Integrated Project on Pervasive Gaming

FP6 - 004457

WP12: City as Theatre

Deliverable D12.4

Evaluation of the first City as Theatre Public Performance

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EXECUTIVE SUMMARY

City as Theatre (CAT) is one of five workpackages called “showcases” within IPerG that demonstrate and study new examples of pervasive games. The CAT showcase is exploring artist-led pervasive games, drawing on the talents of artists to create novel and compelling experiences that offer visions of how more mainstream games might be in the future. This has involved developing a prototype public performance called Day of the Figurines, a slow pervasive game in the form of a massively-multiplayer boardgame that is played using mobile phones via the medium of text messaging.

A previous deliverable, D12.2, described the design, specification and implementation of the first iteration of Day of the Figurines (Drozd, Flintham et al, 2005). This deliverable presents an evaluation of a first public test of this version of Day of the Figurines that took place in London in Summer 2005 and that involved 85 players over a month. This evaluation draws on multiple perspectives, including analysis of exit questionnaires from players, ethnographic study of behind-the-scenes control room activities, and descriptive statistics derived from system logs, in order to establish a rich picture of how the game was experienced from the perspectives of both players and operators. Its goals are to inform the iterative design of future versions of Day of the Figurines and also to raise broader research issues to be followed up in further evaluations and in other IPerG workpackages. The deliverable also aims to provide a broad repository of data and analysis in a digestible form that can act as a resource for future work in CAT, in IPerG and in the longer term, in other projects too.

The deliverable is structured in two major parts covering the experience of Day of the Figurines from the player perspective and then from the operator perspective.

The evaluation uncovers a wide variety of issues for further development and research, leading to a wide-ranging series of recommendations for future versions of Day of the Figurines, in areas such as: giving greater overall structure and specific missions; improving the conversation management mechanism; approaches to managing shifting player engagement over time; and issues involved in scaling up to larger number of players. It also identifies broader research themes and links to other workpackages in areas such as social adaptation, narrative and role-play and authoring and orchestration tools.

Deliverable Identification Sheet

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	ethnographic study of behind-the-scenes control room activities, and descriptive statistics derived from system logs, in order to establish a rich picture of how the game was experienced from the perspectives of both players and operators. Its goals are to inform the iterative design of future versions of Day of the Figurines and also to raise broader research issues to be followed up in further evaluations and in other IPerG workpackages. The deliverable also aims to provide a broad repository of data and analysis in a digestible form that can act as a resource for future work in CAT, in IPerG and in the longer term, in other projects too. The deliverable is structured in two major parts covering the experience of Day of the Figurines from the player perspective and then from the operator perspective. The evaluation uncovers a wide variety of issues for further development and research, leading to a wide-ranging series of recommendations for future versions of Day of the Figurines, in areas such as: giving greater overall structure and specific missions; improving the conversation management mechanism; approaches to managing shifting player engagement over time; and issues involved in scaling up to larger number of players. It also identifies broader research themes and links to other workpackages in areas such as social adaptation, narrative and role-play and authoring and orchestration tools.
Keywords	City as Theatre, Day of the Figurines, SMS, Test Messaging, Orchestration, Improvisation

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1 INTRODUCTION

The City as Theatre showcase is exploring artist-led pervasive games, drawing on the talents of artists to create novel and compelling experiences that offer visions of how more mainstream games might be in the future. Our driving motivations are:

- Artistic uses of new technologies that draw upon the creativity and vision of artists can pave the way for more mainstream commercial applications.
- Staging artistic works at new media festivals provides access to public audiences as experimental subjects for IPerG research and also raises the public profile of the research.
- Artistic performance is a culturally important application area in its own right, and one that can successfully draw on emerging game technologies.

While previous pervasive performances such as Can You See Me Now? [1] and Uncle Roy All Around You have been successful from an artistic perspective, they have also been limited in scale, delivering an experience to relatively small numbers of participants. In IPerG we are looking to move beyond these previous works by developing new experiences that are more scalable while remaining artistically rich. In order to reach this goal, we have taken the key decision to deliver our experiences to participants' own mobile phones, rather than having to loan them specialised equipment as we have done before. We have also decided to focus on creating long term and wide area experiences that unfold over weeks or months, that can be played on an ongoing basis from many locations, and that are interwoven with players' everyday activities.

Two prior deliverables, D12.2 [3] and D12.3 [4] presented the design and software implementation of a prototype public performance called Day of the Figurines that is intended to meet these goals. This can best be thought of as a massively multiplayer board game that is played by sending and receiving SMS text messages using a mobile phone. A key feature of Day of the Figurines is that it is a slow pervasive game that unfolds over a month through the exchange of just a few text messages each day. This slowness opens up new artistic possibilities for creating interactive narrative that mixes pre-authored rules and content with improvised responses to players' actions. From a research perspective, this structure enables us to explore the temporal issues of how a pervasive game can be mixed with the patterns of players' ongoing daily lives, an aspect of pervasive gaming that has hitherto largely been ignored in favour of location-oriented issues.

We are following an iterative design process for Day of the Figurine involving a series of public tests of increasing scale, each of which is evaluated and feeds its results into the next. This deliverable presents the evaluation of the first *major public test* that took place in London in August 2005 and that involved 85 players (there had already been two previous iterations involving internal tests with the project team and their colleagues and associates, for ten players in April 2005 and 25 players in June 2005). The results of this evaluation will feed into a major redesign exercise that will take place in Spring 2006 that is expected to lead to a full public performance in the Summer, followed by a final evaluation in the Autumn.

1.1 Reading Guide

The remainder of this deliverable is structured as follows:

- Chapter 3 provides a brief introduction to the design of Day of the Figurines;
- Chapter 4 discusses our evaluation method, in particular how we have drawn on a combination of questionnaires, ethnography and analysis of system logs in order to evaluate Day of the Figurines from both the player and operator perspectives.
- Chapter 5 evaluates Day of the Figurines from the player perspective, drawing on a combination of exit questionnaires and data from system logs.
- Chapter 6 evaluates Day of the Figurines from the operator perspective through an ethnographic study supported by data from system logs.
- Chapter 7 summarises recommendations for the future development of Day of the Figurines and highlights potential relationships to other IPerG workpackages.

This is a long deliverable that contains a considerable volume of detailed data. We have deliberately chosen to retain much of the detail so that the deliverable can provide an archive of relevant material to which we and other researchers may return in the future as we redesign Day of the Figurines, explore common issues with other workpackages, and also begin to write more focused papers around particular themes.

However, we recognise that this can make the deliverable difficult to read, especially for those who wish to quickly reach the key recommendations. For these readers, we highlight three sections:

- The summary of recommendations arising from analysis of the player experience in section 4.12
- The summary of recommendations arising from the analysis of operator experience in section 5.5
- The overall summary of recommendations and directions for future work in chapter 6.

