is not only a process which meshes the generation and reduction of ideas as visualized by Laseau. Design is a process that actually alternates between the two fundamental aspects when converging to the final concept whereas not all ideas or concepts will survive throughout this process. The closer the final point the more focused the ideas and decisions will get. Figure 2.3. shows another funnel-based variation by Pugh that visualizes this alternation between generation and reduction.³²

³¹ Laseau, P. (1980), *Graphic Thinking for Architects and Designers*. New York: Van Nostrand Reinhold Company, in: Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p. 144

³² Pugh, Stuart (1990), *Total Design: Integrated Methods for Successful Product Engineering*. Reading MA: Addison-Wesley, in: Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p. 146

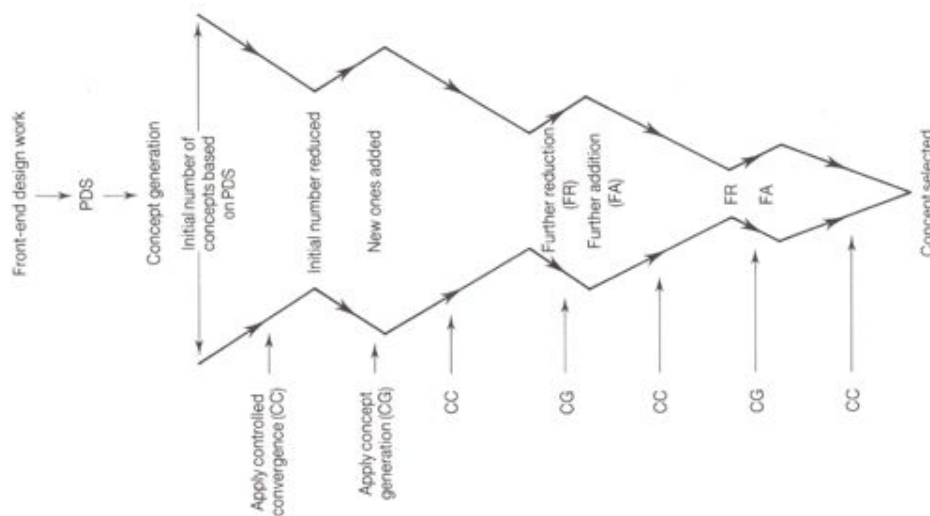


Fig. 2.3. Designing is a converging process that alternates between concept generation and concept reduction. (Pugh³³)

As a matter of course the concepts on the design process by Laseau and Pugh can not be regarded as methodologies or methods but are rather an observant approach that sculpts out the significance of reduction and decision making concerning design. Hence reduction is as important as idea generation. The following overview on the stages of game design offers a general orientation or proposal for chronological chains of activities for structuring the design process.

³³ Pugh, Stuart (1990), Total Design: Integrated Methods for Successful Product Engineering. Reading MA: Addison-Wesley, in: Bill Buxton, (2007), Sketching User Experiences: Getting the Design Right and the Right Design, p. 146

2.4.1. Stages of game design

The way designers approach the way of creating a new game depend, as stated before, on different habits of work and of course on the current stage of the project. In order to be able to position the later discussed methods within certain stages I will give a short overview on these fundamental notions.

Ernest Adams and Andrew Rollings defined 'three stages of the design process'³⁵. I enhanced these stages with the 'blue sky stage' proclaimed by Deborah Todd, a stage which has its focus on starting with hardly any restrictions. 'Blue Sky implies that it is all about the sky's the limit and imagining all possibilities'³⁶. These stages may overlap and vary, depending on restrictions, like when the high concept (the basic and fundamental idea or concept the whole game builds on), idea, platform and/or genre is for instance already given by a committee of e.g. IP-holders, licensors, marketing or publishers, based on decisions on competition, technical innovation or are movie derivatives and byproducts. This means that the designer(s) are given directions and/or restrictions to work with. Sadly it is quite rare that the industry gives designers the possibility to generate ideas out of Blue Sky, which are then pitched to a licensor. On the other hand developers which count to the independent game movement are not dictated by decisions of publishers, licensors or IP-holders. The term 'independent' reveals that there is no higher instance that dictates a high concept. This leads to the fact that independent developers do indeed often get the chance to start from scratch and therefore include a 'blue sky' stage.

'Design [...] is the least understood aspect of computer game creation. It actualizes the vision, putting art, code, levels, and sound together into what players experience, minute to minute. [...] The design is the game; without it you would have a CD full of data, but no experience.'

Doug Church ³⁴

Stages of the game design process:

- Blue sky stage - creating the overall game idea
- Concept stage - turning the idea into a game concept
- Elaboration stage - adding design details, refine decisions
- Tuning stage - small adjustments to polish the game, no new features may be added

³⁴ Doug Church (1999), Formal Abstract Design Tools, http://www.gamasutra.com/view/feature/3357/formal_abstract_design_tools.php, (as at 03/20/08)

³⁵ Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.53

³⁶ Deborah Todd, (2007), Game Design: From Blue Sky to Green Light

In more unconventional terms these stages are as well tellingly characterized as ‘flash’, ‘paper’ and ‘grind’. The separation into stages offers a good structure for orientation and scheduling, although its appliance is again varying. Some developers are very precise, stick to their structures and e.g. demand that the game design, has to be completed at the end of the pre-production phase - before the implementation starts. This means the concept, the game-play (means shortly what the player does in a game), the rules, the story (if there is one), the character design (which includes a mostly rough look of a character and rather prior its personality and tasks), the concept of the level- or dungeon design (the environments and its challenges) but also project planning and a project schedule have to be worked out and fixed before green light for production is given.

The preproduction phase of game development can contain all of the four phases. In most cases preproduction starts not until the concept was approved.

Others aren't as strict. This case makes the scheduling of production complicated. Nevertheless the possibility of refining and working on minor concept changes can be a huge quality factor which shouldn't be underestimated. The team that developed the first person shooter *BioShock* had a similar approach when working on the story of their game, as their first story ideas they started to develop with were not included in the final game.

‘Every game I've worked on that's been a good one has had lots of new concepts come through all the way right up to the very last minute. [...] If you don't actually take into account the ideas that come up during production and actually want to get to play it, you miss some of the best opportunities. [...] If it's under my control completely then I tend to bounce back and forth quit a bit. I'll do some more advanced work. Or maybe even work on some prototype concepts and then go back to some early design. Just whatever happens to be most efficient at the time.’, Noah Falstein ³⁷

- ▶ ‘It was the Nazi thing originally, and there was a story recently about how you were a cult deprogrammer. These ideas were never that evolved, or serious; they were sort of things we threw down to have something on paper. It wasn't until some time in 2005 that the notion of Rapture came to me and I started to really develop it. But I tend to start with game design, and my team does too, and we put the story in later. I think that's one of the keys - if people enjoy the story in *BioShock*, that's why. There's this dialogue between game development and story development that is constantly going back and forth. The artist would do something that would inspire me, and then I would write something that would inspire them. It's really collaborative, and I think that's why the story and the gameplay in Rapture are so integrated.’, Ken Levine on *BioShock*, Creative Director and President of 2K Boston³⁸

Small and/or independent game developers have in some cases more space and tolerance when scheduling a project in comparison to a developer with hundreds of employees, as it is easier, less risky and above all cheaper to re-organize a small

³⁷ Interview with Noah Falstein, San Francisco, March 7, 2007

³⁸ Charlie Barratt, (2007), The past, present and future of Rapture according to Ken Levine, the game's mastermind, GamesRadar US, <http://www.gamesradar.com/us/xbox360/game/features/article.jsp?releaseId=20060426172349312080&articleId=20070917152449871048§ionId=1003> (as at 10/15/07)

concept or a small amount of people. Thus it has to be added that small companies or independent game developers are constrained by other means. Their by way of comparison small budget and small teams of course hold other limitations.

Joshua Dallman, designer and producer of Red Thumb Games, an independent game development company, answered on my questionnaire '30% to 70% of the game is designed in preproduction. You don't know what's fun until you play it. Sometimes your idea changes significantly during production and for the better. Turn based becomes real time. Realistic graphics become cartoony. Design changes are made. As long as that first core idea remains it's still the 'same game'. [...] You're never going to nail something 100% in preproduction, it would be rare for even 70% of your initial design to survive through the end. '³⁹ Likely to other 'normal' software projects green-lighting a project does therefore not constitute that the designers are from this on off the project.

Not considering whether the stages of game development are strictly maintained the notion of a subtle core concept is essential for the further development. Toru Iwatani of Namco pointed out to the importance of a fundamental concept: 'You definitely have to revise your ideas iteratively along the way. That said, the initial concept is very important. One should spend at least 10% of one's total development time on the core concept. Ask yourself - why is this concept important? Why will people care about this idea? Then, at those times when you get lost along the way, you can return to your core concept and find your ground again.'⁴⁰

The following chapters deal in more detail with ideation and inspiration which can be applied at very early stages and deal subsequently with concrete tools and methods which can be applied during various stages of the game design process. Preliminary to this the next chapter constitutes a short introduction on 'general' design and designing itself.

³⁹ Joshua Dallman, Red Thumb Games, Online-Interview, May 5, 2007

⁴⁰ Brad Kane, (2005), Postcard From GDC 2005. The International Game Designers Panel, <http://www.gamasutra.com/gdc2005/features/20050311/postcard-kane.htm> (as at 10/27/07)

3. Idea generation - how to start when planning to make a new game?

- 'I think the challenge is not coming up with ideas specifically as recognizing good ones when you see them.', Dave Grossman, Telltale Games⁴¹

The major questions I posed to game designers on attendance at the Game Developers Conference 2007 in San Francisco was 'How do you start, when making a new game?'. I was curious whether they could give me professional advice, methods, tips or tricks. Can initial ideas, visions and high concepts be created by scheduled collaborative 'blue sky' brainstorming? Or do designers work ideas out by themselves? Do designers take actively advantage of inspirational sources in order to come up with ideas? If yes of which? Is there a pattern or are the approaches rather individual? I will anticipate a little bit when I resume that the most common starts take indeed advantage of collaborative brainstorming but as well of very individual approaches that heavily take personal inspiration habits and personal interests, visions and ideas into account.

I will at this point leave aside high concepts (the basic and fundamental idea/concept the whole game builds on) generated solely by marketing or sales decisions as 'The game xxx sold well. Hence, let us make a similar game or a clone of xxx.' Clones of famous games are seldom successful - especially when taking into account that production costs are only marginally lower. Anyhow considering why some games are selling well and why people like to play them holds thoroughly a potential for a start for the creation of new games - especially when the target group is similar. Hence the before mentioned 'pleasures of games' arise. These pleasures differ strongly from genre and target group. Thinking about what could be an interesting pleasure to achieve and how it could be done can be an interesting entry to the idea generation process for a new game. E.g. *Wii Sports* is fun to play. The reference to well known sports allows that it can be easily learned and that no gaming skills are necessary. These party game features attract and can lead to a participation of diverse family members. Building a new game on same pleasures and features in order to attract the same target group does not compulsory

⁴¹ Interview with Dave Grossman, Telltale Games, San Francisco, March 7, 2007

lead to a copycat game. Even if pleasures and features of games are identical the games itself can differ completely.

These pleasures can also be of use as a constraint in brainstorming sessions. Constraints are an thoroughly practical instrument which I will explore in later parts of this thesis, as well as for benchmarking the applicability of concept ideas.

Game designers can basically start with one out of two initial situations when approaching the design of a new game. One way starts, as already mentioned in the previous chapter covering the stages of game design, with a 'blue sky' phase. The other more common way already includes various constraints which are set by for example a developers management department, by the IP-holder or the client. Constraints as well as restrictions can be of variable weight and can cover, among many others, a predefined genre, fixed technology, the amount of people and money available for a game's development, predefined characters or the resulting game has to base on a prequel, movie, cartoon- or TV-series. 'Blue sky' stands for the opposite definition, for idealistic or visionary views. It incorporates no rules, no restrictions and especially no limits. This can potentially lead to creative, outstanding and not yet established new games and game concepts. Nevertheless there is no conclusion whether games resulting from blue sky processes top the quality of games whose design is based on approaches lead by constraints. On the contrary. Constraints can thoroughly offer advantages - an interesting notion I will look at in a later chapter of this thesis. A lack of practical application as well as being unrealistic are risky attributes that cling in return to 'blue sky' and which can definitely pose threats to a games development.

'Frequently when I'm hired, it's because someone has a concept already that they want developed into a game. It's extremely rare that someone just comes to me and says that they want a game that I can start from scratch. So usually the first thing I do is I identify the constraints. Always there's some sort of economic level of how much they want to spend, often people know what platform they want or it's a type of game. [...] So often there's a lot that you already have that you have to work within. And then once you know what the constraints are then you have room for being creative within those constraints.'

Noah Falstein ⁴³

Despite these two basic initial situations game designers commonly do not limit the process of conceiving to the rather rare moments when a new game has to be designed. It is rather common that the generation of initial ideas and high concepts as well as the 'blue sky' process take place anytime and anywhere and therefore does not mandatorily happen after a decision of creating a new game. On the contrary. This allows that game developers can draw upon already existing ideas when a new game concept shall be conceived. Clint Hocking, game designer at Ubisoft who created, among other games, *Splinter Cell: Chaos Theory*, stated on this topic, 'In the course of making a game you come up with ten ideas for another

⁴² Interview with Noah Falstein, San Francisco, March 7, 2007

game. [...]’ So when it is time to focus on a new project he browses through his already existing ideas to figure out ‘[...] which of the game ideas that you already have, do you want to make or can you make?’⁴³

The ‘blue sky’ and the high concept idea generation process is therefore not necessarily a substantial phase of the design process.

Shigeru Miyamoto, the head designer of Nintendo, approached the starting of the *Nintendogs* project in a very similar way. ‘With development, you spend usually one to two years on a game. But in actuality, you kind of have ideas that are floating around in your head for three, four, even five years before that. [...] In this case, about four years ago, my family and I bought a dog and started taking care of it and that became the impetus for this project.’⁴⁴

So, how do game designers start? Which of the before mentioned two basic initial situations arise more often? Do teams actively induce a process with collaborative idea generation techniques as for example brainstorming? Or do designers prefer ideating on inspirational background? The following part focuses on citations and hence the building conclusions are based on the diverse opinions on the question which methods qualify most for a design start. The part hold as well an outlook on which stages of game design profit more or best from either of the contemplated possibilities.

⁴³ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

⁴⁴ Peter Rojas, (2005), The Engadget & Joystiq Interview: Nintendo's Shigeru Miyamoto, <http://www.engadget.com/2005/10/03/the-engadget-amp-joystiq-interview-nintendos-shigeru/> (as at 08/17/07)

3.1. Starting from scratch

When a game's design is going to start from scratch designers take advantage of various approaches. The following subsequently examined citations of game designers on how to start when planning to make a new game shall illustrate the distinctions among designer's and companies' working methods and preferences.

- ▶ 'We brainstorm ideas. There's usually a whiteboard and people sketching stuff and writing stuff down. It's a blue sky process - it's anything we can think of. That gets written up in a document and then we start pairing away all the ideas that just are not gonna work because we're of timeframe or technical limitations. That generates a pre-decent concept document that then goes to the publisher for approval.'
Matt Sughrue, Creat Studios⁴⁵
- ▶ 'You don't sort of sit down and kind of say 'I'm gonna write a new game today.' Ideas pop into your head, at any time. [...] This kind of initial idea - it can come from anything. But you don't say 'Right, today I'm gonna have over the next hour some game ideas.',
Mark Morris, Introversion Software⁴⁶
- ▶ 'Honestly, coming up with new ideas for games is trivial. I have a list of a hundred games I want to make and you know you can only make a game every two years - or something like that at best. And the reality is in the course of making a game you come up with ten ideas for another game and so at the end it's when you go to make a new game you just - like: 'Which of the ones that you already have do you want to make or can you make?' Given what you're doing. So it's easy.'
Clint Hocking, Ubisoft⁴⁷
- ▶ 'I start by thinking about what the player wants to do. What dream they have. Because I think a big game is about being somebody or doing something that isn't possible to do in the real world. So I think 'What dream do they have and how can I make their dream come true?' If I have an idea for some kind of activity, like climbing a mountain, I think 'What is the essential experience of climbing a mountain? And what are the fun parts of climbing a mountain?' and we leave out the boring parts. And so I think 'What does a person who wants to climb a mountain really want to experience?'. And I try to put myself inside that person's head.'
Ernest Adams⁴⁸

⁴⁵ Interview with Matt Sughrue, Creat Studios, Director of Business Development, San Francisco, March 6, 2007

⁴⁶ Interview with Mark Morris, Introversion Software, GDC 2007, San Francisco, March 7, 2007

⁴⁷ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

⁴⁸ Interview with Ernest Adams, GDC 2007, San Francisco, March 8, 2007

- ▶ 'We tend to start with 'Imagine you are a ...'. And then it's 'on - [...] Imagine you are on a Spaceship' or 'Imagine you are a hacker' or 'Imagine ...' - I don't know what else to think of. 'Imagine you are building universes' or controlling time or something like that. But it all starts with the idea of a kind of protagonist which is the player.'
Mark Morris, Introversion Software⁴⁹

- ▶ 'It kind of depends actually. Sometimes I have a head-start. I'm working with something that's like an existing intellectual property. That's been true a lot of times. My current company had been doing 'Sam and Max' and 'Bone' games so there are comic books that I can kind of refer to to get myself started in the right direction. Otherwise I think that ideas kind of come from everywhere. So I take a lot of inspiration just from whatever happened to me that week. Or something random that somebody says to me. Usually at the beginning of a project there will be a period of time where me and some of the other key people who are going to work on it are going to close ourselves up in a room and just turn around all kind of crazy ideas and then we kind of pick the best ones.'
Dave Grossman, Telltale Games⁵⁰

- ▶ 'We treat video game as an entertainment form. As for entertainment, it's all about the audience's emotional feeling. So we start a game with a specific feeling rather than traditional genres or stories. And we use the feeling as the hub to brainstorm gameplay ideas, arts and stories.', Jenova Chen, thatgamecompany⁵¹

- ▶ 'Simply adopt game design as a lifestyle and mindset and not something you do for just a few hours a day. When you're 'always' thinking about game design and where games can come from, sources of inspiration are everywhere: sitting in traffic, going to the opera, the way a coin rolls across your desk.'
Joshua Dallman, Red Thumb Games⁵²

- ▶ 'The first act is: usually you come up with an idea which is 'There is a game where you fly a spaceship'. And you shoot space monsters?' [...] Once you're happy with the high concept, and you should be because it's your game idea, then you usually you brainstorm about what features you want. You know what character or what kind of entity there is, the player control ... [...] I like to look at how players think. Like: What motivates players to enjoy themselves to play in ways they have fun? It is a sort of understanding what a player want's out of a game. Lot of times people will say 'Hey we want Halo 3.' But you have to look a little deeper at how they actually play games. What did the player really enjoyed about this a game? What does the player actually want? [...] What I do in my work is: I have basically a template for design of characters, enemies, levels, ... And so I go through that list and come up with all those. It's basically a checklist.'
Neil Sorens, Dancing Robot Studios⁵³

49 Interview with Mark Morris, Introversion Software, GDC 2007, San Francisco, March 7, 2007

50 Interview with Dave Grossman, Telltale Games, San Francisco, March 7, 2007

51 Jenova Chen, thatgamecompany, Online-Interview, August 31, 2007

52 Joshua Dallman, Red Thumb Games, Online-Interview, May 5, 2007

53 Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

- ▶ ‘Ideas for new games are usually first generated by determining what a publisher will buy. Publishers will express interest in certain concepts or restrictions - an action/platformer appealing to 13 - 15 year olds with streaming levels. Once we determine their restrictions, we start thinking of topics and ideas that would appeal to that audience. Ideas are gathered from the entire team, and the designers sort through them to put them into a single, cohesive concept. My ideas are influenced both by other media (TV, film, art, books, etc.) or just from watching the world around me.’
Lesley Mathieson, High Impact Games⁵⁴
- ▶ ‘Usually ideas for a new game are birthed during the development of another game. Sometimes they come from the development team, sometimes it’s just the obvious next step (as in ‘Rock Band’). For a game idea to be green lit management have to be sold on the idea, so pitching the idea in paper and in person is how ideas get off the ground. At this stage of development, the premise of the game - the new experience, the control method, the delivery method - are the important parts. [...] Idea-generation is shared at Harmonix, not the sole reserve of the designer. As such the inspiration is the lives and thoughts of a whole lot of people. Coming up with ideas therefor isn’t the hard part, it’s filtering through and developing them that’s most challenging task in the early stages.’
Rob Kay, Harmonix⁵⁵
- ▶ ‘The process of creation is my inspiration. [...] I find that after the initial spark - which can come from anywhere - the process is very organic and new ideas crop up as I’m fleshing out others. Sometimes the process has to be pushed by brainstorming, either with myself or with others, but mostly I reserve this approach for refining ideas or looking for new twists. Coming up with the big concepts is never a problem and I have way more ideas than I’ll ever get to create, which can be more than a little annoying at times. Sometimes the style of the story or characters can suggest gameplay ideas or variations. [...] Because most of the games I’ve worked on are story based, much of the design work has been connected with developing the story and gameplay simultaneously and I find that writing documents is the best way for me.’
Steve Ince, Juniper Games⁵⁶

These statements support Boden’s conclusion that creativity is not the outcome of a sudden mysterious flash out of a vacuum but that the act of design and idea generation is based upon significant knowledge and serious creative activities.⁵⁷ Basically resumed only two main approaches for the idea generation process result from these statements. Mostly reverted is a) a scheduled collaborative approach applying mostly popular techniques as brainstorming and b) non scheduled idea generation (‘anytime and anywhere’) which can be both an active but as well an

⁵⁴ Lesley Mathieson, High Impact Games, Online-Interview, May 30, 2007

⁵⁵ Rob Kay, Harmonix, Online-Interview, June 9, 2007

⁵⁶ Steve Ince, Juniper Games, Online-Interview, February 19, 2007

⁵⁷ Boden, M.A. The Creative Mind: Myths and Mechanisms. Weidenfeld and Nicolson, London, 1997, in: Ernest Edmonds, Linda Candy (2002), Creativity, art practice, and knowledge, Communications of the ACM archive, Volume 45, Issue 10 (October 2002), Special Issue: Creativity and interface, Pages: 91 - 95

unconscious process. Both can be supported and triggered by inspirational sources, personal interests and habits or by everyday life's happenings. Its borders can be blurred and various subdivisions occur - as for example new ideas which come up during the process of making games. In order to ensure a concise overview hence a recapitulatory list of the cited approaches:

- ▶ 'blue' sky and / or collaborative brainstorming for scheduled, planned, conscious idea generation
 - thinking about what the player wants to do
 - start a game with a specific feeling to implement
 - determining what a publisher will buy
- ▶ 'anytime and anywhere' - non scheduled, active or on the contrary unconscious idea generation as for example:
 - during development of a game
 - everyday life, observations, activities ('out-of-the-office')
 - game design as a lifestyle and mindset - not just a few hours a day, 'always' think about game design and where games can come from

The finding that mostly collaborative methods as brainstorming are practically executed when starting to design a game was somewhat disappointing as I was hoping to gain answers that cover more intensely further techniques as physical prototyping, rapid prototyping, sketching, toys, etc. When directly addressed game designers named deviant methods and confirmed to take advantage of some alternative techniques. Most of the alternative techniques are used for various later and more elaborate design stages. Rarely any of the designer named alternative approaches on the question on how to start to design a new game. I will therefore examine these approaches in the later chapter dealing with tools and methods and their fields and possibilities of application in more detail.

Nevertheless it was interesting to find out that scheduled generation of ideas in form of collaborative methods as brainstorming is so popular - especially when taking into account that it is a very controversial technique causing great many critics. I will therefore devote a whole chapter to brainstorming and its derivatives. In the course of this chapter on how to start when making a new game I will foreclose some reasons explaining the degree of respect of scheduled techniques. Scheduled (brainstorming) approaches are often applied and of advantage when no high concept ideas are in stock, when only basic and not yet elaborated initial idea or genre (no features, gameplay, characters) is given or when it is necessary to come to a decision between a number of ideas or concepts which are not yet approved and framed. Sometimes, even when starting from scratch, various con-

straints can already be given which hence also leads to a more likely use of scheduled methods. The procedure which is going to be applied is as well frequently determined by the team's size and the degree of co-determination of the contributing team members. If a great many team members are assigned to contribute to the design collaborative and scheduled methods are likely chosen.

'Anytime and anywhere' sounds like an ability of designers of pushing an inner button in order to activate ideas popping up. Even if some designers are able to act so it is mostly contrary. It rather means that generating ideas is an active and attentive process, often influenced by personal interests and habits. Environment and surroundings can of course occasionally automatically inspire or even trigger ideas as well as processes or happenings of daily life can bring up fascinating topics or activities. Nevertheless in order to conceive ideas and concepts designers have to act mindful and observant and ponder on a multitude of happenings, activities etc. in regard for an interesting and joyful applicability for a game.

'Game ideas come from almost anywhere, but they don't walk up and introduce themselves. You can't sit around and wait for inspiration to strike.', Ernest Adams, Andrew Rollings ⁵⁸

Triggers or aids as various inspirational sources, everyday life, observations, activities or 'anytime and anywhere' sound still very vague. I will therefore examine following some game designers inspirations and their ways to generate ideas as well as the coherence with the resulting games. As scheduled and / or collaborative methods can also take previously generated ideas as an origin or constraint into account they will be covered subsequently.

⁵⁸ Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.75

3.2. Creation of game ideas based on inspirations - 'Anytime and anywhere' & 'out-of-the-office'

Sources and reasons that invoke inspiration are not the only things that vary from person to person. There exist various different definitions and explanations on the nature of inspirations. Inspirations can be seen as conscious or subconscious responses to a variety of internal and external stimuli, a lightening that strikes 'where and when it wills' or a mysterious, unpredictable impulse which for instance enables poets to produce the finest quality poetry. I am going to refer to the stimuli as inspirational sources which can be given a chance or even used on purpose in order to trigger new ideas and on the contrary can occur by chance on unforeseen occasions. Stimuli can be utilized on purpose for various design purposes.

If the overall idea for the game is already fixed materials as books, videos, music or other materials, which deal in diverse ways with the game's topic, are often taken into account as inspiration in order to evoke additional and more detailed concepts and solutions within the scope of concept developing, character- and level-design. In this case the designer is rather seeking for more ideas whereas being aware what and where to look for. The inspiring materials and inspirational sources are therefore rather a reference for background settings and targeted knowledge acquiring. It is a kind of focused and controlled inspiration which is contrary to inspiration that helps or causes to come up with fresh or 'blue sky' ideas. As already written before, the generation of blue sky ideas can be achieved with very different and personal approaches, and can be compared and enhanced with the phenomenon of creativity methods being helpful for ones and on the other hand totally useless for others. It is a non-controllable process.

'However, my view of the matter, for what it is worth, is that there is no such thing as a logical method of having new ideas, or a logical reconstruction of this process. My view may be expressed by saying that every discovery contains 'an irrational element', or 'a creative intuition', in Bergson's sense. In a similar way Einstein speaks of the 'search for those highly universal laws ... from which a picture of the world can be obtained by pure deduction. There is no logical path', he says, 'leading to these ... laws. They can only be reached by intuition, based upon something like an intellectual love ('Einfühlung') of the objects of experience.',
Karl Popper⁵⁹

⁵⁹ Karl Popper, (1959), *Logic of Scientific Discovery*, p.31-2

This means ideas can be evoked by nearly everything that surrounds a designer. In most cases these ideas do not pop up automatically. It is instead necessary to keep eyes open and to juggle with visual or audio inputs in regard to their usefulness as game ideas. A lot of designers therefore constantly keep juggling like it would be a sport or a habit. Joshua Dallman, game designer and producer of Red Thumb games tells that the trick is to adopt game design as a lifestyle.

This means that in relation to games, sources of inspiration can be extremely wide ranged. The following collection has been created from citations of game designers. This collection of course makes no claim to be complete.

- other media (films and movies, TV, books, comics, music, ...) [61]
- other games
- art
- research, science
- game studies, pleasures of games
- daily life, events, happenings
- nature, outdoors, travel, recreational activities
- systems
- controller, input devices
- interaction modes, technology
- architecture
- theme parks
- gamers, fans
- children
- dreams

As the sources of inspirations can not be nailed down to some dozen items this list is unfortunately in no way complete. The following part of the thesis deals with a more detailed selection of some interesting aspects in this list. A disquisition of all sources that are capable of invoking thoughts and inspiration would not be very intriguing and I will therefore not go into all their details. The following is primarily concerned with statements of game designers on their approach to idea generation and inspiration as well as on some specific games and their inspirations.

‘trick is to simply adopt game design as a lifestyle and mindset and not something you do for just a few hours a day. When you’re “always” thinking about game design and where games can come from, sources of inspiration are everywhere: sitting in traffic, going to the opera, the way a coin rolls across your desk (‘Hmm, I wonder if you could make a game where you have to balance the coin rolling and get it to a goal’ etc).’, Joshua Dallman, game designer at Red Thumb Games ⁶⁰

‘I try to take advantage of all media for game ideas, as well as daily life. I think that the more diverse experiences a designer is exposed to, the more interesting their design. Designers who only play games in their spare time or watch media targeted at a particular audience start to create the same designs over and over again.’, Leslie Mathieson, design director at High Impact Games ⁶¹

⁶⁰ Joshua Dallman, Red Thumb Games, Online-Interview, May 5, 2007

⁶¹ Leslie Mathieson, High Impact Games, Online-Interview, May 30, 2007

3.2.1. Inspiration: Research, Will Wright

- ▶ 'It usually starts with the research. I'll find some subject that I'm reading about that fascinates me. It will pique my interest and then I'll slowly become obsessed with it. About half of those subjects I'll end up seriously pursuing as a game project. Some of them I'll pursue for a while but then decide that they really don't make sense as a game. I've always liked studying different things. That's one reason why I really like doing game design. It gives me an excuse to go out and research these wildly different things for a year or two and then move onto the next thing later.', Will Wright ⁶²

Will Wright, known for famous games as *SimCity*, *The Sims* and the upcoming, highly anticipated game *Spore*, is game designer and founder of the game development company Maxis. Wright described himself in an interview for the San Francisco chronicle as 'obsessive' in his pursuits. 'I would usually get very obsessed with some subject or area of interest for six months or a year, and just totally learn everything I (could) about it.'⁶³ He kept this habit and attitude up to the present and takes advantage of its side effect: game ideas coming up when getting obsessed by a topic. On the question whether his research begets the game idea or whether it is the other way round, Will wright confessed that research is the crucial activity everything starts with (see introductory citation). 'Usually the game design for me comes in toward the end, after I have a really good sense of the subject and what aspects of the subject that I want to illustrate. Then I'll experiment with game design.'⁶⁴



Figure 3.1. *SimCity* (screenshot of *SimCity 2000*), a city-building PC game by Will Wright, first released in 1989.

