Examensarbete

A Battle of Wits – Shared Feedback in Multi-user Applications with Single-user Control

Mattias Arvola

LIU-KOGVET-D-0015-SE

990623

ABSTRACT

A social digital television application is a multi-user application with single-user control, since only one person operates the remote control, but several people sit in front of the screen. The feedback is, however, often designed for the operator. A novel way to give feedback to the by-sitters, called *action feedback*, was implemented in a quiz game. The use of the game was explored in a case study. A tight description of the use was also made, to aid designers of social applications, in the same way as a scenario does. Implications on the design of social games for digital television were considered. Finally, speculative considerations on the design of social games between remote players were made. The results of the study indicated that action feedback is useful when the by-sitters really need to know what the operator is doing. At other times it may be disturbing.

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1

INTRODUCTION

Every time the human-computer interaction community stands in front of a novel medium the excitement gets higher. The digital television medium is novel and indeed a venture of opportunity for research.

The historical background of digital television is different from that of traditional computers. It is partly television, with the emphasis on entertainment and viewer ratings, and partly computer, with the emphasis on efficiency and effectiveness. One of the true challenges is to find the most useful parts in both camps and merging them. For the television society it means a shift from a passive to an active medium. For the computer industry it means a shift from work towards entertainment and social activities, since people watch shows and comment on them in a social setting. Most of the human-computer interaction research has traditionally focused on one user in front of the screen. Seldom has several users in front of the screen been considered. The design of such social applications is what this thesis is about.

This master thesis is written in close cooperation with Nokia Multimedia Terminals in Linköping, Sweden. They are developing software and interactive services for the global digital television market. The work has been carried out at the company's Multimedia Laboratory, which mainly do feasibility studies aiming at finding the technology for the multimedia terminals of tomorrow.

1.1 The Background of Shared Feedback

Digital television applications designed to be used in a social setting are multi-user applications with single-user control since there often are several people in front of the screen, but only one of them has the remote control. From now on the user with the control is referred to as *operator*, and the users without the control are referred to as *by-sitters*.

There are several categories of social applications for synchronous use. Users may be remote or co-present, and they may compete or collaborate. This thesis is mainly about co-present competition, even though implications on co-present collaboration, and remote competition are considered. There is very little research done on applications designed for co-present groups. But there are however a few exceptions. Even though these exceptions concern co-present collaboration the results may be transferred to co-present competition since competition at one level is collaboration. The competing users agree to engage in a joint activity (Clark, 1996), where one of the objects is to compete. If they are to compete in the same activity they have to coordinate their actions and therefore collaborate. All of the studies mentioned below have one thing in common: they stress the need of shared feedback for coordination of the activity.

Single Display Groupware

Stewart (1998) has directed his research towards Single Display Groupware (SDG). He defines SDG as “computer programs that enable co-present users to collaborate via a shared computer with a single shared display and simultaneous use of multiple input devices. These programs have the defining properties of shared interfaces, shared feedback, and coupled navigation.” (Stewart, 1998, p. 45)

In two of Stewart's studies he examined how effectively an ordinary single-user application supports a group drawing task. This is similar to digital television applications where the by-sitters have not been taken into account in the design. Stewart's results from these studies indicated that the by-sitters wanted to engage in manipulation of the objects on the screen. The quality of the communication was not collaborative. The by-sitters did not attend to the task and expressed frustration. Stewart concludes: "single-user technology in a co-present collaborative setting can lead to unwanted conflicts or tension because partners have unequal control over the application and an unequal participation in the task." Stewart's results also showed that users found it frustrating to take turns. This must however be very much bound to the type of application. An analogy from the game setting: A pair of dice are like a control over the board, which is a shared display. In most board games the players take turns, and do not find it frustrating. Turn taking games can actually by quite a lot of fun.

Stewart tries to minimize these problems by introducing multiple input devices and redesigning the applications to support input from several simultaneous sources. The user interface of an SDG is shared and all the interface elements must provide feedback to all users simultaneously. Stewart also says that the navigation must be tightly coupled between the users, so that all users navigate together when one user navigates. This is also an aspect of providing appropriate feedback on actions to all the users. All the other users must understand and experience what the navigating user has done, is doing, and intends to do.

Colab

Colab (Stefik et al., 1986 and Stefik et al., 1987) was an experimental meeting room at Xerox PARC. The lab utilized computer technology to support collaborative processes in face-to-face meetings. There was a

local area network, with a workstation at every seat. The participants of the meeting could work privately on the workstation or display public information on a shared digital chalkboard. The designers of Colab believe that it is fundamental for a meeting tool to provide a coordinated interface for all participants. A multi-user interface was intended to let participants interact with each other easily and immediately through a computer medium. Stefik et al. have defined a term called WYSIWIS (what you see is what I see). The term acknowledges the significance of being able to see what the other users have done and what is in progress: to "see where their hands are." (Stefik et al., 1987, p. 335)

Liveboard

The Liveboard project (Elrod et al., 1993) was a continuation of Colab, and functioned as a digital chalkboard supporting both co-present and remote collaboration. Liveboard had the advantage over the Colab chalkboard that it could be controlled with digital pens while standing by the board surface. The earlier chalkboards were controlled from a workstation, and did hence not support the directly manipulative and tightly coupled interaction of a "true" chalkboard. With Liveboard, a group of people could be seated in front of the Liveboard while one of them manipulated the board or passed the pen on to someone else. This is a situation that is similar to that of the television setting: the decision of who should be the operator must be a matter of social protocols. Some applications on the Liveboard platform are, however, designed to operate with multiple pens. One example of that is the electronic whiteboard Tivoli, developed by Rønby Pedersen, McCall, Moran and Halasz (1995).

TeamWorkStation

Ishi and Ohkubo (1990) have made a short comparison between three different approaches to shared synchronous workspaces, but only giving

the last a deeper analysis. The first is single-user control of shared display. This is what the television setting is today where only one user may manipulate the application at one time. Applications like that are, in this thesis, referred to as multi-user applications with single-user control. The second approach is multi-user control of shared display, which is equivalent to what Stewart (1998) call Shared Display Groupware (SDG). The third is their own TeamWorkStation, where individual transparent workspace images are laid in layers so that all users can see what the others are doing on their individual workspace.

Shared feedback

Common to all studies mentioned above is that they stress the importance of feedback on what the other users are doing in the application. They are quite clear on the fact that users should be able to navigate together and see what the others are doing. There seems, however, to be very little research done on how the feedback should be designed and how different kinds of feedback affect the users.

Two Kinds of Feedback

Norman (1986) analyses user activities in seven stages (see Figure 1): (1) establishing the goal; (2) forming the intention; (3) specifying the action sequence; (4) executing the action; (5) perceiving the system state; (6) interpreting the state; and (7) evaluating the system state with respect to goals and intentions. The primary stage is the establishment of the goal. Then, to perform an action, stage 2 to 4 are required. To asses the effect of an action, stage 5 to 7 are necessary. This is one way of characterising human activity. It is only an approximation, but it is still a practical tool of analysis in this particular study.