2 A BRIEF OVERVIEW OF DAY OF THE FIGURINES

For completeness, we begin with a brief overview of Day of the Figurines, drawing on material from deliverable D12.2. An accompanying video to D12.2, available from www.pervasive-gaming.org, provides a further summary of its structure and the tools that supported its authoring and orchestration.

The work is situated in two places: a public space, such as a gallery, and the entirety of a mobile phone billing area, for example a country. Visitors enter the public space where the work is housed to find a large scale model of an imaginary city at table height. The model is 1:100 in scale (fig. 1) and extends for several metres in either direction. The model is constructed of card. A single sheet of card is used for the entire city. Printed onto the card are roads, street lights, traffic lights and the facades of buildings. Each flat feature is carefully sliced with a scalpel and bent to the vertical to create the landscape. The image is a mix of computer graphics and photographic collage. The city has identifiable buildings such as the YMCA, the Big Chef, Video Zone, the XXX Cinema and the Battle of Trafalgar Square. There are other features such as a Cemetery, a Canal, a Railway Crossing and an Underpass.

To play the game the visitor goes to a second table where they select a 2cm high painted figurine. They then give the figurine a name and answer a series of questions that define its initial characteristics – what is its mode of movement? What does it like and dislike about other people? What is a notable feature of its appearance? And is it a lover or a fighter? These answers are written down on a postcard and handed to the game operators. After inspecting the game board, the player chooses an initial destination in the city for their figurine. The player also gives the operators some other personal details including their mobile phone number.

The game starts for that player when an operator selects a random location and puts the figure into the city. Each hour a turn is executed and the operator moves each figure in the game 1cm towards its current destination.

Figure 2.1. Figurines and the board in Day of the Figurines

Having set their figurine in motion and left the public space, the player receives text messages to alert them to the progress of their figurine. Texts will announce their figurine's arrival at their destination. Each destination has a short description. For

example, if you arrive at the 'The One Club' you receive the SMS: "Home of the 2 Fs. The lock-ins are legendary, the fire escape stairs have seen it all." Having arrived at their destination players can choose to stay there or to select another destination.

Texts, as showed in Figure 2, will also announce when one figurine meets another. Each player will be texted the other's description and the players can then communicate by an exchange of text messages. These messages are anonymised so that the players only see each other's figurine names, not real names or phone numbers.

Sent & Received: 12:43pm Mon Aug15	**meeting** "3:00am, Hassan approaches Jon. E. on Waterloo Road West. He has blonde hair, but blah has been left behind."
Incoming: 3:30pm Mon Aug15	**chat** "I say: hey, have you been to the nuclear bunker?"
Sent & Received: 4:49pm Mon Aug15	**parting** "3:18am, Jon. E. moves off like a wolf towards the Battle of Trafalgar Square."
Sent & Received: 4:49pm Mon Aug15	**dilemma** "3:18am, Hassan is stopped by a soldier in the street and asked for his ID. Does he?"
Sent & Received: 4:50pm Mon Aug15	**custom** "3:18am, A: Say he would show him but he left it at home, B: Say he doesn't have one and doesn't know why he needs one and can he help some other way."
Incoming: 4:59pm Mon Aug15	**dilemma reply** "Hasson chooses: option b."
Sent & Received: 5:04pm Mon Aug15	**dilemma result** "3:18am, The soldier smiles and then shakes Hassan hard by his upper arms, causing an almighty headache."

Figure 2.2. An example fragment of Interaction over SMS

The game unfolds over a month of real time. However, the fictional game time takes place over the course of a fictional day (game time) with each turn representing six minutes. Pubs open, shops close, the car park gets deserted and a series of special events unfold – a fete, an eclipse, gig that goes disastrously wrong, an explosion, a couple are found dead at the cemetery, and a platoon of Arabic soldiers takes over the town. During the course of these special events players are given dilemmas, either in the form of multiple choices or free form responses. Each choice leads to a different outcome. Very often it also leads to a degeneration of their character, reflected through its description (perhaps they bump their head, shake, or move in a peculiar way).

A web interface at www.dayofthefigurines.co.uk provides each player with their own page for their figurine. Initially players see a limited view of a map of the city and have no sense of other players' locations but as they progress they will reveal more. They also learn information about each figurine that they meet.

Day of the Figurines was supported by a suite of specialised tools including an authoring tool for editing destination descriptions and events and for associating these with different times and locations, an interface for stepping through a turn which would inform the game operators of the moves to make on the board, and a tool for reviewing and possibly editing all outgoing text messages before they were sent to players,

including an indication of the their currently estimated level of engagement with the game (engaged, dormant, disengaged or ‘game over’).

3 METHOD

Our study of Day of the Figurines draws on a variety of sources of data to paint a detailed picture of how the experience unfolded from the player, operator and author perspectives. The aims of this study are to:

- Inform the next iteration of designing Day of the Figurines;
- Provide input into the research workpackages within IPerG, especially Design and Evaluation (WP5) and Tools (WP7)
- Highlight more general issues and themes that might be of interest to the broader research community outside of IPerG.

The test that we have studied took place in August 2005. It lasted for 24 days and was experienced by 85 players in total. The game was run by two full time operators who worked for ten hours a day. These were supported by two authors and in the early stages of the game by a team of technicians who provided software support. For the first two weeks this team worked together onsite at the Laban centre in south London. For the last two weeks, the game moved to Blast Theory's studio in north London where it was manned by only the two operators, with authoring and technical support being provided remotely when needed.

3.1 Data Capture

We captured the following data.

Exit questionnaires (see Appendix A): 27 of our 85 players completed and returned exit questionnaires after the game had finished. Of these, 10 were members of the development and production team and 17 were 'general participants' who had not been involved in developing the work. The exit questionnaire asked 47 questions (a combination of closed selection/rating questions and open questions) covering:

- Feelings about the player's figurine - Name? How close did they feel to it? Were they playing themselves or a separate role?
- The duration and timing of the game – Too long, short or about right? Best and worst days of the week to play? Best and worst hours of the day to play? Did the time of play affect the content of their messages?
- The physical places where they played – Where and why? Which felt best and worst and why? Did place affect the content of their messages?
- The flow of text messages – Too many messages, too few or about right? Specific occasions when they received too many or too few? Occasions when they stopped playing? Did the game adapt to their level of engagement? Did they stop to check messages immediately? Did messages disrupt their activities in a good or bad way? Did they delete or save messages from the game? If saved, did they go back to check them? Was the cost of sending messages an issue for them?

- The personalisation of text messages – To what extent do messages appear to be human versus computer generated? How are they distinguishable from other messages? How many were incomprehensible? And did players structure the messages they sent in any particular way?
- General feedback – How did the player rate the overall experience? What specifically did they like and dislike? How could we improve the game? Would they play again? And would they be willing to tale part in a follow-up telephone interview?