Interestingly the idea for his first success was not primarily inspired by research, but also by his first developed computer game *The Raid of Bungling Bay*, a game where in short helicopters are supposed to shoot at armed islands. When working on the design of the levels and islands Will discovered that it was more fun creating the islands than blowing them up with a helicopter. ⁶⁵

⁶² Melanie Cambron, (2002), GIG Spotlight, A chat with Will Wright, http://www.gignews.com/goddess_wright.htm, (as at 08/17/07)

⁶³ Matthew Yi, (2003), Profile: Will Wright, Unsimulated success, San Francisco Chronicle, <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2003/11/03/BUGD42O8JT1.DTL&type=business> (as at 08/17/07)

⁶⁴ Melanie Cambron, (2002), GIG Spotlight, Interview with the goddess: The E3 panel with Will Wright and Yu Suzuki, http://www.gignews.com/goddess/suzuki_wright.htm, (as at 08/22/07)

⁶⁵ Figure 3.1.: Inside Scoop, The History of SimCity, Official Simcity4 website by Electronic Arts, http://simcity.ea.com/about/inside_scoop/sc_retrospective.php (as at 08/17/07)

This approach mirrors strongly in the resulting games which can be denoted as strategic (life) simulations or ‘software toys’ rather than games as they cannot be won or lost. The simulations furthermore invite to experiment with the subjects Will Wright has dealt with. *Spore* for example deals with the procedural evolution of microorganisms to life forms dominating whole galaxies. The players get to create life forms which shall colonize a new planet. Especially Wright’s recent games as the ‘digital dollhouse’ *The Sims* or the upcoming simulation *Spore* are complex and the game’s inner structures base on agent based artificial life programs which allow that in-game decisions and activities can have crucial consequences on the simulations outcome and on the further ongoing of the game. *Spore* can therefore be played peaceful and diplomatically but its creatures can as well be designed by the player to act aggressively. These players choices, can strongly affect the simulation and therefore the from player to player differing gaming experiences.

‘If you look at the universe, gravity, cosmology, it’s fairly predictable. A star is a fairly complex thing, but it’s nowhere near as complex as a bacterium. I think that the role that life has in the universe is dramatic. Look at a lifeless universe and how deterministic and predictable it is, and then throw in some life. It can change the entire evolution. So really [Spore] is the story of life thrown into a lifeless universe. I thought the contrast of the two was kind of fascinating.’, Will Wright ⁶⁸

A film that sparked Wright’s interest and lead to deepened research on subjects as space, artificial intelligence and astrobiology was *Powers of 10*, a short documentary of the 70’s by Charles and Ray Eames, which took the viewer by zoom from the outer cosmos to the atoms spinning in the hand of a man lying by the lake in Chicago. *Powers of 10* was next to Drake’s Equation⁶⁶ and *2001: A Space Odyssey*⁶⁷ one of the major inspiration sources for *Spore*. When comparing the resulting game *Spore* to the film *Powers of 10* parallels are highly visible. Even the concept of its zoom-effect, is apparently mirrored - as a big concept of *Spore* is based on the idea of shifting diverse scales up and down, from bacterial survival to universe exploration.⁶⁸

‘The powers of 10 idea was always something in the back of my head for a long time. I always loved that idea of having that perspective on the universe.’, Will Wright ⁶⁸

66 The Drake equation, devised by Dr Frank Drake in 1960, is a famous result in the speculative fields of exobiology, astrosociobiology and the search for extraterrestrial intelligence. It was an attempt to estimate the number of extraterrestrial civilizations in our galaxy with which we might come in contact. The purpose is to allow scientists to quantify the uncertainty of the factors which determine the number of such extraterrestrial civilizations. (Wikipedia, http://en.wikipedia.org/wiki/Drake_equation, as at 09/28/07)

67 *2001: A Space Odyssey* is a 1968 science fiction film directed by Stanley Kubrick, written by Kubrick and Arthur C. Clarke. The film deals with themes of human evolution, technology, artificial intelligence, and extraterrestrial life, and is notable for its scientific realism, pioneering special effects, and provocatively ambiguous imagery and sound in place of traditional narrative techniques. (Wikipedia, http://en.wikipedia.org/wiki/2001:_A_Space_Odyssey_%28film%29, as at 09/27/07)

68 Frank Cifaldi (2006), Gamasutra Industry News: E3 Workshop: Will Wright On Spore, Innovation, Nintendo Wii, http://www.gamasutra.com/php-bin/news_index.php?story=9238 (as at 09/28/07)

3.2.2. Inspiration: Joy of creation, Will Wright

- ▶ ‘The joy of creating is what I really want to focus on. [...] When I got my first computer I realized it was the ultimate modeling tool, I could create these models that are dynamic. With games I try to bring that joy to the player, building a city, or a family. So you can think of the games more as tool sets or model sets.’ Will Wright⁶⁹

Aside from research leading to fascinating game topics and elaborate simulations the other central theme which can be found in all of Will Wright’s games is therefore the fundamental feature of content creation - spanning from simple city building features of *SimCity* to creation of social-structure of *The Sims* which eventually results in highly elaborated creation of intelligent life forms in *Spore*. This is not only a feature but also one of the various pleasures why people play games.



Figure 3.2. *Spore*’s species editor allows the user to create own creatures⁷⁰

Wright actively takes advantage of the fact that creation is one among various actions wherefrom the pleasure of gaming can be derived. It is fun to bring something into existence or to build something that feels like it belongs to you. Examples are constructing and growing a city in *SimCity* or creating and arranging a fish tank in *El-fish*.⁷¹

69 Frank Cifaldi (2006), Gamasutra Industry News: E3 Workshop: Will Wright On Spore, Innovation, Nintendo Wii, http://www.gamasutra.com/php-bin/news_index.php?story=9238 (as at 09/28/07)

70 Figure 3.2.: A closer look at spore; Screenshots from the game: the creature editor, <http://www.spore.com> (as at 09/28/07)

71 Jesper Juul referring to Marc LeBlanc, (2003), The Ludologist weblog, The Words of Game Design: The Terminology of Ion Storm, <http://www.jesperjuul.net/ludologist/?p=34> (as at 09/29/07)

3.2.3. Inspiration: Reminiscence of childhood's pleasures, Peter Molyneux

- ▶ 'A lot of my inspiration comes from remembering what it was like to be a kid and remembering that kids only need to have a sand pit, a stick, and a bit of mud to make the most amazing adventures. That's a lot of it - just the dreams you have when you were a kid are the ones I like experimenting with.', Peter Molyneux⁷²

Peter Molyneux is game designer and game programmer at Lionhead Studios (which is now part of Microsoft Game Studios) and known for the creation of the 'god game' genre which encloses games as *Populus* and *Black and White*. Other well known games penned by him are *Fable* or the business game *The Movies*. The main feature on which many of his games are essentially based on is the idea of playing god as well as experimenting with power and its effects on other creatures. An idea he confessedly already experimented with when being still a child.

When asked about his inspiration for *Populus* he answered: 'There were lots of different inspirations but one of the main inspirations was when I was a kid playing around with ant nests and feeling like I was in control of their lives by giving an ant nest sweets or using my magnifying glass. This made me as a twelve-year-old feel like a God and when I came to design my first game, I remembered that feeling.'⁷⁴ 'I think with any kid, if you give them a stick and an ants' nest they all do the same sort of thing. It's just that, in my case, I never moved on from those 12-year-old feelings - which is pretty disastrous for the rest of my life, but has been great for designing games.'⁷⁵

His idea of playing god wasn't limited to playing with ants. The idea of building things and destroying them afterwards already fascinated him when being a boy - an idea which is also manifested in his games. 'I used to build the most sophisticated things from Lego. Not beautiful things, just sophisticated things, with one



Figure 3.3. *Black & White 2* ⁷³

It is like its predecessor a game about moral choices. The player takes on the role of a god ruling over an island populated by various tribes. The player can choose a creature which must be trained to enforce the players will on the gameworld's inhabitants. Depending on the way the player interacts with his creature he can provoke a good or evil behavior.

⁷² John "Warrior" Keefer, GameSpy, 20 Questions with Peter Molyneux, http://archive.gamespy.com/legacy/interviews/pmoly20_a.shtm, (as at 08/17/07)

⁷³ Fig. 3.3.: *Black & White 2* screenshot, <http://www.lionhead.com/bw2/screenshots.html> (as at 08/17/07)

⁷⁴ BBC blast - games, Spotlight on Peter Molyneux, http://www.bbc.co.uk/blast/games/people/peter_molyneux.shtml, (as at 08/17/07)

⁷⁵ Wagner James, Peter Molyneux, (2000), The lord of game developers, <http://archive.salon.com/tech/feature/2000/05/05/molyneux>, (as at 08/17/07)

sole purpose in mind – and that was to destroy what I had built. For me, that is also a fundamental part of games design: if you allow someone to create a world, you must also allow them to destroy that world. In *SimCity* for example, it's great fun building a city up, but it is even more fun when you have a couple of earthquakes and fire storms and to see what happens. I believe this is at the heart of what a good game is, really.⁷⁶

3.2.4. Inspiration: Nature, landscapes, extraordinary experiences

- ▶ 'Dave Jones and Jill McLeod took lots of photos, and about a year after they got back, Dave decided it'd be great to base a game around this landscape. So they did.'
(*The Tale of El Chorro* (or 'How Dave and Jill Went to Spain for an Idea')⁷⁷)

Inputs and inspirations can be small and commonplace or on the contrary huge and extraordinary like in the case of Dave Jones and Jill McLeod where nature or rather an impressive landscape served for inspiration. In 2000 they visited El Chorro, an impressive limestone gorge in Andalusia in southern Spain as well as the Caminito del Ray (Kings little path), a nestling path named after king Alfonso XIII who had to cross the narrow walkway, which is positioned 700 meters above the Guadalhorce river, in 1921 for the inauguration of the dam Conde del Guadalhorce. The Caminito del Ray was formerly used by workers for transportation of materials for the maintenance of the channel.⁷⁸

The game that emerged from the impressions and experiences at El Chorro is called *Chasm*. It is a point-and-click flash-adventure game, was winner of the Best Game award at the Flash Forward Festival in San Francisco in 2004 and was cited as a game that stands head-and-shoulders above the rest of the pack.⁷⁹

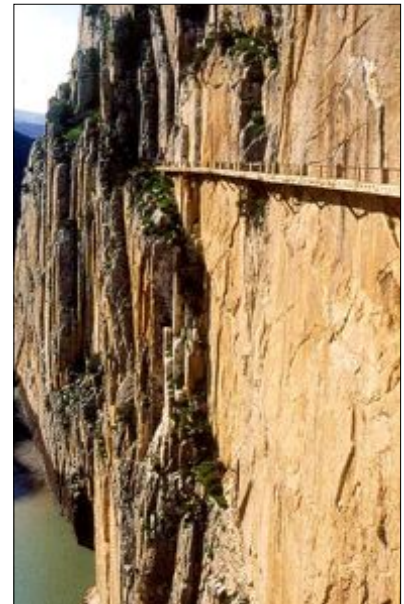


Figure 3.4. El Chorro, Caminito del Rey, Spain, Andalusia.⁸⁰ The impressive landscape and the decayed and dangerous man-made path served as inspiration and reference for *Chasm*.

⁷⁶ John Paul Bichard, (2004), *Deus ex Machina* ("Don't simulate the world, simulate what people think is the real world."), <http://www.metamute.org/en/Deus-ex-Machina>, (as at 08/22/07)

⁷⁷ Game on, *The Tale of El Chorro* (or "How Dave and Jill Went to Spain for an Idea") <http://www.abc.net.au/gameon/chasm/more.htm>, (as at 08/17/07)

⁷⁸ Wikipedia, http://en.wikipedia.org/wiki/El_Chorro, http://en.wikipedia.org/wiki/Caminito_del_Rey, (as at 08/17/07)

⁷⁹ Jayisgames.com, *Chasm*, (2004), <http://jayisgames.com/archives/2004/07/chasm.php>, (as at 08/17/07)

The game takes advantage and is even based on the natural and historical narrative the area of El Chorro offers. The narrative architecture space that El Chorro holds, is transcribed to the game concept and the environmental storytelling, where its elements are nearly completely mirrored: the dam, the river, the pipes and valves and the small decayed paths and bridges. The main character, Joe, is also based on the landscapes history. He is a worker whose job is very similar to the workers job around 1900. He has to service the dam and its pipes. Only the players task is contrived: since a lot of the pipes are broken the villages indispensable water supply holds off. The player has to help Joe to bring the river back to the parched village.



Figure 3.5. *Chasm* by Transience.⁸¹
A point-and-click adventure game based on El Chorro and its Caminito del Ray in Andalusia in southern Spain.

⁸⁰ Figure 3.4.: El Chorro, <http://www.desnivel.com/> (as at 08/17/07)

⁸¹ Figure 3.5.: Screenshot of *Chasm*, <http://www.abc.net.au/gameon/chasm/> (as at 08/17/07)

3.2.5. Inspiration: Other media: films (movies, TV-series & -shows) and novels

- ▶ 'Our actual inspiration came more from films and novels. I wish more games would use novels and films and paintings and music as inspirations, rather than other video games. That would help the industry get out of its creative rut.'
Ken Levine on *BioShock*, Creative Director and President of 2K Boston⁸²
- ▶ 'I love movies. I always draw my inspiration from movies.'
Koichi 'Suda 51' Suda, Grasshopper⁸³
- ▶ 'When I was in high school I saw a TV commercial with a lady holding the hand of a child, walking through the woods and the image just stuck with me. When I came up with the pairing concept I had a woman and a young boy in mind. There's also a famous manga called *Galaxy Express 999*. It's about a woman named Maetel who's a guardian for the young hero Tetsuro as they adventure through the galaxy. I thought that even though it was an old story, it could be adapted into a new idea for video games.'
Fumito Ueda, game designer (*ICO*, *Shadow of the Colossus*)⁸⁴
- ▶ 'In the game industry probably the biggest source of inspiration for most of the designers is 1) other games [...] and 2) movies. The games industry - they wanna kind of be like Hollywood. You know they wanna have these blockbuster games. And they always look at the Hollywood-Model for inspiration.', Neil Sorens⁸⁵
- ▶ 'Movies are a source of inspiration, like all media. In some ways, recently, they have become more important, as players look for 'cinematic moments' in their games.', Leslie Mathieson, High Impact Games⁸⁶

Before examining the extensive topic of the chance of other media serving as source of inspiration I would like to anticipate that a huge amount of games literally base on existing movies, TV-shows as well as on their main characters. Some examples are the various *Star Wars* games, *Spider-Man 1-3*, *The Simpsons Game*, *The Lord of the Rings: The Battle For Middle-earth*, *Shrek the Third*, *SpongeBob SquarePants: Creature from the Krusty Krab*, *The Incredibles*, *Peter Jackson's King Kong*, diverse *Pokémon* games, etc. Games like these are not further examined in this thesis since ideas and the high concept creation are not inspired by movies or TV-shows but

⁸² Charlie Barratt, (2007), The past, present and future of Rapture according to Ken Levine, the game's mastermind, GamesRadar US, <http://www.gamesradar.com/us/xbox360/game/features/article.jsp?releaseId=20060426172349312080&articleId=20070917152449871048§ionId=1003> (as at 10/15/07)

⁸³ Gavin Ogden, (2007), Suda 51 Interview: No More Heroes man talks shop, <http://www.computerandvideogames.com/article.php?id=161891> (as at 10/24/07)

⁸⁴ Interview with Fumito Ueda from Official PlayStation 2 Magazine, http://www.tigmagazine.com/interview_opmfuico.html (as at 05/14/08)

⁸⁵ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

⁸⁶ Leslie Mathieson, High Impact Games, Online-Interview, May 30, 2007

are rather defined by marketing decisions accompanying a movie or TV-production. Of course these games also require a huge amount of design work and it is of course not my intention to badmouth these efforts. On the other hand these cases styles, characters, plots and settings are rather given and moreover mandatory reference than an inspiration. As the main interest is whether movies and TV-productions can inspire ideas in respect of triggering new independent ideas I will therefore also not examine other media's chances to inspire in terms of generating visual styles of games.

The introduction of the thesis already covered the case that films and film studies can have, due to the lack of extensive game studies, a huge impact on game design (see chapter 2.2. *A short overview on video games and game design*). The way filmic media provides and reveals meaningful visual information can be of value when creating story-lines, tension and emotions for games.

Most interesting and applicable for game design are the ways stories or informations are told and uncovered and the techniques which are applied for cinematic entertainment or filmic information. Movies act as an example or even as an ideal for communicating informations or emotions. Therefore looking at movies with regard for use in game design can rather often be seen as borrowing and acquiring knowledge and techniques than as a source for inspiration. This is not merely restricted to its use for creating cut-scenes, where it certainly holds a special benefit, but is of overall relevance for games that include narrative elements. Movies can also be practical in order to act as a model for the creation of settings, metaphors and for character development.⁸⁸

The before addressed term 'borrowing' should however be regarded very carefully. Simply adopting from filmic media mostly does not contribute to a good game simply because games and films differ strongly. Games should not be considered as interactive movies because games do not tell stories, but instead the players tell stories. Watching a film is a passive experience whereas in a game, the audience is the actor, who must be allowed to have its own control over the game.⁸⁹ This is a huge contrast to film which must be taken into account when designing a game. 'The techniques, processes, and skills involved in the creation of each are

Neil Sorens, game designer, considers movies as source for inspiration for inciting player emotions. 'One game concept I did I looked at *Living dead* and *Night of living dead* and sort of these horror movies for ideas on how to create a tense situation. [...] So I look for elements in those movies that would make the player feel scared or create a feeling of suspense or tension. Because movies do that a lot better than games do right now,' Neil Sorens⁸⁷

⁸⁷ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

⁸⁸ Online Interview with Oskar Åsbrink, Jadestone, May 29, 2007

⁸⁹ Marc Saltzman, (2000), *Game Design: Secrets of the Sages*, 2nd Edition, BradyGames, p.78

unique and not interchangeable. The metrics by which each is judged are also different, meaning that many of the properties that make for a good film would lead to a lousy game, and vice versa.’⁹⁰

In conjunction with generating ideas for games there are however indeed various ways in which literature, movies or TV-productions can help to game design. Beside their capability to inspire visual realizations they can also be of help in order to gain ideas for games. However only in rare cases ideas are literally triggered when watching a movie or reading a book. But when dealing with the raised topics further creative thought can be spurred.

‘I wouldn’t really call it inspiration. At least it’s not for me. I don’t watch a movie and go ‘Wow, I’d love to make a game about that. I would say reference. We look at films, then we look at particular sequences in films, sometimes. We talk about what could be fun about that or what’s interesting about that. Why that scene is done that way, or what the themes are.’, Clint Hocking⁹¹

This is again dependent on personal likes, dislikes and design approaches as well as on the genre or type of game. If for instance a puzzle game (like *Tetris*) has to be designed literature and filmic media may supposedly have no crucial impact on inspiration. When the main theme of a game is settled it is usually common to look for other productions of diverse media genres that deal with the same or a similar topic in order to achieve a broader comprehension on the subject. This process, which Shigeru Miyamoto compares to acting like a sponge, should not be seen as a copycat act, but as an approach to conceive a subject more broadly and extensively which shall also help to abstract and delimit the own design from already existing works.

- No, I never see a film and then say "I'll make this now". But... whenever I'm stuck on something, sometimes I just suck a movie in like a sponge. I'm not saying that imitating something is a bad thing. If you're just ingesting it like a sponge, then you still have the ability to think it over for yourself. It becomes part of you. If you stand in the same spot as everyone else, then you'll lose out.’, Shigeru Miyamoto, Nintendo⁹²

The following part shows opinions and examples to illustrate in more detail in which ways other media as for example films can affect game design.

⁹⁰ Andrew Boyd, (2003), When Worlds Collide: Sound and Music in Film and Games 4 February, http://www.gamasutra.com/features/20030204/boyd_01.shtml (as at 10/22/07)

⁹¹ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

⁹² Lecture of Shigeru Miyamoto, (2003), Tokyo University Lecture, <http://forums.nintendo-difference.com/forums/lofiversion/index.php/t704.html> (as at 10/24/07)

3.2.5.1. Experience popular activities shown in movies & TV

- ▶ ‘Take *Uplink*, our first game. That was brought out of the consideration that you see people hacking in films quite a lot. And it’s always completely different to what actually hacking would be like. But hacking is something what people would want to do. It’s one of these fantasy things. So the entire inspiration behind that came in watching a film once and saying ‘Why don’t we make a game about hacking?’, Mark Morris, Introversion Software⁹³
- ▶ ‘For a long time, there have been dramas and movies about doctors. Doctor characters are usually professionals, and we see them chatting with co-workers, relaxing after work, and having problems in their daily lives. But, at the same time, they bravely stand up against all odds to save their patients’ lives once they step into the operating room. This is what fascinates the viewer. But, in reality, these are just characters and probably no match for the reality that doctors experience every day. I wanted to create a game that depicts doctors with this heroic image to show my respect for them.’
Katsura Hashino on *Trauma Center: Second Opinion*⁹⁴
- ▶ ‘I think our big inspiration to develop this game actually came from watching movies. If you pay attention to all of the summer blockbusters there are lot of movies that come out around the spy/espionage genre. Whether it’s *James Bond*, or the *Bourne* series all the way from *Mission Impossible* or even TV shows like *24* or *Alias*, it is a really big genre of information that is out there.’
Matt Wilson, Sony Online Entertainment Seattle on idea generation for *The Agency*⁹⁵

A very intriguing characteristic is that the filmic media reflects the zeitgeist, the interests of the viewers and sets also trends which can be harked back when searching for ideas. Desirable or en vogue professions and activities as well as places and settings are mirrored in filmic implementations in order to generate high viewing rates. A lot of the activities or places shown in movies or TV can also be found in games which yet allow the player to execute and experience them. This again meets one of the pleasures that can make playing games enjoyable (see also: Jesper Juul’s list of the ways in which players derive pleasure from games, chapter 2.3.1. *Game pleasures & fun*). Some activities are already re-used very widespread, as for instance flying spaceships, whereas some others can still offer new gaming experiences. Both citations above on *Uplink*, which is based on hacking, and *Trauma Center* that take advantage of (eventually more intensive) enthusiasm for activities created by other media.

⁹³ Interview with Mark Morris, Introversion Software, GDC 2007, San Francisco, March 7, 2007

⁹⁴ Katsura Hashino, Interview: *Trauma Center: Second Opinion*, <http://wii.nintendo.co.uk/903.html>, (as at 08/31/2007)

⁹⁵ Spencer Yip, (2007), Gamasutra Industry News: Q&A: SOE’s Wilson Presents The Agency, http://www.gamasutra.com/php-bin/news_index.php?story=14269 (as at 10/27/07)

Innovative and outstanding game ideas however do not normally come along when taking advantage of popular topics is the main drive for the concept of a game. Toru Iwatani of Namco told therefore 'Personally, I try to get away from things that are becoming popular. Better to create your own trends and stay ahead of the pack.'⁹⁶

3.2.5.2. Inspiration: Dystopian fiction & leadership personalities / BioShock

- 'There's obviously a fair amount of Ayn Rand and her writings in there. All dystopian fiction, like *1984*. You know one of the largest impacts on me when I was a kid was the book and the movie of *Logan's Run*. I always remember the preview - I'm 41, so when it came out I was 9. The ad said, 'In the 23rd century, everything is perfect. You will be beautiful and rich and young, but there's one catch.' You get killed when you're 30, or 21 in the book. I remember that line - that stuck with me. 'A catch, what? That's awesome!'. The notion of the failed utopia really stuck with me.'

Ken Levine on *BioShock*, Creative Director and President of 2K Boston⁹⁷

BioShock is not the first game that has dystopian fiction integrated in its story and setting. The game seems at first sight to be another common shoot-'em-up set in a crumbling post-apocalyptic world⁹⁸ but which provides a very intense level of detail of background story which is not only highly but also visibly inspired by novels of Ayn Rand on Objectivism (*The Fountainhead*, *Atlas Shrugged*) and various films on dystopian fiction (e.g. *1984*, *Logan's Run*).

⁹⁶ Brad Kane, (2005), Postcard From GDC 2005. The International Game Designers Panel, <http://www.gamasutra.com/gdc2005/features/20050311/postcard-kane.htm> (as at 10/27/07)

⁹⁷ Charlie Barratt, (2007), The past, present and future of Rapture according to Ken Levine, the game's mastermind, GamesRadar US, <http://www.gamesradar.com/us/xbox360/game/features/article.jsp?releaseId=20060426172349312080&articleId=20070917152449871048§ionId=1003> (as at 10/15/07)

⁹⁸ Hiawatha Bray, (2007), BioShock lets users take on fanaticism through fantasy, The Boston Globe, http://www.boston.com/ae/games/articles/2007/08/27/bioshock_lets_users_take_on_fanaticism_through_fantasy/ (as at 10/17/07)

The idea for the creator of the underwater city called 'Rapture' was as well been inspired by personalities as the eccentric millionaire Howard Hughes as well as by *Citizen Kane* of Orson Welles' same named film. Kane was described as 'a cartoon-like caricature of a man who is hollowed out on the inside, forlorn, defeated, solitary because he cannot command the total obedience, loyalty, devotion, and love of those around him. [...] who 'at the end of his life, ran away from the world to entomb himself in a vast, gloomy art-choked hermitage'.⁹⁹ There exist various similarities with one of the game's main characters Andrew Ryan and whose personal dream, the concept of an independent underwater city 'Rapture', spirals out of control and into chaos.¹⁰⁰ All rooms of Rapture were crafted with great care for details. They all have a story and a history as though they've been inhabited by living people. Furthermore Rapture's residents left behind dialogues in form of radio plays which unveil the tale of its fate and help bring context and life to the environments. These efforts on the background story and a highly narrative architecture and setting were made in order to create an even more tense and absorbing atmosphere which according to lead designer Ken Levine, resonates with people in a way that 'The aliens have invaded' does not.¹⁰¹



Figure 3.6. *BioShock* by 2K Boston ¹⁰²
The first person shooter takes place at a failed underwater utopia called Rapture in 1960. The game attempts to tell a more elaborate, thoughtful tale than most mass-market titles.

- 'Generally, you play a game and it takes place in an ancient castle, or a crumbling space station. Hey, I've done my share of those, too. But Rapture feels like a real city, and it's built upon ideas, on economic and political ideas, and at the end of the day it's a tragedy. The story of Rapture is a tragedy, of this great man and these great ideals he had and how they fell apart. That resonates with people - it's a *Citizen Kane*-type story, a Howard Hughes-type story. Ryan is clearly this great man who has some real serious flaws. I think that resonates with people in a way that "The aliens have invaded" doesn't.' [...] 'There's a lot of *The Shining* in the game, too - the notion of the haunted house story. And then, from a narrative standpoint, the other cinematic inspirations are *Fight Club* and *The Manchurian Candidate*.'

Ken Levine on *BioShock*, Creative Director and President of 2K Boston ¹⁰¹

⁹⁹ Citation of media tycoon William Randolph Hearst's biographer, David Nasaw who finds the film's depiction of Hearst unfair. The principal source for the story of *Citizen Kane* was the life of media tycoon William Randolph Hearst, and the film is seen by critics as a fictionalized parody of Hearst. Wikipedia: *Citizen Kane*, http://en.wikipedia.org/wiki/Citizen_kane
D. Nasaw, (2000), *The Chief: The Life of William Randolph Hearst*. New York, Houghton Mifflin, p. 574

¹⁰⁰ Gamefaqs.com, (2007), *BioShock: Plot Analysis* by UnSub, <http://www.gamefaqs.com/computer/doswin/file/924919/50027> (as at 10/17/07)

¹⁰¹ Charlie Barratt, (2007), The past, present and future of Rapture according to Ken Levine, the game's mastermind, GamesRadar US, <http://www.gamesradar.com/us/xbox360/game/features/article.jsp?releaseId=20060426172349312080&articleId=20070917152449871048§ionId=1003> (as at 10/15/07)

¹⁰² Figure 3.6.: Screenshot of *BioShock*, http://www.bio-shock.de/e107_plugins/autogallery/autogallery.php?show=Screenshots (as at 10/17/07)

The video game developer 2K Boston/2K Australia (previously known as Irrational Games) released various other games all of the same genre before they developed *BioShock*. I assume that the decision of making another first person shooter was therefore based on diverse strategic reasons. Also important to note is that the initial concept ideas for *BioShock* had a very different background story. The actual ideas for Rapture yet evolved when working on the game. More on this topic can be found in chapter 2.4.1. *Stages of game design*.

3.2.6. Inspiration: Other media: web 2.0

- ‘We knew we wanted to make a game about creativity and making things, but when we showed it to Sony even back then it was clear that Phil [Harrison] was thinking about user-generated content as well. A year ago we might not have been calling it Game 3.0, but the initial pitch was that it was first and foremost a good game whose USP is user-created content. We were definitely aware of the Web 2.0 sites, but there’s a difference to what we’re doing and sites like that. Mark takes inspiration from old game creation kits, and I like to take inspiration from toys – but those sites were in our thoughts, even things like Blogger.’