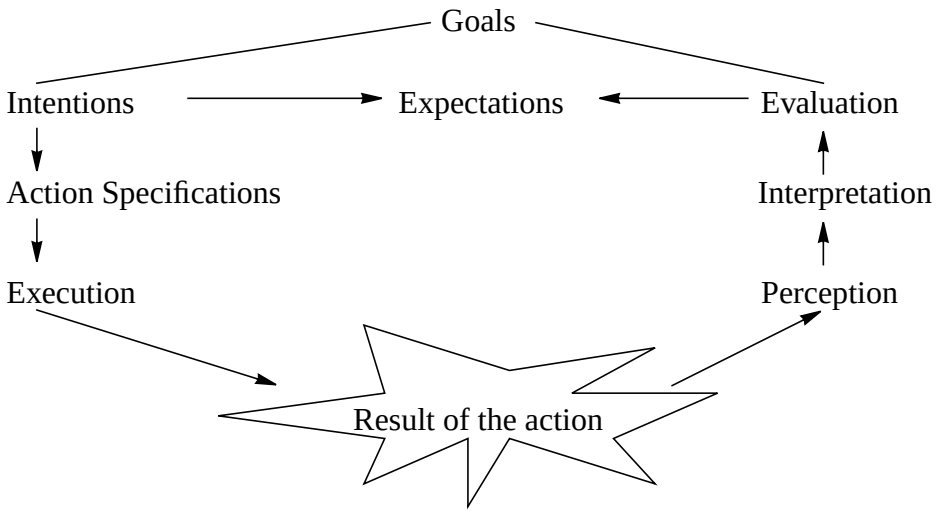

FIGURE 1. The user activity circle.

When a by-sitter is engaged in the use of a social application, the goal might simply be to be engaged in that activity. He or she must then create an understanding of the activity and probably form an intention to attend to the operator's actions. The by-sitter's actions are then to actively observe and attend what the operator does. The by-sitter's problems arise when it is time to perceive the system state (stage 5). If the interface is designed for a single user, it does usually not inform on which actions that are being performed, and therefore the by-sitter can not pass stage 5 if the operator does not explicitly say what he or she is doing. If stage 5 is passed, the by-sitter does not, however, know the operator's intentions. He or she does therefore not know what to expect. This makes the evaluation process more difficult.

It is my experience that feedback in single-user applications often is result oriented; the result of an action is the only feedback displayed on-screen. For example, using the short-cut Ctrl-x in my word processor results in the disappearance of the selected text. This is most of the

time sufficient for a single user who knows what he or she is doing. In this thesis, this kind of feedback will be called *result feedback*.

There are two different versions of result feedback, depending on the character of action of the application.[1] If it is working as a tool (e.g. a painting software) or a medium (e.g. an on-line news paper), the feedback presents the results of the operator's actions. But if the application has the character of an agent or a conversational partner it will firstly provide feedback on what the agent's response is, and after that on the results of the agent's actions. This thesis will focus on the first, less complicated, version of these two.

An application that provides feedback on which actions the operator currently is performing, is in this thesis said to have *action feedback*. In the Ctrl-x example above, the text would not only disappear, the application would also say: "One of the possible actions right now, is to cut the selected text." When the action is performed it would say "Cut!" in some way. In other words: The application indicates what the operator can choose to do and what he or she in fact chose to do. The first of these two features limits the number of possible intended actions from the operator, and should therefore make the evaluation less complicated. The second of the features simply allows the by-sitter to identify the operator's actions.

The operator may also be benefited by action feedback. The specification of the action sequence becomes easier through the presentation of possible actions, and if there is an error in the execution of the action, a slip, the interpretation and evaluation of the system state is simplified.

1. For more information on the character of action of an application, see Löwgren & Stolterman (1998).

1.2 The Question at Issue

The main purpose of this thesis is to explore how action feedback can be used in a social application (an application designed for a social setting), how it may affect the users' experience of the application, and how it may affect the interaction among them. The investigation of these issues was made in qualitative and comparative case studies of two artifacts in use. One of the artifacts utilized action feedback and the other did not. The analysis of the data from the studies informs on how to use action feedback in social applications. A subsidiary purpose is to provide designers of digital television applications with a depiction of a social context of use. Such a depiction may hopefully lead to a nuanced understanding of the user's situation and thereby help the designers in their work.

It is conceivable that the need for feedback on the operator's actions increases as the interaction is intensified. One might therefore expect that it is easier to explore the question at issue in an application with more intense interaction. It was decided, after some consideration, that a quiz game between two players was suitable to study the feedback in, due to the interactive and social nature of such games. It would allow the players to engage in a battle of wits. Or as the computer game designer Chris Crawford (1982, Chapter 2) writes:

> Games are frequently used (especially by adults) as social lubricants. The game itself is of minor importance to the players; its real significance is its function as a focus around which an evening of socializing will be built.

The digital television industry finds games very intriguing due to the focus on entertainment and leisure. This thesis will therefore, in addition to informing on how to use action feedback in social applications and providing a description of the social context of use, attempt to show how a social game for digital television can be designed. Co-present

players were observed in the case studies but the analysis was also followed by a speculative consideration of implications on the design of social games between geographically distributed players.

2

THE DESIGN OF THE GAME

First of all, the two versions of the social quiz game had to be designed. After that the use of them could be examined in a qualitative comparison. This chapter describes the design of the game versions. The actual study is described in chapter 3.

To design the game the restraints and possibilities of digital television had to be examined. Some issues on game design and design as a method for software development also had to be considered. Thereafter the actual design work could begin.

2.1 Digital Television

As always when designing in an unfamiliar material, the designer must investigate the possibilities and limitations of it. In other words: one has to explore the design space. What differentiates the design space of digital television from that of the personal computer are primarily issues of users and technology. There is, however, not much accessible material in the area of digital television. Most of the public material is about technological issues and very little about design. The field is driven by the industry and not by the academic world; this means that much of the research is held secret.

User Issues

The anticipated user groups of interactive television are very broad. Many of the users have never sat by a computer. Users might be elderly as well as children. These aspects must be taken into account. All of them are however experienced in ordinary television use. Consequently that experience might be a basis for designing applications for digital television. One must keep in mind that a television set is not a personal computer.

Gahlin (1998) has shown that most of the time in front of the television set is spent in the company of one or several other people. Food or drink is often consumed and hobbies pursued at the same times as a television program is followed. This consequently means that the attention of the viewers may be shifting back and fourth.

There are also environmental factors to keep in mind. For example, the users are seated in a sofa at some distance from the screen and it is often dark in the room where the television set is placed. This leads to limited visibility and therefore the design should not force the users to read the very small text on the remote control.

Technological Issues

The digital broadcast is received either via the ether, via a cable or via satellite. It is taken in by a so-called set-top box, which transforms the digital signals into traditional analogous signals that can be interpreted by the television set. The set-top box is a small computer with memory and processor and so fourth. The hardware places constraints on the design because the storing and processing capabilities are small, in comparison to modern personal computers. Since most set-top boxes lacks hard drive there is often serious limitations on storage capacity. The executable code and data need to be installed in the flash memory

of the set-top box, downloaded via the broadcast or retrieved from the network via the built-in modem. In addition there are significant limitations on the bandwidth in the broadcast, which means that a big amount of data will cause delay in the applications. The different systems (satellite, cable and terrestrial) has significantly different bandwidth and delay for data download. Each application must therefore be adapted to the environment it is supposed to be used in.

The most common input device to the set top box is the remote control. It has numerical keys ranging from 0 to 9. It also has four arrow keys and a set of selection keys, used for navigation. This kind of input device leads to an interaction that is mainly based on moving a focus over the screen in discrete steps.

There is not very much space to work with on a television screen. The PAL standard used in Europe has an area of 768 × 576 pixels, but there is also a safety area around the edges that should not be used. There is no standard for the size of this area, but generally speaking is the effective area for graphics around 688 × 496 pixels. The graphics, referred to as On Screen Display (OSD), are displayed on top of a background or a video. Most platforms also support alpha channels, which enable semi-transparent OSD's. To escape flickering and shadows is a limited colour space used, and horizontal lines with a thickness of one pixel avoided. At Nokia Multimedia Terminals in Linköping, the internally recommended RGB values range from 30 to 230.

