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Noddy's guide to usability testing and gaming

Ben Weedon

Introduction

In my role as a consultant for Serco Usability Services, I primarily work in the development and evaluation of video games and other electronic devices. The use of the term 'games' in this article refers to video games, but most of the principles within this article could refer to games of any type.

There's no simple way of user testing games, much in the same way as there's no simple method for user testing any other product. Each product needs to be evaluated along a relevant set of criteria. These criteria often change according to the stage of the product's development and what the developers are particularly interested in receiving feedback on. We work to provide them with the answers they specifically want to know; this is what the focus of testing is on, even though there is invariably much more user information discovered during the research.

There are fundamental ways that games differ from labour-saving devices, such as word processors or websites. Labour-saving devices are designed to help users perform tasks as quickly and easily as possible: the letter needs to be written, formatted and printed with the minimum of fuss; the website needs to give us the train times for the route we want as quickly as possible. Games, however, need to engage us, challenge us, keep us playing them, and make us want to play them again. And they need to be fun!

So in some respects games are as similar to test as any other product. However, they are also fundamentally different, and it is these differences that require the use of particular evaluation techniques.

Much research has gone into discovering what makes a game fun, and how one can measure how good a game is. The gaming industry is a multi-million pound market, and anything that can help discover a magical formula to create a winning game is used. Currently, however, that winning formula is still to be found.

Instead, we need to work with the genius of the developers, plus quick and frequent research with potential users to gauge how the game is forming. This brings us back to the stages of development. As with other user research, we can be brought in to review a game at any stage, either early days, or to 'rubber stamp' an almost finished product. Here's an idea of some of the key stages, and how we research them.

Early stages of development

Concept development

The evaluation of a concept for a game is one of the earliest stages of our inclusion into the game process. Focus group discussions are a very fruitful method of understanding what may work for users, and what may need further thought. They also allow us to ask the users to work on a partially completed concept that the design team are unsure about.

On the whole, users are very good at describing features of games that they already know and like (or don't like). However, they are less good at thinking up fresh concepts, or even imagining concepts that we present to them. The key at this stage is to give them something to play with, either literally, through Flash-based mock-ups, or at least visually, with

sketched-out storyboards. In general, the less of a cognitive leap the users have to make, the better the feedback they generate.

This is pretty much normal focus group discussion and idea generation, and not unique to games design. However, we do have to contend with other issues at this phase, especially when working with new clients. There is an idealised conception that a great game is created purely through genius, and that the intervention of usability (or 'marketing' as it is often perceived) will take the shine off the invention, creating something designed by committee (an often cited example of such a thing is the *Alien Vs. Predator* film). However, once the development team have seen that the focus groups are addressing the issues they were debating between themselves, providing guidance on what is expected, and often opening up unexpected avenues, they become keener to use the focus groups. They provide direction, and, as we always say to clients, they can use as much of the findings as they wish. They can also direct us to take the discussion in other directions if they wish to explore the unexpected avenues further.

Mid-term stages of development

Wireframes

These are usually presented as Flash walkthroughs, to give users an idea of what works, and what they don't understand. They can also be presented as storyboards. Wireframes are often presented to individual participants in a usability test situation, with each participant talking with a facilitator, who probes to understand the participant's thoughts and comprehension of the details. This is often instead of a focus group setting, although the focus groups allow for greater discussion and development of the ideas where the wireframes are in early stages of development.

Wireframes are typically used to gain an understanding of the screen layout, inventory, and general appearance. We can ensure that the objects on the screen make sense to the user, probe to understand what the icons do, and how noticeable they are – or if they take up too much of the screen.



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Control developments, character creation and movement & level development

These three sections are often interlinked: character creation and its responses are based on the control mechanism, and the ease with which participants can move the character has a bearing on how the game level needs to be laid out. If the level is too hard for participants to navigate, the options are to alter the level layout, make the controls easier to use, or develop the character to be more responsive (or move in a slightly different way).

Often we test with developer consoles to run the latest builds of the software. As with all of the work we do, we are driven by the desires of the client and what they need to discover about the game. They will put together the sections of the game that they feel are in need of user feedback, and we decide in collaboration how best to construct the test protocol. Often this form of feedback runs from short snippets of prototype code, so that the user is not playing a whole level, or playing for a long period of time. We obtain quick feedback to short segments of the game.

At this point it is the mechanism of the game and the game engine that is under scrutiny. For that reason, we can use a test protocol that is similar to that of normal user testing: following a guide which we have designed in collaboration with the client, we use non-directional questioning and obtain some quantitative feedback where required, often by the use of a questionnaire to give us some indicative statistics of trends. Clients find this an excellent cost-effective way of gaining information on a range of mechanistic issues.

Late stages of development

Menu structure

Most games tend to have a menu structure within them that allow the user to select what they want to do with the game, the number of players, the difficulty level, etc. Often these menus are the first interaction the user has with the game, and so they need to work well from the start. They also need to provide the options users require.

This part of games testing is most similar to traditional usability testing. It is a case of asking users to perform a scenario that requires them to access certain areas of the menu system, and observing their behaviour, questioning where necessary.

Gameplay

There are several areas of a game that this phase of research can examine, but as in other user testing fields, alterations at this stage tend to cost more in terms of development, and sometimes are impossible to make due to time and budget constraints.