Alex Evans, Media Molecule on *LittleBigPlanet*¹⁰³

The community-driven phenomena of web applications as *MySpace*, *YouTube*, *Facebook*, *Wikipedia*, *Flickr* and of virtual non game worlds as *SecondLife* increasingly found their way to games.

The enthusiasm people bring up for creating things is not novel. Since Doom popularized the ‘mod’ (modification) scene in 1994 various first person shooters provided level editors as ‘add-on’s allowing to create own levels and maps. As also covered in earlier parts of this thesis, successful and outstanding titles as *SimCity* and its successor *The Sims* base their whole concept and gameplay on creation and building. Besides the aspect of building ‘mods’ a second user-generated revolution accompanying games has emerged: it has become popular to share user generated game-based short films online. These films show for instance epic raids of guilds of *World of Warcraft* or productions where one or more avatars are utilized as actors in order to create short films or music video clips. Game modding as



Figure 3.7. Screenshot of *LittleBigPlanet* by Media Molecule.¹⁰⁴

The game has user-generated content at its foundation, letting players create their own characters, levels, puzzles and entire worlds.

‘The game is all about creativity. It’s not technical or complicated, my mother could do it. What YouTube is to video, we’re trying to be for games.’, Mark Healey, creative director, Media Molecule¹⁰³

¹⁰³ Michael French, (2007), From Rag-Doll to Riches... An exclusive chat with the Media Molecule team, <http://www.developmag.com/interviews/31/From-Rag-Doll-to-Riches> (as at 10/29/07)

¹⁰⁴ Figure 3.7.: Screenshot of *LittleBigPlanet*, http://media.ps3.ign.com/media/856/856680/imgs_4.html (as at 10/29/07)

well as the creation of films has until now been usually rather difficult and time-consuming. However the new games and tools are in charge to become simple enough for anyone to handle and experiment with. The editing tools of *Halo 3* as well as EA's upcoming *Skate* for instance integrate this trend fully into the game to enable players to create their own actually professionally edited films or mash-up videos of death-defying tricks from within the game to share online.¹⁰⁵ All this enabled the concept of user generated content to evolve to a higher level. If the trend and popularity of web 2.0 does inspire it provides at least a highly visible influence on designers.

3.2.6.1. Representation of information in TV coverage

Tetsuya Mizuguchi, game designer famous for games as *Lumines* or *Rez*, based a relevant aspect of the game *N3: Ninety-Nine Nights*, an in Europe rather unknown fantasy hack and slash video game, on observances on characteristics of the broadcasting media. He told in an interview that he was inspired by the way movies or TV channels presented information respectively by the way television covered the war on Iraq. Hereby a multitude of opposing viewpoints was broadcasted when reporting on the war. The movie *Rashomon* had a similar approach: different witnesses to a brutal crime tell a different story. Mizuguchi introduced the idea of different viewpoints to his game that allows players to view the same event from different viewpoints with compelling effect.¹⁰⁶

¹⁰⁵ Jason Hill, (2007) The games we make, <http://www.theage.com.au/news/games/the-games-we-make/2007/09/19/1189881523524.html?page=fullpage> (as at 10/29/07)

¹⁰⁶ Colin Campbell, (2006), Lumines Creator Talks Inspiration, http://www.next-gen.biz/index.php?option=com_content&task=view&id=3404&Itemid=2, (as at 08/21/07)

3.2.7. Inspirational input devices / controller

- ▶ ‘The day the Wii was announced and some details came out we sat around and we talked about what can be done now. This is kinda cool and that definitely is a motivating factor. And likewise when new console hardware becomes available like Xbox 360, PS3 we start thinking ‘Wow, what can we do now?’. Based on the constraints that we have a PS2 or a PSP we’re just blowing the doors open. And that’s just creatively. That’s a huge explosion for us.’

Matt Sughrue, CREAT Studios¹⁰⁷

New input and interaction devices as e.g. Nintendo’s Wii controller, the Nintendo DS System or Sony’s PS3 controller allow new ways of interaction which can be inspirational and challenging when it comes to designing games for these systems. The motion-sensors that enable gestural gameplay, the point-and-click features, touch-screens or microphone ports are appealing and likely encourage designers to toy with the controllers as well as to attempt moves and gestures in order to gain inspiration for interaction and gameplay. Shortly said these new devices can not only make new kind of games possible which take advantage of the alternative ways to interact with the system but do also inspire and seduce to do so.

New ideas that came up due to playing with the Wii remote were for instance responsible for the conversion from the development of a new *Rayman* plat-former to a concept which does no longer have much in common with its predecessors. ‘At first we were building a normal kind of *Rayman* plat-former. When we got the Wii development kit, we started playing with the controller and from that point we thought of developing lots of gameplay ideas. We tried to fit them all into one game but it wasn’t working, so we decided to divide the game into lots of small parts and that’s why we eventually came up with having lots of gameplay ideas and a concept of challenges and trials: racing, dancing, first-person shooter sequences and variety games, which is all kinds of fast-paced action.’¹⁰⁸ stated Ubisoft’s *Rayman Raving Rabbids* Senior Coordinator, Loïc Gouno.



Figure 3.8. *Rayman Raving Rabbids*,¹⁰⁹ Ubisoft. ‘The original idea for the Rabbids was based on a concept of Michel Ancel [The creator of the original *Rayman*, and other games like *Beyond Good & Evil* and *King Kong* - Ed.] Basically the Rabbids were hiding underground plotting to take over the world. [...] The Rabbids, for centuries, had been preparing an invasion... Now it’s time for them to rule the world!’ Loïc Gouno¹¹⁰

¹⁰⁷ Interview with Matt Sughrue, CREAT Studios, San Francisco, March 6, 2007

¹⁰⁸ Phillip Levin, (2006), *Rayman Targeted at Kids?* Interview with Ubisoft’s *Rayman Raving Rabbids* Senior Coordinator, Loïc Gounon, <http://wii.advancedmn.com/article.php?artid=7525> (as at 10/29/07)

¹⁰⁹ Screenshot of *Rayman Raving Rabbids*, <http://wii.ign.com/objects/821/821585.html> (as at 10/29/07)

¹¹⁰ Nintendo of Europe, (2006), Interview: *Rayman Raving Rabbids*, <http://wiiportal.nintendo-europe.com/287.html> (as at 10/29/07)

Another example for a game inspired also by the input device is *Elebits* (*Eledees* in Europe and Australia). Shingo Mukaitouge, game designer at Konami, was for instance so much stunned by his first experiences with the Wii's controller that it served as main inspiration for the game *Elebits*. 'We hammered out the game around the controller. With traditional controllers, there has never been the [ability] to twist or pull ... As we discussed this, we developed the idea of freely touching or moving objects in a room, such as twisting faucets or doorknobs and pulling open drawers.'¹¹¹

The previous citations and opinions show some examples for the input device having an impact on the overall design of games. Nevertheless like before the positions are divided and range from euphoric opinions about the inspiring characteristics of the new input devices to a point of view that bases on the notion that the interaction task is only one aspect which shall not be set the main focus on when designing a game. Whether input devices and their chance of new interaction can trigger new ideas is not agreed.

'I'm not sure if they so much trigger new ideas as ideas we never thought were possible before. Suddenly an old idea we had we never thought was possible ... - something like 'That idea would work really good on the DS!' or something like that.', Jamie Fristrom, Torpex Games ¹¹²

On the contrary opinions are divided whether such an approach more likely only leads to surely interesting, funny, and gimmicky games which indeed fully utilize the possibilities of interaction but do not satisfy rich, deep and immersing game concepts which the players are not likely to play over a long amount of time. This means that one must keep in mind that gameplay, even if based on completely new concepts and possibilities, is only one part of a successful game and that it is necessary to keep the whole in mind when creating ideas.

The statement on the right side by game creator Tim Schafer on this topic, where he explained why he was anything but star struck by the Wii controller, illustrates this further. ¹¹³ This shall of course not downsize the impact and importance of these new input devices and its potential for innovative gameplay but should point to its risky seduction to lean to heavily on a single element.

'I've never found new technology to be either good or bad when it came to games. We currently have more powerful hardware than we even have ideas for. I don't think new tech will lead to new ideas. We have to get new ideas from real creative inspiration, from the experiences we are dying to create.' Tim Schafer ¹¹³

111 Walt Wyman, GameSpot, (2006), Q&A: Elebits producer Shingo Mukaitouge, <http://www.gamespot.com/wii/action/elebits/news.html?sid=6152994>, (as at 08/17/07)

112 Interview with Jamie Fristrom, Torpex Games, GDC 2007, San Francisco, March 10, 2007

113 Curt Feldman, (08/07/2007), Controlling Interests. With gestural gameplay now a reality, the game industry and its critics adapt to a new way to play, <http://www.gametap.com/home/read/article/8a250901140453c3011404cc86f100dd> (as at 08/17/07)

The potential of the new innovative gameplay possibility will lead to quite a number of games which will rehash already existing concepts, as for example race car games, first person shooters or diverse sports games, enhanced by a new way of control. These games can surely be fun and can probably sell well. Beside the first wave of this kind of enhanced copycat games and ported games it is evident that also an elaborated approach rather than merely a (re)design based on the interaction's feasibility is essential.

Next to innovative mass market controllers also a niche segment of alternative input devices for games exists. I will mention this segment only slightly as ideas for these niche segment are heavily evoked on base of constraints - an issue I will deal with in more detail in a later chapter. Game designer and consultant Noah Falstein told me at the GDC 07 about an interesting controller-based inspiration which stroke him upon a request of giving a speech called the 'Accessibility Idol' challenge at the GDC 07 which deals with the design of easily accessible games and game controls for handicapped gamers. Quadriplegic can't move their arms and legs. This handicap induces that games that use multiple buttons of controllers or keyboards for input are not utilizable. 'They showed us something called a 'sip-and-puff-controller' that has several tubes. You can actually move your head and suck in or blow out into these tubes. He was playing *Tomb Raider* with it, doing better than I could with *Tomb Raider*. It was hooked into some processors that was moved into I guess mouse and keyboard commands. And that was really inspiring. So in fact I'm gonna be presenting a concept that uses that controller specifically.'¹¹⁴

¹¹⁴ Interview with Noah Falstein, San Francisco, March 7, 2007

3.2.8. Other games as source of inspiration?

- ▶ ‘Existing games always influence the ideas for new projects. You look at something impressive, and while you never want to just re-use something, it gives you a new way of looking at things. Existing games are good references for what was a good idea or a bad idea, mechanically. Playing games gives a designer a good frame of reference for what is likely to work in his designs.’, Lesley Mathieson, High Impact Games ¹¹⁵
- ▶ ‘Not many because our games aren’t very game-like. But actually I have been really inspired by the early *Zelda* games that Miyamoto did just because he seems to have such a keen grasp of how drama works interactively. He’s very good at sort of foreshadowing what’s gonna come next. He doesn’t really have kind of so much story - story isn’t the focal point of that but what he does with the actual gameplay drama is really interesting to me.’
Dave Grossman, Telltale Games ¹¹⁶
- ▶ ‘Obviously we constantly look at the competition. We constantly look at what’s coming out. For my game in particular, two years ago when we started we were looking at what is starting to be interesting to people now. What would be really sort of pop mass market kind of stuff in two and a half or three years from now. Obviously, you know, we look at games to see what they are doing and how they are doing stuff. But we try pretty hard not to copy them. [...] *Gears of War* didn’t win Game of the Year because the copied cover from someone else. There was probably a great game that shipped when they were a year away from shipping and if they’d change everything they were doing and copy them they would have failed. So yeah, you look at what’s there and you see what they do right and what they do wrong. When you see what they’re doing that you’re also doing then you see how to do it better than they did. But that’s it.’, Clint Hocking, Ubisoft ¹¹⁷

Other games surely act to a great extent as source of inspiration - whereas the topic is rather delicate and controversial. Literal inspiration by a theme or the fundamental gameplay of another game tends to lead to merely a copy of the original game which is if course aimed to be avoided by innovative designers. On the other hand the common notion actually expects game designers to play a variety of games which definitely leads to a certain extent of impact.

‘Ultimately, trendiness is antithetical to innovation. If you’re following someone else’s lead, then you’re really not being a very innovative designer. But, there is certainly room to find inspiration from other sources, especially from small bits and pieces of other games and movies.’ Clint Hocking, Ubisoft ¹¹⁸

¹¹⁵ Leslie Mathieson, High Impact Games, Online-Interview, May 30, 2007

¹¹⁶ Interview with Dave Grossman, Telltale Games, San Francisco, March 7, 2007

¹¹⁷ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

¹¹⁸ Brad Kane, (2005), Postcard From GDC 2005. The International Game Designers Panel, <http://www.gamasutra.com/gdc2005/features/20050311/postcard-kane.htm> (as at 10/31/07)

Peter Molyneux's explains this impact in an illustrative way: if other games literally act as inspirational source it will not result in the greatest of ideas. This does however not imply that it is bad if games do influence designers. Watching closely at what other games have done right, what they have done wrong and how certain design problems are solved can be seen as a helpful learning process provided by other games' highlights and mistakes.

- ▶ 'I try not to get too much inspiration from other games because I think when you try to create something which is different then when you look at other games and say "OK, I'm gonna take that bit from that game and that bit from that game" that's wrong. I take inspiration from playing games and thinking: I really enjoyed that game and enjoyed that moment when this happened, so I rather capture the emotion from the game. So, I always try to encourage people. When you're sitting in a meeting, talking about an idea it's an enormous to say: "You know *Grand Theft Auto* did this, or *The Sims* did that - why don't we do that?" I always come back to saying: "You can take this little piece of idea if you like and try taking it out of that one game putting into our game but it's probably not the work." It's going to work because the *Grand Theft Auto* and *The Sims* are complete games. You can't take the interface from one and the freedom from another. You are taking little parts. It doesn't really add up to the greatest idea.', Peter Molyneux¹¹⁹

This learning process by the means of other games is also highlighted in two different ways by Neil Sorens who harks back on other games when stuck on a design problem. Though in most cases this does not inspire the high concept it shows again the impact that outstanding examples as well as bad examples can have on design:

- ▶ 'One is I'll be designing a game and I'll think about 'OK, I have some kind of design problem. How do I solve this design problem?'. And I'll look at some other games. How did they deal with that design problem? [...] And then I'm developing an approach that either mimics that game or improves on it - or does it similarly but in a different way. My three favorites of games for that purpose are *Diablo II*, *Magic the gathering* and *Deus Ex*. I think they are all extremely useful as design instruction tools and as examples of how to do things right. The other way is looking at games that did something wrong. Like 'I like playing *Everquest*, but you know, what's wrong with that? How can I improve on the *Everquest* formula to make a game that doesn't require so much time or that doesn't frustrate the player?'. It's sort of looking at what motivates the player, what frustrates the player, what makes the player turn the cancel off or what to come back to it. Looking at almost every game to do that and either changing them so that we don't frustrate the player or imitating them because the player liked those features.', Neil Sorens, Dancing Robot Studios¹²⁰

119 Peter C. Grell, (2005), Game-Face: Peter Molyneux Interview, http://www.game-face.de/article.php3?id_article=166, (as at 08/17/07)

120 Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

3.2.9. Inspiration: Systems

- ▶ ‘Most of my inspiration comes from - it’s hard to explain - it comes from seeing systems. I get inspired by watching how a person cuts in a line. Like how did that person get away with breaking that rule of there being a line. [...] There’s system there, right? You know we stand in lines for a reason and this person stepped in to that line where it wasn’t their place and that person didn’t do anything about it, you know. What permitted that rule to be broken and how does that work. I mean anything like that. I see it everywhere and I always think about is there a way to make, not necessarily a game out of that but is there a way to make something interesting and compelling out of that?’, Clint Hocking, Ubisoft ¹²¹

Examining real life systems which have not yet been processed for games resembles the approach keeping eyes open during daily life in order to adopt game design as a mindset. Whereas its characteristic is even more sophisticated as analyzing systems in general in order to convey a sense for complex structures precedences the solely generation of game ideas. Again various designer share this source of inspiration.

3.2.10. Inspiration: Conferences, lectures, talks, game theory

- ▶ ‘At the GDC, it happens all the time. I’ll be at a lecture and wonderful ideas will come up and sometimes I’ll write them down ...’, Noah Falstein ¹²²
- ▶ ‘A friend of mine and I started this studio ‘TorpeX Games’ and we’re working on a game called *Schizoid* that we just announced a couple of days ago. The idea for that one just sort of popped into my head while I was at a conference like this one. Then I just went home and tried it out. Basically. And again there was no ‘What kind of game should I make?’ It was more like ‘This would be a neat game!’, Jamie Fristrom, TorpeX Games ¹²³

Noah Falstein or Jamie Fristrom are of course not the only ones who have the habit of generating ideas when listening to other peoples talks or lectures. Lev Ledit, austrian game designer at Avaloop, also told me in an interview about a similar effect occurring during conferences. The interview was held in german, therefore a correct citation is not possible. Thus his quintessence was coming up with ideas for games during talks on game related topics is one reason why Lev esteems attending game conferences.¹²⁴ Jonas Heide Smith as well exposed this effect in his

¹²¹ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

¹²² Interview with Noah Falstein, San Francisco, March 7, 2007

¹²³ Interview with Jamie Fristrom, TorpeX Games, GDC 2007, San Francisco, March 10, 2007

¹²⁴ Interview with Lev Ledit, Avaloop, San Francisco, November 17, 2006

article on game theory.¹²⁵ He argues that game theory games themselves, and not just the concepts and tools of the discipline, may lend inspiration to designers attempting to create or inspire dramatically compelling situations. In examples he illustrates that game theory as a perspective (if not as a coherent theory) permeates some thinking on game design.

In order not to focus too extensively on inspiration the last three final examples were kept rather short. They should add merely to a concluding overview and shall allow to step further with an examination of tools and methods adaptable to the design of video games.

125 Jonas Heide Smith, (2006), The Games Economists Play - Implications of Economic Game Theory for the Study of Computer Games, in Game Studies - the international journal of computer game research, volume 6 issue 1, December 2006, ISSN:1604-7982, http://gamestudies.org/0601/articles/heide_smith (as at 01/04/08)

3.3. Constraints - hindrance or helpful for creativity?

- ▶ 'I think that constraint is your friend. You can make any game about anything, and that can sort of paralyze you. I think having a set of constraints to work with really helps you figure out what you want to accomplish... you can make case-by-case decisions'
Greg LoPiccolo, Harmonix ¹²⁶
- ▶ 'Constraints are often perceived as limits to the designer's imagination. They are that, but the ability to work within limits is what distinguishes a designer from someone who just has a vibrant imagination. Constraints are hard limits on what can be done, but in so doing they are also enablers.', Brenda Brathwaite, contract game designer, IGDA member and professor of game design at the Savannah College of Art and Design¹²⁷

In the gaming industry constraints appear to be on the agenda of a game designer. Programming limitations, hardware requirements, client demands, specifications from marketing, brand specifications, tight production schedules or budget constraints are only an extract of possible constraints imposed on game designers.

If the design process is regarded as a problem solving process constraints are defined as parts of the problem definition which are given to the designer in advance. By putting on restrictions over available options constraints can make a design task harder.¹²⁹ The problem solving theory has been criticized repeatedly and it is further arguable whether game design can actually be counted as a merely problem solving task. Nonetheless it is obvious that given constraints such as time, budget or technical possibilities as well as con-

'It makes the process shorter because when you're brainstorming you can go in a hundred different directions. And one hundred different directions is pretty time consuming. And so having an idea narrowed down makes the process a lot faster but same time it limits the quality of your work. They may ask for things that make the design worse but that are necessary to make the IP-holder or the publisher happy.', Neil Sorens, Dancing Robots Studio ¹²⁸

¹²⁶ Christian Nutt, Leigh Alexander, (2008), DICE: Mass Effect, Bioshock, Rock Band Devs On Developing Narrative, http://www.gamasutra.com/php-bin/news_index.php?story=17315 (as at 03/24/08)

¹²⁷ Brenda Brathwaite (2008), TED Talks: Dan Gilbert - Why are we happy?, <http://bbrathwaite.wordpress.com/2008/02/04/ted-talks-dan-gilbert-why-are-we-happy/> (as at 04/30/2008)

¹²⁸ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

¹²⁹ Henrik Gedenryd (1998), How designers work, p. 71, <http://www.lucs.lu.se/Henrik.Gedenryd/HowDesignersWork, ch3.pdf> (as at 04/25/08)

straints imposed by clients, publishers or marketing and sales departments pose indeed limitations, difficulties or even challenges to a design and its accomplishable implementation. If illuminated from merely this angle constraints are predominantly impeding non-optional restrictions decreasing the range of possible design solutions. However constraints are not per se a hindrance. On the contrary: they are a vital part of the creative process.

A blue sky design process that allows every opportunity seems indeed highly desirable. Even though the possibility of unconstrained design is seductive the statements of a multitude of game designers show that freestyle design is not mandatorily the better alternative. The freedom to choose within an almost unlimited amount of possibilities offers in fact a wide potential but does not imply that it eases the process. On the contrary a small amount of constraints helps to focus and allows to bundle and challenge creativity. Therefore a healthy balance between freedom and constraints is considered as the best solution.

'It's actually - it's much easier to deliver something that has a very solid framework. It doesn't necessarily make for the best products. Because I think ownership over the title - for a creative team ownership is a quality factor. And more each individual team member is investing creatively the better the product will be.'

Matt Sughrue, Creat Studios ¹³⁰

Within a project not all kind of constraints must be given in advance and not all of them are completely rigid. For example constraints formulated by clients can thoroughly leave a small amount of scope as well as compromises if reasonable. More flexible and even more helpful are constraints which are imposed by the designer himself /herself. In this case constraints are not only imposed to reduce the number of possible solutions but also to help generating new and more focused concepts. Constraints in this context are adopted for creating conditions which can eventually spur creativity. In this terms defining, adding and changing goals and constraints in the course of the design process is hence also considered as the core of creative thinking.¹³¹

The concept of self imposed constraints and its accompanying exploration of particular themes is one of the fundamentals of the subsequently introduced 'experimental gameplay project'¹³² by Gabler et. al.. It also resembles to a certain extent Pugh's concept of a converging design process that alternates between creation and reduction (introduced in chapter 2.4. *The design process*).

¹³⁰ Interview with Matt Sughrue, Creat Studios, San Francisco, March 6, 2007

¹³¹ Boden, M.A. *The Creative Mind: Myths and Mechanisms*. Weidenfeld and Nicolson, London, 1997, in: Ernest Edmonds, Linda Candy (2002), *Creativity, art practice, and knowledge*, Communications of the ACM archive, Volume 45, Issue 10 (October 2002), Special Issue: Creativity and interface, Pages: 91 - 95

¹³² <http://www.experimentalgameplay.com/>

Gabler et. al.'s conclusions on how to prototype a game in under 7 days illustrate the incident of constraining creativity imposing advantages.¹³³ Within one semester four students created over 50 game prototypes exploring themes as amongst others 'gravity', 'springs', 'evolution', 'sound', 'vegetation' or 'balance'. Within this period they observed not only that they were more creative if restrictions have been established but moreover that under these circumstances they were intensely challenged to explore a theme more thoroughly and more in-depth in order to avoid prevalent concepts and gameplay mechanics. This pursuit for creating unconventional ideas has been further encouraged by the fact that other teams created prototypes on the same themes simultaneously whereupon similarities to the other game were aimed to be avoided. Towards the end of the project they moved away from the concept of thematic constraints which caused that the games took longer to create and had less direction. Moreover they lost 'the sense of friendly competition that was responsible for squeezing out those extra drops of creativity and finesse'.

The 'experimental gameplay project' shows the previously introduced notion that constraints are a vital part of the creative process. They can force you to think about something in a new way¹³⁴ ending up discovering ideas or things you might have not come across before.¹³⁵



Figure 3.9. Lego - a familiar constraint.¹³⁶ Building models solely with Lego blocks is a common and familiar constraint which also illustrates well the advantages and challenges of restrictions. Building with Lego is easy and fast. Anyway building for instance a good-looking and extraordinary spaceship that differs from other common Lego spaceships is a challenging task affording a fair amount of creativity.

133 Kyle Gabler, Kyle Gray, Matt Kucic, and Shalin Shodhan, 2005, How to Prototype a Game in Under 7 Days, Creativity and the Myth of Brainstorming, http://www.gamasutra.com/features/20051026/gabler_pfv.htm (as at 08/17/07)

134 Interview with Ernest Adams, GDC 2007, San Francisco, March 8, 2007

135 Interview with Jamie Frstrom, Torpex Games, GDC 2007, San Francisco, March 10, 2007

136 Figure 3.9.: A spaceship made of Lego by jehkay, <http://www.flickr.com/photos/68884401@N00/437755843/in/set-72157594344642010/> (as at 04/30/2008)

4. Tools, Methods & Techniques

- ▶ ‘Methods are tools used to extract, identify, refine, and organize knowledge. They should encourage introspection and observation, and turn reactive choice into conscious, proactive planning decisions.’, Bernd Kreimeier¹³⁷

The following chapter concentrates on tools, methods and techniques which can be of particular use during a game’s design process. As examined earlier (chapter 3.1. *Starting from scratch*) some designers tend or prefer to create high concepts by themselves, solely based on pure thought and personal inspirations. Just the same it is indeed common that game developers utilize (collaborative) methods or crafting tools during the course of the design process. These and more methods are examined in more detail in the following part including coverage of their characteristics, application areas as well as on their pros and cons. Some of the examined methods, as for instance brainstorming or rapid prototyping, are already well known. Other less popular methods do however have feasible potential.

Not all of the examined methods will fit for all games and for all stages as some tend to be of use for early concept stages, others are of help when it is already necessary to flesh out the concept or even when the process is so far advanced that it is affordable to cover map or level design issues. The process of conceiving ideas is for instance mostly adopted in the previously mentioned early design stages: the ‘blue sky’ and concept stage as well as at the elaboration stage. These stages can not only be distinguished by the progress of a game’s design but often also by its goals and therefore its applicable and favored design methods. Methods which can be very helpful in one stage therefore do not have to be equally useful in another design stage. This also applies to different games. Methods helpful for the design of a certain game or genre do not have to be equally useful for other games or genres. However a lot of them are though not particularly constrained and can be of use for diverse purposes.

‘Abstract tools are not bricks to build a game out of. You don’t build a house out of tools; you build it with tools. Games are the same way. [...] As a designer, you still have to figure out what is fun, what your game is about, and what vision and goals you bring to it..’, Doug Church ¹³⁹

¹³⁷ Bernd Kreimeier (2003), Game Design Methods: A 2003 Survey, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

Similarly as the varying practicability for different stages of design, different methods and techniques hold also different impacts on the design process. It stands to reason that not all creativity techniques and design methods solely aim to support and inspire the generation of ideas. On the contrary some tend to rather guide and form an ideating process instead of offering solutions for ‘creativity on demand’. Methods and techniques that directly aim to generate ideas within an applied session (as for instance brainstorming does) tend to have a respectable impact on their immediate results. Thus two further but less apparent impact functions of technique sessions can be evaluated: their triggering factors as well as their educative aspects. This means that besides the generation of immediate results a rather sustained and oftentimes delayed impact arises. Tools, methods and techniques (as for instance sketching, the utilization of mood boards or sketch-books but even brainstorming) may in this terms work as a trigger or may stimulate natural idea generation processes. The educative aspect applies mainly to methods and techniques which put their focus on training the participators on creative thinking skills.¹³⁸

Which methods or tools are exercised is hence dependent on different factors as for example the characteristics of the game, the team size as well as the designer’s and team’s preferences and work-styles. Before examining the various design methods in more detail I would like to foreclose out a short list of demands of game design methods devised by Doug Church¹³⁹ and Bernd Kreimeier.

Game design methods should:¹⁴⁰

- ▶ **Relate to game design.**

The method has to be applicable to the actual interaction structure and mechanics of a game, not to concerns related to marketing, production, or management. This restriction is debatable (as it is easily violated). [...]

- ▶ **Have utility - it should be a ‘tool’.**

A method has to be more than just a list of concrete examples or a definition of a building block. A method involves a procedure, a step-by-step recipe, at least parts of which can be

¹³⁸ Annakaisa Kultima (2007), Game Specificity,
<http://gameslices.wordpress.com/2007/09/13/game-specificity/> (as at 05/02/2008)

¹³⁹ Doug Church (1999), Formal Abstract Design Tools,
http://www.gamasutra.com/view/feature/3357/formal_abstract_design_tools.php, (as at 03/20/08)

¹⁴⁰ Bernd Kreimeier (2003), Game Design Methods: A 2003 Survey,
http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

applied by simple, even automatic repetition. In particular, it should address specific and concrete issues occurring during the design stage of game development.

► **Be abstract.**

A method has to apply to a large, presumably infinite number of game situations or instances. The actual level of abstraction can vary (e.g., genre-specific, or applicable to any interactive medium, etc.) but it has to be at least one step removed from the concrete instance (game or game element).

► **Be formalized.**

A method needs some degree of formal structure, some amount of specific organization. Typically this consists of a template structure used repeatedly to contain information. [...]

For a better overview the examined tools and methods are structured into categories. The classification is based on the fundamental activities of the tools and methods.

4.1. Knowledge-based design methods

Naturally all forms of design methods are based on and call for fundamental knowledge about games and game design. All the same I will assign certain methods or tools to this special category since they are more directly based on the involvement of game theory. Put into words in a very simplified way knowledge-based methods are based on extrapolating facts, suggestions, rules or recipes from game theory as well as from 'good' and 'successful' games. These methods must not be seen in particular as discrete design methods but as tools or sets which can be recurrently drawn on during various other methods and during various stages. This meshing of tools and methods which draws through the entire design process bases again on the previously mentioned note on the utilization of tools stressing that designers do not build games out of tools but with the help of tools.

