

# Chapter 5

## The Life and Tools of a Games Designer

Emily Brown

**Abstract** There is a great deal of research exploring the experience of games. However, this research is not necessarily being used in the games industry. This chapter provides a snapshot of the games industry, its people, and the user experience evaluation tools in use. In doing this, we can start to ask what the tools in use are providing and what they are not. Where the tools are weak, we can begin to look at how new tools can help make even more enjoyable games experiences.

**Keywords** Game industry · Development phases · Lessons learned

### 5.1 Introduction

There has been a significant shift in the focus of usability research over the past decade. It's no longer just about functionality and efficiency, but about pleasure, and aesthetic. Donald Norman is considering aesthetics (Norman 2002) and Chapman talks of looking at a more holistic approach to design (Chapman 2005). Functionality is no longer our core ambition. We want to deliver experiences.

Games are inherently frivolous. No task is accomplished in the greater universe; the act of playing is for its own sake. This isn't to say that players can't learn anything, just that the motivation for play is somewhat distinct to other platforms. So we start asking questions like the following: What is fun? How do we design for fun? How do we know fun is happening? Research in this area has also become more common; this book is testament.

Researchers are looking into immersion and gaming, constructing and evaluating questionnaires, testing developing theories on immersion and how it is exhibited, how it might be measured, and identified (Jennett et al. 2008). Much work has been devoted to constructing heuristics for game design, going back to Federoff (2002). Developed further by Deservire et al. (2004) and again by Sweester and Wyeth

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E. Brown (✉)  
Sony Computer Entertainment, London, UK  
e-mail: [ems\\_brown@gmail.com](mailto:ems_brown@gmail.com)

(2005). Björk and Holopainen (2005) have composed an inspiring compendium of patterns for game design. Others have looked at physiological measures of emotional response to assess when players are bored or excited (Mandryk and Atkins 2007).

All of these are potentially powerful tools to help evaluate the experience of games. However, it is unclear whether any of these methods are actually being used in the games industry. Have any of these tools been tested in industry? How do they fit with existing processes or the people who use them? To address this issue, this chapter describes the games industry, its people, and methods which are used to evaluate the experiences created.

The ambition is not to dictate how to evaluate experience, but instead to look at which methods are currently in use, and which are not. This will allow us to explore why certain tools are used and how we might enhance the tools currently being used all within the framework of game development.

It is important at this point to define user experience and how it will be discussed in this chapter. In this chapter, it is used to describe the overarching experience that a person has when they use a product. Within this are different facets of experience such as usability, fun, immersion, and aesthetic pleasure. This chapter focuses on usability and fun. Fun is defined as the point at which players will self-report having a fun experience.

Although this chapter does discuss methods developed and used outside the author's experience, the methods discussed are very much one particular example in the industry. What follows is essentially a case study of the author's experience of evaluation methods in the games industry.

The games industry and the people who make games will now be introduced. From there we will look at each of the main stages of game development and the evaluation methods that are taking place. Finally, we can explore the kinds of tools that are not in use and begin to consider ways forward.

## **5.2 The Industry and the People**

As a way of understanding the culture and environment in which game development takes place, we need to look at the landscape of the industry as a whole, as well as the people and their roles. This will allow us to understand the culture and structures that influence the creation of games.

### **5.2.1 Industry**

#### **5.2.1.1 Platforms**

The games industry is composed of many different platforms for development: mobile phones, consoles, PCs, and hand-held devices for example. The technology, audience, context, and cost for the consumer as well as developer vary considerably for each platform.

When comparing the Nintendo Wii platform to the PC, you can immediately see distinct contexts. Who plays these games, where are they playing, and are they alone or with other people? More obviously, what controls do they have available to them?

### **5.2.1.2 Genres**

Not only do you have the various platforms to contend with, but there is also the plethora of genres that exist. Puzzle, first-person shooter, adventure, Role-Playing Game (RPG), or Simulation (Sim) games to name a few. Each of these comes with a set of historical rules, some which dictate perspective and game play such as in first-person shooters, others that dictate rule sets and game development, for example in RPGs.