2.2 Games

The issue of this thesis is feedback on actions and this will be explored in a game setting. Therefore a definition of games is necessary. The term 'game' is somewhat complicated and difficult to penetrate, since

we use it for so many purposes and in so many different metaphors (e.g. expressions like “do not play games with me”). To define ‘game’ one must refine what is common to all games. This is done below in a walk-through of genres and qualities of games. The walk-through also formed a basis for the design of the social game.

Genres

Crawford (1982) lists five different genres of games: board games, card games, athletic games, children’s games, and computer games. In board games, Crawford says, the players primarily concern is an analysis of geometrical relationships between the pieces. Card games, on the other hand, are mainly an exercise in analysis of combinations. Athletic games are a matter of physical skill. Crawford points out that there is a difference between competition and games. He concludes that the simplest versions of competition are not a subject of games, as they do not require the players to interact with each other directly, but only through mediation of for example a clock. He writes: “A competition that does allow interaction is a game.” (Crawford, 1982) An altogether different genre of games is children’s games. Typical examples are Hide and Seek and Kick the Can. The social interaction is the prime object in these games. The final genre Crawford proposes is computer games, in which the computer works as a referee or as an opponent, and often as both. Crawford makes a distinction, within the genre of computer games, between skill-and-action games and strategy games. But in my opinion, you could just as well discriminate between genres like adventure games, role-playing games, quiz games and so fourth.

Basic Qualities of Games

Harris (1994) made an informal survey of role playing games and other location bound entertainment. His study resulted in a list of what the participants wanted:

- Mental and social stimulation.
- Family and friends being able to play together.
- Ability to experience travel adventures.
- Experience of "soft adventures" that are thrilling but safe.
- Engaging in mysteries.
- Relationship-centred simulations and explorations, such as participatory soap operas.
- Sensual, symbolic, poetic and *curved* experiences.

Crawford (1982) views a game as "a closed formal system that subjectively represents a subset of reality". With the word 'closed' he wants to point out that the game has a complete and self sufficient structure. The micro world of the game is internally complete, so that there is no need for references to agents outside of the game. If the game fails to meet this characteristic there will be situations which the rules do not address. Then argumentation over the rules will arise and the players must create rules of their own. Good game design preludes this, since it is closed and the rules cover all contingencies in the game.

By 'formal' he means that the game has explicit rules. The term 'system' refers to a collection of parts that interact with each other. When he states that the system 'subjectively represents' he means that the game does not represent any objective world, but rather a subjective fantasy world of the players. The events in the game are thus subjective representations. This reasoning is very similar to what Clark (1996) labels as *layering* where a fictional layer is added upon a real-world layer or another fictional layer. The players perceive this fictional layer (in other words the game) as something in their collaboratively constructed fantasy world. Thus the game is objectively unreal but subjectively real to the players. According to Crawford, objective accuracy in the game is,

however, necessary to some extent, to support the players fantasy. Fantasy seems to play a fundamental role in any game situation.

The last part of Crawford's definition was 'subset of reality'. By this he simply means that a game can not include all of reality without being reality itself. The game has to have a focus to make it interesting. The game designer simplifies deliberately in order to provide this stylized focus.

Crawford believes that interaction is a key point in games; they can not be static. Firstly, interaction in a game leads to interpersonal or social elements in the game. Secondly, interaction makes the challenge active. Every game session is different from the last. What is important with different kinds of interaction is their emotional significance. Crawford means that in a game like PONG the interaction does not provide any means of expressing much of the player's personality through the medium of a bouncing ball, therefore it is considered insipid. But in, for example, a game of bridge the interaction includes elements of teamwork, deception, and cooperation. As a result the player can better imprint his or her personality traits onto the game. Thirdly, Crawford finds conflict to be fundamental to games. It creates the challenge in a game. The conflict may be direct or indirect, violent or nonviolent, but it is an essential part of the game.

Safety is also, according to Crawford, important to a game. Conflict implies danger, and danger implies physical or psychological harm. The last part of that chain is undesired. But the players still crave for the thrill of conflict and danger. Crawford means that the game is a safe way to experience reality. The result of a game is less harsh then the real situation it represents.

Löwgren and Stolterman (1998) describe two qualities in use that are intimately connected to games: *motivation* and *playability*. The motivation of the game is considered high if the player continues to play just for the sake of playing. Löwgren and Stolterman suggest that a game has high playability if it is challenging, interesting, and fair; driven by fantasy and curiosity; has constant news value; and if the player has a sense of control and possibilities to compete against others.

Holmquist (1997) has made an artifact study of a successful platform game and identified five critical qualities in use: (1) it is easy to learn; (2) it rewards repeated gaming; (3) it is fair; (4) it has its own laws of nature; and (5) it has very precise control. The first and last qualities are a matter of interface and game mechanics. These matters will be followed up below.

This has been an attempt to outline the characteristics and qualities of a game. In short, a game is a closed formal interactive system that subjectively represents a subset of reality. It provides the players with a social and/or mental challenge through safe conflict. To be successful it also has to be fair and have an interface and game mechanics that are easy to learn. In addition it has constant news value and precise control.

Game Interface Design

Crawford (1990) claims that a game demands more of a user-interface then other applications do. If the game interface is confusing, the player simply abandons the game. The interface of a game must hence be without faults, and also fun to work with. Crawford tries to teach us a couple of lessons from game design. The first is that the designer should move away from the keyboard. This is of course not true when the user task is to type text. In the context of digital television, this means that a keyboard should not be used as main input device to the set top box. The

remote control or perhaps analogous input devices such as joysticks, trackballs or jog controls of some sort are preferable. The second of Crawford's lessons is that the reliance on graphics and sound should be greater. He asserts that a graphic or a sound often can express a concept more directly then a text is able to. This has, however, been the case for some time in direct manipulative interfaces, even though sound, in my belief, often is ignored. The third and last of the lessons that should be emphasized is the intensity of interaction. By this he proposes that the user never should have to wait for the computer to process. Instead the "interaction circuit" between the user and the computer should be very tight. This tight interaction circuit is a concept very similar to that of tight coupling in the interaction proposed by Ahlberg and Schneiderman (1994) in database visualization. An application has tight coupling when the distance between the user's intentions, actions and the results of them is made as small as possible.

Clanton (1998) divide the human-computer interaction of a game into three levels. The *game interface* refers to the perceptual and motor level: what the player can see on the screen and how the interaction devices work. The next level is the *game mechanics:* which jumps the player's proxy character can do and the flight dynamics of the star fighter. This level is where the dynamics of the whole game is. How the players interact and what the content of that interaction is. In other words: the functionality of the user interface. The third level is the *game play,* which is the plot and goal of the game. This level corresponds to the user's tasks and goals in an ordinary application. Trying to fulfil these goals is what the player strives for in the game. Clanton states that: "The designers job is to create fun game play, and insure that the game interface and game mechanics do not interfere." (Clanton, 1998, pp. 2)

Game Design Principles

If we summarize the design of computer games, we get the following list:

- Do not rely on the keyboard for interaction.
- Rely heavily on graphics and sound.
- Design for tight coupling, tight interaction circle and precise control.
- Insure that the game interface and game mechanics do not interfere with the game play.
- The game should provide the players with social and/or mental challenge through safe conflict.
- The game has to be fair.
- The game should have constant news value.