The exit questionnaire was initially piloted in an earlier test with 25 players in June 2005 and subsequently refined for this test. This earlier questionnaire used many of the standard background questions proposed in the IPerG design and Evaluation Guidelines deliverable [5]. However, due to concerns about the length of our questionnaire we dropped many of these 'standard' questions in the revised version. The utility of these kinds of questions needs further discussion in workpackage 5. As a further observation, our entry questionnaire was administered via paper and the exit questionnaire as a word document via email. The latter proved rather problematic to administer, mainly due to problems of collating emails from many different players and transcribing and assembling data from multiple word documents into an appropriate form. In future, we would anticipate using the IPerG Polling tool that has been developed in WP7 and initially piloted in the Crossmedia Showcase to support web-based administration of any questionnaires that we design.

Entry questionnaires – 52 of our 85 players also completed entry questionnaires on joining the game. These captured information about their background (age, gender, residence), date of entry into the game, and how they learned of the game in the first place (personal invitation of Blast Theory, friend of Blast Theory, Laban email circular, attendee of the International Summer School that was taking place at the Laban centre at the time, or through an advertisement). This latter information enabled us to separate data captured from 'general participants' from data from 'developer' during our analysis in case of any potential bias (we might anticipate a more positive response from 'developers'). During the first two weeks at the Laban centre a dedicated staff member was able to administer this questionnaire. However, this was much more difficult during the last two weeks at Blast Theory's studio due to the time pressure on the operators to induct the players while continuing to run the game. As a result, our entry questionnaires are strongly skewed towards early joiners in contrast to those players who arrived late in the game.

Telephone interviews - we conducted detailed phone interviews with 11 players to follow up on the exit questionnaires.

System logs – we generated system logs of all text messages that were received from players, generated by the system and/or sent to players. The structure of these logs is shown in Appendix C and includes a message ID, a message type (explained below), the associated turn of the game, the time the message was generated, the time is was queued in the system (if appropriate), the time it was received, and the name of the sending/receiving player. One of the key issues to emerge during our analysis has been the extensive work of the operators in classifying incoming messages into different categories (e.g., destination change requests, chat, and dilemma responses) so that they

could be correctly handled by the system, and also processing outgoing messages, including deciding whether to send or discard them (for example, discarding messages if they believed that the receiving player would be overloaded with incoming texts), and potentially editing them. Consequently, we wanted to be able to compare messages that they system generated to be sent against those that were actually sent. While our logs did record discarded messages (those generated by never sent), they did not record any edits. Consequently, we have had to reconstruct edits by comparing generated and finally sent messages.

Ethnographic (video-based) observation – we have carried out two observation sessions of game control room activity, recording the operators' actions and talk on video. The first was conducted during the first week of the game while the second was conducted during the final week, giving us the opportunity to observe the way in which the operators' activities evolved during the experience.

Cell-id logs – finally, we engaged eight volunteers in a separate side-experiment to help us explore the potential of cell-positioning technology to support such a game. We lent these players dedicated phones that could run local cell-logging software that recorded the sequences of cell ids seen by the phone and uploaded this information back to a central server. Our aim has to been to explore whether such a mechanism might provide useful contextual information for managing a player's experience (e.g., automatically recognising when/where they prefer to play and not to play and tailoring the delivery of messages accordingly). Analysis of this data is still underway and will be reported in a future deliverable on the design of an IPerG positioning service. We mention it here for completeness.

3.2 Data Analysis

Our analysis of this data has focused on two broad themes: understanding the player experience of Day of the Figurines (the subject of chapter 4 below) and understanding the operator and author experience (the subject of chapter 5). We need to understand the former in order to improve the nature of the experience for our end-users, whereas we need to understand the latter in order to identify improvements to both the processes and technologies that support the experience so as to achieve greater scalability in the future (we are aiming for an approximate tenfold increase in scalability in the next iteration).

Our approach has been to triangulate our different sources of data in order to thoroughly explore these two different perspectives. Understanding the player perspective involves analysing the exit questionnaires and phone interviews in order to gauge player attitudes and preferences, supported by data from the system logs (both specific examples of messages and exchanges as well as broad statistics that characterise patterns of sending and receiving messages), further supported by the entry questionnaires which give us some background information on our specific sample of players that might usefully qualify our findings. Understanding the operator and author perspectives involves undertaking an ethnographic-style analysis of the video so as to reveal general features of control room activity and collaboration, supported by an analysis of the system logs that show patterns of classifying, discarding and editing messages.

Ongoing analysis has been steered by a series of three debriefing meetings between September 2005 and December 2005. The first of these took place immediately after the

game finished and gathered initial feedback from operators and authors, the second involved a broad discussion among the design team as to potentially interesting issues to explore whereas the third began to focus more on emerging design challenges and even potential solutions.

As a further note, our use of statistics in the following is descriptive – that is they are intended to support other observations with broad descriptive information about patterns of activity, for example complementing information from systems logs about actual patterns of play and information from ethnographic observation about observed practices with information from questionnaires and interviews about players' perceptions of the experience. In this way, we can triangulate between player, system and observer views of the experience to draw a rich picture of what took place.

Having described the data captured and the overall process of analysis, we now move on to consider the player and then the operator/author experience of Day of the Figurines before undertaking a broader discussion of role-play and narrative.

4 EVALUATING DAY OF THE FIGURINES FROM THE PLAYER PERSPECTIVE

We begin with a brief description of how we recruited players to the game and offer a few general observations on their backgrounds. Day of the Figurines was initially hosted at the Laban School of Contemporary Dance in South London where we advertised for players on message boards and through leaflets distributed throughout the building. We also recruited via the Blast Theory mailing list which reaches regular followers of Blast Theory events and additionally invited some friends and potential commissioners and representatives of cultural institutions to take part.

In total we recruited 85 players to the game. 52 of these players completed our entry questionnaire. Their average age was 30 years old and just over half of them (28) were female. Of the 33 players who did not complete the questionnaire, some were too busy and others registered at particularly hectic times when the operators were busy (particularly the case during the later stages of the game when it was being run from the Blast Theory studios with a skeleton crew of one or two operators).

27 of our 85 players completed our detailed exit questionnaire. Of these, 10 were members of the development team (game authors, developers, operators or other close associates of the project) while 17 could be classed as 'general participants' who were not directly associated with the development and staging of the game. 12 of these 17 might be thought as regular Blast Theory audience, describing themselves as invitees or friends of Blast Theory, while the remaining 5 were recruited through the Laban centre and so were unlikely to be familiar with previous Blast Theory projects or indeed interactive art in general.

For the remainder of this chapter we focus on key features of players' experiences of the game, drawing on the completed exit questionnaires supported by analysis of system logs. Our discussion focuses on those questions that yielded the particularly interesting or important insights in terms of future development of the game.

Each of the following subsections details with a different facet of the overall experience, including graphical summaries of players' ratings and free-form responses. Section 4.12 then summarises the general findings from this chapter.