All of these genres have a different impact on the kind of experience that people will have and expect to have. The pace, types of thought processes and challenges that will take place, the scale of the game and time that might need to be invested are all implied in the genre alone.

### **5.2.1.3 Delivery**

The method in which the game is delivered to its audience also needs to be considered. How will users get their content, will it be downloadable or on a disc bought from stores? Will there be periodic updates, or does it remain unchanged after release? Can users create content and if so how and where do they do this? Each of these decisions will impact cost, user expectations and their experience of the product.

The platform, genre, and delivery method are only the beginning of the decision-making process that will shape the game. Sometimes there is little choice in the direction the game will take. If a game is designed for Sony, then it will most likely be a PlayStation product to be played on Sony platforms. The platform the game will be played on impacts the audience the game will attract and the experience that can be created.

## **5.2.2 *The People***

It is not just the technology and its structures that make up this industry. The most important element is the people who work in this landscape.

The games industry is notoriously male-dominated, especially on the development side. About 11% of people in the games industry are female (IGDA 2005). The reasons and impact of this on the kinds of experiences created have been debated from all angles. These debates will not be expanded upon here, but it is clearly something we should be aware of. Depending on your position on how software is influenced by those that create it, it may be of integral importance to the kind of experiences we create.

The average age of a game developer is 31, with approximately 5 years industry experience and most likely to have a university education and to be heterosexual and white (IGDA 2005).

### ***5.2.3 How We Work Together***

Game development is a team affair. Team sizes range from four or five people to a hundred plus. Producers, creative directors, programmers, artists, and designers make up these teams.

These roles are not always singularly defined; artists can work on concepts, characters, or environments. Programmers can work on platforms, audio, and user interfaces. Designers are no different; there are technical designers who have coding ability, level designers who work with 3D modeling tools, and those focused on user interface design. There are designers who focus on details and others who sculpt the broad scope of the project and its ambitions. Whatever the type of designer, it is their responsibility to think about experience. It is down to them to ensure all implementations have been considered from the user perspective. It's up to them to define fun, throughout the project.

It is important here to emphasize that it is not only designers who do this – everyone on the project is committed to creating the best experience possible. However, this exploration is going to focus on designers, because defining the user experience is their core role and part of this role is evaluating whether the desired experience is being achieved.

This is our starting point, a brief outline of the industry, its landscape, and the people who work in it. All of this affects experience from the beginning before anyone has written a concept or drawn a sketch. From here, we can start to look at the detail and how products are evaluated at each stage in the development process.

## **5.3 Development**

The distinct phases of development are concept, pre-production, production, and launch. Throughout these processes, ideas, prototypes, and builds of the product are being generated and evaluated.

This section looks at each stage of development and the methods, both formal and informal, that are used by designers to evaluate their product. As important as it is to know what methods are used, it is just as essential to note what methods are not being used.

### ***5.3.1 Concept***

This is where it all starts. A team has just completed a project or is getting together for the first time, either way it is officially time to start generating ideas. Of course idea generation is happening throughout development, but for the purposes of this chapter we will look at it as a distinct phase.

The key goal of this stage is to compose a pitch for the concept that will allow the team to gain further resources and eventually see their game released. At this point, everyone is exploring potential directions for the game. Artists are sketching out

characters, designers are researching other game experiences and the current state of the industry and where there may be space for a novel concept to fit in. Coders are exploring the technology and tools available. Depending on the scale of the team and the time available, the final pitch may be a one-page PowerPoint with an image and key bullet points. Or it may be a prototype of game play.

Throughout this early stage in development, ideas are being evaluated. Key questions being asked are not just about the potential for fun but also whether there is a workable game mechanic that will provide a developing challenge for the player. How does the product fit with the company's ambitions and their customer base? Can it make a profit, is it a novel proposition?