The following tools and methods may not be directly applicable to support ideation during initial design of ideas or high concepts. However they are highly helpful for evaluation of ideas within various design stages since their main focus is to improve usability as well as accessibility of games. In this context they can be utilized for consultancy or as non-binding checklists for the improvement of designs.

4.1.1. Formal abstract design tools

- ▶ **"formal,"** implying precise definition and the ability to explain it to someone else;
"abstract," to emphasize the focus on underlying ideas, not specific genre constructs;
"design," as in, well, we're designers;
and **"tools,"** since they'll form the common vocabulary [...]

Doug Church¹⁴¹

'Formal abstract design tools' is an approach proposed by Doug Church in 1999 which calls for the creation of a design vocabulary underlying the game design practice and for identification and description of elements working well in games. From concrete examples of real game elements a few key aspects are to be abstracted and formalized in order to generate tools which can then be applied to other genres and titles.

¹⁴¹ Doug Church (1999), Formal Abstract Design Tools,
http://www.gamasutra.com/view/feature/3357/formal_abstract_design_tools.php, (as at 03/20/08)

The call for a formal and abstract vocabulary is drawn back on the obvious insight that words as ‘cool’ or ‘fun’ can be interpreted very differently, whereas terms like ‘player reward’ are on the contrary well defined and explainable. Translating a term like ‘+2 Giant Slaying Sword’ into ‘a mechanic for delivering more powerful equipment to the player’ is another similar, explainable and thus working example.

Out of the analysis of several games Church presents three examples of formal abstract design tools:¹⁴²

- ▶ **Intention:** Making an implementable plan of one's own creation in response to the current situation in the game world and one's understanding of the game play options.
- ▶ **Perceived Consequence:** A clear reaction from the game world to the action of the player.
- ▶ **Story:** The narrative thread, whether designer-driven or player-driven, that binds events together and drives the player forward towards completion of the game.

Church does not attempt to analyze a huge number of tools or games in detail but gives with these three examples, extracted from a handful of games, an overview on the idea of ‘formal abstract design tools’ and on how to extract, abstract and formalize elements of existing games. Church has been criticized for not clearly separating the idea of vocabulary from that of methods and for restraining himself to definitions instead of providing recipes.¹⁴³

Thus the approach has been enhanced in a similar style by the ‘Game Design Lexicon’ providing phrases such as challenge reward pair, globally consistent response, ownership, power-up, rule of logic, etc. Definitions can however only be regarded as instruments or tools in an abstract sense as they are not concrete enough in order to be applicable in a way like recipes, procedures or instructions.¹⁴⁴ The approach of providing game designers with applicable rules has been taken on and further improved by the instigators of the ‘400 Project’.



Figure 4.1. *Super Mario 64*¹⁴³ by Nintendo is one of the games examined. The game offers many ways which encourage the player to form own goals on which act on. Players know what to expect from the game world and thus feel to be in control of a situation. The process of accumulating goals, understanding the world, making plans and acting on them gets players invested and involved. The formal abstract design tool ‘intention’ on the left is for instance derived from these elements. If player actions in *Super Mario 64* fail the game offers possibilities to realize what or why it went wrong. These features are covered within the term ‘perceived consequence’.¹⁴²

¹⁴² Doug Church (1999), Formal Abstract Design Tools, http://www.gamasutra.com/view/feature/3357/formal_abstract_design_tools.php (as at 03/20/08)

¹⁴³ Figure 4.1.: Screenshot of *Super Mario 64*, <http://www.mobymgames.com/game/n64/super-mario-64/screenshots> (as at 03/20/08)

¹⁴⁴ Bernd Kreimeier (2003), Game Design Methods: A 2003 Survey, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

4.1.2. The 400 Project

The '400 project' is a project which aims to gather four-hundred rules which can be consulted by designers to make better games. The project grew out of an idea during a lecture at 2001 Game Developers Conference by Hal Barwood, Project Leader at LucasArts Entertainment, and contained initially merely four rules. Noah Falstein then proposed the concept of a formal project to collect the rules and write them up. The project has since then progressed steadily. By now a set of about one-hundred rules has been generated.

The difference between rules and game theory or 'formal abstract design tools' is that 'rules are tools that provide instructions to the designer, not just observations on the nature of what has been done previously. To be most useful, they must be reasonably concrete and aimed at practical use, not pure academic discourse.'¹⁴⁵

As rules are instructions and recommendations they do not have to be followed to the letter and can therefore as well be broken or ignored. This is especially important as many designers prefer not to work within rigid codes. Moreover it is important to note that the rules apply within certain contexts¹⁴⁶ - strictly following the rules may hence in some cases not even be advisable. Of course the proposed rules should not limit or constrain a designers work. In fact according to Hal Barwood rules 'allow designers to assess the elements that bound them, figuring out reusable strategies for making those limitations work in favor of their design, not against it.' Moreover he mentions four benefits for using rules: 'First, rules guide designers through vast choices they must make. Second, rules help designers avoid trouble. Third, they encourage designers to enlist the wisdom of others, and finally, rules force designers to conceptualize problems that cannot be easily articulated.'¹⁴⁷

'The idea behind breaking rules is to remember that rules are not strict maxims to begin with. Rather, they are guidelines that can inform a game designer's progress, but don't have to.', Noah Falstein ¹⁴⁷

The following list contains an excerpt of rules from the 400 Project. The complete list is available at www.theinspiracy.com.

¹⁴⁵ Noah Falstein (2002), Better By Design: Game Design at GDC 2002, Game Developer magazine, Vol. 9, Issue 6, June 2002, p. 30.

in: Bernd Kreimeier (2003), Game Design Methods: A 2003 Survey, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

¹⁴⁶ Bernd Kreimeier (2003), Game Design Methods: A 2003 Survey, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

¹⁴⁷ Jill Duffy (2006), GDC: Rules Worth Breaking, http://www.gamasutra.com/view/feature/2625/gdc_rules_worth_breaking.php (as at 03/20/08)

4.1.2.1. Excerpt of rules from the 400 project (15 of 112 rules):¹⁴⁸

► **Fight Player Fatigue**

Games are a challenge, and playing takes effort — actively work to keep the player involved, and make sure the appeal of your game always exceeds its difficulty. (The Flow idea, where the designer neatly guides players between boredom & frustration, is a subset of this rule.)
Hal Barwood

► **Maximize Expressive Potential**

Get the most out of your (always limited) material -- either find ways to exploit an element of your game, or cut it out. Hal Barwood

► **Maintain Level of Abstraction**

Immersion is easily disturbed -- don't make the player re-calibrate his "suspension of disbelief" and lose touch with your game. Hal Barwood

► **Concretize Ideas**

All your game ideas must find a concrete expression in playable elements. Hal Barwood

► **Make Subgames**

Players want to participate in the course they take through your game -- so give them plenty of opportunities to voluntarily take up ancillary challenges. Hal Barwood

► **Provide Clear Short-Term Goals**

Always make it clear to the player what their short-term objectives are. This can be done explicitly by telling them directly, or implicitly by leading them towards those goals through environmental cues. This avoids the frustration of uncertainty and gives players confidence that they are making forward progress. Noah Falstein, others

► **Let the Player Turn the Game Off**

A player should be able to save and exit the game at any point, losing at most a few seconds of progress as a result. Our objective as designers is to entertain, not punish – and many games force players to play for extra minutes, even hours, until they can reach a “save game point”, forcing them to recapitulate those minutes if they quit prematurely, in frustrating repetition of now-familiar events. It's a commercially important rule, akin to the old adage, “the customer is always right”. Players have been known to give up on games that did not follow this rule, and even return them. Noah Falstein, Dale Geist

► **Identify Constraints**

The first step in any design should be to identify the critical constraints on that design – what must be done, what should be done, and what cannot be done. Specific areas of constraints can include creative constraints (required game genre or sequel to existing game, the designer's previous experience), technical (the need to use a specific engine or work within the capabilities of a specific programming team), business/sales/marketing (budget, hard delivery date, license), and personalities (boss's preferences, lead artist's love of anime, producer's fixation on Monty Python, etc.) Often, the biggest constraint is budget – all games have to justify how much can be spent on them, and usually the vision exceeds the funds. Noah Falstein

¹⁴⁸ Hal Barwood, Noah Falstein (2006), The 400 Project Rule List,
<http://www.theinspiracy.com/Current%20Rules%20Master%20List.htm> (as at 03/20/08)

► Detailed Design Docs for Novice Teams

Design documents should be detailed in inverse proportion to the skill of the team and their familiarity with the genre. Noah Falstein

► Maintain Suspension of Disbelief

In any game which uses or relies on narrative content, the player should be encouraged to suspend their disbelief and become imaginatively involved in the work. Once so engaged, the player should be protected from other elements which might shatter their imaginative experience. Mark Barrett, others

► Emphasize Exploration and Discovery

Players like to figure out the territory of your game — it's a basic human impulse to investigate the unknown — so let 'em do it. Noah Falstein

► Provide Parallel Challenges with Mutual Assistance

When presenting the player with a challenge – a monster to kill, a puzzle to solve, a city to capture – provide several such challenges and set it up so accomplishing one challenge makes it a little easier to accomplish the others (that's the mutual assistance component). It is also effective to set up these parallel challenges on many levels of scale of the game, from the ultimate goal down to the small short-term steps. This eliminates bottlenecks and makes the game accessible to a wider range of players. Ideally the different challenges use different domains of player skills, e.g. strategy and action. Noah Falstein

► Turn Constants into Variables

Create variety without overburdening the game system by identifying constant values or other system elements and turning them into variables. For example, taking a constant rate of damage and making objects or spells that change it, or taking a constant rate of fire and creating weapons that fire more or less rapidly. Jurie Horneman

► Differentiate Interactivity from Non-Interactivity

Always make it clear to the player when they are expected to shift from interactive to passive (e.g. cut scenes) and back. Switching to wide-screen mode is often used for passive scenes. But it is best to use multiple sensory cues, e.g. shape, color, and sound so the player is never left in doubt.

► Localize Narrative with a Two Step Process

While the goal may be to find one individual who can localize text and other story elements, it should be remembered that this individual will still be doing two tasks. The first task is the translation of the current elements into the language of the country into which the product is being localized. The second task is infusing the result with the mood and drama of the original, which has almost certainly been lost in translation. Mark Barrett

The complete list is available at www.theinspiracy.com.

4.1.3. Patterns in game design

The idea for the model of game design patterns pick up on the pattern formalism of Christopher Alexander: The method has been initially developed in the 1960s for architectural purposes and has since then been adopted by various other disciplines including software and interaction design. Alexandrian patterns are collections or templates that summarize recurring problems and describe possible and reusable solutions. According to Alexander they are ‘nothing more than a precise way of describing someone’s experience’.¹⁴⁹ The model consists of a structural framework that aims to support the design, analysis and comparison of games. Design patterns address a problem-oriented approach to design. Please note that design and creative activities can and should not be reduced or simplified to solely a problem solving activity. Art and design competences are inevitable qualifications which can be supported with this framework.¹⁵⁰

‘Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of a solution to that problem, in such a way that can you can use this solution a million times over, without ever doing it the same way twice.’, Christopher Alexander ¹⁵⁰

Similar as the ‘formal abstract design tools’ and the semi-formal ‘400 Project’ the framework bases on templates. The following example of a pattern template shows the four essential elements. Examples of worked out patterns can be found in Bernd Kreimeiers article ‘The Case For Game Design Patterns’ on gamasutra.com.¹⁵¹

¹⁴⁹ Victor Lombardi, 2000, Pattern Languages For Interaction Design, http://www.noisebetweenstations.com/personal/essays/intro_to_pattern_languages.pdf (as at (03/22/08))

¹⁵⁰ Björk, S., Lundgren, S. & Holopainen, J., 2003, Game Design Patterns. In Copier, M. & Raessens, J. (Eds.), 2003, Level Up - Proceedings of Digital Games Research Conference 2003, Utrecht, The Netherlands, November 2003, <http://www.tii.se/play/publications/2003/gamedesignpatterns.pdf> (as at 03/23/08)

4.1.3.1. A pattern template ¹⁵¹

► **Name.**

‘Naming a pattern immediately increases our design vocabulary. It lets us design at a higher level of abstraction’. Names have to be mnemonic and evocative, but the connotations also pose problems. ‘Also Known As’, frequently part of pattern templates, is actually an indication of a naming problem: ‘Finding good names has been one of the hardest parts of developing our catalog’ ¹⁵²

► **Problem.**

This describes the problem, including its inherent trade-offs and the context in which the problem occurs. The description of the problem implies a goal that we want to accomplish, and the obstacles we encounter when we attempt to do so.

► **Solution.**

A description of a general arrangement of entities and mechanisms that can be used to solve the problem. This is not a particular design or concrete implementation, but an abstract structure that describes an entire family of solutions that are essentially the same.

► **Consequences.**

Each solution has its own trade offs and consequences. Solutions can, in turn, cause or amplify other problems. The costs and benefits of a solution should be understood and compared against those of alternatives before making a design decision. Around this essential core, pattern templates often add other elements, or subdivide a core element.

Like the ‘400 Project’ the idea of patterns in game design has nowadays outgrown its conceptual approach. Extensive collections of worked out game design patterns harvested through analyzation of existing games have been released.¹⁵³ Like the Alexandrian patterns game design patterns can therefore by now also be addressed as a work of reference for problem solving. Thus patterns aim not to be reduced to merely help problem solving or reducing unwanted effects from a design. They also aim to act as a tool to support creative design work whereas not all identified patterns are based on problems.¹⁵⁴

¹⁵¹ Bernd Kreimeier, 2002, The Case For Game Design Patterns, http://www.gamasutra.com/features/20020313/kreimeier_01.htm (as at 03/22/08)

¹⁵² Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, 1994, Design Patterns: Elements of Reusable Object-Oriented Software, Addison Wesley Longman, ISBN 0-201-63361-2

¹⁵³ For example: Staffan Bjork, Jussi Holopainen, 2004, Patterns in Game Design, Charles River Media Game Development, ISBN-13: 978-1584503545

¹⁵⁴ Björk, S., Lundgren, S. & Holopainen, J., 2003, Game Design Patterns. In Copier, M. & Raessens, J. (Eds.), 2003, Level Up - Proceedings of Digital Games Research Conference 2003, Utrecht, The Netherlands, November 2003, <http://www.tii.se/play/publications/2003/gamedesignpatterns.pdf> (as at 03/23/08)

As game design patterns do not aim to provide merely consultancy in problematic situations the framework further offers a possibility to communicate efficiently, document insights, organize individual experience as written knowledge and analyze one's own design as well as the designs of others. Hence patterns like the 'formal abstract design tools' call for a shared design vocabulary.¹⁵⁵ On the other hand patterns can be utilized during phases of idea generation and concept development in structured as well as unstructured ways. For idea generation Holopainen and Bjork for instance suggest to choose already worked out sets of patterns randomly and to try to imagine a game based on this set. If certain patterns or gameplay elements relating to existing patterns are already part of a concept or should be part of a design a more feasible and structured approach is possible. In these cases patterns encourage ideating different implementations from the studied examples. During concept development game design patterns can be utilized as a framework for structuring the concept.

Critical voices annotate that if collections of game design patterns are used to support the design process, the danger of stereotyping increases. Designers may render to 'pattern cranking machines' and creativity is disregarded. If anything if all games follow similar patterns nothing new or outstanding can be created. This can of course happen if patterns are merely integrated or copied in a thoughtless way. Hence the model bases on a different keynote: 'The artist has much better chances to create something novel when familiar, though not necessarily consciously, of the basic elements of her craft, be it painting, composing or scriptwriting.'¹⁵⁶

Curiously alexandrian patterns have influenced and inspired Will Wright for his game *The Sims*¹⁵⁷ - though in this case the patterns influenced rather the game concept itself than they were assigned as design method. Likewise within the context of level design the architectural approach to alexandrian patterns is thoroughly significant for games.

¹⁵⁵ Bernd Kreimeier, 2002, The Case For Game Design Patterns, http://www.gamasutra.com/features/20020313/kreimeier_01.htm (as at 03/22/08)

¹⁵⁶ Björk, S., Lundgren, S. & Holopainen, J., 2003, Game Design Patterns. In Copier, M. & Raessens, J. (Eds.), 2003, Level Up - Proceedings of Digital Games Research Conference 2003, Utrecht, The Netherlands, November 2003, <http://www.tii.se/play/publications/2003/gamedesignpatterns.pdf> (as at 03/23/08)

¹⁵⁷ Bernd Kreimeier, 2002, The Case For Game Design Patterns, http://www.gamasutra.com/features/20020313/kreimeier_01.htm (as at 03/22/08)

4.2. Collaborative design methods

- ▶ 'A lot of my early training really was at Lucas Arts and we were very collaborative there. A lot of the games were done by two or three different designers working together. And that's a process I just love. There's a camaraderie and excitement that you get when you can bounce ideas off with another person.', Noah Falstein¹⁵⁸
- ▶ 'The initial stages of the design lately have mostly just been game designers but I actually don't like that. I prefer to have some of the artists and at least one programmer around. They have a different perspective on the things - and that's good.', Dave Grossman, Telltale Games¹⁵⁹

Collaborative design methods base on the presetting that more than one designer or team member participates on the design of a game. Sometimes it does even imply that several team members have a right of co-determination on different design issues. Though the use of popular and wide spread collaborative design methods, as for instance brainstorming, is controversial - especially when considering it as basis for idea generation in terms of 'blue sky' and concept stages where high concept ideas are to be conceived. Areas of concern have formed on this topic and heavy statements like 'Formal brainstorming has a 0% success rate'¹⁶⁰ have emerged. But for all I would like to foreclose that beside their difficulties collaborative techniques do of course possess not only disadvantages whereas many designers and game studios use popular collaborative methods even in early stages frequently. Even if the participation of a numerous team members on idea generation and decision making it is not necessarily an advantage for the design itself - the elementary chance to participate and contribute on essential topics can be a motivating factor for team members in other areas who usually work on different development aspects (programmers, etc.). This can lead to the positive side effects like people being more enthusiastic and therefore considering more about the quality of their work.

¹⁵⁸ Interview with Noah Falstein, San Francisco, March 7, 2007

¹⁵⁹ Interview with Dave Grossman, Telltale Games, San Francisco, March 7, 2007

¹⁶⁰ Kyle Gabler, Kyle Gray, Matt Kucic, and Shalin Shodhan, 2005, How to Prototype a Game in Under 7 Days, Creativity and the Myth of Brainstorming, http://www.gamasutra.com/features/20051026/gabler_pfv.htm (as at 08/17/07)

But designing collaboratively does not only have advantages but as well various tradeoffs. Collaboration is for example oftentimes only reasonable applicable if the team size is rather small and manageable. Furthermore the approach requires a strong team leader authorized for decision making as Neil Sorens illustrates with his statement on collaboration to the right.

The success and practicability of a method depends on which stages it is applied. It is indeed different whether a method is applied at a Blue Sky phase or not until the project has reached a stage that requires for instance to pick an idea out of a bunch of ideas, when it is essential to flesh out concepts, or even when it is necessary to work out more details. This means in short: when there is already something concrete to talk about. In relation with coming up with visions, initial game ideas or high concepts the predominant notion is that the generation of game ideas based on inspirations is more powerful than generating ideas around a table placed in an office - like the way brainstorming and its spinoffs are mostly performed. Naturally the pros and cons differ from method to method. It is not possible and not reasonable to lump together all of the collaborative methods in order to judge them at a glance.

In regard to the amount of replies and confirmations I got on the utilization of brainstorming when asking 'How to start when planning to make a new game?' the first part of the chapter deals first and foremost with this, in the overall corporate field most established, collaborative method and its spinoffs. It is the counterpart of the generation of game ideas based on inspirational approaches, as been covered in the previous chapter.

'When you have someone to bounce ideas of - that's really good. [...] The method that had the least success for me is gathering a group of maybe 10 people and then trying to design a game. We'd sit in meetings and they don't come with your ideas and everyone would have different ideas what they want the game to be. And so you come up with this feature and it wouldn't fit with three or four other people's vision of the game and so there would be this kind of grid lock. It's the same with like too many chiefs are not enough Indians or too many cooks spoil the brawl. In my experience there has to be just one person or two people who have the vision and dictate that for the rest of the team and try to get the rest of the team to accept that vision - instead of a bunch of people all with equal saying at design.', Neil Sorens, Dancing Robot Studios ¹⁶¹

¹⁶¹ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

4.2.1. Brainstorming

- ▶ 'As a designer I really have learned to train myself just to be creative and come up with lots of new ideas. So what I really love to do is brainstorm with other people. It's harder to work on your own.', Noah Falstein¹⁶²

Brainstorming is a group creativity technique especially adopted in the corporate field. It focuses on generating a large number of ideas or finding solutions to given problems. As mentioned in the introduction of this chapter brainstorming is, in regard to its applicability for game design and especially in regard to generation of high concept ideas, a controversial technique which is nevertheless widely used. Most of the designers I had the chance to talk to addressed brainstorming as a commonly used design method.

Brainstorming is a group process for generating ideas for a given topic. The focus of classic or formal brainstorming lies on generating as many ideas as possible which implies that the quantity of ideas is more important than their quality presumed by the notion that the more ideas come up the amount of high quality ideas will increase simultaneously. Formal brainstorming suggests to abstain from criticism in order to permit a democratic participation. This shall also prevent creative blocking as well as a blocking of certain directions. Critique itself is not unwanted but is not applied until subsequent phase where the generated ideas have to be structured and separated. In order to keep hold of the generated ideas it is recommended that a group member or even a sort of anchorman takes notes of the ideas on paper or better on a device visible to all participants as for instance a chalkboard or flip chart. In order to foster the spur of creativity it is suggested to provide a comfortable atmosphere which means for example to allow some extra time for introductory chatting or joking for warm-up or to set the meeting in a likable and comfortable environment.

'I'm the creative director, so it's kind of my job to organize and execute all of the brainstorms. So it is trying to get this small group of seven or eight people to brainstorm and get them to come up with ideas. [...] So what we would do in the beginning is we would brainstorm for a whole day. And then the next day they would all go away and work on all the stuff, you know gathering reference material and so on. And I would sort of write up reports of the brainstorms and record all the information that we had. I kind of call out and highlight specific stuff that seem to be interesting. And the day after that we brainstorm again on the different topics and different things. And then the next day I would record it all and they would go and gather reference stuff and we just repeated that for ... oh god, for at least a month we would be doing that. It's kind of harvesting all the stuff that we thought was interesting and figuring out what we wanted to do before things start to actually take any kind of shape.', Clint Hocking, Ubisoft¹⁶³

¹⁶² Interview with Noah Falstein, GDC 2007, March 7, 2007

¹⁶³ Interview with Clint Hocking, Ubisoft, San Francisco, March 8, 2007

The way how ideas are generated and presented to the overall group can vary. One very democratic and controlled mode suggests every team member to brainstorm silently at the beginning of the session. Ideas are written down on paper and are presented to the group afterwards. When additional ideas come up during the presentation phase they are appended. Less restricted brainstorming sessions allow the group members to present ideas they have come up immediately. This form demands some discipline and is not perfectly suitable if group members are introverted or if the job-related positions diverge strongly.

Critique emerged based on the notion that brainstorming in regard to game design has rather the function of gathering and rearranging existing ideas than it can help to come up with fresh, groundbreaking and innovative ideas.

‘Game ideas come from almost anywhere, but they don’t walk up and introduce themselves. You can’t sit around and wait for inspiration to strike.’, Ernest Adams, Andrew Rollings, game designer ¹⁶⁴

Especially in regard to idea generation for high concepts for games a gathering around a round table does not imply that feasible ideas will automatically start to come up. Brainstorming bases on the seducing assumption that creativity can be scheduled. This is to a certain extent misleading. Of course there exist designers who are trained to come up with new ideas instantly. Nonetheless many people find it hard to be creative on-demand. By contrast most people come up with new ideas, creative thoughts and novel ways of looking at things on time and again. Instead of arranging scheduled brainstorming sessions it is therefore rather helpful to regard ones surroundings mindful and with open eyes, to actively undertake alternative activities (reading, sports, going outdoors, going to a museum, etc.) and to observe places, objects or events in a different perspective. Performing such kind of actions as well as providing environments that enable people to express creativity not only within scheduled meetings can rather help to generate out of the box (or better out of the office) ideas than brainstorming sessions can. Recurring questioning like ‘How can one create a game out of this situation?’ replaces hence a scheduled ‘Let’s come up with ideas for a new game!’.

Other drawbacks can be amongst others originated by poor facilitation and bad management of the brainstorming session. Although formal brainstorming intends to hold back critique it is often handled different than intended. Criticizing and squelching ideas discourages and hinders to come up with different or extraordinary ideas. This may be also the case if dominating personalities participate who push other team member’s ideas aside.

¹⁶⁴ Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.75

Aside from critique that is based on the fact that an office room or a similar enforced surrounding might not be the ultimate breeding ground for creativity, the earlier raised aspect of gathering ideas or suggestions from colleagues who would otherwise not have presented or involved their ideas shall not to be underestimated. The reasons for not presenting ideas on time they have come up are mostly not because of withdrawn personalities but because of circumstances as missing adequate occasions to summon and present them. For instance ideas are often left aside or are kept reserved if they come up during development of another game. Reasons are tight timetables and the fact that no resources for a new game are available at that moment anyway. Brainstorming sessions can help to recollect already existing ideas, can involve ideas from colleagues of other domains and provide room for presentation, evaluation and elaboration of ideas.

This approach of utilizing brainstorming mainly as a method for presenting and collecting already existing ideas which have not yet been collected, deepened or written down was for example utilized at the kick-off brainstorming sessions for the game *Spider-Man 2* as Jamie Fristrom, game designer, told me at the Game Developers Conference 07. The team harked back to ideas that came up when working on the predecessors of the game, collected them and filtered them out.¹⁶⁵

'At *Spider-Man 2* we also did more formal brainstorming stuff. But brainstorming wasn't so much for idea generation as it was for idea collection. [...] Most people on the team that worked on *Spider-Man 1* had lots of ideas. [...] *Spider-Man 3* was a sort of a similar thing.', Jamie Fristrom, game designer ¹⁶⁵

This effect of ideas emerging while being concerned deeply with a certain topic or action have also been raised by Will Wright and Clint Hocking in earlier parts of this thesis (see also citations in the chapters 3.2.1. *Inspiration: Research*, Will Wright, 3.1. *Starting from scratch*). As this approach merely reuses the the brainstorming setting to recollect already existing ideas I will not move further away from the original topic but focus back on formal brainstorming.

¹⁶⁵ Interview with Jamie Fristrom, Torpex Games, San Francisco, March 10, 2007

The significant characteristic and advantage of brainstorming is its collaborative character. It is not essential whether the ideas raised or discussed have been primarily initiated by this technique, or if upcoming ideas or concepts of a brainstorming session are exactly brilliant or get fully worked out in terms of a complete high concept. They can imply various impacts on the collaborating team members. One potential is the chance of invoking further ideas or associations. Ideas often tend to spark off from associations with other people's ideas. Collaborative sessions are getting people to think about a topic.

'I'm not a big fan of formal brainstorming. It seems that usually nothing terribly good comes out of it. In my experience there are just some people who are very good at generating ideas and the initial idea very often is just something that they generated on their own. When they come and bring that idea to the larger group lots of people can contribute and that can work pretty well.'

Robert Gutschera, Wizards of the Coast ¹⁶⁶

The nominations of ideas can also have a lasting echo or impression for continuative thoughts, which are especially engrossed when focussing on scheduled generation of ideas has finished. Kyle Gabler, Kyle Gray, Matt Kucic, and Shalin Shodhan state in their memorandum on their *Experimental Gameplay Project* on this effect: 'And then sometime later, maybe on the drive home, or in the shower, or while taking Poopy for a walk, a brilliant idea will erupt in your head. Or maybe not. But as far as we can tell, your mysterious brain does a lot of thinking when you least expect it.'¹⁶⁷ Gabler et al are not alone with this finding as Damon Brown's statement on the right shows.

These are major acknowledged aspects of brainstorming. Beside this a notion has established which feels confident that game design can benefit from brainstorming when a 'constrained idea space' has already been established. This assumes the developers have reached a point where scheduled creativity sessions do not start with a 'blue sky' stage anymore but when there is something concrete to talk about. This means that at least the corpus of the high concept has been defined. The main idea, the hook-in, the genre and the basic gameplay have therefore been created and fixed for the most parts. Also if the new game is going to be a sequel to an existing one which strongly predetermines the games structure the following approach to

'Brainstorming is good. The important part isn't what ideas come up. The important part is what happens after you get the ideas. [...] Let It Marinate. Good ideas, like wine, become great with time. Assuming deadline isn't an issue, sitting on a game concept for a short time may be the best move. It has been scientifically argued that even after you stop focusing on something, your brain continues to work on it. The brain naturally marinates... if you let it.'

Damon Brown, journalist and game developer ¹⁶⁸

¹⁶⁶ Interview with Robert Gutschera, Wizards of the Coast, GDC 2007, San Francisco, March 7, 2007

¹⁶⁷ Kyle Gabler, Kyle Gray, Matt Kucic, and Shalin Shodhan, (2005), How to Prototype a Game in Under 7 Days, Experimental Gameplay Project, http://www.gamasutra.com/features/20051026/gabler_01.shtml (as at 08/17/07)

¹⁶⁸ Damon Brown (1999), Nine step recipe for good independent game design, GameDev.net, <http://www.gamedev.net/reference/articles/article270.asp> (as at 08/17/07)

‘constrained brainstorming’ can be reasonable. The brainstorming sessions are therefore scheduled in order to come up with additional ideas for refinement or even for detailed aspects of the game as for instance for level design issues.

The citation of Mark Morris of Introversion Software on the right invoked and illustrated this approach. As already introduced in earlier parts of the thesis the designers of Introversion Software, like many others, tend not to create their game ideas in brainstorming sessions. But they take advantage of the creativity technique at later stages and also estimate brainstorming as reasonable then.