4.1 Players' Overall Opinions of the Experience

The following figure (fig. 4.1) summarises the 17 general participants' responses to the question "on a scale of -5 to +5 below rate how much you enjoyed Day of the Figurines". The mean value of their response was 0.7 (slightly tending towards enjoyment). However, responses showed considerable variation (standard deviation of 2.5) ranging between two people who strongly didn't enjoy the experience to one who really enjoyed it.

The next figure (fig. 4.2) shows the same information, but now extended to include the additional 10 members of the development team as well as general participants. The mean response now rises to 1.2 and the standard deviation slightly falls to 2.4. It appears that – unsurprisingly – the development team do indeed feel more favourably towards the experience, probably due to a natural affinity for their own work, but perhaps also due to a deeper understanding of its operation and familiarity from earlier

tests. Either way, we need to treat their responses cautiously if we want to obtain a balanced view of the game as it might be experienced by a larger audience (as the development team would clearly be a very small minority of any expanded audience).

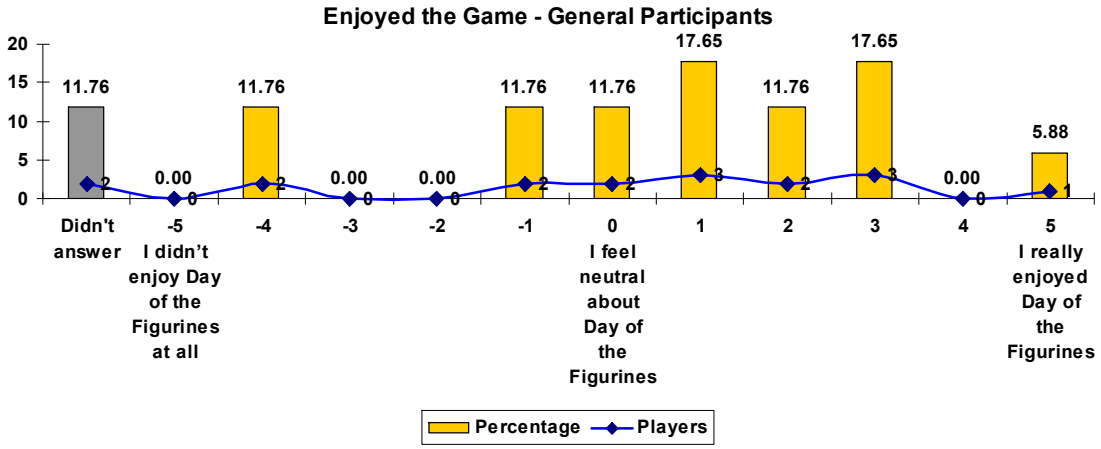

Figure 4.1. Enjoyed the Game – General Participants

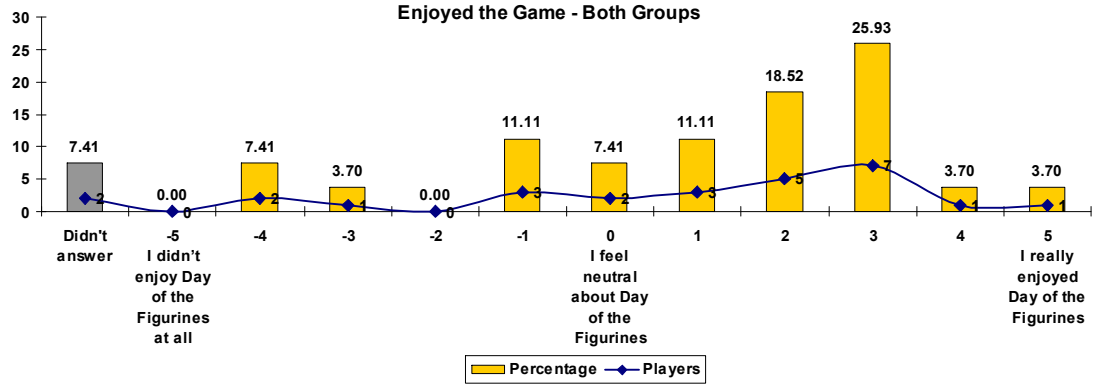

Figure 4.2. Enjoyed the Game – Both Groups

On being asked "What did you like about Day of the Figurines?" several general participants mentioned the dilemmas, especially the first that they faced, the BMX dilemma in which they were invited to help a boy who had fallen off of his bicycle. One recalled that she thought that it was a good opportunity to help someone in the game. However, she was shocked when her actions backfired, noting that "it gave quite a twist to the game" and that she "could not imagine a situation like this in real life". She also commented on the way the game felt the alive without pre-defined paths, so that people could build the game almost in real time. A second player recalled a flyer that her figurine had received announcing a party at the Lorcano nightclub and how this compelled her to this destination and focus more on the game's time. Another observed that she enjoyed visiting the Laban centre and seeing the structure created there, especially the appearance of the figurines up against the window.

We also obtained a variety of responses to the questions "What didn't you like about Day of the Figurines? Where did it break or feel like it let you down?" and "How could we improve the game next time we play it?" A couple of players observed that the cost of sending text messages was a negative factor for them. One stopped playing towards the end for this reason: "[I stopped playing] towards the end because it was too much and other times when I had no money on my phone etc." Another commented that she was hindered by only being able to store a limited number of messages on her phone. A few others had problems with the slowness of a game, noting that some situations took "a long long long time to happen" or that it took too long to move from one destination to another. One player commented that it took an annoyingly long time to receive feedback once a message had been sent. Some players had problems with the messages that they received, for example that they pointlessly repeated the same information (e.g., repeated messages that the figurine was at a destination).

Some players had more fundamental problems with the structure of the experience. Three players commented that they felt that the initial instructions to get to destinations and help other people did not give sufficient structure and that they wanted more direction from the game. Three observed that they game would have been improved if actions within the game could have had some kind effect in the real-world. One player had a more fundamental problem with the whole structure of the experience: "…I have to say that once it started and I got a feeling of what was going it struck me be on the lines of soap opera or Big Brother and I thought it is stupid I really did not feel engaged at all". Finally, several players suggested improving the online interface either by displaying the messages that had been sent and received or in two cases, providing a remote video view of the board.

When asked: "Would you like to take part in future games of Day of the Figurines?" 35% of general participants said yes, whereas 53% said possibly and 6% said no. Again, we see a more positive response when we include the development team.