Many of these questions can be answered fairly well. Companies know the market and what has sold before. The team know whether the idea is a new proposition and what the company ambition is. The fun aspect is somewhat harder to pin down.

So everyone is asking will this be fun? Designers are trying to answer how the concept will be fun. What is the essence of the experience they want players to have? What is the landscape for this experience and how does it compare to existing experiences? Often concepts are defined in terms of their reference experiences, being described as a combination between one game and another. They are also asking how the game provides challenge, how long could the experience last, and is there enough to keep people interested? If not, how could it develop and become more complex as the player interacts? While looking to answer these questions, designers are also starting to think about how best to prototype this experience to find out if there is something that can be built on.

Concepts at this stage can be shot down merely because they are not pitched in the right way, or to the right people, and maybe not at the right time. If the idea passes the interrogation of all the questions above, and someone still believes it can be fun, then it gets a bit more time and opportunity to really evaluate whether it works.

At this stage, you want to get things up and running as quickly as possible. The sooner designers can play with their concept, the sooner they will be better able to evaluate experience. Either you have existing tools from previous products that allow you to get things moving quickly or you have a tech research team that have been playing with things and have some working prototypes to start from. Or sometimes, it's just one person and he/she has to rely on his/her own skills and wits to try and make something. So with this in mind, the two methods that will be discussed here are paper prototyping (which can be used to great effect when there are few resources) and the tech demo (which some games rely upon heavily at this very early stage).

### **5.3.1.1 Paper Prototyping**

Like paper prototyping in other software design fields, the idea is simple – make your product in paper to see how it works (Snyder 2003). What is slightly different in games development is that you are not mocking up screens and flows – you are creating your core game mechanic in paper form. It is possible that all video games

could be simulated on paper; however, the type of experience the player would have would not necessarily be comparable. SingStar (SCEE 2004) is a Karaoke game for the PlayStation. Players sing along to the music and their vocal skills are rated. Paper prototyping the game mechanic in this case would not help understand the potential experience in any meaningful way.

On the other hand, a game like SimCity is a different prospect. SimCity (Electronic Arts 2004) allows players to build a city, its roads, and buildings. They decide the layout and where industrial areas will be placed, what departments get funding, and how many fire stations there are. All of their decisions impact the happiness of the SimCity people (e.g., the congestion on the roads). A paper prototype of this game would be able to replicate the core mechanic and allow its evaluation much more easily than with SingStar.

At this stage, the core concept of the game is documented. The rules and components mapped out. From this, the designer can develop their prototype, either by creating and printing cards, pieces, and boards or by using existing boards and the new rules. With the example of SimCity a board can be created, the player can be given a limited amount of money and spend it on tiles to build roads, residential areas, and industrial zones. To simulate the time aspect, an egg timer can be used. Each time the timer empties, the player gets money from investments and the city grows. With this simple starting point, the core workings of the game can be explored. Which elements affect each other and how these are made obvious can be examined. Then slowly layers of complexity can be added to the core.

Once this prototype is at a playable state, the designer can give it to others to play. They have to explain the rules and resolve any confusion or conflict. In doing so, they quickly find any flaws or loop holes that mean players can't win or can cheat intolerably (because sometimes cheating is acceptable as long as it doesn't ruin it for everyone). They find out what makes sense to players (e.g., do they understand how road layouts affect traffic congestion? If not, how does the game teach them this?).

The designer not only learns the weaknesses in the game, but also learns how to teach it. They learn how players can break it with unpredictable actions (Henderson 2006). Whether they learn about the enjoyment of the game is up for debate. They learn what is fun in the paper version; however, the difficulty is then trying to transfer that experience to the digital platform. It is a matter of looking at the type of enjoyment taking place. Is the player enjoying the physical element of the game? Or from another perspective, is there something lacking in the paper version that can be enhanced in the digital version? Answering these questions allows them to continue to refine the concept and understand its strengths and limitations.