As mentioned before brainstorming is a technique which is widely used in the (non-game) corporate area. Due to its publicity and popularity a dozen of derivatives and extensions to the formal or classic brainstorming have been created to slacken and relax the atmosphere and to break up routines in order to enhance creativity. Brainwriting for example starts with a procedure where group members silently write down ideas on paper which are presented to the whole team afterwards. This approach decreases the chance of initial ideas being influenced by other previously raised ideas of other members and assures all participants can present ideas equally. Another approach, called brainsketching, takes advantage of the brain’s ability for visual reasoning and constructive perception to enhance and aid the ideation process. The advantages of sketching or doodling and its coherence with design is examined in more detail in chapter ‘4.3. *Sketching: Spur for creative thought?*’ Other approaches suggest to bring in toys or stuff as modeling clay, crayons and paper as well as games and puzzles. The concept of bringing in physical props to enhance creativity are also deepened in the later chapter ‘4.5. *Physical Props*’. In the context of brainstorming the biggest promise of bringing in additional and playful items is the ability to bring up an appropriate amount of childhood and childishness which is not misplaced due to the environment. The presence of toys and playful items can enlighten stiff and boring atmospheres and break adult behavior and inhibitions - an effect which definitely provides positive side-effects for creativity.

‘When you’ve got this [...] sort of constrained idea space, when you’re not starting with nothing. That’s the point where you kind of can have brainstorm. We do get the whole team together just to throw ideas around. ‘What if we do a level like this? What if we do one like that?’. Once you’ve got that construct in place then we’ll pick the ones we kind of think are best. And then give it a knock-up to go prototyping.’

Mark Morris, Introversion Software ¹⁶⁹

Brainstorming is the most popular collaborative design method. Whether it can be of use for a game project or whether it is suitable for the composition, goals and biases of a design team can not be predetermined with a kind of checklist-test but must be figured out by a teams itself.

¹⁶⁹ Interview with Mark Morris, Introversion Software, San Francisco, March 7, 2007

4.3. Sketching - spur for creative thought?

- ▶ 'I often draw pictures on my PDA when riding on a train, and those pictures are the beginning. [...] Drawings that I made are the bases. I think I used to draw many *LocoRoco* piling up struggling in a cave, or laughing, or wondering around alone. Later I started to draw pictures where land is tilted and *LocoRoco* was being rolled.'¹⁷⁰
- ▶ "When I try to come up with an idea, I sit down behind my desk (the one without the computer on it) and just start drawing. Don't ask me what, because I don't know before I'm actually drawing it. Often, I don't even know afterwards. That doesn't matter, though. After four pages of abstract figures, maps, mazes, stick men, grids, diagrams and fluffy creatures, I usually have something worth exploring a bit further. Don't let the fact that you couldn't draw a straight line if your life depended on it keep you from using this technique; I don't."
casualgamedesign.com ¹⁷¹

A common mode to express ideas is to use written or spoken language. During design meetings lots of material as brief descriptions of ideas on flip charts, concept papers, post-its, etc. are generated. But speech is not the only way which is capable to express ideas to an audience.

Sketching is another valuable method for presenting ideas and designs. Whereas the method is not limited to merely present ideas. Due to sketching's potential to stimulate reflection it spurs creative thought and is therefore fundamental to ideation and design. Designers of various creative fields (industrial designers, graphic designers, ...) therefore integrate sketching into the design process. Tsutomu Kouno, game designer of *LocoRoco*, confirms this claim with the above answer on the question where his inspiration for the game came from. Before im-

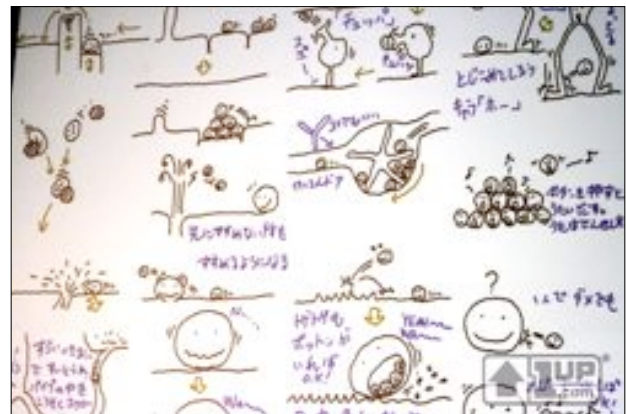


Figure 4.2. First sketches of *LocoRoco*'s gameplay, by Tsutomu Kouno, game designer at Sony ¹⁷²

¹⁷⁰ Owain Bennallack, (2006), Meet the PSP's Mr LocoRoco, Tsutomu Kouno, <http://www.pocketgamer.co.uk/r/PSP/LocoRoco/feature.asp?c=1077>, (as at 08/17/07)

¹⁷¹ (2006), Coming up with game ideas, <http://www.casualgamedesign.com/?p=22> (as at 11/17/07)

¹⁷² Figure 4.2.: Karen Chu, (2007), Photos of Loco Roco being born, <http://www.1up.com/do/blogEntry?bId=7944188&publicUserId=5462536> (as at 11/24/07)

mersing deeper to the inspirational potential of sketching a short analysis on its overall characteristics features and application purposes is provided.

Especially in prospect to industrial designers it is obvious that designing and sketching are very much related as sketches play a decisive role next to drawings and prototypes. Bill Buxton actually addresses sketching as the archetypal activity of design, thus for centuries.¹⁷³ The technique has not only a huge benefit for industrial design. It can be valuable for game design as well as it is not limited to conceptualize merely good looking and well formed environments, objects or characters as terms as 'sketching interaction', which is in fact used in terms of software and interface design, indicate.

The reason of sketches' usability lies in its versatility. Ferguson therefore distinguishes three major kind of sketches based on their purpose of application.¹⁷⁴ One benefit is that sketches are capable of visualizing ideas to augment the imaginativeness of an audience for purposes of communication of a vision. He refers to these kind of sketches as 'talking-sketches'. They make it easier to talk about points because they permit that everybody can share a graphical setting about a debated idea. This type of sketch is especially relevant for later processes of design, where already generated ideas are to be expressed. Self-explanatory an integration of significant sketches to the design document is recommendable in order to visualize ideas and concepts to provide and enlighten an understanding of complex structures or gameplay features to all colleagues. Sometimes the replacement of text by sketches is also a time-saving alternative.

Much more relevant for the design- and idea-generation-process itself is the fact that there exists a kind of thinking process that directly relates to sketches and visual perceptions. This means that if ideas are visually depicted they are more able to inspire new ones.¹⁷⁵ Sketches which are able to spur creativity and the generation of ideas are referred by Ferguson as 'thinking sketches'. They are commonly incomplete, allow ambiguity and can therefore be interpreted in different ways. Simplicity and their nature of being rapidly and easily modifiable allow reflective evaluation and exploration of new ideas.¹⁷⁶

¹⁷³ Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p.111

¹⁷⁴ E. S. Ferguson, (1992), *Engineering and the mind's eye* MIT Press, Cambridge, MA, p.97

¹⁷⁵ G. Smith (1998), *Idea-generation techniques: A formulary of active ingredients*. *Journal of Creative Behavior* Vol. 32 No 2, pp. 107-133

¹⁷⁶ V. Goel, (1995), *Sketches of thought*. MIT Press, Cambridge, MA

It enables designers to re-interpret their drawings, and proceed designing with newly acquired insights¹⁷⁷ as sketches provide a designer with perceptual cues that permit detection of unintended features.¹⁷⁸ This implies that design is an activity that can be seen as reflection-in-action: the designer is engaged in a visual conversation with the design by sketching, inspecting and revising it.¹⁷⁹ Sketches can also be used to externalize ideas and therefore to reduce the load on working memory.¹⁸⁰ This does not mean that it is not possible to keep a certain amount of ideas in mind but suggests to put ideas down on paper as this literally frees the mind and enables to step further in the process.



Figure 4.3. Sketchbook extract from Minor Studios
 'When taking on a new project, the first thing I tend to do is brainstorm on newsprint, trying to flood the page with as many ideas, questions, and sketches as possible. Having everything in one place makes it easier to see where certain ideas emerge [...]. It's a way of clearing out the imagination and bringing the ideas in your head out into reality for the first time.' Dave Werner, Creative Director, Minor Studios ¹⁸¹

Ferguson also distinguishes two other type of sketches: The first type is called 'prescriptive sketch', whose purpose is 'to direct the drafter in making a finished drawing'¹⁸² and is 'used almost exclusively within the later detailing (pre-manufacture) phases of the design.'¹⁸³ The other type is called 'storing sketch', which, same as the prescriptive sketch, is intended to freeze ideas rather than to develop them. This type is mainly used to retain information for later purposes.

177 J. S. Gero, B. Tversky, T. Purcell, (2001), Visual and Spatial Reasoning in Design II, Key Centre of Design Computing and Cognition, University of Sydney, Australia, pp. 271-282.

178 G. Goldschmidt, (1994), On visual design thinking: the vis kids of architecture, Design Studies, 15(2): pp. 158-174.

179 Schön, D. A., (1987), Teaching artistry through reflection-in-action, Educating the reflective practitioner, pp. 22-40, San Francisco, CA: Jossey-Bass Publishers.

180 2002 Tversky, B. (2002). Some ways that graphics communicate. In N. Allen (Editor), Words and images: New steps in an old dance. Pp. 57-74. Westport, CT: Ablex.

181 Dave Werner, (2007), Sketchbook Origins, <http://minorstudios.com/journal/2007/09/10/sketchbook-origins> (as at 11/21/07)

182 E. S. Ferguson, (1992), Engineering and the mind's eye MIT Press, Cambridge, MA, p. 97

183 A. McGown, G. Green, (1998), Visible ideas, informational patterns of conceptual sketch activity. Design studies Vol. 19, pp. 431-453

In regard to game design and the game industry the prescriptive sketch can be compared to 'concept art'. The term 'art' already implies that it is not a simple thinking sketch but more likely a more or less fleshed out visualization of an already built concept. Self-evidently these kind of sketches which are commonly used to visualize and refine the appearance of characters, vehicles, objects or environments play a well established role in game development. As their adaptability is not set within the early design process but at more advanced stages both types of sketches as well as concept art will not be further issued in detail in this thesis. A single sketch can be considered to fit into all four categories when used for diverse purposes at different times. For example if a thinking sketch is pasted onto a flip-chart or a wall during a design meeting and is explained to other people it turns into a talking-sketch.

The following part concentrates on 'thinking sketches' and sketches role to ideation and design. Anticipatory I would like to allude that the most discussions on sketching and design focus on disciplines as software design, user interface design, industrial design, architecture and graphic design but not on game design. Regardless there exists a variety of interdisciplinary similarities between all named areas of application which impose adaptivity also for game design. I would also like to annotate that 'thinking sketches' in context of game design concentrate primarily on elaboration of gameplay elements and on sketching functionalities of a game. It is not limited to sketching in terms of sketching the look of characters, objects, rooms or landscapes as these are rather a concept artist's area of responsibility.

4.3.1. Sketching and ideation

- Designers do not draw sketches to externally represent ideas that are already consolidated in their minds. Rather, they draw sketches to try out ideas, usually vague and uncertain ones. By examining the externalizations, designers can spot problems they may not have anticipated. More than that, they can see new features and relations among elements that they have drawn, ones not intended in the original sketch. These unintended discoveries promote new ideas and refine current ones. This process is iterative as design progresses.

Suwa, Tverskey, (2002)¹⁸⁴

Sketches' potential for ideation has been introduced in the previous part with Ferguson's 'thinking sketches'. He dealt of course not solely with this subject matter. The tasks fulfilled by architects' sketches during design process have been analyzed by Schön who introduced in this connection the idea of 'Reflection-in action' which is based on the notion that designers first 'see' then 'move' the design objects.¹⁸⁵ The idea of 'moving' (moves are basic detectable operations of designing) and 'seeing' has also been taken up in Goldschmidt's design protocol studies in which she denotes sketching as an operation of design moves and arguments that results in the gradual transformation of images. In this context she describes the act of sketching as a vehicle for design thinking permitting reasoning modalities as 'seeing as' and 'seeing that'.¹⁸⁶

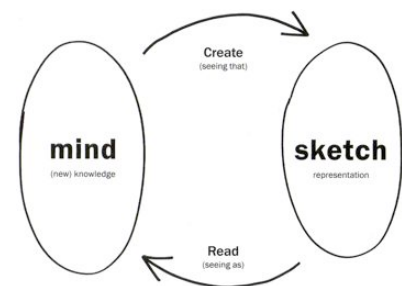


Figure 4.4. A sketch of a dialogue with a sketch by Bill Buxton.¹⁸⁷ Sketches are created from current knowledge. Reading or interpreting the result creates new knowledge. The sketch is based on Goldschmidt's 'seeing as' and 'seeing that' notion.

¹⁸⁴ Suwa, Tverskey, (2002), External representations contribute to the dynamic construction of ideas. In M. Tohidi, W. Buxton, R. Baecker, A. Sellen, (2006), User Sketches: A Quick, Inexpensive, and Effective way to Elicit More Reflective User Feedback, ACM International Conference Proceeding Series; Vol. 189 archive, Proceedings of the 4th Nordic conference on Human-computer interaction: changing roles

¹⁸⁵ Donald Schön, (1985), The Design Studio. London: RIBA Publications, Donald Schön, Grant Wiggins, (1992), Kinds of Seeing and their functions in designing. Design Studies, 13 (#2), 135-156 in Gross, Do, E. and M.D., (1997), Inferring Design Intentions from Sketches, Proceedings of Computer Aided Architectural Design Research in Asia '97

¹⁸⁶ Gabriela Goldschmidt, (1991), "The Dialectics of Sketching." Creativity Research Journal v.4 (# 2 1991): 123-143. In Gross, Do, E. and M.D., (1997), Inferring Design Intentions from Sketches, Proceedings of Computer Aided Architectural Design Research in Asia '97

¹⁸⁷ Figure 4.4.: Bill Buxton, (2007), A Sketch of a Dialogue with a Sketch, in: Sketching User Experiences: Getting the Design Right and the Right Design, p. 114

This concept describes an externalized thinking process. Seeing results by the use of sketching spurs an activation of new insights enabled by visualization which is also accompanied by better comprehensibility of a problem. The statement ‘Doing for the sake of knowing’ indeed fits even better to prototyping but aptly describes the coherence between sketching and designing.

An only slightly different approach bases the process of ideation with sketching on three interacting processes: imaging, drawing and seeing. During the imaging process ideas synthesize in mind which are then drawn in order to represent the results. This approach is again based on the fact that seeing the result allows to analyze and rethink the concept and allows to start over again to reiterate.¹⁸⁸ Sketching is therefore no byproduct of design but is a central part to design thinking and learning. Whereas sketches are byproducts of sketching.¹⁹⁰ Generating sketches during a design process is no activity whose main purpose is the creation of representative physical objects or artifacts.

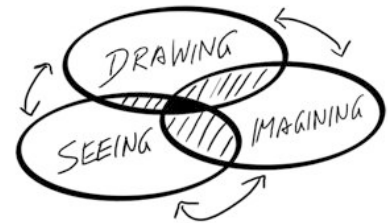


Figure 4.5. Design Ideation Process¹⁸⁹
Seeing and analyzing a representation of a thinking process activates new insights.

Buxton assembled essential attributes of sketches to ensure their full coverage of design abilities. Hence sketches should be quick, timely, inexpensive, disposable and plentiful. Desirably their vocabulary should be clear and distinct gesture.¹⁹¹ Buxton’s approach to sketching has similarities to the previous mentioned ‘thinking sketches’. Thus sketches are no prototypes. Not even low-fidelity prototypes. Sketches dominate ideation stages whereas even rapid prototypes are not yet applicable or useful at this early stage of design. The term ‘game sketching’, proposed by John Buchanan, therefore is misleading if observed in this context as ‘game sketching’ is indeed a set of methodologies and tools designed to rapidly prototype a game in order to allow you to play it as early as possible. More on this student project of Carnegie Mellon University Entertainment Technology Center’s Adelaide, Australia Campus can be found in a later chapter on rapid prototyping.

¹⁸⁸ Yong Se Kim, Mi Hyun Kim, Sun Tai Jin, (2005), Cognitive characteristics and design creativity: an experimental study, Proceedings of DETC’05 ASME 2005 Design Engineering Technical Conferences and Computers and Information in Engineering Conference September 24 - 28, 2005, Long Beach, California, USA

¹⁸⁹ Figure 4.5.: Design Ideation Process, Robert H. McKim, (1972), Experiences in Visual Thinking, Brooks/Cole Publishing Company, Monterey

¹⁹⁰ Bill Buxton, (2007), Sketching User Experiences: Getting the Design Right and the Right Design, p. 118

¹⁹¹ Bill Buxton, (2007), Sketching User Experiences: Getting the Design Right and the Right Design, p.111

Design-sketches are characterized by the claim imposing they should mainly act to suggest and explore but not to confirm. This suggests that the visual appearance of a game sketch or gameplay sketch shall not yet reveal indications on the final appearance of the game. On the contrary, sketches can and shall focus on basic concepts which are to be explored further. Though sketching holds an unintended drawback which especially can occur when two or more people are working together on an idea or design. If a person shows visual ideas to others fixation to the idea can come about. Fixation means that it is difficult to see alternatives, once an interpretation of a sketch was achieved. This effect can of course also emerge in 'normal' brainstorming sessions since it is a general problem of cognition particularly relevant to design.¹⁹²

The following part contains a short overview on how sketching in the broader sense can be utilized or integrated during the game design process as well as some application areas of sketching in the context of games.

192 M. Suwa, B. Tversky, JS. Gero, A.T. Purcell, (2001), Seeing into sketches: Regrouping parts encourages new interpretations, in JS Gero, B Tversky and T Purcell (eds), *Visual and Spatial Reasoning in Design II*, Key Centre of Design Computing and Cognition, University of Sydney, Sydney, pp.207-219.

4.3.1.1. The inspirational & social aspect of sketches (mood boards, cork boards)

- ▶ 'It is common for designers to pin up part-finished drafts around the area in which they are working so that they are open to their own reflections (even at times when attention is not specifically directed to them) and to responses from colleagues.', Black ¹⁹³
- ▶ 'Hanging work in the environment lets it "bake in". It is there in the background, and becomes part of the ecology of the studio. You live with it 'for a while, and with familiarity grows either insight or perhaps contempt.', Bill Buxton ¹⁹⁴

To increase the potential of sketching the created artifacts should not get shut away after serving its main purpose as a 'thinking sketch' but should be enabled to unfold their social life. If posted on mood boards, pin boards, cork boards or walls designers (and other team members as well) are able to see them frequently. This allows to gain awareness about other team members work, provokes feedback and at the same time it enables recurring involvement with the topic without actively commencing so.



Figure 4.6. A designer's pin board or mood board stuffed with sketches, and inspirational artifacts.¹⁹⁵

Mood boards or inspiration walls are generalized phrased spaces containing a composition of various stimulating images, texts and samples which lend itself to designers during development of design concepts. The images and samples are often project related external photos or cutouts of magazines but are frequently self made sketches or print outs. They can be used as frame of reference, as collection of inspirational items and as tool to communicate to other members of the design team. They are intended - same as the 'thinking sketches' - to be used for inspiration but not for specification. Their installment requires not even knowledge of computers and design software which allows various team members to contribute by simply collecting images or swatches.

¹⁹³ Black, A. (1990). Visible Planning on Paper and on Screen: The Impact of Working Medium on Decision-Making by Novice Graphic Designers. *Behavior and Information Technology*, 9(4), 283-296, in Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p.154

¹⁹⁴ Bill Buxton, (2007), *Sketching User Experiences: Getting the Design Right and the Right Design*, p.154

¹⁹⁵ Figure 4.6.: A designer's pinboard, photograph by Timo Arnall, (2007), <http://www.flickr.com/photos/timo/519898892/in/photostream/> (as at 12/11/07)

- 'I hang things there for different reasons. Sometimes it is because of pity. I've made something that I know just will end up in one of my drawers. So to give it some kind of acknowledgment, I hang it on my wall for a while. I hang things there that I want to remember, small fragments that inspire me. Things I've done and want to use in a bigger work. Things I don't know where else to put or simply just things I like.' Camilla Engman, artist, illustrator, and graphic designer.¹⁹⁶



Figure 4.7. Camilla Engman's Inspiration wall.¹⁹⁶

Besides and because of all this these spaces are a perfect place for sketches to be placed on in order to 'bake in' in the background. Though it is reasonable to note that placing inspiration boards, mood boards, bullet boards or other objects of a similar purpose will not magically turn a workspace into an inspiring place which triggers creativity and will not abruptly lead to collaboration simply due to on-posted artifacts. Similar to brainstorming and to other previously addressed methods certain affordances are necessary and effective usage, which includes the accompanied advantages, requires much attention to cultivation of a design culture.¹⁹⁷

¹⁹⁶ Lori Pickert, (2007), Inspiration Boards: Camilla Engman, <http://inspirationboards.blogspot.com/2007/10/camilla-engman.html> (as at (11/29/07))

¹⁹⁷ Bill Buxton, (2007), Sketching User Experiences: Getting the Design Right and the Right Design, p.155

4.3.2. Sketching & Level design

- ▶ ‘We found that solving a visual problem on paper was much faster than using a computer. Modifications to an area during the design phase could be completed in a matter of hours instead of the days or even weeks it took to implement the finished design on the computer.’, Craig A. Stitt and John Fiorito ¹⁹⁸

Level design is a part of the design process of a game or game concept which heavily takes advantage of the design method ‘sketching’. The benefit for level design is based on the fact that spacial representations are considered as especially needful in this phase. In fact modern level editors allow to start building environments straightforward in 3D. Thus it may seem tempting to start implementing a deliberate concept directly with a modeling tool - the for the time being extra efforts of a preceding sketching phase frequently help anyway to save time within the tight schedules during later implementation stages as this chapter will show subsequently.

When the design of a level is fleshed out the level of detail of the thereby emerging sketches varies or respectively increases throughout the process. Many times first of all a level’s concept is visualized simply in form of a thumbnail sketch. This small and quick sketches mainly serve as first visualization of a concept, as basis for thinking through a concept, for discussion and for review. Hence these first thumbnail sketches are commonly rather rough sketches that contain merely the core idea of a level including its most important parts, requirements and characteristics.²⁰⁰

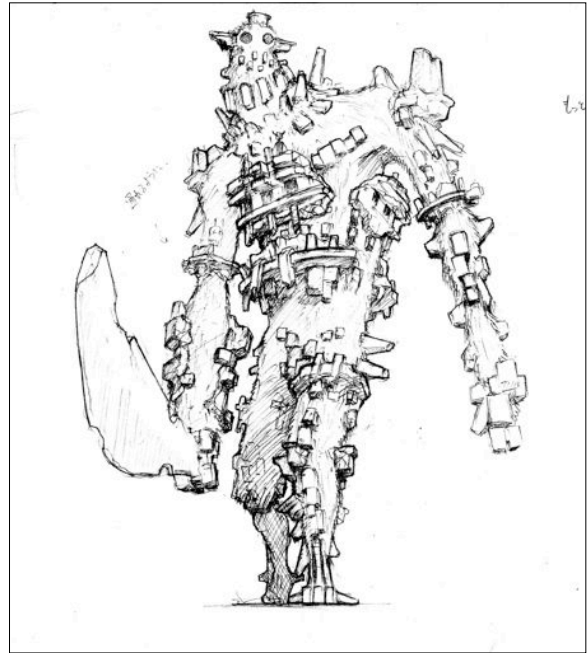
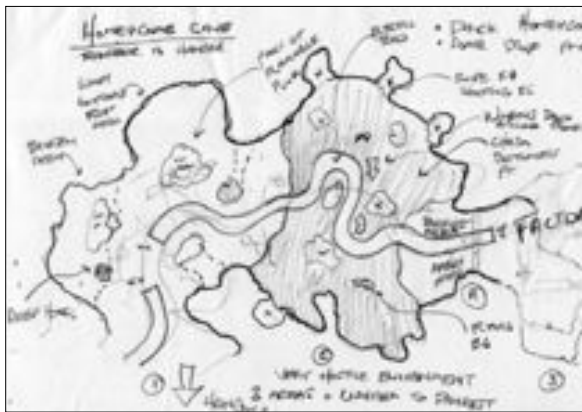


Figure 4.8: Character design or level design? In *Shadow of the colossus* the level is the boss. The sketch shows a concept-sketch of a boss level.¹⁹⁹

¹⁹⁸ Craig A. Stitt, John Fiorito (2000), Lessons in Color Theory for Spyro the Dragon, http://www.gamasutra.com/features/20000502/spyro_03.htm (as at 05/10/08)

¹⁹⁹ Figure 4.8.: *Shadow of the Colossus*, concept art from gamespot.com, <http://www.gamespot.com/ps2/adventure/wandaandthecolossus/images.html> (as at 05/12/08)

²⁰⁰ Tim Ryan, (1999), The Anatomy of a Design Document, Part 2: Documentation Guidelines for the Functional and Technical Specifications, http://www.gamasutra.com/features/19991217/ryan_04.htm (as at 05/10/08)



‘Figure 4.9. (left): A sketch of a level-layout of *Star Wars: Bounty Hunter*, including a multitude of notes which enrich the information on the prospective layout of the level. Figure 4.10. (right): An already reviewed (final revision) sketch of a level of *Star Wars: Bounty Hunter*, including bubble diagrams and notes illustrating the prospective layout and flow of the level.²⁰¹

As these first sketches act like ‘thinking sketches’, which have already been introduced at the beginning of the chapter, simplicity is essential in order to permit again uncomplex changes for fast and easy improvement of the level’s design. Their low level of detail also provides early review with team members responsible for the technical implementation of the concept as well as with the game artists who can give green light for feasibility - an important factor to further base on. A more advanced, more detailed and revised design of a level is usually accompanied by also more enlarged and detailed sketches and maps. Every version gets more detailed than the previous one. Finally they may reach to comprehensive layouts (see Figure 4.11.) actually in relative scale.²⁰²

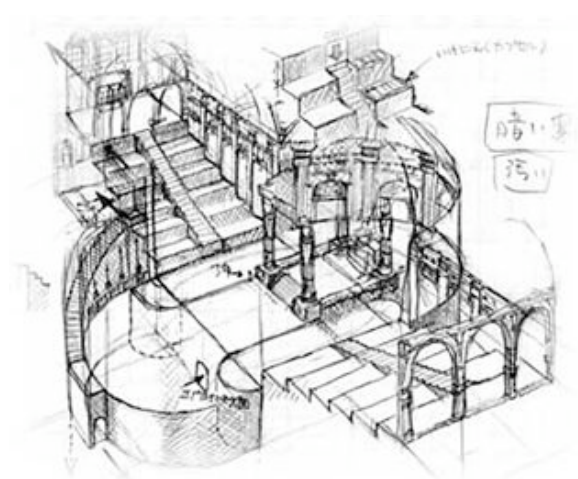


Figure 4.11. The more the process progresses the more elaborate the sketches get. This drawn out level from *ICO*²⁰³ already shows a detailed architecture including walkthrough possibilities. Design artifacts in this detailedness rank rather to concept art than to sketches. Thus within tight timed schedules detailed concept sketches can help save time by reducing the risk of of doing stuff over and over again.

201 Figure 4.9., Figure 4.10.: Michael Stuart Licht (2003), *An Architect's Perspective On Level Design Pre-Production*, http://www.gamasutra.com/features/20030603/licht_02.shtml (as at 05/12/08)

202 Michael Stuart Licht (2003), *An Architect's Perspective On Level Design Pre-Production*, http://www.gamasutra.com/features/20030603/licht_02.shtml (as at 05/12/08)

203 Figure 4.11.: Concept art of *ICO*, <http://www.icothegame.com> (Official *ICO* Website, as at 05/14/08)

Within the scope of first visualizations and reviews of level concepts the integration of physical props as for instance post-it notes to the level design process may as well be helpful. Their characteristic of being small and handy as well as sticky but easy repositionable allows even faster changes as well as more flexible rearranging of rooms, items or objectives. More on level design with physical props can be found in chapter 4.5.4. *Level design with physical props*.

Michael Stuart Licht introduced in his article '*An Architect's Perspective On Level Design Pre-Production*' next to post-it notes another helpful way to visualize a level's functionality and objectives which can be useful within early stages of level design: bubble diagrams. Though bubble diagrams are, as their name already illuminates, rather diagrams than sketches they thus provide a potential to act similar like a thinking sketch. Reflection and evaluation of the level as well as the exploration of new ideas are supported by this kind of visualization which does not yet concern about art and architecture. The circles which represent locations, objects and events, the connecting lines which mark transitions within the circles as well as corresponding notes provide a way to study the flow of a level which allows again easy and fast changes and improvements. The more mature and perfected the diagrams get the more they intertwine with sketches themselves so that they come closer and closer to a map.²⁰⁴ The advantage of using bubble diagrams is that the flow and functionality is put to the fore of the design and that the later representations of the level comply with its demands and not vice versa. This study of flow also helps to highlight possible problems within a level. Especially within tight schedules this aids to the valuable possibility of getting it right in the first time when the level is implemented in e.g. 3D. I believe it is not necessary to point out further the advantages of localizing and eliminating possible issues at already early stages.

204 Michael Stuart Licht (2003), *An Architect's Perspective On Level Design Pre-Production*, http://www.gamasutra.com/features/20030603/licht_02.shtml (as at 05/12/08)

4.3.3. Storyboards

- ▶ “Storyboards are a graphics design tool that tempt many game designers, for they are a well-developed technology from the film industry. They are not appropriate to games, because storyboards are an intrinsically sequential technology. Games are not sequential, they are branching tree structures. The game designer who uses an intrinsically sequential tool risks having her designs made subtly sequential. The tool shapes the mind of its user; the saw suggests that we cut wood, and the freeway suggests that we drive wherever it takes us, not where we choose to go. In like manner does a storyboard impress its sequentiality upon our games.’, Chris Crawford ²⁰⁵
- ▶ ‘Storyboarding is critical to us in the video sequences. We used to do storyboards for gameplay, but this became more of a burden than an asset. Then we started doing actual visualizations, which helped to communicate ideas much more clearly.’ Lorne Lanning, Character Designer of *Oddworld Inhabitants* ²⁰⁶

Storyboards are series of images arranged in a sequential order. The technique is widespread within the film industry where it serves for pre-visualizing screen-plays, concepts or ideas. They are collections of still-drawings, notes and technical instructions describing scenes. The sequences of comic-like sketches have the potential to describe visions to clients in more detail at yet early stages and help finding potential problems in early stages.