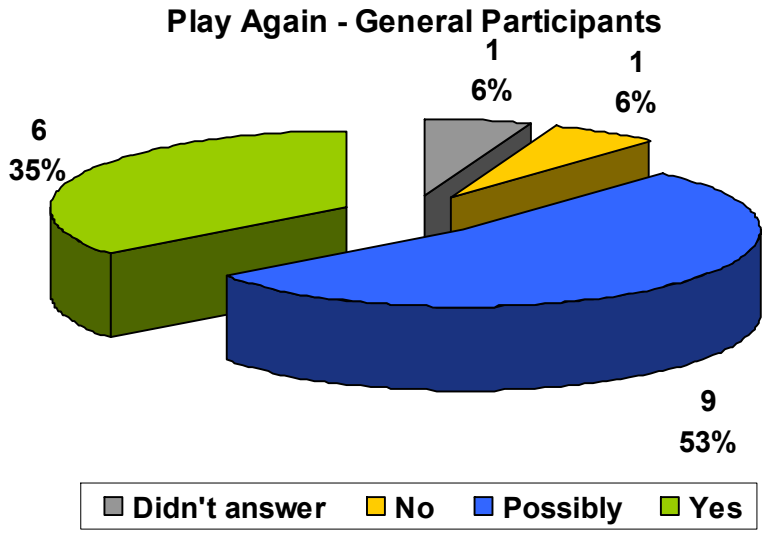

Figure 4.3. Play Again – General Participants

Indeed, given this difference of response between the 17 general participants and the 10 members of the development team, the remainder of this chapter will focus on responses from the 17 general participants only (with the exception of including some comments from the development team when they offer particularly interesting insights). We recognise that these 17 general participants include a mixture of friends and invitees of Blast Theory and strangers from the Laban centre who would be unfamiliar with their work. Given that a future expanded audience would also comprise a mixture of the familiar and strangers we will assume that this is a broadly representative sample of our intended audience for the time being (although we acknowledge that it is difficult to predict what the eventual balance between these might be) – Figure 4.4.

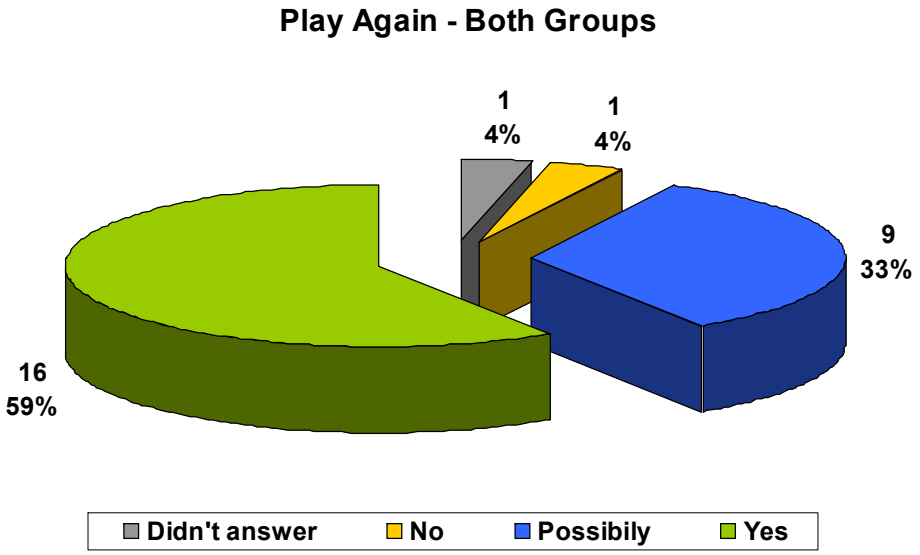

Figure 4.4. Play Again – Both Groups

As a final introductory observation, the game appears to have generated quite a diverse spread of opinions among players as evidenced by the high standard deviations and range of comments above. We feel that this is broadly acceptable for an artistic project such as Day of the Figurines. Indeed, artistic projects often set out to explore new territory and unfamiliar forms of experience and may deliberately be designed to provoke participants into reflection and interpretation rather than being easy or comfortable experiences. Consequently, they may polarise audiences between those who love them and those who hate them. That said, players' negative comments clearly suggest several areas in which we can enhance the experience, most notably providing greater structure, enhancing the online interface, better managing timing and responsiveness and considering the impact of limited budget.

Having established players' overall opinions of Day of the Figurines, we now drill down into some specific issues, beginning with a discussion of when were good and bad times to play.

4.2 Duration of the Game and Levels of Engagement

We now focus on the overall timing of the game: was it too long or too short?

Next figure (fig. 4.5) shows the 17 general participants' responses to the question: "on a scale of -5 to +5 please indicate below whether the game felt like it was too long, too short or about right." The mean average response was 0.9 with a standard deviation of 2.5. Overall players seem to have felt that the game was of an appropriate length, although once again opinions are widely spread. No players felt that the game was too short whereas a few felt strongly that it was too long. Given that we would aim to enhance engagement in future versions through richer content and greater structure, it would seem appropriate to leave the duration at a month in the next iteration.

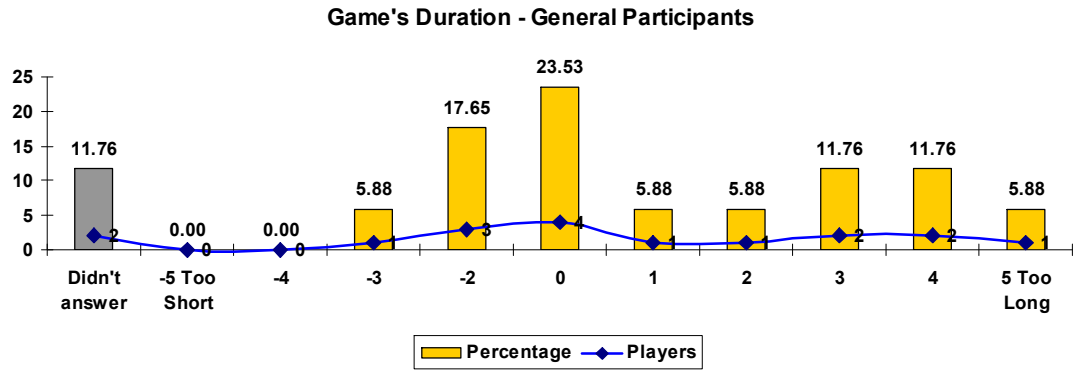

Figure 4.5. Game's Duration – General Participants

We can turn to the game logs of actual play to get a better sense of the actual duration of the game for players and their shifting patterns of play throughout. Overall, 1421 days were played by all 85 players. The most by any player was 24 days and the least was 1 (this player joined quite late and then left immediately). The average number of days played was 17 with a standard deviation of 7.

The following chart shows patterns of play by all 85 players throughout the game in terms of when they joined the game, when they left the game, and their varying level of engagement throughout. Each column shows a day and each row a unique player:

- Grey shaded cells indicate that the player was not in the game on the day – either that had not yet joined the game or they had explicitly chosen to leave it.
- Red shaded cells indicate high engagement, defined to be a day on which a player sent at least one message to the game.
- Orange shaded cells indicate dormant status where the player hadn't sent a message for at least 24 hours.
- Yellow shaded cells indicate disengaged status where the player hadn't sent a message for 48 hours or more.
- These definitions were the same as used by the game designers and operators in developing the management tool to monitor players' levels of engagement as a basis for controlling the flow of messages to them (see later).