### **5.3.1.2 The Tech Demo**

The tech demo is a very different proposition. It may be that the technology is core to the concept and the game play has to be formed around it. To explore how tech demos are used in aiding the evaluation process, this section will look specifically at EyeToy.

EyeToy is a USB camera that connects to the PlayStation and faces the player. It allows players to interact with specific games through motion rather than buttons and controller. As a camera, it has several limitations. For example, its ability to detect motion can be hampered by light conditions, such as a dark room. Not only are there technical constraints due to the environment, but there is also the player to consider. There is a huge gulf between the player and the technology. The interface between them has to be extremely responsive to user action. It has to show the user what is possible and reinforce the right kind of actions. The players have to know what the game is looking for. They need to know if the camera is looking for any movement or a specific kind of movement. Not only do players need to understand what is required of them, but the movement required has to be fun.

To find this out there needs to be something to play with. So the tech demo is the combined test of the robustness of the technology and its potential for fun. These demos can start as a technical concept, such as a button that detects and reacts to the player's motion. Or they can be toy concepts, for example each motion detecting "button" is represented as a ball on screen and they are attracted to player when they move. These can be tested, both for their ability to cope with variable light conditions and for their ability to be fun.

Designers play with the demos and begin to form game mechanics around them. For example, thinking that if the balls were attracted to motion, then some can be made red and some blue and the game is to separate them. Thoughts like this can be explored and the demos enhanced into more fully featured prototypes.

While doing this, designers are starting to decide how to develop the simple tech demos with more fully fledged game mechanics. A majority of the time, they are doing this purely by playing with the demo and imagining the potential experience. Do they have fun while playing with it? Is the experience reminiscent of other games or experiences they have enjoyed? When other team members approach the demo, how do they react? All these aspects contribute to the designers understanding the potential of the experience.

Informal user evaluations can take place at this stage, where members of other teams are invited to play and evaluate the experience. These evaluations allow designers to see through the eyes of a new user. How do they make sense of the technical limitations? If the buttons don't always react as the user expects, how do they rationalize this? From these limited user evaluations, designers can see what actions players can understand, the movements players enjoy making, and which ones frustrate them. They can also see how players react the first time they encounter the demo and the exploration patterns they use. Watching users play with these demos allows designers to start understanding how to communicate the workings of the technology and to consider whether the hurdle is too great for the experience to be fun.

Tech demos are just another way of letting designers explore potential game experiences and try to see the experience through the eyes of the player. If you can show a segment of game play to someone for the first time and see them smile and laugh as they explore it, then that is enough to know whether there is potential for something even greater.

### **5.3.2 Pre-production**

At this point, the product has been granted funding, which equates to more resources and more time. The goal of this stage is to build something that is playable that represents the core experience of the game. The design starts developing greater detail on paper; artists further develop their story boards, character, and level designs. Programmers can start to come to terms with the requirements, what tools might be needed and the framework required. Most importantly, we start to see playable elements of the game. These are the pieces that allow for the further evaluation of the developing experience.

It is at this stage the process that the core idea of the product and the definition of the experience is developed even further. Electronic Arts (EA) call this the “X” (Hight and Novak 2008), other companies use different phrases. The idea remains the same, what is the core of the experience you want to create?

It is also important to continue to define the target user of the game. Often this is not made explicit. Sometimes, it is implicit and all members of the team are aware of the target audience. Occasionally, more formal systems such as personas are used.

Evaluations that take place at the early part of this phase are still very much peer and expert evaluations. Informal heuristics based on the designers’ knowledge of previous games are used to question the potential experience. Also, as game elements develop, team members and other people in the office will pass by and encounter them for the first time. These interactions are explored in the same way as the tech demos described earlier. Do people laugh when they interact with the game? What are their first actions when they encounter it? These questions can be answered through these observations. Watching these interactions can give the designers an idea of what experience is being created.

User evaluations can and sometimes do take place at this stage, depending on how developed the product is at this point. However, user evaluations more often happen later in the process and will be discussed later in this chapter; this section will focus on heuristics and personas.