2.3 Design as a Method for Software Development

Designers of all kinds create artifacts for human use. For example: The graphic designer creates artifacts for communication, the architect designs buildings for people to be in, and the car designer designs cars for people to drive. The designer views the product from the outside and looks upon it in its use. An engineer on the other hand mainly views the product from the inside; how it is built and how robust it is. Both of these views are of course vital for a product to be successful. People will not use a product with functionality that cannot be accessed (except for personal computers), nor will anybody use something that breaks down all the time (once more with the personal computer as an exception).

The nature of the design process is explorative. The designer probes the design space through constant conversation with the material. It is a conscious activity in continual flux between the creative and the analytical, where the designer must be able to motivate all the design deci-

sions, which basically are grounded in values. For example: is it ethically defensible if a credit card reader registers what goods and services a customer is purchasing; is one design more beautiful than the other is; should function decide form; and what organizational impacts of an artifact are acceptable? These are all design decisions that have to be based in values.

Design is a method to explore a given set of conditions to find solutions. There is almost never one single solution to a design problem, and through methodological exploration of the design space several of them may be considered. This is true whether it is design of cars, houses, hairbrushes, magazines or software. See for example Winograd (1996), Löwgren and Stolterman (1998), and Mountford (1995) for more information on using design methods in software development.

2.4 Designing the Two Game Versions

As mentioned before, it was decided that a social game, a game that functions as a social lubricant, would be built. One genre of games that functions in such a way are quiz games. Quiz games also provides the players with a mental challenge. The study was limited to two users in front of the television screen. Therefore a two player quiz game for digital television was designed. The choice could however also have fallen on another turntaking game like Parcheesi.

The design was based on two basic design principles. The first was that the social interaction between the players should be as high as possible. The opportunities for confrontation, deception and negotiation was to be maximized, to provide the players with a social challenge through safe conflict. The second principle was that the first prototype only should give result feedback to the users and the second should be identical to

the first, but also deliver action feedback. Besides from that, the general advice about designing for digital television was considered.

The game ran on an ordinary personal computer, but was controlled via a set top box with a remote control. The set top box feeded the signals from the remote control to it's serial port, and from there to a com port on the computer. A program read the com port and associated the signals with keys on the keyboard. The games were then controlled via the keyboard, and hence also via the remote control. The graphical output from the computer went both to an ordinary monitor and a television set. This arrangement made it seem like the game ran on the set top box, was controlled by the remote control and displayed on the television screen.

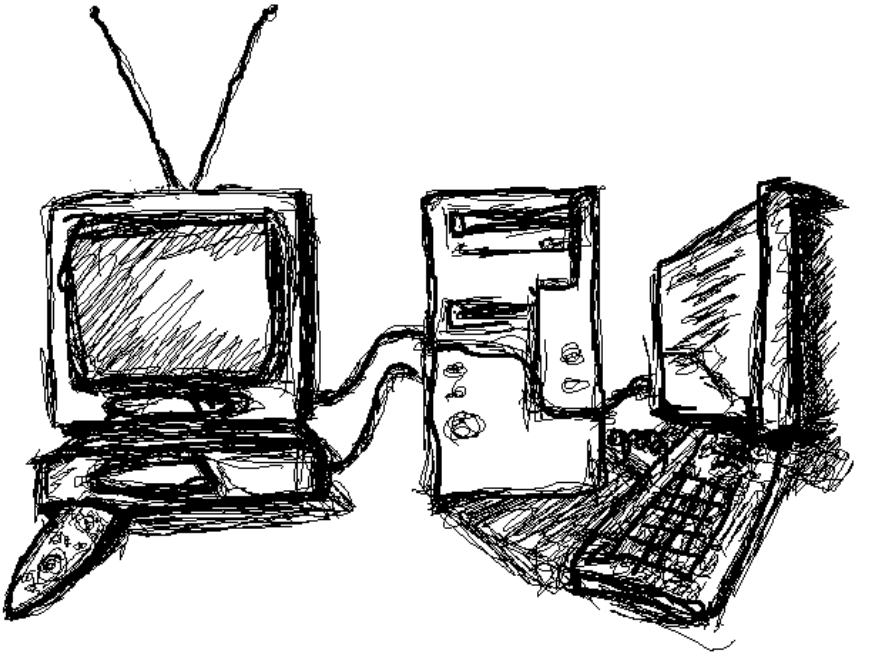

FIGURE 2. The hardware setup of the game with the set top box, the personal computer and the television set.

The Result-feedback Version

There are four topics of questions in the game. The game play is to correctly answer questions while standing with the piece on one of the four topic specific squares (the dark squares in Figure 3). To get to the topic specific squares the player must roll a die and move the piece (the quadrant and triangle in Figure 3). Between the topic specific squares, there are squares where the player may choose subject. The player can move fewer steps or more steps than the die shows and thereby cheat. This creates more opportunities to confrontation and deception. After moving, the player chooses a subject (if the piece is not on a topic specific square) and receives a question. There are four alternative answers given to the player and the selection between them is made with the number buttons. If a question is answered correctly the player may roll again, otherwise the turn goes over to the other player. The first player to correctly answer a question on all four subject specific squares has won.

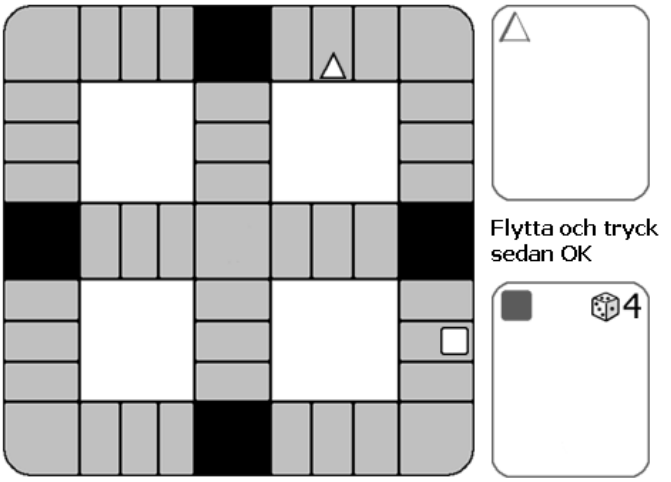

FIGURE 3. The result feedback version of the game.

When it comes to game mechanics, the moving of the piece is done with the arrow-buttons on the remote control, the OK-button is used to roll the die and confirm the move. With the coloured buttons (red, green, yellow, and blue) the player chooses a topic on squares that are not topic specific. Questions are answered with the numeric buttons. Abrahamsson (1999) concludes that, from a usability perspective, it is better not to use the numeric buttons and instead use arrows and OK to move a focus. When the user has to press the numeric buttons he or she has to change focus from the screen to the remote control, and change the grip or use two hands, because of the layout of it. This is generally not desirable, but in this case, the numeric buttons were used to create more alternative actions, and therefore make it easier to test the idea of action feedback.

The Action-feedback Version

The only difference between the first version of the game and the second is that the second provides action feedback. Firstly, to help the by-sitter recognize the operator's intentions, there are graphics presenting which buttons can be pressed in every moment. This should make it easier for by-sitters to recognize an action from the operator by limiting the number of possible actions. The buttons on the screen have the same position, in relation to each other, as the buttons on the remote control. This provides a clearer mapping between the remote control and the OSD's. Secondly, when one of the presented buttons is pressed, the graphic representing that particular button is highlighted. This provides the players with shared feedback on which action is being performed. In Figure 4, the quadrant is about to hit the die, to decide which player should begin. The only button that can be used in this moment is the OK-button, shown by the OSD in the bottom right corner. When the button is pressed the OSD is highlighted.