The storyboarding process is not only applied during production of motion graphics as film or animation, but is as well used as comparatively cheap pre-production technique for interactive media as for instance for user interfaces of software, for websites or as well for games. However in regard to game design it has to be added that interviews with game designers show that storyboards are in most cases used again merely for pre-visualization of cinematic sequences of games as

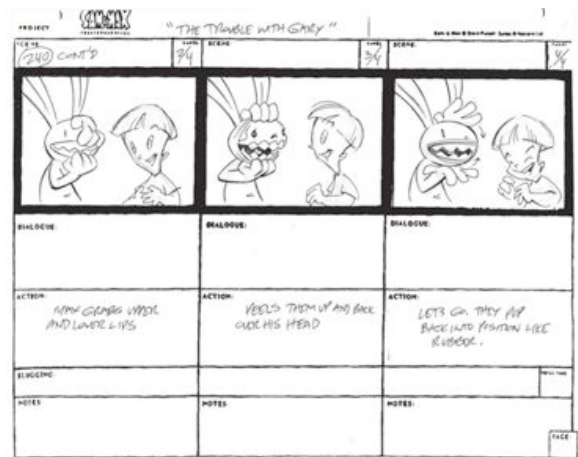


Figure 4.12. A cutout of a storyboard for a scene of the animated series of *Sam & Max*. The storyboard contains additional information about dialogues and actions. ²⁰⁷

²⁰⁵ Chris Crawford (1996), *The Art of Computer Game Design*, <http://www.vancouver.wsu.edu/fac/peabody/game-book/Chapter5.html> (as at 05/12/08)

²⁰⁶ Marc Saltzman (2002), *Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents* http://www.gamasutra.com/features/20020308/saltzman_pfv.htm (as at 05/14/08)

²⁰⁷ Figure 4.12. Storyboard detail from *The History of Sam & Max, Part 3: Sam & Max Hit it Big*, <http://www.telltalegames.com/summerofsamandmax/history/history3/> (as at 05/14/08)

cut-scenes as well as for movements of characters or interactions.²⁰⁸ This results to a lion's share from the fact that not all games qualify for this type of visualization. The applicability of storyboarding hence depends on the type of game. The reason for that occurrence has been already introduced by Chris Crawford's introductory statement: many games and gameplay actions are not sequential. This means that storyboarding may be merely vital to games where all path players will take throughout their journey are exactly known and where every puzzle and solution is pre-planned.²⁰⁹ This means that for graphical 2D point and click adventures (as for instance *The Secret of Monkey Island*, *Day of the Tentacle* or *Sam & Max Hit the Road*) storyboarding definitely has merit.

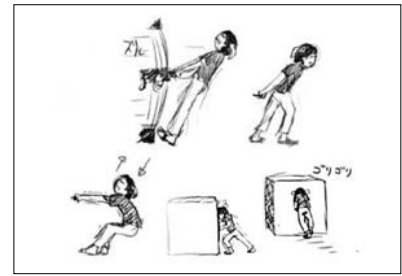


Figure 4.13. *ICO* opening doors and moving blocks.²¹⁰ Gameplay is often based on recurring movements (running, climbing, shooting, ...) in differing situations but in regard to the character mostly constant perspectives. A sequential storyboard-like visualization is hence not the best choice.

In the case of non sequential games and more open-ended games the creation of storyboards of whole sequential walkthroughs is indeed not reasonable. Furthermore in 3D games the perspectives of in-game actions or impressions are bound to a character's or avatar's position in the world or to a first-person camera perspective. Hence there is no need for the multitude of cinematic elements such as perspectives, alternating camera positions, view angles, pans, zooms or clippings which are pre-visualized in a storyboard. This imposes that merely important parts as key scenes or special interactions with characters or the game world are worth the efforts.



Figure 4.14. An early version of a storyboard of the end sequence of *Spyro Eternal Darkness*.²¹¹ The storyboard shows camera angles, zooms and pans as well as character movements (red arrows). The sequences are all pre-rendered, not in-game cinematic.

208 Marc Saltzman (2002), Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents http://www.gamasutra.com/features/20020308/saltzman_pfv.htm (as at 05/14/08)

209 Warren Spector, Ion Storm Austin (Ultima Underworld series, System Shock, Deus Ex) in: Marc Saltzman (2002), Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents http://www.gamasutra.com/features/20020308/saltzman_pfv.htm (as at 05/14/08)

210 Figure 4.13. Concept art of *ICO*, <http://www.icothegame.com> (Official *ICO* Website, as at 05/14/08)

211 Figure 4.14. Concept art by Alina Chau, 3D character animator, storyboard/concept artist, <http://alinanimation.blogspot.com/2008/05/if-seed-part-2.html> (as at 05/16/08)

4.4. Concept and design documents

- ▶ 'Design documents are critical. They are the equivalent of a movie script or a business plan; without one, you don't have a roadmap that will keep you on course throughout the storm that is production—let alone getting you financing in the first place. In addition, today games take large teams of people and have multimillion-dollar budgets. This means that everyone needs to have clear communication or else a lot of money can be wasted very quickly. The team, the publisher, the management - everyone needs to know what you're getting into if you're to pull it off and have production go smoothly. It also becomes the basis of your schedule at the beginning of the project.',
Lorne Lanning, *Oddworld Inhabitants*²¹²

Documentation is a method which is primarily of use for organizing the development process and for communicating and capturing ideas. For this reason it is a method which is applied after the main idea or high concept of a game has been generated. Design documents express visions and describe the contents of a game. The method also addressed as 'Design Bible Method' is though indeed regarded as helpful for the development of a design. One of the reasons for that is that documenting a design fully forces to think through all necessary, more detailed and profound elements of a concept in order to set out in writing important informations which are then provided to all team members subsequently. The following part will give an overview on game concept documents and game design documents respectively with the essential elements and contents these documents should contain. The chapter aims not to get out of hand and offer detailed recommendations on how to structure these documents.

Writing elaborate documents is controversial. Documenting game ideas, concepts and design decision is an extensive task which is regarded by a multitude of game companies as an obligatory pre-production artifact. Thus too extensive picking to pieces as well as integrating every small detail is regarded as self-defeating as this increases the maintenance overhead. During early design stages mostly the smaller documents as treatments or outlines are helpful and therefore rather used.²¹³

212 Marc Saltzman, (2002), *Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents*, http://www.gamasutra.com/features/20020308/saltzman_01.htm (as at 01/07/2008)

213 Bernd Kreimeier (2003), *Game Design Methods: A 2003 Survey*, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

In a nutshell mainly three different kind of documents describe a game's idea:

- ▶ the game concept document (also called high concept document)
- ▶ the game treatment document and
- ▶ the game design document

Game concepts documents are rather short. They are up to two to four pages long and express the core idea of a game²¹⁴ in a degree that allows to be read within a few minutes. On the contrary a game design document, which is due to its complexity also referred as game design bible, contains more elaborate and profound informations and descriptions on details. These details cover amongst others the game's features, story elements, characters, locations, dialogues, puzzles, artwork, sound effects and music.²¹⁵ Short game design documents can approximately hold about fifty pages. However the more detailed types, which often address a multitude of production issues as well, can range up to several hundred pages. The third type, the game treatment document, lies in between both of the other two specimens and holds mostly up to about fifteen pages. It can be compared with a sales brochure, particularly as its task is likewise to act as a sales tool and to supply a broader information on the idea. Beside its complexity the main differences between the first two types of counterpart documents are their intended purposes and targets. A concept document is mainly written to 'sell' an idea, to get a job interview or a hearing wherefore its target groups are publishers, clients, directors of product development or executive producers. It is not a document from which to build a game.²¹⁶ A game design document, which is written, maintained and overseen by the Lead Designer or Producer after been given green light²¹⁷, addresses indeed additionally a similar target group. The main audience are however development staff members which are for instance artists, level designer, programmers, etc. whose task is to implement the game idea.

On contrary to the concept and treatment document the game design document's assignment is to provide exact documentation and communication of the contained specifications to the collaborating colleagues. Tim Ryan addresses it in this manner

214 Tim Ryan, (1999), The Anatomy of a Design Document, Part 1: Documentation Guidelines for the Game Concept and Proposal, http://www.gamasutra.com/features/19991019/ryan_02.htm (as at 01/07/2008)

215 Marc Saltzman, (2002), Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents, http://www.gamasutra.com/features/20020308/saltzman_01.htm (as at 01/07/2008)

216 Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.63

217 Ed Bartlett, (2000), So you want to be a games designer?, originally written for the November 2000 issue of UK magazine PC Format, http://www.igda.org/articles/ebartlett_designer.php (as at 01/07/2008)

as ‘a bible from which the producer preaches the goal, through which the designers champion their ideas, and from which the artists and programmers get their instructions and express their expertise.’²¹⁸

As stated above writing documents does not actually count as ideation method as it intends to transcript already more or less fleshed out concepts into presentable forms. This means the composition of concept documents is not applied until the generation of ideas and high concepts has come to a crucial point. Hence the process of writing a document enables to turn vague ideas into a more explicit plan.²¹⁹ Additionally a majority of producers and publishers demand certain issues to be covered in the concept documents which might have not yet been considered during the initial ideation. Therefore the missing details have to be fleshed out during generation of the concept document.

4.4.1. From idea to game concept document

- ▶ ‘A good document ensures that you are all planning to make the same thing. A great document ensures you all have the same feel for the inner soul of this thing.’, Tzvi Freeman²²⁰

Game concept documents are commonly created after the core idea has been made to describe a game or to express a core idea. These documents are, as mentioned earlier, written in order to ‘sell’ an idea, to get a job interview or a hearing. Hence its main task is to act as a sales tool to propose the idea to the director of product development, a publisher, funding agency, etc but can as well be used for recording ideas and goals for oneself in order not to lose sight of them. In later phases its assignment is to ensure every team member is working on the same vision when it comes to production of the game. As it should be possible to read the document in only a few minutes the concept document should, in contrary to the more detailed game design document, be brief and focused on the main idea and should therefore contain only approximately one to four pages. The following features are recommended to be included:

218 Tim Ryan, (1999), The Anatomy of a Design Document, Part 1: Documentation Guidelines for the Game Concept and Proposal, http://www.gamasutra.com/features/19991019/ryan_01.htm (as at 01/07/2008)

219 Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.62

220 Tzvi Freeman, (1997), Creating a Great Design Document, Gamasutra, http://www.gamasutra.com/features/19970912/design_doc.htm, (as at 08/17/07)

- Introduction / High concept statement
- Background (optional)
- Description
- Key features
- Genre
- Platform(s)
- Concept art (optional) ^{221, 222}

A game concept usually contains an introduction which is a very short description of the game, also called high concept statement. The one to three sentences long statement holds the games core idea and its anticipated gameplay features. More details are to be placed into the points ‘description of the game’ and ‘key features’. In the description the tasks and player experiences are described. These contain mainly what the player does and sees. The key features are for instance the diverse player-modes (singleplayer, multiplayer, cooperative, competitive, ...), the possibilities of interaction, the game world and if available some avatars or characters. Features as ‘fun to play’, ‘great graphics’ or other similar characterizations are usually not included in the document since it is the goal of most games to entertain and to provide the gamer’s eyes with appealing images. If the visual style is going to differ strongly from other games (eg. like the comic style of *The Legend of Zelda: Wind Waker*, or *Okami*’s brush style, ...) it can be of course integrated to the document. If the game is for instance a sequel or movie adaption and if it is therefore based on an already existing background these informations are also to be included for instance in a ‘background’ bullet point. If there exists a genre the idea fits in it shall be of course noted in the concept document as well. Some other features the concept can optionally hold are the game’s foreseen platform, its target audience and as well as some concept art to emphasize the idea.^{223, 224}

As stated before writing extensive design documents is disputed. Due to the fact that an increasing amount of game developers is involving rapid prototyping (more on this topic see chapter 4.6. *Software prototypes - Rapid game prototyping*) into the design process in order to experiment and revise ideas at early stages this also

²²¹ Tim Ryan, (1999), The Anatomy of a Design Document, Part 1: Documentation Guidelines for the Game Concept and Proposal, http://www.gamasutra.com/features/19991019/ryan_02.htm (as at 03/29/2008)

²²² Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.78f

²²³ Guidelines for the Game Concept, Tim Ryan, (1999), Gamasutra, http://www.gamasutra.com/features/19991019/ryan_02.htm (as at 08/17/07)

²²⁴ Ernest Adams, Andrew Rollings, (2006), Fundamentals of Game Design (Game Design and Development), p.78f

applies to concept documents. To some extent these prototypes can be regarded as extension even as substitute of a concept document, as they can in some cases transport and communicate a core idea even better than text can. This especially applies if a prototype is fun to play - as it is far more convincing than a concept that argues about being fun to play. If a prototype is sufficiently significant it can indeed supersede writing a concept document. Chaim Gingold further remarks that prototypes prove what works. On the contrary with a document one can just hope that a design will fly.²²⁵ One should hereby consider that creating a prototype is in many times even more time consuming than writing and illustrating a concept document. Especially replacing documents by prototypes that are aimed to act as impressive looking sales material, that probably even contain a lion's share of the intended mechanics and features, should be reconsidered with care. Even if its impressiveness might be out of the question its profitability might be not.

Hence I would also like to add that not all video game developers mandatorily pitch or sell their idea in order to get funding and green light to start with the development process. This applies for instance for independent game developers. In this case creating game concept documents may seem to be a redundant and costly extra effort. However recording ideas and visions is all the same a widespread and expedient task. Hence it is quite common that designers put them onto paper in much more informal and possibly less voluminous ways as the introduced documents propose. This especially applies if the ideas or artifacts are recorded primarily for internal purposes. The statement on the right emphasizes this approach. Of course this applies as well to the more elaborate game design documents which are addressed subsequently.

'We tend to have kind of notebooks full of concepts and ideas where you are just sketching things that are gonna work. [...] These notebooks, which we tend to call game-bibles at the end, are not formal design documents. They don't talk about the number of levels, for instance, or what the levels are going to look like, because we design that straight into the computer. We don't sit down and design implementations that will work with the machine. But the book will contain the concept.'

Mark Morris, Introversion Software ²²⁶

²²⁵ Bonnie Ruberg, (2006), MIGS Keynote: Gingold/Hecker On Spore Prototyping, http://www.gamasutra.com/php-bin/news_index.php?story=11628 (as at 03/29/2008)

²²⁶ Interview with Mark Morris, Introversion Software, San Francisco, March 7, 2007

4.4.2. The game design document

- 'People who write 300-page design docs beforehand are wasting their time. The game design process (for most) is an evolutionary process. You refine and redesign as you go, learning and making things better. It's insane to write a 300-page doc, then just make the game. There's no way you can think of every cool idea before you make the game, and you have to be flexible enough to roll with the punches and add and refine ideas as you go, all according to the timeline. Speaking from our experience, design docs are merely a general guideline that gets more and more polished as you go. You just try to stay three to four months ahead of things as you go. The design doc isn't done until the game is.',
George Broussard, 3D Realms ²²⁷

The game design document is a document that exceeds concepts and treatments in respect to detail and amount of pages. It covers amongst others the game's overall features, story elements, characters, locations, dialogues, puzzles, artwork, sound effects and music.²²⁸ Additionally further and profound informations on for instance controls, weapons, power-ups, triggers, vehicles or mounts are laid down within the document. A huge amount of game designers and game studios record their ideas and design decisions in these weighty documents in order to retain concepts and decisions as soon as possible and to iterate between ideation and documentation. As stated before the document is written, maintained and overseen by the lead designer or producer after having been given green light.²²⁹ Its main audience is development staff members as for instance artists, level designer, programmers, etc. whose task is to implement the game idea. The document shall be applicable as a bible from which team members can look up informations if they have questions relevant in terms of implementation of a game.

Documenting is a method of organizing and distributing knowledge. Thus huge design documents do in all terms hold a big amount of inevitable informations. All the same it is more practicable and readable if it is kept clear and brief containing only the necessary and practicable points. This is especially of importance as the documents should be read by members of the development team who might not want to spend great amount of time doing so. Aside from the fact that an excessive level of detail is very time consuming for both the author and the reader an elaborate document might seem to be complete and thorough while it probably is not.

²²⁷ Marc Saltzman, (2002), Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents, http://www.gamasutra.com/features/20020308/saltzman_02.htm (as at 01/07/2008)

²²⁸ Marc Saltzman, (2002), Game Design: Secrets of the Sages, Creating Characters, Storyboarding, and Design Documents, http://www.gamasutra.com/features/20020308/saltzman_01.htm (as at 01/07/2008)

²²⁹ Ed Bartlett, (2000), So you want to be a games designer?, originally written for the November 2000 issue of UK magazine PC Format, http://www.igda.org/articles/ebartlett_designer.php (as at 01/07/2008)

An overkill of level of detail might distract again both the author and the reader from other areas that need more attention.²³⁰

Even more than the concept document contents the design document contents depend on the genre and the characteristics and features of a game itself. Hence the drive for a unified, ultimate design document template is seductive but implausible - even if a template full of labeled empty fields to simply fill out might offer a structured way of asking questions to enforce decisions.²³¹ On this account I subsequently provide a rather short example of practical use instead of a list of contents a game design document should contain:

- ▶ 'The design document (DD) is the blueprint of the game design. It begins with a short paragraph or a long vision statement that sums up what the game is about. This is followed by a longer two- or three-page vision document, which provides more detail on the look and feel of the game. This grows into a full-blown DD that may reach several hundred pages for one of our games. All major systems have separate chapters that explain in detail how each system will work. For example, in the *Age of Empires* games, the DDs had a chapter on buildings. Here we listed all the buildings, their functions, their costs, their prerequisites, when they could be built, their attributes (hit points, armor), etc. [...] The DD is the backbone of the development process. It's a living document, updated regularly. We keep it on our intranet so it's easily available to all. We also create a 'DD Lite' that someone can read more easily for a quick overview of the product.', Bruce C. Shelley, Ensemble Studios (*Age of Empires*)²³²

Due to the inevitably necessary and costly efforts elaborate written version demand they are many times credited as well as unessential. Like with the concept documents elaborate documentation is therefore not always fully performed but is kept more informal or is also replaced by prototypes or collections of flowcharts, sketches and diverse other artifacts resulting from the various design activities.

As addressed earlier game design documents shall be created as readable as possible in order to assure that team members actually read them. This also demands for an easy accessibility to the latest version at any time in which the latest additions and changes are highlighted and well arranged. Wikis are a tools which can serve this purpose.

²³⁰ Richard Rouse, (2004), *Game Design: Theory & Practice Second Edition*: "Not All Game Design Documents Are Created Equal", http://www.gamasutra.com/features/20041101/rouse_01.shtml (as at 03/29/2008), book excerpt from: Richard Rouse, (2004), *Game Design: Theory and Practice (2nd Edition)*, ISBN: 978-1556229121

²³¹ Bernd Kreimeier (2003), *Game Design Methods: A 2003 Survey*, http://www.gamasutra.com/features/20030303/kreimeier_01.shtml (as at 03/20/08)

²³² Marc Saltzman, (2004), *Game Design: Secrets of the Sages. Creating Characters, Storyboarding, and Design Documents*, http://www.gamasutra.com/features/20020308/saltzman_05.htm (as at 03/20/2008)

4.4.3. Wikis: Collaboration on Game Design Documents

Since wikis have seen the light of the day in 1995 they have become an increasingly popular tool for easily sharing and collaborating on various contents within networks. Their nature of providing up-to-date informations to an audience in a simple retrievable and easy to manageable way thus qualifies internal wikis as well for use for organizational tasks and documentation purposes within the game design and game development process.

In the majority of times standard documentation as well as standard design documents are distributed via e-mail or stored on servers. This conventional way of distribution and retrieval is time consuming and its version management may be even confusing. Besides new versions are oftentimes not distributed until a multitude of changes have been generated. At this wikis lend themselves as an accessible and useful alternative to sizable standard text files, pdfs as well as printed exemplars. Furthermore wikis offer valuable functions for showing recent changes and communal commentary and take advantage of the hyperlink concept (auto-linking) whose benefits for clear structuring as well as for fast switching to information does not need to be explained.

‘We used to use flip-charts in our design meetings to take down notes everyone could see as we go. Now we have a PC hooked up to a large television open to a web-page. The scribe can simply add notes to the Wiki as we go. This means nobody has to spend time transcribing the flip-charts to a design doc at a later date.’,
Jamie Fristrom, Torpex Games ²³³

If design documents are published via wikis one should consider that collaboration means as well that anyone can apply changes. This can have as well negative side-effect if persons abuse this possibility. However this can be handled with the help of version history and in the worst case with password protection.

In fact wikis support accessibility and availability of up-to-date information - all the same it is a far reach to say that wikis can encourage people to read design documents more intensely. To inform about important changes and extensions via e-mail can strengthen this but do not guarantee success. Likewise generating and keeping design documents up-to-date is still a time consuming task - even if lightened with the help of wikis.²³³ Wikis do therefore not promote the creation of design documents but do rather support their application if a team has decided to take upon them.

²³³ Jamie Fristrom, (2003), Manager In A Strange Land: Collaborating With Wiki, http://www.gamasutra.com/view/feature/2769/manager_in_a_strange_land_.php (as at 03/04/08)

4.5. Physical props and prototypes

- ▶ ‘We always follow highly iterative development processes. We usually start with internal brainstorm sessions where we come up with loads of different ideas. Then we pick the most potential ones and start prototyping. For example, in the case of *Deflebug*, the first physical prototype consisted of a couple of coke bottles, bottle cap, pile of post-it notes and dusty floor. Not the easiest thing to work with, but enough to keep us going.’

Tony Manninen, *Spawns of Deflebug* ²³⁴

Playing and toying around with physical objects as e.g. toys like building blocks, miniature cars, figures, other game’s parts but as well with daily life’s objects as paper, pens, books, markers, paperclips, post-its, thumb tacks, bottles, cups and whatever else that can be of use can help the design process in various ways.



Figure 4.15. A shelf full of toys for inspiration purposes ²³⁵

fooling about with objects and toys can be a source for inspiration as Dave Grossman, game designer at Telltale Games, currently working on *Sam and Max* reflected on my question whether he considers playing with toys and sampling with real life objects for coming up with game ideas. Dave Grossman is known for collaborating at projects as *The Secret of Monkey Island*, *Monkey Island 2: LeChuck's Revenge* where he collaborated with the famous designers Ron Gilbert and Tim Schafer. ‘My desk actually has a whole bunch of little toys on it, little like action figures, wooden frogs and stuff. ‘ Sometimes he thinks of some of the toys as being characters of the game and tries to enhance this configuration with other toys of his desk. ‘Then I’ll just pick one out random and stick it in and see ‘OK what does that make me come up with anything interesting?’. Sometimes it does. They don’t really influence the game mechanic specifically because the nature of the things I’m working on is not very toy-like.’ ²³⁶

²³⁴ Tony Manninen, Road To The IGF: Spawns of Deflebug's (2007), http://www.gamasutra.com/php-bin/news_index.php?story=12545, (as at 08/17/07)

²³⁵ Figure 4.15.: Toys, Image by doc18, (2007), <http://www.flickr.com/photos/doc18/470338181/in/set-72157594391511480> (as at 12/03/07)

²³⁶ Interview with Dave Grossman, Telltale Games, San Francisco, March 7, 2007

Nevertheless on my question whether playing with toys or sampling with real objects, figures or toys is helpful for inspiration, only a few designers considered this method useful. More likely these objects are used for prototyping, iterating and for communicating ideas. This kind of usage is brought up due to physical objects' or toys' nature being handy for figuring out and shaping gameplay elements and level design issues in a cheap way as Tony Manninen, a participant at the Independent Game Festival 2007 with *Spawns of Deflebug's* reports in the entry quote of this chapter. This pinpoints that physical prototyping, if not applied in a high-end and complex way, is especially in early stages advantageous, allows again easy changes and fast iterations.



Figure 4.16. *Spawns of Deflebug*²³⁷, is a multiplayer mod for UT2004 that mixes elements from dodgeball, pinball, billiards and breakout - among others. The game was prototyped with coke bottles, bottle caps and piles of post-it notes.²³⁸

Anticipatory I would like to note that when working with real life objects one should pay attention to the fact that virtual worlds must not necessarily reflect the real world. This means that converting concepts from real life to virtual space must not automatically and likewise work or fascinate there. This especially applies to the earlier addressed pleasures of gaming, which include amongst others the possibility of doing something in a virtual environment one cannot do in real life. In this case the method of physical prototyping as a design method holds certain constraints for out of the box concepts.

Before dealing more closely with advantages, disadvantages and application areas of physical game prototyping and paper prototyping I would like to point out that in line with the presently new next generation consoles, which offer new possibilities of interaction, the awareness for design methods based on physical game design is increasing. The following sub-chapter therefore constitutes a diminutive side trip addressing Nintendo's innovative input device for the Wii - the *Wii mote* - and its impact on game design.

²³⁷ Figure 4.16.: Screenshot of *Spawns of Deflebug*, original website of *Spawns of Deflebug*, <http://ludocraft.oulu.fi/deflebug> (as at 12/03/07)

²³⁸ Tony Manninen, Road To The IGF: *Spawns of Deflebug's* (2007), http://www.gamasutra.com/php-bin/news_index.php?story=12545, (as at 08/17/07)

4.5.1. Physical Props & Nintendo Wii & DS interaction?

- ▶ ‘It’s definitely a new way of thinking about how to control a game. And so you have to picture yourself performing the actions you are performing in the games. If I’m doing a sword fighting game, what kind of actions are going to feel natural to the player? How can you make them respond to that kind of thing?’, Neil Sorens, Dancing Robots Studio²³⁹
- ▶ ‘For most of our history what has been new is the graphics. And I feel like games have gotten a lot better looking without there being new interesting things to do. But: this year we have the Wii. And the Wii has changed everything. Well and the Nintendo DS! [...] That’s enormously important [...] because it gives you a new way of interacting with the machine.’²⁴⁰
‘To design for this, we have to think differently — we have no choice about it.’,
Ernest Adams²⁴¹

Playing and sampling with toys and other ‘real’ objects like balls, tools, toys, etc. was capable to inspire game ideas ever since. Besides from virtual implementations of toys, games and sports like virtual pinball, pool, soccer, tennis derivatives, etc. real objects were not merely and knowingly used for physical prototypes (read more on physical prototypes in chapter 4.5.2. *Physical prototypes & paper prototypes*) but provided also a function of being inspirational objects. But since game consoles and controllers allow a radical new way of interaction, including motion-sensors for gestural gameplay, point-and-click features, touch-screens or microphone ports, the task of using ‘real’ physical objects for inspiration as well as for coming up with game and gameplay ideas has come to a new level.



Figure 4.17. A wooden marble labyrinth. One example out of a variety real life objects or non-virtual games which has been repeatedly reused for a virtual game concepts.²⁴²

Neil Sorens, game designer and CEO of Dancing Robot Studios, whom I had the chance to visit in San José near San Francisco, told me on my question whether he considers playing with toys or sampling with real objects relevant for inspiration and game design about the upcoming shift of design methods due to the new ways of interaction. He started to use toys and objects as for example plastic swords mostly because of the new ways of interaction and new ways to control games the Nintendo Wii offers. ‘So I’ll pick up a plastic sword or - you see the guitar hero guitar over there? I really enjoy that kind of thing - hopefully they will

²³⁹ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

²⁴⁰ Interview with Ernest Adams, GDC 2007, San Francisco, March 8, 2007

²⁴¹ Ernest Adams (2006), PS3 vs. Wii — The Designer’s Perspective, http://designersnotebook.com/Columns/087_PS3_vs_Wii/087_ps3_vs_wii.htm (as at 08/17/07)

²⁴² Figure 4.17.: Labyrinth, Image by David Sherret, (2007), <http://www.flickr.com/photos/david-sherret/1566015492/> (as at 08/17/07)

become more common. Because before that it's even if you're performing some kind of interaction with objects on the screen, the interface for that is sticks and buttons and so I've always start more in terms of these sticks and buttons than I have with the actual onscreen interactions.²⁴³

The first impetus of games for the new interaction devices indeed takes advantage of the innovative gestural ways to control a game. But for the most part the games and their fundamental gameplay itself are presently based on existing schemata and genres which are merely ported to the new device whilst adding gestural control features. Of course exceptions, which by majority focus on collections of mini-games, are increasing. Compared to the number of games on the market their quantity is however still short.

Designing for these kind of new devices constitutes a new challenge for game designers. By all means designers can in this terms profit a great deal more from alternative design methods and design approaches as physical game prototyping or from merely sampling with objects or toys.