#### **5.3.2.1 Heuristics**

Heuristics are simply an aggregation of rules defining key aspects of design. They allow any interface to be interrogated using simple questions. Most heuristics that are used in practice are informal and not used in a rigorous methodical manner. EyeToy is a great example where common themes of evaluation take place. Players are almost always expected to stand while playing, making fatigue a key concern. Levels and mechanics need to allow the user to rest or not demand they are holding their arms above their heads for too long. However, these rules do not necessarily apply to all types of game play or game genres.

Most game genres have historical rules for how they are controlled, in what perspective the camera is oriented, and the types of user interface and interactions available. For example, traditionally first- and third-person shooters have the concept of ammunition, and weapon choice and primary and secondary ammunition. Players collect ammunition as they play, so they do not run out. With this



knowledge, designers are able not only to create a baseline expectation that users will have for their game, but also to choose certain rules and break them. This is where these heuristics become incredibly important; without this baseline, designers do not have a reference point defining where their concept is novel when compared to existing products.

These are all part of the knowledge of a designer. These historical rules are called up when required. However, they are rarely, if ever formally and methodically used to evaluate a game concept or developing game.

### **5.3.2.2 Personas**

Personas are archetype users. They represent the target audience of any product. They are best developed in close discussion with market research. When constructed, a few representative users are defined with an age, name, hobbies, job, lifestyle, and the kind of software and hardware they use (Pruitt and Adlin 2006). These archetypes are then the core reference whenever the users' needs and preferences are discussed. In the same way that the "X" focuses the ideology of the game, personas focus the target market.

Only recently have personas become increasingly discussed in games development. Discussions on developer-focused websites such as Gamasutra.com have arisen and developers are becoming more aware of personas as a concept. It seems that as games become more mass market, people who are making games feel less able to define the audience and their likes and dislikes. Historically speaking, gamers made games and they know gamers. As soon as the prospect changes to an audience who are not traditionally gamers, it becomes more difficult for designers to understand their needs. It seems that personas can fulfill this need for understanding nontraditional users and how they would react and enjoy the games being developed.

The power of personas in games is much the same as in their use elsewhere. Throughout the process, they provide a focus for user needs. When new features are suggested or current features prioritized, they are done with reference to the personas. In this way, they allow designers to evaluate their concepts and decisions based on knowledge of the audience. Questions about fun and experience are now addressed in reference to the particular personas created.

The most important factor about personas is that they are a formal definition of the audience. All the questions, mentioned earlier in the chapter, designers are asking about the potential experience are now placed in the context of the personas. Without personas, the types of users imagined when asking these questions change depending on the decision taking place. Personas provide a much more clear line to evaluate against keeping everyone focused on the key audiences.

### **5.3.3 Production**

The product has proved to the business and senior stakeholders that it can achieve the experience that it set out to. Schedules and budget are more clearly defined. All the game content needs to be developed. The art is polished and all bugs eliminated

from the code. This is where formal Quality Assurance (QA) takes place and key milestones need to be reached. By this point in development, the team size has grown and the project may already be a year old and have another year or two to go. Throughout this time, the evaluation methods already discussed are still being used, but it is usually at this stage that representative users are also brought in to play the game.

The product's stability is variable: It may have art glitches and buggy code which means it can crash unpredictably. However, more of it is becoming playable. Usability tests with single players or groups playing together take place. Survey data and automated data can be extracted from these sessions. Open betas can also take place, where many people use the product from home and leave their feedback through forums.

### 5.3.3.1 User Testing

User testing in game development has many forms ranging from small-scale one-on-one sessions using think aloud to large numbers of users and automated systems recording user progress. Whatever the scale of the evaluations, the key aspect is that representative users are playing the game.

Some user evaluations are managed by consultancies where labs are rented, users are recruited, and the development team can observe and receive documents and presentations describing the results. Most often, this will be using a traditional think-aloud technique. Unfortunately, this is an incredibly expensive process that can only really be conducted and repeated by large companies.