Gameplay is usually evaluated with something very closely approximating the final product. This means that users often have a fair amount of the game that they can play through without stopping. Gameplay is one of the areas of user testing where the normal protocol of usability testing is unsuited. The main reason is that the process of discovering how well the game performs needs to be done without interrupting the participant. The participant doesn't want us asking them what they think of it as they try and master the final corner of the course, or as they slay the last zombie. The facilitator needs to take a back seat while the participant plays, and often at Sercu the facilitator will leave the room, to observe the participant remotely through a one-way mirror and video feed. Remote observation allows us to note where the participant



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Microsoft Game Studios and Bizarre Creations. Microsoft product screen shot reprinted with permission from Microsoft Corporation.

looks confused or uncertain without drawing the participant's attention to our notetaking. It also allows the participant space to 'get into' the product. By recording the participant's interactions, and marking the times where they seemed confused or uncertain, we can then revisit particular places in the game, and discuss them with the participant after they have played.

Some important areas of gameplay examination are:

- 1 *Getting the ramp right.* As mentioned earlier, one of the main factors that differentiate a game from a labour-saving product is that the game needs to be challenging. However, it needs to be challenging to play, but not to use, and the level at which the game becomes challenging needs to ramp up at the right rate. If it's too easy to play, users get bored and/or finish it too quickly. If it's too difficult, people don't want to play it, as they get little reward for their efforts. We need to make sure that the initial stages of the game are at the right level. It is relatively straightforward to judge if the ramp is at the right angle. This issue is often addressed through the technique above. Remote observation allows us to note where participants either start to become confused, or have issues. For example, they may become lost early in the first level (outside of the intentional challenge of the game) and require directions. On the other hand, if they



have ploughed through a level or scenario with no apparent difficulties at all, we understand that the game may need to be slightly more challenging. They may also declare after they play that it wasn't actually as much fun as they wanted, especially if it was too easy. We can probe to understand why that is, and what they suggest would change this. Again, it depends on the game and the wishes of the client.

- 2 **Controls.** The controls are another area of the game that it is essential to get right. If the controls don't do what the participant expects, the participant becomes frustrated and loses interest in the game. Users are often very quick to tell us when the controls don't behave as they expect them to, as often this leads to frustrating errors, and this frustration makes them vocal (it also allows them to blame something else when they get something wrong in the game, so we need to watch out for some false positives here!).

Console game controls are also becoming more and more complicated, and console controllers themselves are gaining increasing amounts of buttons (although Nintendo's new Wii controller, which reacts to the actual movements of the user, looks as if it will take the genre in a whole new direction). We need to make sure that the basic moves and controls are in the simplest, and expected, locations on the controller, with more advanced moves requiring the right level of button combinations and presses. This relates to 'getting the ramp right'.

- 3 **Immersion.** One of the key elements that has been researched recently is that of immersion. The theory is that the more immersed a user is in a game, the better the game should be (all other things being equal). One quick and useful way of measuring immersion is to ask the user to estimate the length of time they have been playing the game, and compare it to the length of time the user has actually spent playing. As mentioned above, often we will leave them for a certain period while we observe their behaviour. If their estimation is less than the actual time they spent playing, we infer that the user has been immersed in the game, and from that, that they have been enjoying it. Of course, we ask them how they feel about the game

as well. This measure forms more of a comparative benchmark than an absolute measure of game quality, but it works well to compare games along this dimension initially, and then again after the developers have made any alterations.

- 4 **Understanding of the general concept and story.** Often the overriding theme of the game is important for the user to grasp, both in terms of increasing their immersion in it, and understanding what it is they are actually trying to do. Often the large-budget epic games are essentially making the user do pretty much the same actions throughout a series of levels, but by adding in a narrative, and gradually developing the story as the user progresses, the users are drawn into the game to a greater level and can often feel morally obliged to get as far into it as they can. Whether the user understands the general concept and story is another area of questioning that clients often want to know. We often use this as a general series of questions to discuss towards the end of a user session.

Conclusions

As with other forms of user research, the earlier the user feedback is gathered, the greater the uses to which it can be put within the design process. Some feedback is essential throughout the process, to ensure the game is on track with the users, and that it is meeting the requirements of not only the users, but also the production team and, importantly, the hardware for which it is designed. For example, a game designed to run on a portable device, such as a Nintendo DS or Sony PSP, needs to be able to work well when the user is on the move or waiting for a bus. To meet that need, it may need to have a quick option to pause the game (when the bus is coming), it may have controls that quickly allow the user to adjust the sound so as to not annoy people on the bus, and, increasingly these days, it may need a simple Wi-Fi setting to allow the user to play others online if they find a wireless network.

Throughout all of these stages, and throughout game development in general, the key is to test little and often. As with other forms of user testing, the earlier the bugs are picked up, the cheaper and easier it is to fix them. I hope this article has helped to describe the process in a little more detail. As you can see, there are similarities, but there are differences too.

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Call for Participation

User Centered Design and International Development

A workshop at CHI 2007

Saturday, April 28, 2007 • San Jose, California USA

This workshop aims to begin a dialogue between the international economic and community development, user centered design (UCD) and interaction design communities to find ways of designing more appropriate and effective solutions that truly meet local needs.

Specifically, we hope to extend the boundaries of the field of HCI by spurring a discussion on how existing UCD practices can be adapted and modified, and how new practices be developed, to deal with the unique challenges posed by the context of international community and economic development. We call this User Centered Design for Development or UCD4D.

Submission deadline: 12 January 2007

<http://www-static.cc.gatech.edu/~mikeb/UCDandIDWorkshop/>
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