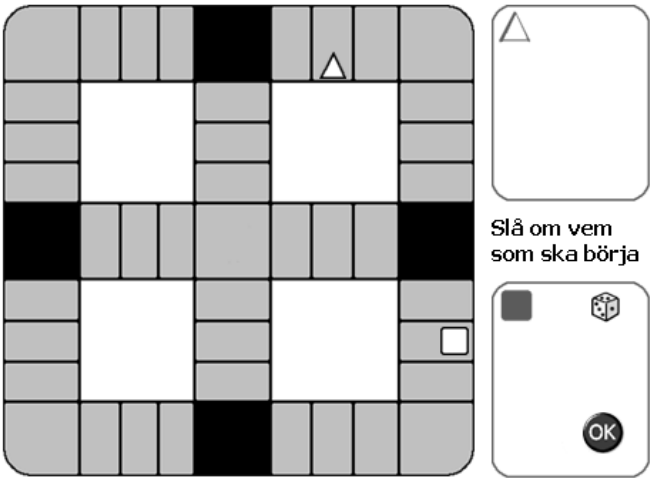

FIGURE 4. The action feedback version of the game.

In Figure 5, the quadrant has hit a four and is about to move the piece. The buttons that can be pressed in this moment are the arrows and OK. When one of the buttons is pressed it is highlighted.

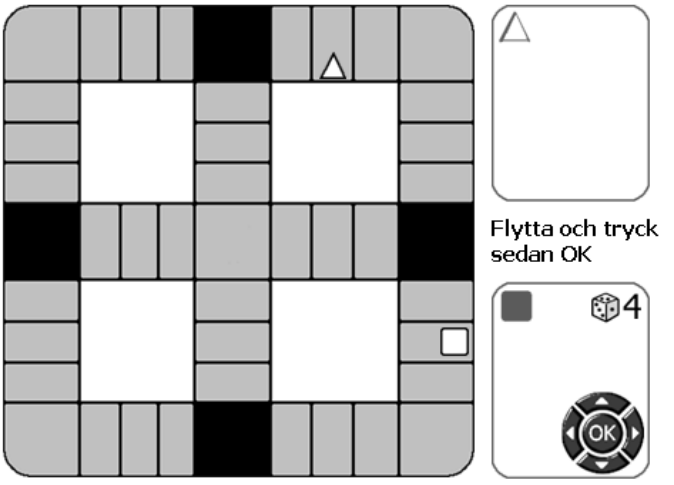

FIGURE 5. The action feedback version of the game. It is the quadrant's move.

3

METHOD

A qualitative comparison of the use of the games was conducted in a case study. The comparison was made to learn more about how to use action feedback in social applications. Another purpose was to explore how action feedback might affect the social interaction between the players and their subjective experience the application. Even though an independent variable (the presence of action feedback) was manipulated, a qualitative approach was chosen. This was motivated by the nature of the research problem. A qualitative approach makes it easy do give a rich description of the context of use, which was one of the goals of this thesis. Other problems would also have arisen with a quantitative study. There were difficulties finding relevant dependent variables and forming relevant hypotheses. Therefore an explorative approach was chosen.

This study does not seek to falsify any theories, but rather to provide a description and an interpretation of a phenomenon and thus inductively provide a ground for of action feedback as a design concept. From such a ground relevant hypotheses might be deducted.

One drawback of a qualitative case study is that there is no possibility to draw valid conclusions about cause and effect. There are also difficulties with observer bias and generalizability that must be kept in mind. Despite these inconveniences, the advantages of a qualitative approach were found to outweigh the disadvantages.

3.1 Participants

Due to lack of resources it was decided to limit the study to only a small part of the population at interest. All but one of the participants were students and had some experience with computers. It is however possible to in the future, replicate the studies on other subgroups of the population. The pair in every case knew each other and were friends, since it usually are friends that play games together.

3.2 Procedure

An initial observation of a pair playing the two game prototypes and following interviews was conducted. Due to the explorative nature of the entire study, the focus of the observation was relatively open in the first case; it was on behaviours, communication and moods between the players. Afterwards an analysis of the material was done, and the concepts were being developed. This analysis set the focus of the observations in the following cases to be on breakdowns and misunderstandings between the players and between the players and the game. After every case a brief analysis of the material was done. Because of the ongoing development of focus and concepts throughout the study, the cases were not completely comparable, but it was possible to compare the use of the prototypes within each case.

Observations

There were two participants in each case. The observations were conducted in a kitchen as the participants played the prototype games. They sat by a table in front of a small sized television set and a set top box. The light was dimmed and they had coffee or tea and some cookies to eat while they played the games (see Figure 6). An introduction to the remote control and the game was given before the game started. No

help was given to the players after the game had begun. The only exceptions were on a couple of occasions when a bug was encountered in the game. Field notes were carefully taken by the observer. The whole procedure was repeated with the other prototype.

FIGURE 6. The observation setting, with the observer, the players and the television set.

They played one version of the game for ten minutes and then the other for the same time. The number of cases starting with the first prototype was the same as the number of cases starting with the second.

The observation was not recorded with a video camera, because it can be obtrusive and lead to response bias, the bias that arises when the participants know they are being observed. The obtrusiveness of a camera can be made smaller if they get time to get used to it. The prototype games were, however, not complete and therefore the players could not play the game for a long time before the observations started; the

number of questions was too small. Response bias can however never be completely eliminated. In this study, the problem was made as small as possible as the observer was silent and sitting a couple of meters away taking notes. The observer bias resulting from subjective observations was kept in mind during the observations, and thus hopefully made as small as possible.

A transcription of the observation field notes from Case AR1 can be found in the appendix.

Interviews

After the observation, a semi-structured interview was conducted with the two participants that had played the game. They were interviewed one at a time. The focus of the interviews were on the users' experiences of playing the games. They were asked what they thought about quiz games in general; what it was like to play this game; how it differed from traditional board games; if they had experienced any difference between the two game versions; which of the versions they preferred; if they would play it if they had access to it; and what they thought it would be like to play a distributed version of the game. Field notes were carefully taken during the interviews.

4

RESULTS

The results of the observations and interviews are described case by case. The descriptions are put together from the transcriptions of the field notes made during the observations and interviews. The cases are named by the order, in which the game versions were played. Case RA1 stands for: the first case in which the players played the result feedback version before the action feedback version of the game. Case AR2 stands for: the second case in which the players played the action feedback version before the result feedback version of the game. The results presented here are interpreted and analysed to some extent during the ongoing study.

4.1 Case RA1

The participants in this case were two male first year cognitive science students, that used computers on a daily basis. One of them was 21 years old and the other was 26. They were friends and fellow students, and had studied together for a year. The 21-year old man thought that quiz games could be fun from time to time.The other found quiz games to be fun and he gladly played them.

The observation in the first case started with the game version with result feedback. In the beginning of the game session the players did not know which buttons to press. One of the players had to lean forward to see the text properly. The players were very quiet during the game,

and they seldom looked at each other when they spoke. Instead they had their eyes on the television screen. They moved their pieces, chose subject, answered the questions and then handed over the remote control to the other player. Occasionally a player thought the other took too many or too few steps, and told him that he was cheating. Either the operator was actually cheating, or he made a mistake due to lack of feedback or the by-sitter made a mistake due to lack of feedback. One of the players often read the questions out aloud and also counted his steps aloud as he moved the piece. The other player seemed to be a little bored. Every now and then they teased each other, sometimes they swore and laughed a little when they answered wrong.