These definitions of engaged, dormant and disengaged were in fact ones that were used throughout the game by the game orchestrators in managing the flow of messages to the participants, as discussed in greater detail below – Figure 4.6.

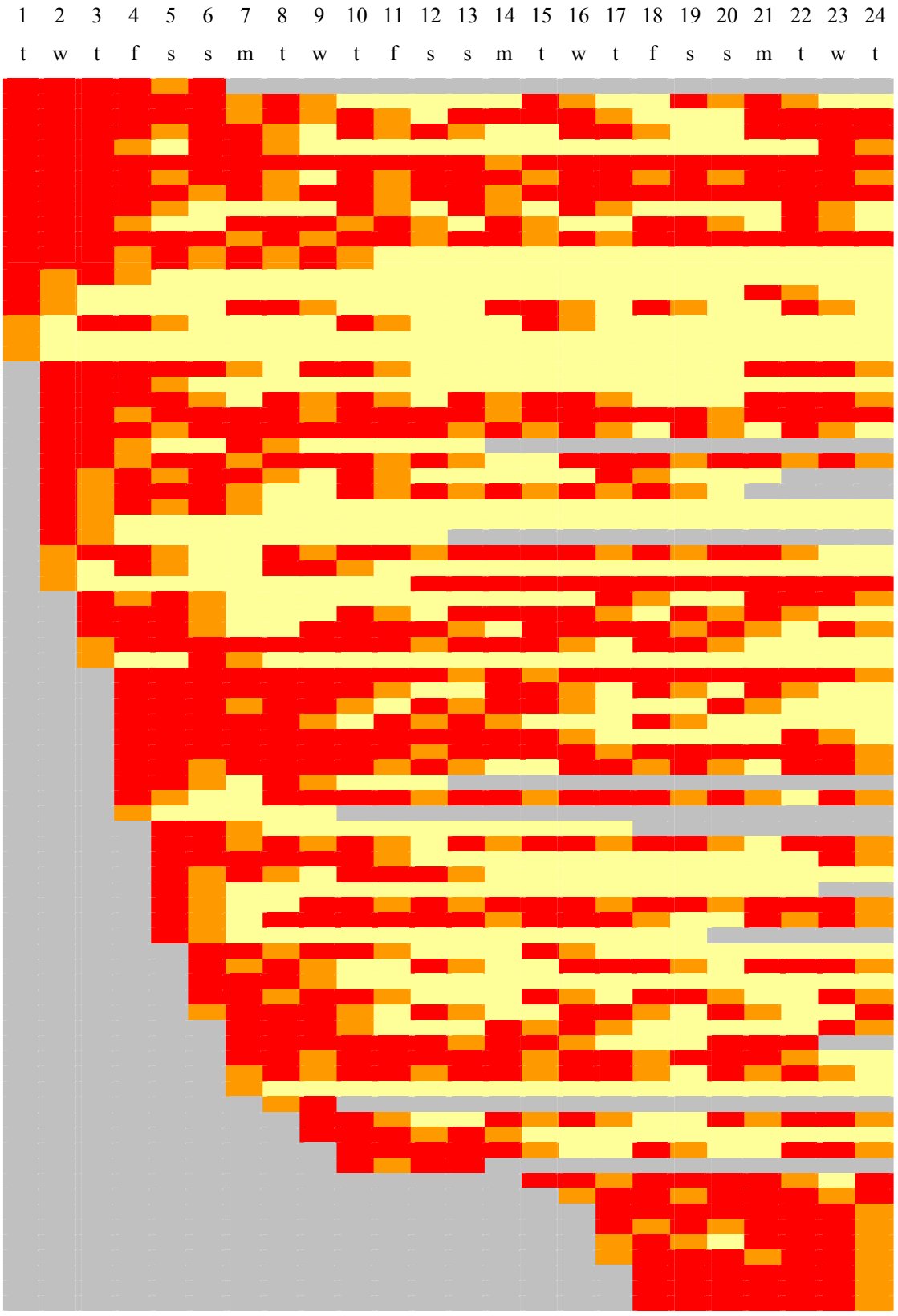

Figure 4.6. Level of Engagement

This diagram reveals several different features of patterns of play.

- **Staggered joining:** players joined the game throughout. Most players joined in the first eleven days and there was then a plateau (during which time the game moved location from the Laban Centre to Blast Theory's studio) before a second smaller wave of players was recruited in the final 9 days.
- **Never engaging:** 14 of the players who joined in the first wave never engaged with the game. This was also the case for 3 of the players who joined in the final wave, although it is more difficult to be certain that they might not have got involved given more time. Of these players who never engaged, five never sent a message and the remainder sent one or just a few messages. We need to consider how to treat such players, specifically whether to continue to handle them and sent them messages until they choose to leave, whether to remove them from the game early, or whether to more explicitly try to (re)engage them with the game. On the one hand, even disengaged players still incur a cost for the game as messages are generated for them which have to be processed by the operators and paid for if sent. On the other hand, there is one example of a player who joined on day 3 but didn't send a message until day 13, but was then fully engaged every day from that time until the end.
- **Longetivity**: we see different characteristics in how long players stay with the game. Of those who engaged at some point, 6 players explicitly chose to leave the game early, 7 appear to have disengaged quite early on in the game, a further 8 appear to have tailed-off or disengaged towards the end of the game, and 43 appeared to have stayed to the end (although 10 of these were late joiners).
- **Consistency**: players also exhibited varying patterns of play throughout their active engagement. Discounting those who never engaged and those who joined in the final wave (for whom there isn't enough data to judge their overall pattern), we estimate that 13 players exhibited more or less continuous engagement with the game versus 34 who played for episodically, sometimes disengaging, but then subsequently reengaging. 5 players show a mixed pattern of which 3 began continuously and then became more episodic and a further 2 had particularly long gaps in the middle. In general then, it appears that episodic play is the norm, although a significant minority of players does appear to play continuously.

More generally, we feel that these two characteristics of longevity and consistency may capture the key aspects of players' patterns of activity throughout the game and that they potentially offer good subjects for more in-depth research.

The following diagram (fig. 4.7) reorders this information about levels of engagement to summarise the overall levels of engagement, dormancy and disengagement for each day of the game. The data in each column has been independently reordered to create an engagement histogram for that day (consequently, each row no longer shows the history for an individual player).

We can read this diagram in terms of several phases of the game:

First, we see the gradual introduction of an initial wave of players over days 1-8. The overall level of engagement (red bars) rises to a fairly stable level around day 4 and stays there until day 8 in spite of new players being added. Much of the activity in this first phase is players finding their way to destinations and engaging in chat with others. Some locations such as Kath's Café, The Battle of Trafalgar Square and the XXX Cinema became quite crowded during this time.