When these evaluations take place internally, they can happen in group or one-on-one sessions in modified meeting rooms. A mixture of think-aloud and post-play interviews are used to explore the players' experience. Alternately, large groups of people can be brought in to play and automated systems record their play patterns when and how they fail and the time spent in the different areas of the game.

The information gathered from these sessions is shared with producers and designers working on the product. Videos, notes, and documents are distributed to the team. Designers then need to formulate redesigns that alleviate the problems users encountered. This is not particularly different to the experience of usability assessment in other industries. However, when we start to look at the kind of data being gathered from user evaluations, there are two distinct elements. The first is locating areas where players struggle, become lost, breeze through much faster than expected, or repeatedly press the wrong buttons. This is the usability of the game and links more directly with judging the difficulty gradient, editing level designs tweaking control mechanisms, and structuring tutorials. The second element is the piece that is often not assessed formally and that is whether the players had fun, where they had it, and how much fun it was. This element is gained when designers watch the users play their game.

There seems to be very little, if any, resistance at all to user testing from designers. Currently, only lack of knowledge is really hindering its wider use. This lack of resistance stems from the fact that designers want to know if their game is having

the desired emotional impact. The more people they see experiencing the product, the better understanding they have of the way their design impacts experience. The power of user testing is in this key aspect. Seeing is believing, and allowing designers and other team members to see players interacting with their product is extremely powerful. They do not have to blindly trust the user evaluation experts, they can see for themselves.

One of the issues that does arise when receiving results from user evaluations is the fact that it is extremely rare for feedback to come in that the designers have not anticipated themselves. This may in part be due to the broadness of the results that are received from small-scale user evaluations. This does lead us to question whether more detailed large-scale evaluations may be better able to find specific usability flaws.

Microsoft has constructed a tool for user evaluation that combines the ideas of user testing and automated data collection. Each event time stamped and wrapped with data about what context the user was in. On top of this survey, data collected at specified points allow the inclusion of the users' rating of their experience. Combined with a strong visualization tool that can represent the data real time on a map of the game world (Kim et al. 2008), you have an extremely powerful tool.

The examples given when discussing the strengths of user evaluations and the tools that Microsoft have developed are very specific. For example, Kim et al. (2008) talk about the number of deaths for each level of a game and notice one level had a particularly high number of deaths. When drilling into the data, they found where in the level the majority of deaths were taking place. Drilling further, they could find the way players were dying and the exact weapons and characters that did the killing. Finally, this data is linked to in-game video footage of the player's character when they died. This is powerful information, allowing designers to pinpoint areas of game play causing issues. However, these elements seem like tweaks perfecting an already strong experience.

Difficulty testing is another distinct aspect of game development. The difficulty is something that is carefully tweaked throughout the game. As the players become more skilled, they require more challenge but not too much. The evaluation of the difficulty gradient is something that QA does assess. However, their primary focus is software bugs. Also, QA quickly become expert users. Therefore, the value of watching new users experience the game for the first time is incredibly useful to the evaluation of user experience.

### ***5.3.4 Post Launch***

After potential years of work, the game is finally released to the public. The press has reviewed it and consumers are buying and playing it. This is the point where designers learn whether the experience they have created gets players' attention. It is also one of the first moments that designers really have time to distance themselves from work and evaluate what they have created.

At this point, there is very little that can be done to alter the experience in a significant way. Patches and updates can be released to fix flaws or periodically enhance or extend the experience, but an overhaul would take a significant amount of time. Depending on the product, any evaluations that take place at this point can have differing impact. An example is with Massively Multiplayer Online Role Play Games (MMORPG). With these games, the core experience takes place online where players explore a virtual world with others. With these games, once they are released the product becomes a service and developers must begin a dialogue with their customer. Whenever developers want to release an update, for example, this has to be communicated. When will it happen, how will it affect game play, will players lose anything, and what do they gain? This is a distinctly different prospect to releasing an offline puzzle game where players buy the game, install it, and would expect nothing from developers except possibly to release a sequel. This means that the impact of any evaluation that takes place at this stage ranges from directly influencing the game while people are still playing to affecting future games the team make.