There was one apparent difference in the use of the game version with action feedback: The player who counted his steps aloud during the first game session did not do so during the session with the game with action feedback. This may be due to the fact that he was accused of cheating and therefore wanted to make sure that the other player got feedback on his moves. This procedure may have been superfluous in the action feedback version of the game. It might also have been the case that he got used to the game interface and game mechanics, and therefore did not have to count aloud.

Both of the players thought that it was more sociable to play a traditional boardgame than this game, since you in a traditional boardgame have eye contact with the other players around the table. In this game you only watched the screen, the players reported. When they played the game they sat shoulder to shoulder facing the television set.

One of the players did not find the game very entertaining, but both of them preferred the version with action feedback. One of them preferred it because of the feedforward, which made it easier to know which buttons to press. The other preferred it because of the feedback that made

it easier to follow the actions of the operator. He said that the action feedback resulted in a feeling of greater involvement in the game.

The action feedback slowed down the interaction with the game. One of the players thought that it might cause irritation after a while. He also found it “messy” to pass around the remote control. He suggested, partly as a joke, that one should introduce an additional remote control. This is in accordance with the results of Stewart’s (1998) studies on Single Display Groupware.

The player who did not find the game very entertaining would perhaps play the game if he had easy access to it and had nothing better to do. The other player would gladly play the game, and would probably do it together with his wife after their kids had gone to bed for the night. The same player reports that he would have liked to play a distributed version of the game with someone he knew, for example his brother. He also thought that the possibility to cheat was a good feature.

4.2 Case AR1

One of the players was 23 years old and the other was 22. Both were female students pursuing a masters degree in cognitive science, and both had recently started to use computers on a daily basis. They had been friends for two and a half year. One of them did usually not play quiz games since she did not think she was very good at it. The other enjoyed quiz games.

The observations started with the game version with action feedback. On this occasion there were also cups of coffee and tea and cookies on the table.

Initially the players negotiated about whom that should begin. They also negotiated about rules and discussed how the interface and game mechanics worked. As they started to play the game they began teasing each other and pretended to be bitter as part of a social game. The players laughed a lot and made comments about the questions and their performance.

One of the players accidentally moved her piece to far, which she noticed and pointed out to the other player. But she had pressed the OK-button and that meant that she could not undo the action. Later on she accused the other player of cheating. She did not agree on that she was cheating. After some time one player asked the other what she had answered. This points towards lack of feedback in the action feedback prototype.

When the players started playing the result feedback version of the game, they once more negotiated about whom that should begin. By now they had learned the rules and the game interface and mechanics and did not have to negotiate on that issue.

At several occasions the by-sitter wondered what the other did. At another time the by-sitter noticed how the operator moved her piece too far, which she pointed out. The operator said “sorry” and corrected her mistake. The player accused of cheating started to count her steps aloud after that and said: “So that I don’t cheat.”

In the interview one of the players said that it was difficult in the beginning to know what to do, but when she tested she understood how the game worked. One of the players did not notice any difference between the game versions but she reported that it had been confusing playing the result feedback version. There was a bug in that version that gave incorrect information to the players. When a player answered alterna-

tive four and that was wrong, the information on the screen said that it was the same player's turn again, when it in fact was not. This probably made a contribution to the confusion. Due to this perplexity she preferred the action feedback version. It is difficult to say if the lack of action feedback was the major or minor factor behind the confusion. The other player preferred the action feedback version, but thought that both versions gave to little feedback on what the operator had answered. The action feedback version was considered better on that account but not good enough. She thought, however, that it was unnecessary to show which arrow buttons that were being pressed, since that was apparent through the movement of the piece.

Both players thought that it was fun to compete. They believed that they would play the game if they had it in their television sets. They would play it when they needed a break from the studies and on rainy days.

One of them thought that the television game was simpler to handle than a traditional board game, since you do not have to bring out a game board, try to find dice and other accessories. She also thought that it was important in a quiz game that the questions are varied, and she proposed using two remote controls so that the players did not have to pass it around.

The players believed that a distributed version of the game would not be as fun as this game was. The small talk and the teasing would perhaps be lost. The players reported that they believed it would be more fun playing remote against someone they knew, than it would be playing against someone they did not know. One of the players observed that it would be more important that the game presented exactly what the other player answered and did in a distributed version, since it would not be possible to ask. It should not be possible to cheat in a dis-

tributed version either. This player would play a distributed version of the game if the connection was free of charges, otherwise not.

4.3 Case RA2

A full transcription of the field notes from the observations in this case can be found in the appendix.

The participants in the third case were women. They were 27 and 28 years old and both used computers on a daily basis. They were very good friends and had known each other since childhood. They had played a lot of quiz games through the years. One of them thought of herself as a quiz game junkie.

The observation session started with the game version with result feedback. The bug described in Case AR1 was explained to the players, so that they would not be confused by it. There were, as usual, cookies and coffee cups on the table in front of the players.

As they started playing the game they negotiated and conferred with each other about the rules of the game and the game mechanics. The players constantly teased each other and pretended to be bitter when the other answered correctly. They were, as one of the players expressed it, “engaged in a battle of wits” where they could pretend to be superior, bully each other, chitchat and laugh together as part of the game. Very much of this communication was expressed through posture, smug smiles and tone of voice.

At one time the operator was explicit about what she answered, when she was not the by-sitter frequently asked her which answer she had given.

After playing the version with result feedback for ten minutes they played the version with action feedback. The interaction between the players continued as before, with teasing, laughter, and smug smiles. There were no indications of lack of feedback in the use of the action feedback prototype. This may be due to training effects and it may be due to the action feedback.

Both players enjoyed playing the game, and on the question if they would play it if they had access to it one of them said: “Yes! It would be like a dream for me.” The other simply said: “Only until I’d learned all the questions.”

When they compared this game with a traditional board game one of them thought it was simpler. There were not as many accessories that could cause trouble. For example, dice falling on the floor, pieces being accidentally moved and so on. This is at the same time part of the game and part of the fun. The other player thought that quality of the interaction between the players was different when the game board was on the screen instead of on the table since the players do not have eye contact in the on screen case.

Both players thought that it is important that a quiz game has varied and balanced questions.

One of the players preferred the version without action feedback. She thought it made the interaction slower and that the feedback graphics were disturbing. This may be because she had already learned the game mechanics and hence did not need the action feedback. The other player preferred the action feedback version, because of the feedforward that gave clues on which buttons to use. She did not think that the graphics displaying the feedback were disturbing.

When the players were asked to consider how it would be to play a distributed version of the game, one of them said: “It would probably work.” She thought it would be good to have such a game when she was bored and did not have energy to go over to her co-player. The other player thought a distributed game would take away some of the fun, if there would be no medium for bullying the opponent, giggling viciously and smiling smugly.

4.4 Case AR2

The participants were men. One of them was 24 and the other was 30 years old. They were both students that used computers on a daily basis. One of them was a very experienced computer user and the other describes himself as a “mediocre” computer user. They had known each other for less than a year but considered each other as friends.

The players started playing the game version with action feedback. There were no problems figuring out how to operate the game. One of the players often read his questions out aloud. They often teased and bullied each other as part of the game. They also laughed and commented on the questions. At one time when they where playing the version with action feedback, the operator reported orally which button he pressed. But with the result feedback version they did so almost constantly. And when the operator did not do so, the by-sitter asked him, “what did you press?”

During the game with the result feedback version they started to move their pieces too far or too short. They accused each other of cheating. One of the players reported that it was a silent agreement between them that it was OK to cheat. That agreement may have been developed

because of the time limit of ten minutes gaming, and they wanted to finish.

The bug in the result feedback version of the game, described in Case AR1, was explained to the players before they began playing, so that they would not be confused by it.