'The Wii Remote gives players new things to do, which means it challenges us designers to come up with those things. Furthermore, it takes away functionality found on other consoles. Instead of the eleven buttons, two analog joysticks, and a D-pad of the PS3 controller, it has only six buttons and a D-pad. To design for this, we have to think differently — we have no choice about it. By contrast, Sony has hedged its bets. Its controller is wireless now, and it contains some motion-sensing capability, but it's still definitely a two-handed device, almost identical to the Dual Shock. It's not the kind of thing that encourages the player to see it as a light saber, tennis racket, fishing rod, or six-shooter — or to get up off the couch.', Ernest Adams ²⁴⁴

²⁴³ Interview with Neil Sorens, Dancing Robot Studios, San Francisco, March 6, 2007

²⁴⁴ Ernest Adams (2006), PS3 vs. Wii — The Designer's Perspective, http://designersnotebook.com/Columns/087_PS3_vs_Wii/087_ps3_vs_wii.htm, (as at 08/17/07)

4.5.2. Physical prototypes & paper prototypes

- ▶ ‘Prototyping is one of the most powerful tools developers have at their disposal for exploring the space of possible designs. Software development is inherently difficult and game development even more so, so experimenting with new ideas cheaply, iterating, and communicating them via prototypes is indispensable. Prototyping used improperly, however, can flip the sign bit on these gains.’, Chaim Gingold, Game Designer, Maxis/Electronic Arts²⁴⁵

The word ‘prototyping’ means to create a working version of a formal system.²⁴⁶ This working version is however not fully fleshed out but is merely a sketch or a model which though already allows to accomplish interactions and tasks in a still simplified way. This simple definition does not constrain the fact that the implementation of prototypes can be achieved by various means. Therefore prototypes are divided into three types: paper prototypes and physical prototypes, which are the easiest types of prototypes since they can be created quickly as they do not require programming skills, and software prototypes which are addressed in more detail in one of the following chapters.

Paper prototyping is a process particularly used by software developers to help to meet users needs in early design stages and to improve user experience. One of its major advantages is its characteristic of being a very cheap process which allows a rapid creation of prototypes. This in turn allows early user tests and accomplishes quick and easy improvements.

In the major of cases the construction of paper prototypes requires only pen and paper, some explanations and a little bit of imagination. Paper prototypes, same as physical prototypes, do not require any implementation of code or technical requisites. Interface elements are painted or printed on paper, cut out, and put onto other pieces of paper which model the

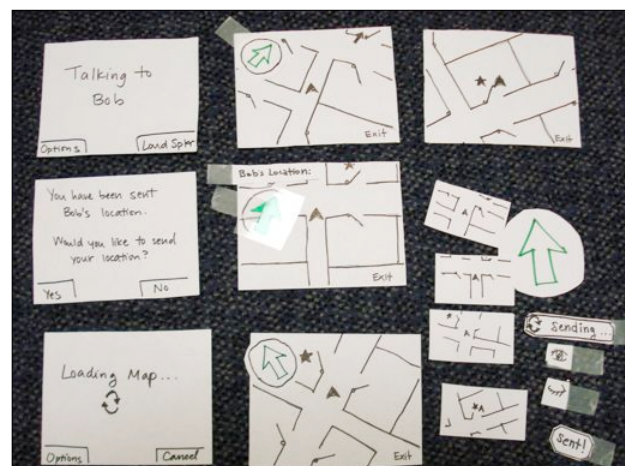


Figure 4.18. A paper prototype for a non-game mobile application.²⁴⁷ Paper prototypes are likely used to design and test interfaces of software applications.

²⁴⁵ H. LaBounta, C. Gingold, J. Townsend, K. Gray, J. Buchanan, V. Caballero, (2007), Prototyping: Rapid prototyping: visualizing new ideas, Proceedings of the 2007 ACM SIGGRAPH symposium on Video games Sandbox '07, Publisher: ACM Press

²⁴⁶ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), Game Design Workshop: Designing, Prototyping, and Playtesting Games, p.157

²⁴⁷ Figure 4.18.: Paper prototype, Image by Paarfi, (2007), <http://www.flickr.com/photos/15660609@N07/1684944199/> (as at 12/11/07)

computer screen. Rearranging, changing, replacing, renaming, adding and removing some cut out elements is easy and effortless. The sequence of dialogs or pages can be varied on the fly, which makes it easy to test multiple versions of an application's interaction design.²⁴⁸ For testing purposes a system's responses to user interaction are assumed by a person who on the fly adds and replaces the cut out widgets according to the testers 'input'. All these characteristics invite to embed user tests early in order to get user feedback already at early design stages.

Physical prototypes are on the contrary commonly used when it comes to design hardware products as PDA's, electronic or household products, machines etc. Their task is to specify and iterate on haptic and sensory features as shape, size, weight and its accompanying usability.

Both, paper prototypes and physical prototypes, can be applied and used as a game design tools - especially when taking into account that a whole bunch of PC or console games bases on or resembles already existing board, card or RPG games (*Diablo II*, *Baldur's Gate*, *Civilization*, etc.). In regard to game design paper prototypes can be simply enhanced to physical prototypes by integrating more materials as e.g. paperclips, thumb tacks, bottles, cups or eventually even toys like building blocks, miniature cars, loose figures or elements of (board) games. As shape, size or other haptic features are, when designing for virtual games, in most cases not relevant both paper prototypes and physical prototypes are merged in this thesis to avoid recurrences. Both are merely addressed in the following as physical prototypes.

'There is a very nice side-benefit to the act of constructing and playing a paper version of your game or game system - it presents things in a new light. Looking at your project from a different perspective can aid your creativity. It is similar to other techniques in brainstorming and creative process. Chipping away at a problem from different sides helps to break logjams that look insurmountable from head-on. I almost always come away from my first couple playtest sessions with a ream of new ideas for the game. Some of them are even occasionally good!'

Tyler Sigman, Lead Designer and Lead Writer of *Age of Empires: The Age of Kings* for Nintendo DS ²⁴⁹

Physical prototypes allow to build structures for games, to think through the interactions of the various game elements and ease the formulation of a systematic approach on the games functions and its gameplay.²⁵⁰ Of course not all genres allow a reasonable utilization of physical prototypes as for instance creating paper prototypes of first person shooters can be problematic but are not impossible. A physical prototype can and shall not simulate the players experience on a computer or console even if a lot of games base their main gameplay

²⁴⁸ Wikipedia, Paper Prototyping, http://en.wikipedia.org/wiki/Paper_prototyping (as at 08/27/07)

²⁴⁹ Tyler Sigman, (2005), The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping, http://www.gamasutra.com/features/20050913/sigman_01.shtml (as at 08/30/07)

²⁵⁰ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), Game Design Workshop: Designing, Prototyping, and Playtesting Games, p.163

on 3D environments and the ability of players to act in real time in a virtual environment. Physical prototyping can of course not replace or simulate this experience but one should take into account that this however is only one component of a game. Although it is a very important and critical component, the design of the overall gaming system can be developed independently and can benefit tremendously in its early stages by building a physical prototype.²⁵¹

This benefit is even higher if a designer is working on a strategy or puzzle game where a physical prototype it is a cheap alternative to common software prototypes in regard to designing, experimenting, improving and balancing tactics or combat systems. Of course if a real-time action component is the sole mechanic of the game, analog prototyping does unfortunately not make much sense. The websling mechanic of *Spider-Man 2* is a good example for a component that is hard or impossible to paper-prototype.²⁵²

Same as for regular non-game software an important advantage that game development holds is the possibility to test at early stages whether an idea is fun to play or whether it is still necessary to improve and shape it or even to discard the idea to focus on other ones. Physical prototypes can not only provide the overall possibility of playtesting but can already act this way at a very early stage. At very early stages the persons testing the game idea are seldom potential end users but team members and colleagues.

Here the prototype additionally expands, similar to sketches, to a discussion medium between designer and user or between design team members which permits collaborative refinements. Taking the target players into account is another very important aspect of game design. It is a good idea to involve them as soon as pos-



Figure 4.19. A functioning analog prototype that allows to start examining the gameplay in advance of large-scale coding and art asset production. Mechanics of the overall game or of a game subsystem, balance, flow and fun can be tested and structural holes as well as strategy holes may be discovered at early stages.²⁵³

²⁵¹ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.163

²⁵² Tyler Sigman, (2005), *The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping*, http://www.gamasutra.com/features/20050913/sigman_01.shtml (as at 08/30/07)

²⁵³ Figure 4.19.: "The Fruits of Your Labors – A Functioning Prototype!", Image from Tyler Sigman, (2005), *The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping*, http://www.gamasutra.com/features/20050913/sigman_02.shtml (as at 08/30/07)

sible. Physical prototypes can come into play for this purpose. Fullerton, Swain and Hoffman (2004) therefore suggest to construct a playable version of a game immediately after brainstorming.²⁵⁴

A multitude of a physical prototype's features and advantages resemble that of 'common' software game prototypes, which I will address in more detail in a later part of this thesis. In addition to the previously mentioned advantages a valuable characteristic of both types is that they make it possible to balance and try out game rules and ease communication. The physical prototype's main advantage to its coded opponent is that it can be implemented even faster and can therefore be applied in very early design stages. As it requires no implementation of code even non-programmers can collaborate in the implementation process and changes can be achieved much more quickly - which in turn cooperates with fact that the earlier necessary changes are made in the design process, the easier and cheaper they are to accomplish. A physical prototype can in some cases wholly replace a software prototype but in most cases it is handy as an early method to ease the design process at a stage where defining rules and systems are demanded as well as to test and stress the rules and the fun-aspect of the game. After these necessities are accomplished one should again share thoughts on whether it is reasonable and of benefit to implement a software prototype and if yes consider using the physical prototype as a blueprint to allow an even more rapid implementation of the software prototype.

Recapitulatory paper or physical prototypes hold a huge amount of advantages wherefore I would definitely recommend to consider integrating this method into the design process. The next part therefore shows a short example of a game that took great advantage of paper prototyping. Following this short side trip the thesis will give a short introduction on how to create paper- and/or physical prototypes.

²⁵⁴ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), Game Design Workshop: Designing, Prototyping, and Playtesting Games, <http://www.tar.hu/gamedesign/gamedesign0007.html#beginpage.DDU2> (as at 08/29/07)

4.5.2.1. Example: Paper prototyping for ‘Band of Bugs’

- ‘The turn-based nature of the project, along with mechanics that were easily represented with dice and paper made it a great candidate for this approach. The prototype allowed me to play with the balance of the units, define the size of the play areas, and gauge the complexities of the combat system without having to trouble the programmers while they were able to focus on early technical issues or finish up other projects.’,
Jeremy Throckmorton, game designer, NinjaBee²⁵⁵

At the Independent Games Festival, which took place at the same time and location as the GDC 07 in San Francisco, I had the chance to talk to Jeremy Throckmorton, game designer at NinjaBee who were nominated with *Band of Bugs* a turn-based strategy video game for the Xbox. He told me on my questions on game design that the design team took advantage of paper prototypes when working on the design of *Band of Bugs*. It was the first game where the team used the concept of paper prototypes. Jeremy was so kind to provide me with detailed information via e-mail.



Figure 4.20. Screenshot of *Band of Bugs*, a turn-based tactical strategy video game for Xbox. The game puts the player into an unhappy bug's shoes (... er, footpads) in his quest to save the Queen and the kingdom.²⁵⁶

‘One of the key goals we had for *Band of Bugs* was to make a tactics game that would be accessible to more casual gamers; those that might never try a tactics game other wise. I enjoy not only tactics video games, but also table top miniatures games. Unfortunately, this means I am not as put off by some obscure game mechanics. To help gauge the accessibility of the design I enlisted the help of another designer who is not familiar with these kinds of game to play the paper prototype in order to help gauge complexity. If a concept was causing her difficulty in the paper prototype, then it stood to reason the same concept could be too complicated for our target market. [...] Minimizing down time for players in the game was also a major goal of ours. The prototype helped with this goal by allowing us to play with concepts on our approach before that part of the game had to be programmed. Sitting at a table and taking turns moving bits of paper around a grid is about as turn-based as you can get, so we figured if we could get the game to play quickly in that environment, where a player had to handle all of the actions handle by the CPU, the final game would move along nicely.’

‘In the end the paper prototype was a great kick start to the project, and I plan on using it for any similar projects that have easily compatible mechanics.’

²⁵⁵ Jeremy Throckmorton, (08/24/2007), e-mail: Your Questions on the Paper Prototype of BoB

²⁵⁶ Figure 4.20.: Screenshot from *Band of Bugs*, official website, <http://www.ninjabee.com/bob/>, (as at 12/11/07)

4.5.3. A short introduction on how to create physical- or paper-prototypes

- ▶ ‘First and foremost, you really have to have a love of digging into the mechanics of a game and analyzing what makes it tick. This is more than coming up with cool item names or thinking of how the monsters should act or even laying out a level that looks nice. [...] We do a lot of talking about what should go into our game, and usually put together a 1-2 page “white paper” on a new idea. More importantly, we prototype the idea as soon as possible so that we can experience it in the context of the game and see if it feels fun. We like to try things out, keep them in if they feel good and toss them if they don’t. This means you spend a lot of your time working with everyone on the team to get your idea represented well if you are plugging it into the game, or by creating a physical prototype yourself. It is not uncommon to see pieces of other board games, dice, miniatures and so on lying around as we talk through ideas.’, Bill Roper, CEO for Flagship Studios (developer of Hellgate: London) ²⁵⁷

This chapter is a introduction on how to create physical prototypes and shall provide guidelines collected from prototyping projects. It should be no strict guideline or compendium of rules. Foremost this is a recommendation on how a physical prototype can be created. Various elements of this instruction as well apply to the later addressed rapid prototypes.

The first, single and most important rule for creating prototypes is: keep its realization as simple as possible in order to allow a rapid implementation. To avoid counter-productivity very little effort should be put into the prototypes look and artwork. Artwork takes up lot of time and the invested efforts lead to dislike of changes because of ones own attachment to the work.²⁶⁰



Figure 4.21. A perfectly suitable (if ugly) hand-made board for a physical prototype.²⁵⁸ Keeping the realization simple eases fast changes and iterations. ‘Having a sexy prototype improves play experience. However, you might find you spend more time prototyping and not enough time playing.’, Tyler Sigman ²⁵⁹

²⁵⁷ Bill Roper (2004/05/26), FSS Planet Interview with Bill Roper, <http://flagshipstudios.org/node/55?PHPSESSID=f231812f1526be0140347488a5b3555c> (as at 08/29/07)

²⁵⁸ Figure 4.21.: “A Perfectly Suitable (if ugly) Hand-Made Board”, Image from Tyler Sigman, (2005), *The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping*, http://www.gamasutra.com/features/20050913/sigman_02.shtml (as at 08/30/07)

²⁵⁹ Tyler Sigman, (2005), *The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping*, http://www.gamasutra.com/features/20050913/sigman_03.shtml (as at 08/30/07)

²⁶⁰ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.158

A functioning prototype can be of big advantage when presenting and pitching a game. As a matter of course in this case the prototype requires an adequate and professional look. Nevertheless if the prototype is not meant for presentation purposes the focus should lie on the realization of the game's idea and concept. Building a physical prototype of a game idea can help to flesh out concept-details or rules and can highlight eventual weak points, lacks of clarity or even missing elements which probably would not have been revealed during the concept stage but as recently when software implementation has already started. I do not think that it is necessary to stress out what this means in terms of costs and efficiency. So if the physical prototype is regarded merely as a tool for testing and presentation but as an essential design method the main focus next to its implementation is simultaneous designing by prototyping which includes iterating and testing. Iterating implies that styling, polishing or eventually even rebuilding for presentation purposes must be applied at its very last stage. In the meanwhile game elements as characters or objects can be represented with placeholders as for instance small figures, matchbox-cars, marbles, stones or diverse other simple forms and materials (books, markers, paperclips, post-its, thumb tacks, bottles, cups and whatever else that can be of use).

In most cases of games the gameplay and the game's mechanics are very straightforward. Engaging games that are fun to play often tend to base on systems whose structures and rules are very simple and easy to understand. Leave out graphics, sound, story as well as diverse other optional features - what's left of addictive games are in almost every case systems based on a few basic rules. This implies that these rules, players choices and structures are essential and important parts wherefore designers must put attention to it. At this point of the design process a physical prototype can again not only come into play but can be of big advantage.

Fullerton, Swain and Hoffman (2004)²⁶¹ defined a step to step guide to create a physical prototype. The following part contains a short abridgment resuming the most important parts in own words.

At first it is essential to identify the game's key elements (objects, physical settings, units, resources, etc.) and its key procedures which are then crafted in order to create a first simple core representation of the game. To give an example in the case of a *Battleship*-prototype the elements could be merely paper grids and pens for placing ships on the grids. Alternatively elements of the size of a cell-ship (2 - 5 cells) can be crafted to skip the user's drawing process. The prototype should for a start contain only core elements as necessary basic rules and elements which allow to basically play the prototype.

Further features, rules and elements should be retained for later steps. These implemented core mechanics should yet be played by the designer on its own in order to test the concrete rules and to decide if the game is playable and if it is worth to continue to work on the concept.

The subsequent task requires to build a structure and a framework for the game to support the feature set of the game. All ideas and rules should be listed and ranked, whereas a determination between essential rules and features is recommended. Basically rules are modifications of the game mechanics that change the way a game functions. Extended rules could be winning conditions, as for instance scoring systems, hit points or conflict resolutions. Features are elements to enrich a game like for instance weapons, vehicles, elevators, doors, etc. New rules can be integrated without having to add features - but not vice versa. If, in the case of a First Person Shooter, a new weapon is added an adaption to the game's rules is necessary. New rules must therefore be defined to determine e.g. how the weapon is going to be used or how much damage it will achieve. For a concise design

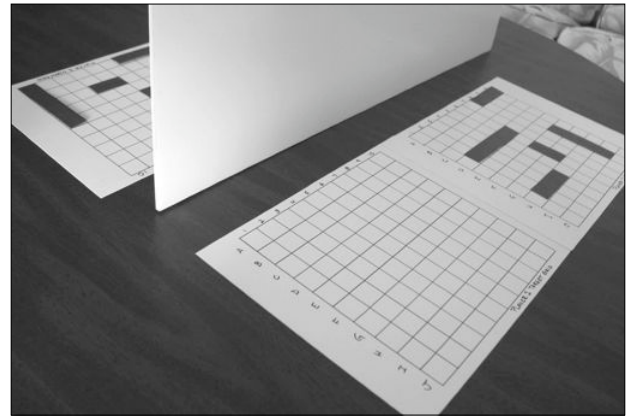


Figure 4.22. A simple paper prototype of *Battleship*. It contains only of paper grids and paper strips of the size of the ships.²⁶²

²⁶¹ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.174ff

²⁶² Figure 4.22.: Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.159ff

Fullerton, Swain and Hoffman (2004)²⁶³ suggest to focus on the rules first, since they are commonly directly linked to the core gameplay. Features can tend to enhance the system explosively and therefore hold a huge risk of distraction. The rules shall therefore be added in iterative steps, tested and if necessary revised until the prototype turns into a fully playable game with, if not all, most of the game concept's critical elements covered.

When adding new rules and features it is mandatory to keep an eye on the appropriate level of detail. Giving in to the seduction to add too many rules and features is a common mistake which may happen also to professional designers. Frequently not all of the rules are necessary to provide a functioning game mechanic. Optional rules should be deliberated precisely and should not be integrated until later iterations. A huge amount of rules and features does not lead to better and more intense games. As all additional rules constitute extra implementation costs it is even better to leave them out completely. There is always a possibility to add them later if the timing and monetary scope allows to. Fullerton, Swain and Hoffman (2004)²⁶⁴ warn to create a game from the outset, by integrating cool features and rules, but recommend to focus on what is really needed.

During building and testing the prototype it is certain that questions and issues regarding the design of diverse rules or elements will arise, which were not visible in the games' idea generation or concept phase. Not all issues or question have to be solved immediately, since especially in its early creation phases the designer(s) should better focus on the game's core itself. Though it is very important to put upcoming questions or inconsistencies down on paper in order to keep track of them. Solving issues in the phase of the physical prototype can spare a lot of money, since no programmers or artists have to be involved.

As soon as the prototype reaches a playable stage the designer(s) are up to test the game. At this point it is advisable to start questioning smaller details, rules and features of the game as well as the overall concept itself. Is the game fun to play? If not, what will make it fun? More fun could for instance be achieved by adding more or other challenges, a less dry theme or as well by integrating more interesting player decisions. Do some rules and features hinder the game's flow? What features and rules work out well and which do not? Do parts of the game conflict with each other? Do parts seem loose and disjointed? Do rules contain holes? Therefore not only the game shall be played but all aspects shall be put through

²⁶³ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.174ff

²⁶⁴ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.174ff

their paces. This means before further iterating tests of the overall game, the diverse subsystems, the balance, flow and fun are obligatory.²⁶⁵

It might be possible that some ideas that sounded really cool, funny or challenging during the idea generation and concept phase do not play well and therefore shall be better left out. Being able to “Kill your darlings” - a phrase mostly used in the film industry which describes a method of being self-critical in a constructive way, gains even more importance here. On the other hand maybe underestimated rules and features could turn out to be very interesting and should be expanded. Putting down questions as well as testing results and feedback of testers are essential to stay on track when iterating and refining the game. Modifying elements especially in regard to test the modification’s impact on the game can lead to new approaches and can as well improve the system. In regard to the *Battleship*-prototype a modification could for example be enlarging the battleship prototype’s grids. How would this affect the gameplay? ²⁶⁶

As soon as the designer(s) assume the physical prototype to be complete it is recommended to use the prototype as a foothold or model to write up a three- to six-page gameplay treatment, describing how the game functions.

The next sub chapter will leave behind the concept phase for a while and will address an already advanced game design phase: the level design phase. Level design is a very complex topic wherefore I will only cover in short the previously addressed method of paper prototyping or physical prototyping and its advantages and applicability to level design.

²⁶⁵ Tyler Sigman, (2005), The Siren Song of the Paper Cutter: Tips and Tricks from the Trenches of Paper Prototyping, http://www.gamasutra.com/features/20050913/sigman_01.shtml (as at 08/30/07)

²⁶⁶ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), Game Design Workshop: Designing, Prototyping, and Playtesting Games, p.157 ff

4.5.4. Level design with physical props

- ▶ 'This process lets you re-arrange rooms quickly and easily, adding and removing rooms as you see fit. This helps to pre-visualize a layout and typically is quicker than drawing and erasing. On *Jedi Power Battles*, I designed all my levels this way. I took a bunch of room ideas from my level document, wrote them down on some post-it pads, and started to arrange them as I saw fit. I also included the gameplay ideas for each room on the pads and arranged them on a board.', Michael Stuart Licht, on level design with post-it notes, Lucasarts Entertainment²⁶⁷
- ▶ 'Modeling clay is really useful for us in terms of talking about terrain.' It's not possible to draw terrains including its heights on paper and modifying existing maps is complicated. To modify a map a designer has to open Photoshop to rearrange the height-map, renew the texture, put everything back into the level editor to morph the terrain. 'It just takes forever. So we got a whole bunch of modeling clay to say 'Hm ... I mean like this''. Meshing the clay with ones fingers allows a fast visualization that allows talks like "Oh I see what you mean. I thought you meant this.' And then you talk about what's better and then you go from there.', Clint Hocking, Ubisoft²⁶⁸

Level design is very architectural in nature. Therefore it holds a special need for spatial studies. One of the tasks of a level designer is to arrange a level's challenges, weenie chains, details and diverse objects of rooms and spaces. A game has to establish clear leads that communicate to the player where to go, and what actions to attempt once there.

It is a "carrot on a stick"²⁷⁰ approach to level design which means that objects and arrangements are relevant for providing



Figure 4.23. Physical prototype of a level, made of cardboard, Lego, straws and marbles.²⁶⁹

²⁶⁷ Michael Stuart Licht, (2003), An Architect's Perspective On Level Design Pre-Production, http://www.gamasutra.com/features/20030603/licht_pfv.htm, (as at 08/17/07)

²⁶⁸ Interview with Clint Hocking, Ubisoft, GDC 2007, San Francisco, March 8, 2007

²⁶⁹ Figure 4.23.: Original Finn prototype, from 491 Projects - Prototyping, playtesting and all that jazz, Photograph by Tracy Fullerton, (2007), <http://www.flickr.com/photos/kinojabber/255447645/in/set-72157594304261194> (as at 12/19/07)

²⁷⁰ "This somewhat bizarre term was coined by Walt Disney, who suggested that when designing massive 3D environments (theme parks), it was necessary to lead visitors through the environment the same way one trains a dog-by holding a wiener and leading the dog by the nose. [...] Your 3D VR environment needs to have standout landmarks so that it's easy to navigate without a map. The best games, which have typically been designed with very limited graphics, always save a few graphics to denote special and interesting things that should be investigated." Stephen Clarke-Willson, (1998), Applying Game Design to Virtual Environments, Digital Illusion, ACM Press, Vol. 2, Issue 1, January 1, 1998

cues, they are responsible for smooth gameplay, help to orientate within a building or landscape and enable game flow. Of course some are just decorative elements.

Especially in large and non linear environments this guidance of where to go next is necessary. Here the just mentioned weenie chains come into play. Weenies are objects (as for instance power-ups), movements, visuals, sounds, NPCs, etc. that draw a player's attention in order to draw the player near to them. Weenie chains are sequences of such leads that the player progresses through from start to end. Its purpose is to help players to keep direction in a level with respect to how the game world unfolds.²⁷¹ I assume that it is not necessary to note again in detail that within this application area the use of physical objects as for instance paper cut-outs, post-it notes, toys, LEGO or modeling clay can be very convenient for tactically arranging, rearranging and studying diverse spatial elements of a level collaboratively during its concept stage. Changes can again be achieved very quickly and a repositioning of objects causes nearly no effort. Various materials can be used as a 'quick and dirty' or old fashioned alternative to 2D or 3D floorplan-software which however allows collaboration in a much more effective way.

The usefulness of post-it notes, small paper slips or paper cutouts for design purposes has been repeatedly mentioned. In regard to level design their characteristic of being small, handy and eventually sticky but still easy repositionable is particularly beneficial. Michael Stuart Licht, level designer for Lucasarts Entertainment and masters graduate of architecture from Virginia Poly Tech, calls with his article *An Architect's Perspective On Level Design Pre-Production* for attention to the use of these materials. At architecture school he was introduced to use paper cutouts for designing floorplans. The technique is based on the idea of rooms represented by paper-cutouts that optionally allow to add names and notes. The cutouts are arranged, rearranged, added or removed until a reasonable layout has been created. As mentioned in the chapter's introduction Licht took this idea up and used it for level design purposes.²⁷²

'When I first presented this board to the leads, I could tell that they appreciated the flexibility the system provided. [...] This showed that even in that the early phase of my designs, the leads could understand what I was doing and contribute to the process, so no surprises would crop up later. After a few meetings like this, the entire team could get into the process of re-arranging the post-it notes in different scenarios, which was fun and allowed all of us to contribute in the design process. After working with the post-it notes for a few days, everyone had a pretty good idea of how my level was going to be laid out [...].', Michael Stuart Licht, level designer ²⁷¹

271 Bernd Kreimeier, (2004), The Case For Game Design Patterns, http://www.gamasutra.com/features/20020313/kreimeier_02.htm (as at 09/03/07)

272 Michael Stuart Licht, (2003), An Architect's Perspective On Level Design Pre-Production, http://www.gamasutra.com/features/20030603/licht_pfv.htm, (as at 08/17/07)

Amongst many others another useful material which shall be considered to use when working or pondering on level design is LEGO. Dispensable whether LEGO is regarded as a toy or as a construction tool actually designed for children - LEGO allows building sketches, simplified game scenes or worlds in an easy manner as well as providing and enhancing them with objects, characters, constructions, vehicles, puzzles, challenges or tokens. LEGO also allows easy and quick changes: rebuilding of objects or scenes as well as rearranging, combining, decomposing and repositioning of elements can be achieved in a very small amount of time. Its nature also allows to use bricks or other LEGO elements as placeholders and abstractions, strongly detached from visual concepts, which can be advantageous especially in early design phases as they allow quick manipulation and keep from limiting inspiration and free thought. It is up to one's imagination to abstract from a plates, rectangular shaped bricks and edgy characters to a for instance luscious prehistoric landscape, a decayed and vacant high-tech factory floor or a funny cartoon setting for cute animal inhabitants.



Figure 4.24. A video screenshot (of unfortunately poor quality) showing game designer Hideo Kojima with a camera and a LEGO prototype of *Metal Gear Solid* levels.²⁷³ Only the first *MGS* game was prototyped with LEGO. 'We initially wanted to use LEGOs again, but the rooms and landscapes were too complicated with the different height levels in each room, so we pretty much gave up,' Hideo Kojima ²⁷⁴

Therefore LEGO is predestined for use as a physical prototype and can be used to experiment, test and to iterate on ideas, stories, walkthroughs, tactics, puzzles, weenie chains or other gameplay elements and can therefore be convenient especially in regard to level and map design. Besides it can be used to show and visualize ideas to an audience and for providing settings for discussions on for example map or puzzle tactics. Harvey Smith, video game designer who won the Game Designer's Challenge of the Game Developers Conference in 2006, also admits in an interview that he and his team took ad-

'We used a knock-off brand of LEGO type toys to work out the sports-arena-like maps we built for *Fire-Team*. This was useful for thinking about view-cones and occlusion, plus for setting up maps that allowed players to think tactically. Maybe it was actually LEGO? can't remember.', Harvey Smith, game designer. ²⁷⁵

²⁷³ Figure 4.24.: *Metal Gear Solid - Making Of*, A young Hideo Kojima talks about *Metal Gear Solid* for the Playstation console, (added 2006), <http://www.youtube.com/watch?v=YbhufjtXIzg#>, (as at 12/19/07)

²⁷⁴ IGN Staff, (200), Hideo Kojima Speaks, The master of *Metal Gear* shares his thoughts on game theory, Snake's new mission, and Airsoft guns, <http://ps2.ign.com/articles/088/088501p1.html> (as at 12/19/07)

²⁷⁵ David Perry, (2006), Harvey Smith, Professional Game Designer, http://www.dperry.com/archives/interviews/harvey_smith_ga (as at 08/17/07)

vantage of LEGO when designing levels and maps for *FireTeam* that challenge and allow the player to think tactically.

The chapter showed that physical prototypes out of analog materials are considered as very helpful in order to enable the generation of a solid structured game design without taking up programmers or artists expensive time. However not all games and not all features can be reasonable prototyped and tested with paper or other physical objects. Therefore it is of course also reasonable and of huge benefit to invest some more time and effort in order to be able to test a game's system within its native surrounding. Here software prototypes come into play. Though in some rare cases physical prototypes can wholly replace a software prototyping stage the method is increasingly regarded as an essential part during game development and preproduction. The following part therefore concentrates on rapid game prototypes and game sketching.