Sales figures, reviews, and consumer reaction are the main resources available for understanding the impact the game has made. Sales figures are the most powerful; however, they provide little detail on why the game is popular. Are the people who buy the game actually playing it or does it sit on a shelf as a talking point for parties? The two key resources at this stage are reviews and forums. The use of these will be expanded upon here.

#### **5.3.4.1 Reviews**

Reviews are a key measure of quality. They are expert evaluations of the experience. Sites, like metacritic.com, that aggregate review scores can be used as independent measures of quality.

Aggregate scores can be used at a corporate level to evaluate the quality of the products being produced by a studio. At a team level, almost every review of their game, especially from respected sites and magazines, is read. Designers can take stock of the decisions they made throughout development and look at how they influenced the experience of their expert reviewers. They can look at themes and key areas that produced positive and negative experiences. It is difficult to take reviews and use them to influence redesign directly. They don't contain enough detail, or the numbers to back up the commentary. However, they do provide insight into some key points and an overall opinion of the game.

#### **5.3.4.2 Online Forums**

Forums are the meeting place for your users. They may be created by the development team or evolve informally around a product. At the very least, they allow players to share their experiences and help each other when needed. At their best, they become a powerful communication tool between a developer and their community.

What they can provide depends on whether they are managed by developers or unconnected community sites. Both of these do provide a good idea of the mood of the community playing the game. Volunteered information is often very extreme reactions to the product. This information can often be used as a signpost directing more detailed user tests exploring the issues raised.

When the developers participate in the community, a dialogue can begin where more specific questions can be posed to players. Results of these questionnaires are aggregated and fed back to development. Players speak their minds, developers listen, and players see change. When there are issues such as bugs that cause the players to have negative experiences, developers can communicate and show that they are working on solving problems. This dialogue is invaluable when it comes to supporting online products.

Unfortunately, few formal systems of analysis are used for forum data, especially for the volunteered information. It is just as important to get designers and other team members reading the forums and seeing the impact they have on players as it is to gather quantitative and qualitative data from them. Players can be passionate about the games they play, and seeing this can motivate a team to do more to support them.

## 5.4 The Future

This chapter has provided a snapshot of the industry, its people, and the process used in the evaluation of user experience. We have talked about paper prototypes, tech demos, informal heuristics, personas, user evaluations, forums, and reviews. However, there are many tools that have not been discussed. For example, physiological measures, eye tracking, formal heuristics, and ethnographic methods and patterns have not been mentioned as tools currently in use. If we take a couple of these, we can start to explore the way in which they could be utilized in the process described in this chapter.

Formal heuristics are rarely, if ever, discussed in game development. But designers are using informal heuristics all the time. There have been several approaches made at compiling heuristics for games. Nokia focused specifically on mobile phone games (Nokia 2006), while others have encompassed all genres and platforms (Desurvire et al. 2004). However, it would be fair to say these works are not common knowledge in the games industry. One way that these could be reconciled is by developing heuristics for a game as it is being developed. This could then become the rule set by which it is evaluated. Exploring how this could be done and the kinds of tools needed to do this could prove interesting.

Patterns are not currently extensively used, despite extremely comprehensive game patterns existing. Again, if we look at the processes that are taking place, where will these most effectively be used? It may be that at the concept stage they could be integrated with the brainstorming, allowing designers to challenge their ideas with historical rules.

Game developers have been creating enjoyable experiences since the early days of video game development and games like PONG (Atari 1972). The industry has evolved, games have become more complex, team sizes have expanded, and so have the numbers of people playing games. During this time, the industry has taken on board user experience evaluation tools, particularly those that provide insight into usability flaws in a game. The most powerful tools offer insight not just into the user experience but into the exact elements influencing the experience.