Both players reported that they enjoy quiz games in general, and that they thought that this game was fun. In comparison to ordinary board games this was considered simpler and faster. The players thought that this also meant that there was less interaction between the players than it would have been in a ordinary quiz game. Both players thought that the fact that they sat shoulder to shoulder watching the screen meant that they interacted less than they would have if they sat around a table watching each other. The television screen seemed to draw more attention than the board in a board game do, they reported.

One of the players preferred the action feedback version because he knew which buttons the other player pressed. The other player did not recognize any difference between the two versions.

In a distributed version they thought that some parts would be lost, since some of the socializing would be lost. But both recognized that it would be vital to se exactly what the other player was doing, since you can not ask. They believed, however, that it would be fun to play a distributed version with someone they knew, so that they could tease the loser afterwards. One of the players calls this “the after-social part of the game.” They imagined that they would call the other on the telephone late in the evening and say “Hey, how about a game?”

Both of the players thought that they would play the game if they had it available in their television sets. It would be something they played when they sat in front of the television and wanted something to do. It

would not be something they gathered all their friends for because it is not as sociable as a traditional board game.

Both think that the possibility to cheat was bad. In computer games in general the rules are built into the game, but in this game they were not. Therefore the players did not expect it to be possible to cheat, and when they realized they could, they did it all the time.

5

DISCUSSION

The purpose of this thesis was to inform designers on how to use action feedback in social applications, to explore how it may affect the users experience of an application, and how it may affect the interaction among them. A subsidiary purpose was to give a rich picture of a social application in use. Such a picture is given in the appendix. Another subsidiary purpose was to evaluate how a social game for digital television could be designed and give speculative considerations on the design of a distributed version of the game.

5.1 Using Action Feedback or Not

Was action feedback a gift from heaven or was it completely useless? The answer probably lies somewhere between these extremes.

In all four cases, during the use of the game version without action feedback, the operators developed procedures to inform the by-sitter on what they were doing. In the first and second case they counted their steps after being accused of cheating, and in the third and fourth case they informed the by-sitter on what they answered. They did that only to some extent when they were playing the game version with action feedback. This would mean that they, most of the time, successfully perceived, interpreted and evaluated the system state. The action feedback seems to admit the players to use the language to engage in the game

play, instead of using the language to compensate for poor game mechanics.

Most players (five out of eight) apparently preferred the version with action feedback. Some did not notice any difference between the versions (two out of eight) and one preferred the version without action feedback. That player thought that the feedback slowed down the interaction when she was operator and that the graphics displaying the feedback were disturbing. There were two reasons, reported from the players, that made them prefer the action feedback version. The first was the display of which buttons that could be pressed in every state of the game. The second reason was the feedback, that helped the by-sitters recognize the operator's actions.

The display of which buttons that could be pressed in every state, was designed so that the buttons on the screen had the same position in relation to each other as the buttons on the remote control. This seems to have been one of the reasons for the players to prefer the action feedback version of the game, as it provided a clearer mapping between the OSD's and the remote control. This is a feature that can be used in single-user applications for digital television, as well as multi-user applications.

The results indicate that action feedback is useful in critical moments of the interaction. In this game the critical moments were when the operator selected topic and answered a question. Then the by-sitter needed to know which button the operator pressed. If the by-sitter did not know what the operator answered, he or she could not tease the other for answering stupidly. At other times there is no need for displaying exactly what the operator is doing. If that is the case the action feedback may only be disturbing and occupy space on the screen. If the feedback can be displayed so that it does not slow down the interaction and

take possession of screen space, it can be used in these cases as well, otherwise not.

When deciding whether to use action feedback or not in an application, the designer has to ask him- or herself, how the application will be used. Is it a single-user application? If not, to what extent is it a multi-user application? Will it occasionally be used by several people in front of the screen or will it be used in such a fashion every time it is in use? The answers to these questions can probably be given through a thorough user analysis.

It is my belief that action feedback should be considered, during the critical moments described above, in an application that often will be used in a social setting. The critical moments will likely be found in a task analysis, from the by-sitters' point of view. For useful information on how to conduct user and task analysis, see for example Hackos and Redish (1998).

5.2 Social Games on Digital Television

All of the players in the study could see themselves playing the game if they had access to it. The players who loved traditional quiz games particularly enjoyed this game. Most of the players reported that they would play a game like this when they had nothing else to do; when they otherwise would be watching television or surfing the Internet. It was considered fun because of the competition and the bullying, teasing, and mocking of each other. The game used in this study was a competition game, there are probably other aspects that are considered fun in a collaboration game.

It is not a game that the players would gather all their friends for, since they do not find it as sociable as a traditional boardgame. The reason

for this is probably that the players did not have eye contact during the game; they sat shoulder to shoulder watching the television screen. In a traditional boardgame the players sit around a table facing each other. This means that they can easier see the facial expressions and postures of the other players; therefore the interaction between the players becomes closer. The television game is, however, considered faster and more convenient than a traditional boardgame since there are less accessories; there is only the remote control.

The possibility to cheat was a game feature meant to maximize the potentiality of confrontation and deception. Some players thought that it was a good feature while others did not. There seems to be a transfer from other television and computer games among those that thought it was a bad feature. Some players reported that computer games in general have the rules built into the game mechanics. This game did not have that. The possibility to cheat resulted in confrontation and deception, and did thus do what it was supposed to.

5.3 Considerations for distributed social games

One of the questions in this thesis was what implications the results of the study might have on the design of a game version where the players are remote. As stated before, this is only a speculative consideration due to the limited generalizability of case studies, but there are several interesting issues raised in the results.

The players thought that it was important to be able to taunt each other. One implication of this is that a distributed social game must support taunting between the players during the game. This communication between the remote players can be provided by allowing the play-

ers to choose from a number of messages to send to each other, using chat, voice or perhaps even video.

It is also possible to build a game that allows remote friends to play together. One of the players could be bored and call a friend up and say, “What do you say about a game?” After that they could both log into the game, find each other and start playing. Then they can taunt each other the next day or over the phone.

Another important part of the game is the competition. That can be easily supported in a distributed game. One possibility is to have remote competition and supply the social part co-present. This means that there is a team of players in front of the screen playing against other teams that are remote.

There is an additional difference between a co-present and a distributed game. In a distributed game it is even more important to see exactly what the other player is doing since it is difficult to ask. This should mean that action feedback is vital to the success of the game.

5.4 Conclusions

To conclude this thesis a couple of design principles and recommendations concerning action feedback and social games are given.

Action Feedback in Social Applications

During the design of social applications, do a task analysis from the by-sitters’ point of view. Identify the moments of the interaction when the by-sitters need to know what the operator is doing, and use action feedback in those particular moments.

Mapping between OSD's and Remote Control

When possible, make it easy to recognize the buttons on the screen as remote control buttons, through *both* position and shape. That is: place the buttons on the screen in the same position, in relation to each other, as they have on the remote control.

Social Games

When designing social competition games for digital television, make sure to maximize the possibilities of competition, deception, bullying, teasing and mocking between the players. Other aspects may be important i collaboration games.

Try finding a way to allow the players to have eye contact, so that they look at each other and not only at the screen.

Distributed Social Games

Distributed social games should provide the same thing as social games where the players are co-present. The competition can easily be provided distributed. The social part can be provided either distributed through mediated communication or co-present within a team. If the players know each other they can tease and mock each other later when they meet.

Action feedback is even more important in distributed social applications since it can be difficult to ask the operator what he is doing. Further studies on distributed social games are, however, necessary.