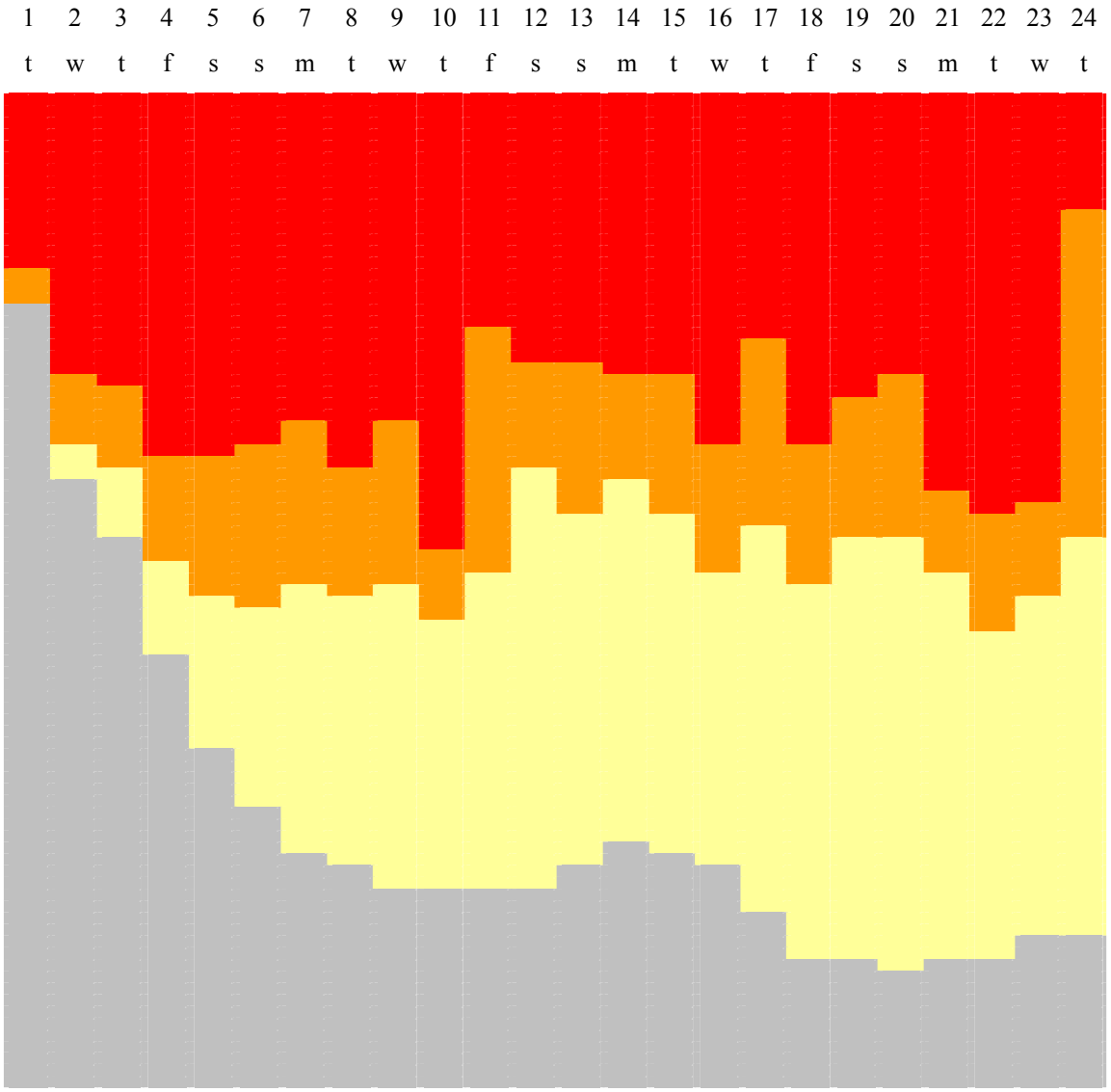

Figure 4.7. Level of Engagement Reordered

- There appears to be a major peak of engagement around day 10, followed instantly on day 11 by a sudden trough. The peak is the highest seen at any point in the game and the trough is the lowest apart from the first day (when there were relatively few players) and the last day (when the game finished with one final message that didn't demand a response). Inspecting the message logs for these days, it is noticeable that the game's first major event – the fete in the Recreation ground – climaxed and then

finished at this point. On day 10 there is a large group of players chatting at The Rec with new players arriving. On day 11 many players left and began journeying to a new location.

- There follows a period of four days (12-15) during which the total number of players drops as several leave the game while the total level of engagement seems to be more or less stable. Perhaps we are seeing a period of consolidation, a thinning out of the game at this point with some disinterested players leaving while interested players establish their pattern of play?
- Between days 16 and 20 the second wave of players in introduced to the game. The overall level of engagement rises slightly but also fluctuates more.
- The climax of the game occurs between days 21 and 23 with a three day peak in engagement. During this period three players leave.

We should of course be careful of over-interpreting such visualisations when we can see that individual patterns of play can vary considerable. However, diagrams such as these do hint at possible trends and patterns in play that may warrant further investigation. We suggest that they might also be useful for monitoring players' patterns of activity as part of the orchestration of the game, a subject that we return to later on.

4.3 Good and Bad Times to Play

The following figures (4.8 and 4.9) show general participants' responses to the two questions: "which were the best days to play?" and "which were the worst days to play?"

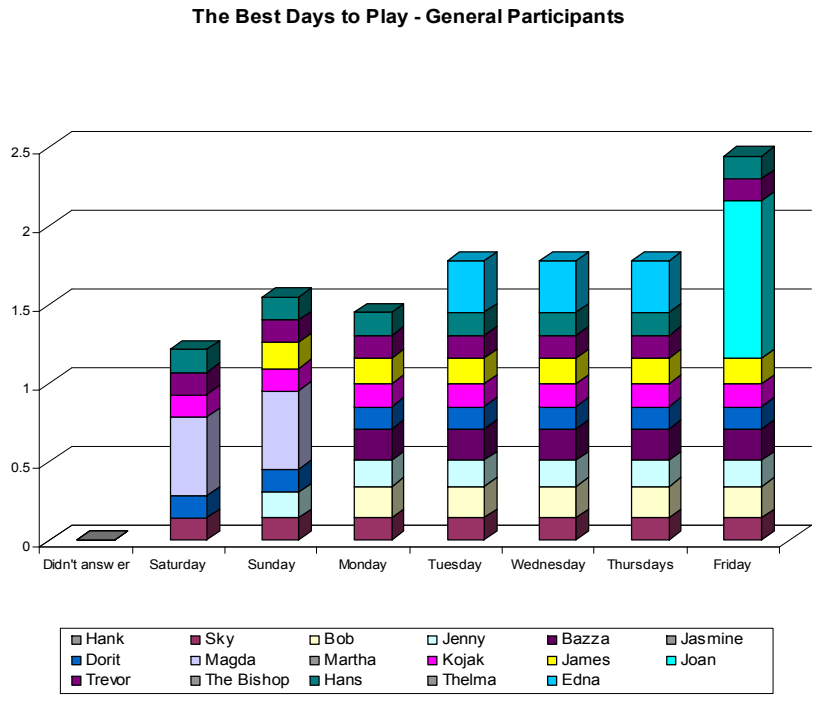

Figure 4.8. The Best Days to Play – General Participants

Again, we see a split of opinions. Saturday received the least numbers of votes (6) whereas Tuesday through Friday received the most (10). One reason for this may be that the game makes a pleasant distraction from work; as one player commented: "Because I should be doing something else like work for example." Another observed "Midweek like Tuesday, Wednesday, Thursday I think? Why? Bored." One player however expresses a strong preference for weekends and another (Joan) a very strong preference for Friday ("Because I had time to think and wasn't too busy to play").