Although these usability tools are being used, the evaluation of experience in relation to fun is still being done, a majority of the time, without formal tools. Watching players during evaluations and using expertise to gauge the impact of any game elements are still the core methods used. These are successful methods, but if we look at the impact of usability tools, they have been able to support the creation of great games. So, what more can we do to help create even more enjoyable game experiences?

## 5.5 Conclusion

There is a great deal of experience evaluation that takes place throughout game development. The majority of evaluation is expert based and relies on the knowledge of the designers involved. There are also tools that provide extremely detailed and actionable information about usability. However, there is a great deal of potential to develop new tools and integrate them into the process. To do this, there needs to be more active discussion between academic research and the industry. This chapter tries to bridge that gap and challenges us to explore how new methods and tools can fit into the working life of games development.

## References

- Atari(1972) PONG, Arcade Machine.
- Björk S, Holopainen J (2005) *Patterns in Game Design*. Charles River Media, Hingham, MA.
- Chapman J (2005) *Emotionally Durable Design: Objects, Experiences and Empathy*. Earthscan, London.
- Desurvire H, Caplan M, Toth JA (2004) Using heuristics to evaluate the playability of games. CHI 2004 Extended Abstracts.
- Electronic Arts (EA) (2004) *SimCity*, PC.
- Federoff M (2002) Heuristics and usability guidelines for the creation and evaluation of FUN in video games. Thesis at the University Graduate School of Indiana University, December 2002 ([http://melissafederoff.com/heuristics\\_usability\\_games.pdf](http://melissafederoff.com/heuristics_usability_games.pdf)).
- Henderson J(2006) The paper chase: Saving money via paper prototyping. [http://www.gamasutra.com/features/20060508/henderson\\_01.shtml](http://www.gamasutra.com/features/20060508/henderson_01.shtml).
- Hight J, Novak J (2008) *Games Development Essentials: Game Project Management*. Thomson Delmar Learning, Clifton Park, NY.
- International Game Developers Association (2005). Game developer demographics: An exploration of workforce diversity. <http://www.igda.org/diversity/report.php>.

- Jennett C, Cox AL, Cairns P, Dhoparee S, Epps A, Tijs T, Walton A (2008) Measuring and defining the experience of immersion in games. *International Journal of Human Computer Studies* 66(9): 641–661.
- Kim JH, Gunn DV, Schuh E, Phillips BC, Pagulayan RJ (2008) Tracking real-time user experience (TRUE): A comprehensive instrumentation solution for complex systems. *CHI Proceedings* 2008, pp. 443–451.
- Mandryk RL, Atkins MS (2007) A fuzzy approach for continuously modeling emotion during interaction with play technologies. *International Journal of Human-Computer Studies* 65(4): 329–334.
- Nokia C (2006) Mobile game playability heuristics version 1.0. [http://www.forum.nokia.com/info/sw.nokia.com/id/5ed5c7a3-73f3-48ab-8e1e-631286fd26bf/Mobile\\_Game\\_Playability\\_Heuristics\\_v1\\_0\\_en.pdf.html?language=japanese](http://www.forum.nokia.com/info/sw.nokia.com/id/5ed5c7a3-73f3-48ab-8e1e-631286fd26bf/Mobile_Game_Playability_Heuristics_v1_0_en.pdf.html?language=japanese).
- Norman DA (2002) Emotion and design: Attractive things work better. *Interactions Magazine* ix(4): 36–42.
- Pruitt J, Adlin T (2006). The persona lifecycle: Keeping people in mind throughout product design. The Morgan Kaufmann Series in Interactive Technologies.
- Snyder C (2003) Paper prototyping: The Fast and Easy Way to Design and Refine User Interfaces. Morgan Kaufman Publishers, San Francisco, CA.
- Sony Computer Entertainment Europe (SCEE) (2004). SingStar. PlayStation 2.
- Sweester P, Wyeth P (2005) GameFlow: A model for evaluating player enjoyment in games. *ACM Computers in Entertainment* 3(3): 1–24.