5.5 What is Next?

The situation of use studied in this thesis is a situation where two co-present players play against each other. The natural follow up to this

study would be to develop a game for remote players and to study how they play the game. How can you for example provide means of communication so that the players can tease and taunt each other? Is it sufficient for the players to choose from discreet messages or does the communication require video?

Another way forward would be to study teams playing against each other, both co-present and remote. This would answer some of the questions raised in this thesis regarding the generalizability from competition games to collaboration games.

One of the greatest questions in the field of games for digital television is how to make use of the broad downstream, broadcast channel. How may, for instance, a traditional game be incorporated in a television show. Yet another path onward would be to assess the market for social games for digital television.

In general, there is very little research done on social applications and applications designed to function as social lubricators. More specific, shared feedback is an important issue in groupware supporting both co-present and remote users; there is still much to be done in that area.

The activity circle, by Norman (1986), was used as grounding of the concept of action feedback. It was originally designed as a description of the operator's activity only. But it could also be seen as a more general description of human action. It is of course simplified and it is lacking fundamental aspects of coordination and communication between operator and by-sitters. Perhaps would a more elaborate and general theory of joint activities provide a firmer grounding of the concept of action feedback. Clark (1996) has worked on such a theory and it would be most interesting to see how an interpretation of shared feedback within that theory could be developed.

The results in this study indicates that the screen is a sub-optimal display area, since it is easy to loose eye contact with the other people in the activity. How would a display artifact supporting co-present cooperation be designed? Could it perhaps be a touchscreen on the table or simply a pad of some sort? Such an apparatus would allow the players to face each other, and play games with direct manipulation on the screen. A platform like that would provide the benefits of a traditional board game and the computational power of the computer. Another interesting question is how such an artifact could be combined with the digital television concept.

Another way of supporting co-present collaboration would perhaps be a three dimensional projection on the wall responding to gestures and social interaction. A projection like that, united with the table idea described above, would be a three-dimensional projection of characters and environments on a table. See for example the game between Chewbacca and R2-D2 on the Millennium Falcon, in the film “Star Wars” by George Lucas.

6

APPENDIX

This is a transcription of the field notes from the observation in Case RA2. The purpose of providing a transcription is to give designers of social applications a depiction of a social context of use, and thus provide them with a firmer ground for making design decisions. The depiction can be used in the same manner as a scenario (see for example Hackos & Redish, 1998; Preece, 1994; and Carroll, 1995).

The depiction is written as a rich description, to make the situation more alive, and hence allow designers to place themselves in a situation of use. Case RA2 was chosen as an excerpt because of the fact that the two players loved quiz games in general and were hence enthusiastic about playing the game; this is apparent in the discourse. They are simply having fun. They are also very good friends. The players had known each other since early childhood and this singles them out from the other pairs. It might make a difference in the discourse, but if that is the case, the difference is not evident. The transcribed field notes from all of the cases are available in a less refined version in Swedish.

6.1 Transcription of Case RA2

The players sat down in front of the television set. There were cookies on a plate and cups filled with steaming coffee on the table, and the light was dimmed. They began playing the quiz game and Lisa picked up a cookie and said, “You go first!”

Isabelle reached for the remote control and hit the dice for both of them. They read the instructions on the screen with puzzled faces. “How the hell do you move?” Isabelle wondered. The two players discussed issues of rules and game mechanics for a while before the game continued. After giving the wrong answer to the first question Isabelle handed over the remote control to Lisa.

“No, a one!”, she cried out loudly after hitting the dice. She read the instructions and both of them quietly looked at the screen. Lisa continued with a “hmm...”, an “oh...” and finally a “wow!” She then gave the correct answer, scored one point, and exclaimed in triumph, “Tadat-adaa! A point! Wow!” Isabelle made a sour face and said, “Easy question! Pick a subject. Oh, no that’s wrong. OK.” They giggled. “I’m moving fast,” Lisa continued. “Heh... Oh, I moved when I didn’t want to.” They laughed again.

Isabelle gave the wrong answer to her next question and handed back the remote control to Lisa. “Well, let’s see. Eh...”, Lisa said as she pondered the question. She gave the correct answer and exclaimed, “yes!” She hit the dice again and accidentally pressed the OK-button before she had moved her piece. “I didn’t move my piece,” she said. “I forgot to move! Forgot to move...” “Forgot to move?”, Isabelle asked. “Oh dear! Oops! OK.” “I forgot to move,” Lisa repeated again.

Now it was Isabelle’s turn. She thought for a while, read the question aloud, and thought a little more. The two players commented on the question. “Oh, I was going to say that,” Lisa said. “Eh... OK,” Isabelle mumbled, and they sat quietly for awhile. “Eh... it...” Isabelle continued. They laughed, and Isabelle cried out, “Of course he was in Asia!” Lisa said wickedly, “Yes!”

“What was the answer? Paris?”, Isabelle wondered as Lisa answered a question. “Yes,” Lisa responded. The game continued and it was once more Isabelle’s turn. “I’ll say two!” The answer was wrong and Lisa laughed out loud. Isabelle continued with a sulky expression as she handed over the remote control, “You should always trust the first that comes to mind.”

“What? The red...” Lisa laughed as she read her question. “If you don’t know that, then...” Isabelle taunted her. Lisa called out as she gave an incorrect answer,“Filip... No!” She gave the remote control back to Isabelle, who made her move and read the question. “I don’t know,” Isabelle said and gave her answer. Lisa asked her, “What did you guess?” “Birch,” Isabelle said.

By that the first game session was over, and the second started:

“I’ll begin,” Lisa said and moved her piece. She selected a topic, and received a question. “I’ve never heard of him.” “Me neither,” Isabelle said. Lisa was right in her answer, “Yes!” Isabelle smiled and seemed to be thoughtful as Lisa leaned back in the armchair and chuckled, at which Isabelle laughed. Thereafter followed a shorter period of silence.

As the game continued, the two friends made remarks on the course of events. “Heh...” Lisa said. “Eh... s... That’s right! Yes!” Isabelle countered. Eventually it was Lisa’s turn. She rolled the dice by pressing the OK-button on the remote control. “Yeah, a little six.” She pondered the question for a while and laughed. “All of the above, you could say.” “Yeah,” Isabelle agreed. Lisa was correct in her answer and Isabelle pretended to be bitter. “You’ve got to share, Lisa.”

The game continued in a similar way. “I have no idea,” Lisa said. “Yeah,” Isabelle agreed. “Simon and Garfunkel,” Lisa said and leaned towards Isabelle. “Oh, easy question. That’s not fair.” Lisa pretended to be

resentful. “Look who’s talking!” Isabelle countered and rolled the dice again. “Let’s go for that category again. It was good.” “Yeah, right,” Lisa said acidly. Isabelle continued, “It’s two or three. Let’s say ‘the window-sill’.” She was wrong and handed over the remote control. Lisa hit the dice, moved and got a new question. “Oops, this is embarrassing.” Her answer was wrong and she cried out, “No!” “Well, any night would do, wouldn’t it?” Isabelle said. She then read her question, “Which book...” Lisa commented on Isabelle’s question, “The longest one?” Isabelle gave an incorrect answer. The turn went over to Lisa. She wrinkled her forehead in thoughts and said, “I’ve no bloody idea!” She answered and then asked Isabelle, “Did you know?” “No”, Isabelle said as she read her question. “Eh...” Lisa laughed wickedly as Isabelle continued, “One out of two... Yes!” Lisa sulked, “Oh.” “Oh!” Isabelle repeated in triumph. Lisa shrugged her shoulders as Isabelle begun telling her an anecdote as the second game session came to an end.

7

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