4.6. Software prototypes - Rapid game prototyping

- ▶ ‘Prototyping is a crucial stage. Testing something out, turning an idea expressed on paper into a real playable piece of code, is the only way to really prove an idea has merit.’
Rob Kay, Harmonix, project lead on *Guitar Hero* ²⁷⁶
- ▶ ‘Prototyping is the sketching of game design. You have to sketch a lot to know what works and what not, especially when you are working on games that has no pre-established genres.’, Jenova Chen, thatgamecompany, designer of *fLOW* ²⁷⁷

Rapid prototyping game concepts is a design method which is increasingly applied during preproduction of video games. The method is based on creating a for the time being simplified software version of a game concept with the use of programming tools that suit best for convenient and fast code generation. The method’s main idea affiliates directly to the previously addressed method of physical prototyping or paper prototyping: creating a playable working version of a formal system²⁷⁸ in order to playtest a concept on a computer or console as early as possible.

In many cases the complexity and quality of prototypes as well as its artwork aim to resemble that of game demos in order to sell an IP to a management. If prototyping is applied in this manner it may function as a hook to win a pitch or to give green light for production as they rather show that a game can be build than they offer exploration. These elaborate proto-

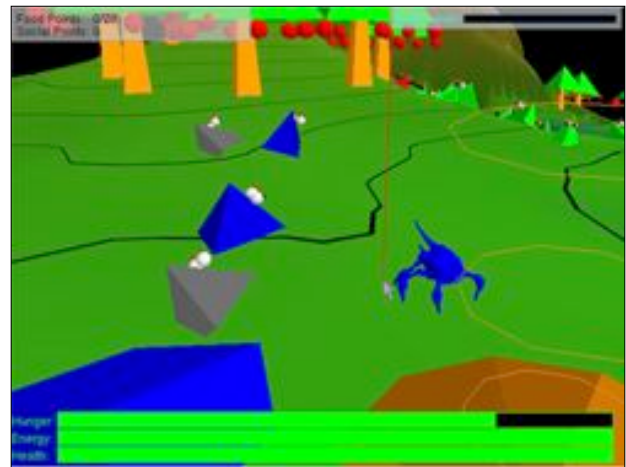


Figure 4.25. An early prototype of *Spore* to show of the game’s battle system. The prototype contains only very simple artwork as the main purpose is to test how the game feels to play but not how it should look like. Creatures and objects are therefore illustrated with simple geometric forms. For the sake of simplicity, the team later moved to even more simple 2D prototypes. ²⁷⁹

²⁷⁶ Rob Kay, Harmonix, project lead on *Guitar Hero*, Online-Interview, June 9, 2007

²⁷⁷ Jenova Chen, thatgamecompany, Online-Interview, August 31, 2007

²⁷⁸ Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), *Game Design Workshop: Designing, Prototyping, and Playtesting Games*, p.157

²⁷⁹ Figure 4.25: One of the earlier prototypes for *Spore*, from: Eric-Jon Waugh, (2006), *GDC: Spore: Pre-Production Through Prototyping*, http://www.gamasutra.com/features/20060329/waugh_01.shtml (as at 01/02/08)

types, which oftentimes already contain game ready art, representative assets and which allow to play through most of a part of one level or component of a game are also addressed as vertical slices. However these prototypes are costly, inflexible and more often than not inefficient and are cancelled before completed.²⁸⁰ I will not address this way of prototyping in this thesis but concentrate on an earlier applied, faster, slimmed and cheaper utilization of the method - 'rapid prototyping'. Rapid prototyping differs not only in its characteristics from 'regular' prototypes or vertical slices but pursues as a matter of course very different objectives. Hence the purpose, capability and intention of rapid prototyping is not to replace routine pre-production activities. Besides to rapid prototyping another method or term called 'game sketching' has been introduced. I will address this method that bases even more on the interdisciplinary design method 'sketching' at the end of the chapter in more detail. In advance I would like to foreclose that apart from the differences at their implementation the purposes, demands and characteristics of 'game sketching' compare strongly to that of rapid prototyping.

The term rapid implies that the prototyped game is for the time being only a sketch or blueprint of the intended final product wherefore only elements necessary for its functioning are integrated. Artwork, sound or even many of the game's features are examples which are merely approximated instead of polished or fleshed out in order to be able to experiment with the system as soon as possible. In many cases a rapid prototype does not actually even contain the whole game system but only little functional bits and pieces to test out. The method eventually demands some imagination an improvisation from the audience, player or playtester - a demand which is within the term of small or constrained spaces for exploring large numbers of ideas in all terms justifiable. Good rapid prototypes can be written by only one programmer within a day or a week.

"At Harmonix we prototype early and rely on real playable code far more than lengthy design documents (which we do create too, and need, but don't prevent us from being flexible). [...] It's more expensive than a sketch or a design document, so choosing what to prototype and being clear about the goal is very important.", Rob Kay, Harmonix, project lead on *Guitar Hero* ²⁸¹

This simplification is possible due to the circumstance that the basic gameplay of the majority of games relies on very simple and straightforward concepts. If graphics, sound-effects, eventual huge worlds or extra features are taken aside in most cases a system remains that can merely be modeled with a few easy rules. ²⁸²

280 M. Agustin, G. Chuan, A. Delgado, A. Ortega, J. Seaver, J. W. Buchanan, (2007), Game Sketching, ACM International Conference Proceeding Series; Vol. 274, Proceedings of the 2nd international conference on Digital interactive media in entertainment and arts, Pages: 36 - 43

281 Rob Kay, Harmonix, Online-Interview, June 9, 2007

282 Tracy Fullerton, Chris Swain, Steve Hoffman, (2004), Game Design Workshop: Designing, Prototyping, and Playtesting Games, p.157

Though great graphics, immersive worlds and sounds by all means contribute to a great extent to an engaging game the fundamental system needs to be modeled with even more exhaustive care. At this point rapid prototyping can play a crucial role. The method permits to focus on a handful of central choices without dwelling on the details of implementation, on models and animation, complex artwork, additions or features. It allows fast and straightforward rethinking, refining or re-modeling until a fundamental system that is fun to play and that enables to keep a player hooked over a period of time has been established. Focusing on problems frequently requires decomposing a concept or idea further and breaking it down into small or smaller problems. As the purpose of a rapid prototype lies not in building a demo-like version or vertical slice of the final game each broken down problem can be addressed by an independent and certain type of prototype.²⁸³

Certainly even rapid prototyping requires a noticeable amount of not to be underestimated extra efforts during concept or preproduction phase wherefore the method seems to be cumbersome. However this method provides the huge benefit of exploration and testing of ideas at early stages. Compared to the increasing complexities and costs of nowadays video games the extra efforts are small and the benefit of being able to reveal upsides and downsides of ideas, to discard or to refine concepts that do not work out well or that are not much fun to play at early design stages are especially worthwhile. This lowers the consequences of failure and allows to 'fail often, fail early'. Fear of failure is one of the reasons why the game industry repeatedly keeps producing similar titles, movie franchises and sequels. As the consequences of a failing prototype are by way of comparison harmless Gabler et. al.²⁸⁴ recommend to embrace this accompanying possibility of failure which pledges rewarding chances, experimentation and exploration.

'You can't argue with a prototype. If it's cool, people shut up. [...] You should have to kick people out of your chair... If someone sits down and wants to play, you win.', Chris Hecker, Maxis, designer of *Spore* ²⁸³

Even more valuable is the possibility of being able to validate the concept at very early stages. If the prototype's core mechanics or even if only some of its elements can attract and sustain a players interest one can assume that it s worth to con-

283 Bonnie Ruberg, (2006), MIGS Keynote: Gingold/Hecker On Spore Prototyping, http://www.gamasutra.com/php-bin/news_index.php?story=11628 (as at 01/02/08)

284 K. Gabler, K. Gray, M. Kucic, S. Shodhan, (2005), How to Prototype a Game in Under 7 Days: Tips and Tricks from 4 Grad Students Who Made Over 50 Games in 1 Semester, http://www.gamasutra.com/features/20051026/gabler_02.shtml (as at 01/02/2008)

285 Dave 'Fargo' Kosak, (2006), Game Prototyping: How the Skunkworks Work, GDC'06 report at gamespy.com, <http://pc.gamespy.com/pc/spore/698263p1.html> (as at 01/02/08)

tinue to work on the game and it can persuade others that the idea is a good one.²⁸⁶ On the other hand the method forces to learn how to kill one's darlings early if they are dead-end game ideas. This is of special interest as Augustin et. al.²⁸⁷ locate risk aversion as the main reason why the game industry focusses on producing games of recurring concepts and genres rather than on innovation and exploration. Rapid prototyping has the potential to downsize that issue as it allows executives to experience the essence of games at minimal costs which may permit an exploration of more innovative games. The potential of prototypes can be further extended by creating more than one prototype. The depth of a topic is exhausted much more intensely if a number of prototypes is developed by multiple team members or developers simultaneously. This occurs partly due to the fact that different people oftentimes automatically generate different ideas and approaches but as well due to a self-imposed spur to create a different approach to a topic than the other comrades-in-arms. Furthermore this approach minimizes the risk of design decisions even more.

Chris Hecker and Chaim Gingold, two game designers who are strongly attached to experimental approaches to game design and development (both working on *Spore*, Will Wright's experimental new title) identified at the Montreal Games Summit 2006's keynote on advanced prototyping a list of qualities of good prototypes. A good portion of the listed qualities do not merely apply to only software prototypes but also for all kind of other game related prototypes as for instance the previously addressed physical prototypes or paper prototypes. For this reason various qualities have been already covered in the previous chapter.

Qualities of good prototypes: ²⁸⁸

- cheapness
- agility
- lightness
- falsifiability
- testability
- relevance to the game at hand

286 Bonnie Ruberg, (2006), MIGS Keynote: Gingold/Hecker On Spore Prototyping, http://www.gamasutra.com/php-bin/news_index.php?story=11628 (as at 01/02/08)

287 M. Agustin, G. Chuan, A. Delgado, A. Ortega, J. Seaver, J. W. Buchanan, (2007), Game Sketching, ACM International Conference Proceeding Series; Vol. 274, Proceedings of the 2nd international conference on Digital interactive media in entertainment and arts, Pages: 36 - 43

288 Bonnie Ruberg, (2006), MIGS Keynote: Gingold/Hecker On Spore Prototyping, http://www.gamasutra.com/php-bin/news_index.php?story=11628 (as at 01/02/08)

- generalizability
- surprisingness
- persuasiveness and fun

Some of the listed qualities agree with the recommendation to leave polished artwork aside when for instance focusing on gameplay. Nonetheless one should not generalize and affirm that artwork is not important. In fact the point is that it is crucial to focus on the problem or the broken down part of the game a prototype is intended to solve. This means the center of interest can be on for instance kines-
thetic, technology or game mechanics but can indeed as well be on aesthetics. The reason for the recommendation of staying focused on merely one element is simple: combining different elements and adding additional features takes on a new dimension of complexity which is in many cases in regard to the prototype's purpose neither needful nor efficient. However an increasing complexity requires dozens of extra time and extra efforts²⁸⁹ which is in all terms contradictory to the just above listed qualities. Moreover Gabler et. al.²⁹⁰ came to the conclusion that in terms of rapid prototyping more invested time does not mandatorily lead to better quality wherefore they recommend to better enforce short development cycles. There exists no correlation between the time spent in development and the success of a prototype. More complexity, polished visuals or even more features will therefore not significantly improve a prototype. Though seducing artwork will not salvage a bad design or bad gameplay an appropriate overall aesthetic look and feel including appropriate sounds thoroughly matters as it helps to make a good game even more playable.

It is to a big extent negligible which tool, software or programming language is used for the creation of prototype unless it allows to meet with the previously mentioned demands. Most games are written in C++ as the language enables enormous possibilities. Not all game designers are professional coders. On the contrary many great designers are no programmers. This makes no odds as in many cases twiddling with less complex tools which enable a more simple and faster handling is exceedingly sufficient for the tar-

'The focus on building stuff and not on exploring the space of the interactions possible is endemic within the industry. We are often far too busy building stuff to take the time out to think.'

John Buchanan, director of Carnegie Mellon University ETC²⁹¹

289 Eric-Jon Waugh, (2006), GDC: Spore: Pre-Production Through Prototyping, http://www.gamasutra.com/features/20060329/waugh_01.shtml (as at 01/02/08)

290 K. Gabler, K. Gray, M. Kucic, S. Shodhan, (2005), How to Prototype a Game in Under 7 Days: Tips and Tricks from 4 Grad Students Who Made Over 50 Games in 1 Semester, http://www.gamasutra.com/features/20051026/gabler_02.shtml (as at 01/02/2008)

291 M. Agustin, G. Chuan, A. Delgado, A. Ortega, J. Seaver, J. W. Buchanan, (2007), Game Sketching, ACM International Conference Proceeding Series; Vol. 274, Proceedings of the 2nd international conference on Digital interactive media in entertainment and arts, Pages: 36 - 43

geted purposes. Gabler et. al. aptly summed this up with two statements ‘Nobody knows how you made it, and nobody cares’ and ‘If you can get away with it, fake it’. Especially for rapid prototyping this is based on the relevant conclusion that correct solution is not always the best, fastest or cheapest solution.²⁹² It must be further pointed out that working with a tool or language that allows to reuse the code generated during rapid prototyping is in fact seducing. However the purpose of rapid prototyping is not to produce reusable code but to experiment with ideas and concepts. The constraints and complexities coming along with generating code that may make it into the final game distracts from experimentation and retards focusing on the essentials. The concept of rapid prototyping therefore advises against embracing the generation of reusable code and game building at such early stages.

Thus as rapid prototypes as well as general software prototypes do hold a variety of benefits it is reasonable to weigh out whether it can be more easily implemented with a cheaper method as for instance paper prototyping.

As mentioned before software prototypes resemble in various ways physical prototypes. Due to this analogy I merely reference at this stage to the framework in chapter ‘4.5.3. *A short introduction on how to create physical- or paper-prototypes*’ instead of providing a further rather similar and repeating instruction. As a result of this similarity a multitude of the there included tips are as well highly relevant for software prototyping. The following chapter on game sketching shows a young and slightly different approach to the topic of rapid prototyping.

²⁹² K. Gabler, K. Gray, M. Kucic, S. Shodhan, (2005), How to Prototype a Game in Under 7 Days: Tips and Tricks from 4 Grad Students Who Made Over 50 Games in 1 Semester, http://www.gamasutra.com/features/20051026/gabler_02.shtml (as at 01/02/08)

4.6.1. Game sketching

- ▶ ‘We are often far too busy building stuff to take the time out to think ... we believe that establishing a culture of game sketching will enable teams within the industry to explore new ideas in a fun, cheap and risk-free manner.’, John Buchanan, director of Carnegie Mellon University Entertainment Technology Center’s Adelaide, Australia Campus ²⁹³

Game sketching is a project whose aim is to develop a set of methodologies for pre-prototyping basic interactivity for the purposes of playing with game ideas as early as possible. Game sketching is based on the necessity to visualize and test game concepts at very early stages without focussing on models and animation but on ideation, exploration and gameplay instead.²⁹⁴ Thus in its characteristic and claims the underlying concept highly resembles the previously discussed paper prototypes and rapid prototyping.

However the fundamentals of game sketching are by way of comparison much more tightly rooted within the widespread interdisciplinary design technique ‘sketching’ (examined in more detail in chapter ‘4.3. *Sketching - spur for creative thought?*’) than rapid prototyping is.

Game sketching is a student project of Carnegie Mellon University Entertainment Technology Center’s Adelaide, Australia Campus. Game sketching is no technology - all the same in the course of the project a slight and on purpose primitive tool has been developed that allows to sketch linear narrative games.

The distinction between game sketching a rapid prototyping is furthermore based on the general notion that there exists a fundamental distinction between sketches and prototypes implying that sketches are no prototypes. Amongst others differences to rapid prototypes game sketches are even faster to build and more disposable. As the method is loosely based on prototyping it might be redundant to say that sketching in this term is not tied to pen and paper but is an activity that encompasses a generative design work that shares a number of characteristics with pen-and-paper sketching.

²⁹³ BBC News, (2007), Sketching out a better gaming future, <http://news.bbc.co.uk/1/hi/technology/7012688.stm> (as at 03/03/08)

²⁹⁴ M. Agustin, G. Chuan, A. Delgado, A. Ortega, J. Seaver, J. W. Buchanan, (2007), Game Sketching, ACM International Conference Proceeding Series; Vol. 274, Proceedings of the 2nd international conference on Digital interactive media in entertainment and arts, Pages: 36 - 43

In analogy to general sketching game sketching demands large numbers of ideas to be explored and to be sketched out rapidly (if not instantaneously) in order to enable a design and its accompanied conversations to become more focused and more detailed. This demand of rapid feasibility is to a great extent impeded if non player characters (NPC's) are to be integrated to a prototype. The development of artificial intelligence for NPC's is a very time-consuming and expensive process which is within this context indeed neither reasonable nor needful. For this reason game sketching tackles the concept of puppeteering. Human puppeteers control on the one hand NPC's but are as well used to control objects (gates, doors, switches, etc.) that react to the player. This time saving concept constitutes the main difference to general rapid prototyping. Thus the game sketch is due to this event if anything no literal prototype but rather a virtual play that allows to explore interactions with objects and NPC's, the behavior of NPC's and the timing within a game.²⁹⁵



Figure 4.26. Game sketching

The technique is based on the concept of puppeteering. In order to get around implementing complex AI team members take over an object's or NPC's task.²⁸⁵

The technique of game sketching focuses for the time being on linear and narrative games. The software which has been developed is very limited. Doubtless limitations might be frustrating when trying to create a real game. Due to its simplicity it is proposed to use not only the technology and a human team but as well a game script that provides the puppeteers with necessary informations (e.g. how to react on a certain interaction) and a director who oversees the overall process, the necessary steps and acts as a kind of gate keeper who ensures a correct course of events. The concept of game sketching is a quite young approach as it has not been introduced until 2007. One can hope that this approach will improve and become common in the future.

'The most important lesson that we have learned is that game sketching is all about ideation and exploration. We are not presenting technology that solves any issues. In fact we have learned that in the ideation stage, technology is the enemy of exploration.', John Buchanan²⁸⁵

²⁹⁵ M. Agustin, G. Chuan, A. Delgado, A. Ortega, J. Seaver, J. W. Buchanan, (2007), Game Sketching, ACM International Conference Proceeding Series; Vol. 274, Proceedings of the 2nd international conference on Digital interactive media in entertainment and arts, Pages: 36 - 43

5. Closing statement

Concluding to the examinations on tools & methods for game design I would like to stress a statement of Reiner Knizia a well known and awarded german board game designer, known for, among others, the *Lord of the Rings* board game. In his statement he illustrates reasonably why he dislikes to nail down the design process to a certain recurring routine.²⁹⁶

Even though it is reasonable and practicable for large companies to have a fixed procedure to lean on I would like to put up his approach of giving differing methods a chance. The approach is based on the idea that different entry points and the therefore differing processes can help to step out from predictable solutions in order to contribute to fresh and innovative ideas and games wherefore I believe it should definitely be considered when starting to design.

'It's really a very critical point how to come up with new ideas and how to develop innovative games. I've learned that I should not and do not have a methodology for how to do games. [...] As soon as you have a methodology, essentially that says, "you're always starting at this corner and you always do these 25 steps." And then you don't have something innovative. It's important to me personally to have new entry points every time so that if you start something new it is fresh and exciting',
Reiner Knizia, game designer ²⁹⁶

²⁹⁶ Interview with designer Reiner Knizia, <http://www.merscom.com/games/knizia.php> (as at 17/30/07)

6. Appendix

6.1. Interview Partners

Next to literature research interviewing persons with practical experience in the game industry as for instance game designers or game developers has been a central part of this thesis. Austria indeed gets in on the international video game market - however the game industry in Austria is proportionally small. Hence I attended the Game Developers Conference '07²⁹⁷ in San Francisco which offered next to interesting lectures the possibility to meet further interview partners in a short space of time.

The following persons were so nice and answered me detailed questions on game design. Besides to the appointed meetings additional chats with other game designers and with participants of the Independent Games Festival, which took as well place in San Francisco during this period of time, have been very informative and insightful. This list introduces in short my interview partners.

6.1.1. Noah Falstein, The Inspiracy

Noah Falstein is the President of The Inspiracy (www.theinspiracy.com), a consulting firm specializing in game design and production. Designing and managing entertainment and educational software since 1980 for companies such as Williams Electronics, LucasArts Entertainment, The 3DO Company, and Dreamworks Interactive, Falstein has worked on everything from toys to CD-ROM games to

²⁹⁷ The Game Developers Conference (GDC) is the official trade event "by developers for developers" of computer, console, mobile, arcade, online games, and location based entertainment.

The GDC attracts over 12,500 attendees and provides educational, networking, and business opportunities for game development professionals driving the \$11 billion videogame industry. It is the main global forum where programmers, artists, producers, game designers, audio professionals and others involved in the development of interactive games gather to exchange ideas, network, and shape the future of the industry. This market defining conference features over 300 lectures, panels, tutorials and round-table discussions on a comprehensive selection of game development topics taught by leading industry experts. In addition, the GDC expo showcases all of the game development tools, platforms and services. The conference also includes the ninth annual Independent Games Festival, where new, unpublished games compete for the attention of the publishing community.

Extract of official GDC-Website, <http://www.gdconf.com/aboutus/> (as at 03/09/07)

edutainment to location-based entertainment. Some of his better known titles have included *Sinistar*, *PHM Pegasus*, *Indiana Jones and the Fate of Atlantis*, and *Hungry Red Planet*. Falstein is currently a leader in the emerging Serious Games field, having designed corporate training simulations and health-based games. He also serves on the advisory boards of the Games for Health Conference and the Serious Games Summit. He was the first elected chairman of the Computer Game Developers Association and for the last five years has written the monthly design column for Game Developer magazine. The Inspiracy does original design and design review for clients around the world, including both established game companies and those looking to apply game design technique to for purposes beyond entertainment.²⁹⁸

6.1.2. Mark Morris, Managing Director, Introversion Software

Introversion Software is a UK based company. Their best known project is *Darwinia*, (<http://www.darwinia.co.uk>) which won the Seumas McNally Grand Prize and the Technical Excellence and Innovation in Visual Art Awards at the 2006 Independent Games Festival. Recent project: *Multiwinia* ('Multiplayer Darwinia').

Mark joined forces with Chris Delay and Thomas Arundel to found Introversion Software in 2001 after completing a masters' degree in computer science at Imperial College, London. Mark has used the experiences and management skills he gained from a period of work with the Ministry of Defence in London to ensure the smooth day-to-day running and operation of Introversion, in which he adopts the role of both project manager and arbiter between the commercial and development sides of the team. To date, Mark has been heavily involved in the successful online and retail launches of Introversion's titles *Uplink*, *Darwinia* and *Defcon*, and is currently working on securing a number of exciting deals for future Introversion titles that will be coming out in 2008.²⁹⁹

6.1.3. Dave Grossman, Senior Designer, Telltale Games

Dave Grossman is a noted game programmer and game designer, most known for his work at Telltale Games and early work at LucasArts. At LucasArts, Grossman wrote and programmed *The Secret of Monkey Island* and *Monkey Island 2: LeChuck's Revenge* together with Ron Gilbert and Tim Schafer. He later co-designed *Day of the*

²⁹⁸ Official website of Game Developers Conference 2008, <https://www.cmpevents.com/GD08/a.asp?option=G&V=3&id=471802> (as at 06/04/08)

²⁹⁹ Official website of the Game Developers Conference 2008, <https://www.cmpevents.com/GD08/a.asp?option=G&V=3&id=473949> (as at 06/04/08)

Tentacle. Today he designs adventure games at Telltale Games (*Sam & Max Season 1 & 2*), a company founded by LucasArts veterans.³⁰⁰

6.1.4. Clint Hocking, Creative Director, Ubisoft

For over six years, Clint has been at Ubisoft, where he has worked as a level designer, game designer, scriptwriter and creative director on the original *Splinter Cell*, and on *Splinter Cell: Chaos Theory*. Currently he is the creative director on *Far Cry 2*. Before games Clint worked in the web industry and experimented with independent filmmaking while earning an M.F.A in creative writing from the University of British Columbia.³⁰¹

6.1.5. Ernest Adams

Ernest is a freelance game designer, writer, and teacher, working with the International Hobo Design Group. He has been in the game industry since 1989, and is the author of three books, including the university-level textbook "Fundamentals of Game Design" with Andrew Rollings. Ernest was most recently employed as a lead designer at Bullfrog Productions on the *Dungeon Keeper* series, and for several years before that was the audio/video producer on the *Madden NFL Football* line for Electronic Arts. He has developed online, computer, and console games for everything from the IBM 360 mainframe to the PS2. Ernest is also the founder and first chairman of the International Game Developers' Association and a popular speaker at conferences and arts festivals around the world. His website is at <http://www.designersnotebook.com>.³⁰²

6.1.6. Matt Sughrue, Creat Studios, Director of Business Development

Matt has been in the industry since 1993. He held a variety of design and production management positions for Animation Magic, a division of Vivendi. He also served as Senior and Executive Producer for Atari, as Senior Producer for Back-

³⁰⁰ Wikipedia, http://en.wikipedia.org/wiki/Dave_Grossman (as at 06/04/08)

³⁰¹ Official website of the Game Developers Conference 2007, <https://www.cmpevents.com/GD07/a.asp?option=G&V=3&id=227947> (as at 06/04/08)

³⁰² Official website of the Game Developers Conference 2008, <https://www.cmpevents.com/GD08/a.asp?option=G&V=3&id=92082> (as at 06/04/08)

bone Entertainment, and as GM for racing sim developer *Papyrus*.³⁰³ Matt has recently switched to First Act Inc. where he builds and manages the video games division for a leading mass-market and custom professional musical instrument company.³⁰⁴

6.1.7. Neil Sorens, CEO Dancing Robots Studio

Neil got his start in the video game industry as an *Everquest* "Game Master" for Verant Interactive. After paying his dues as a tester for Sega of America and SCEA, he joined independent developer Blue Shift, Inc. in 2001. While at Blue Shift, Neil designed AI, franchise mode, and gameplay for the critically acclaimed titles *World Series Baseball*, *World Series Baseball 2K3*, and *ESPN Baseball*, as well as performing production duties on Atari Anthology. Neil Sorens founded Dancing Robot Studios in early 2005 as an outlet for cross-genre creativity. While at Dancing Robot Studios, Neil has worked with clients on more than a dozen titles of various genres for both handheld and console systems.³⁰⁵

6.1.8. Jamie Fristrom, Technical director, Torpex Games

Jamie was a technical director and designer on *Spider-Man 2*, his biggest claim to fame being that he invented its dynamic, physical swinging system. Other games he's worked on include *Spider-Man 1* for PS2, XBox, and GameCube; *Tony Hawk* for the Dreamcast; *Die by the Sword* for the PC; and the *Magic Candle* series of RPGs. Jamie wrote the "Manager in a Strange Land" column for Gamasutra, spent some time as a consultant on engineering and management, and writes one of the most popular blogs on game development.³⁰⁶ Currently he's working on a game for the Xbox 360 called Schizoid. Schizoid has the honor of being the first game developed in Microsoft's new XNA Game Studio to be commercially released on Xbox Live Arcade.³⁰⁷

³⁰³ Creat Studio Website, <http://www.creatstudio.com/team/boston.html> (as at 04/07/07)

³⁰⁴ LinkedIn, <http://www.linkedin.com/in/mattsughrue> (as at 06/04/08)

³⁰⁵ About us, Dancing Robot Studios Website, http://www.dancingrobotstudios.com/about_us.html, (as at 06/04/08)

³⁰⁶ Torpex Games Website, <http://www.torpexgames.com/about-us.php> (as at 06/05/08)

³⁰⁷ Lars Doucet (2008), Interview: Jamie Fristrom at TIGSource Independent Gaming News, <http://www.tigsource.com/pages/fristrom> (as at 06/05/08)

6.1.9. Robert Gutschera, Director of Development, Wizards of the Coast

Director of Development, Research & Development department, Wizards of the Coast. In the 10 years he's been at Wizards R&D, he's worked on dozens of different card, miniature, and board games. His area of specialty is leading "system development teams": the teams that take a new game design in rough form, smooth out any trouble spots, and make sure the game design is robust enough to support the addition of more game units (new cards or miniatures) in the future. In his past life, he was a mathematics professor at Wellesley College.³⁰⁸

6.1.10. Lev Ledit, Founder and Creative Director, Avaloop (Austria)

His feature films have been shown in Austrian cinema and at international festivals. An interactive movie of his, showcasing UMTS, has been awarded "Best Gaming Application" at the International Ericsson Award. He has been creative director of a large multimedia EU-project. Mr. Ledit holds an Austrian patent on "The polymorph movie". Building on this experience and his academic studies (MultimediaArt, Salzburg - Telematics TU-Graz) Mr. Ledit currently teaches at all universities of applied science in Austria where specialization in "game design" is possible. His courses include, "Theory of Game Design", "Game Concepts & Design", "Advanced User Interfaces", and "Programming the Prototype Game Engine Virtools". Mr. Ledit was lead programmer for an X-box game demo. He programmed multimedia applications for several museums in Austria, for example the Austrian National Library. Until May 2006 he has been working for Rockstar Vienna as Designer.³⁰⁹

6.1.11. Others

- ▶ Georg Heinz, Game designer, Sproing (Austria)
- ▶ Roman Pfneudl, Game designer, programmer, Vertex4 (Austria)

³⁰⁸ Official website of the Game Developers Conference 2007, <https://www.cmp.events.com/GD07/a.asp?option=G&V=3&id=486304> (as at 06/05/08)

³⁰⁹ Avaloop website, http://www.avaloop.com/sites/company/management_ledit.html (as at 06/05/08)