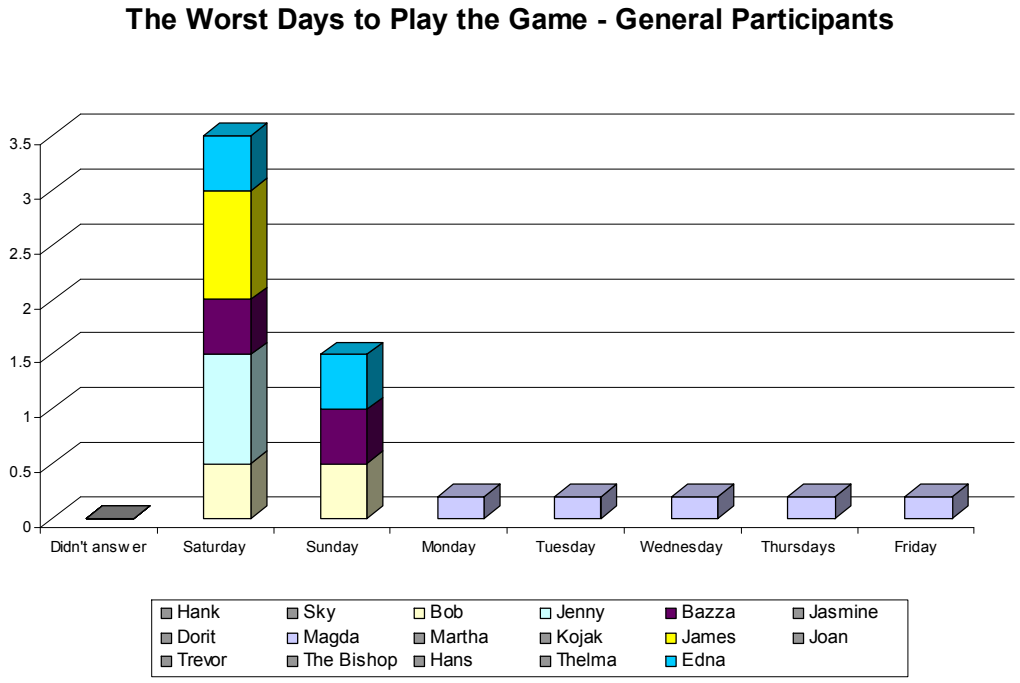

Figure 4.9. The Worst Days to Play the Game – General Participants

In contrast, asking people about their least favourite days to play resulted in a much clearer overall preference. Whereas only one player prefers not to play on weekdays, several prefer not to play at weekends. Their comments were also illuminating:

- "I'm too erratic on weekends and sometimes just leave my phone off".
- "Saturday night when you are out with friends it feels disrupting a social activity".
- "On weekends, it felt a bit intrusive when I was off doing my own things".
- "Saturdays are very busy for James outside the town, he didn't get chance to play. Luckily now Saturdays are free"!
- "I have better things to do at weekend".

While patterns are varied, it appears that weekends can be especially problematic for some players and so may require special treatment from the game's designers and operators. Furthermore, it may be worth asking players about their preferences when

building an initial profile – perhaps as part of registration. In this case, it may be most informative to ask them about those days are bad for them rather than those that are good.

As well as players' opinions as to good and bad days to play, it is also illuminating to look at the distribution of messages actually sent and received by the players over the different days of the week. The following histogram (fig. 4.10) shows this for all messages sent by all of the 85 players in the game.

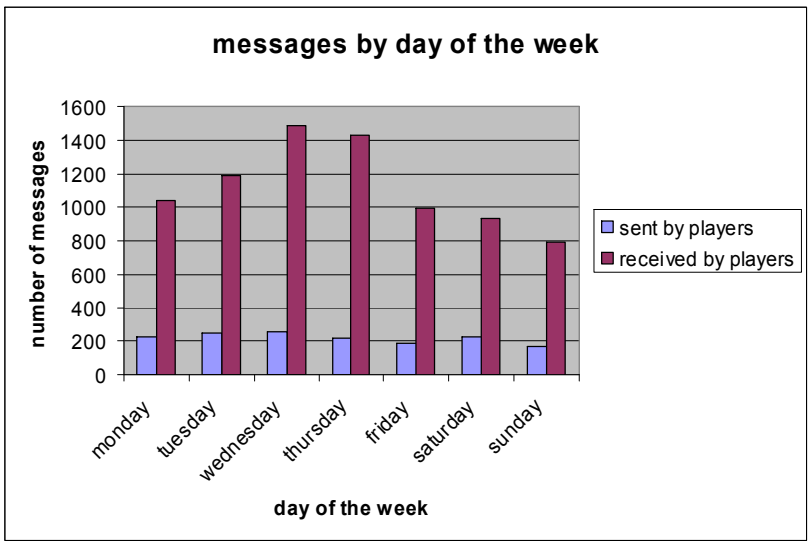

Figure 4.10. Messages by Day of the Week

Overall we see that the weekend is the least popular time to play while midweek is the most. There is a clear trend in the general pattern of game activity (in terms of both sent and received messages) steadily rising on a daily basis from Monday through to a peak on Wednesday and then falling again to a trough on Sunday. The one exception to this trend is a rise in messages sent by players to the game on Saturday from Friday, before falling to its low on Sunday. This may simply be a random perturbation in the statistics, but perhaps there might be other reasons. Although player feedback and the general trend of messaging suggests that some (perhaps most) players clearly didn't like to play on Saturday, it maybe that some others (perhaps a minority) do get more active at the weekend. We should investigate further to see whether there are in fact two distinct subgroups here and if so, whether this raises any implications for design.

The next two figures (4.11 and 4.12) explore good and bad times of the day to play. In terms of the best times to play, there is a general preference for the period from lunchtime through late evening, although we note that in part this might be due to the fact that the game was most responsive during these periods (the operators would tend to work from late morning through to mid-evening). Interestingly, a couple of players appeared to enjoy playing in the small hours.

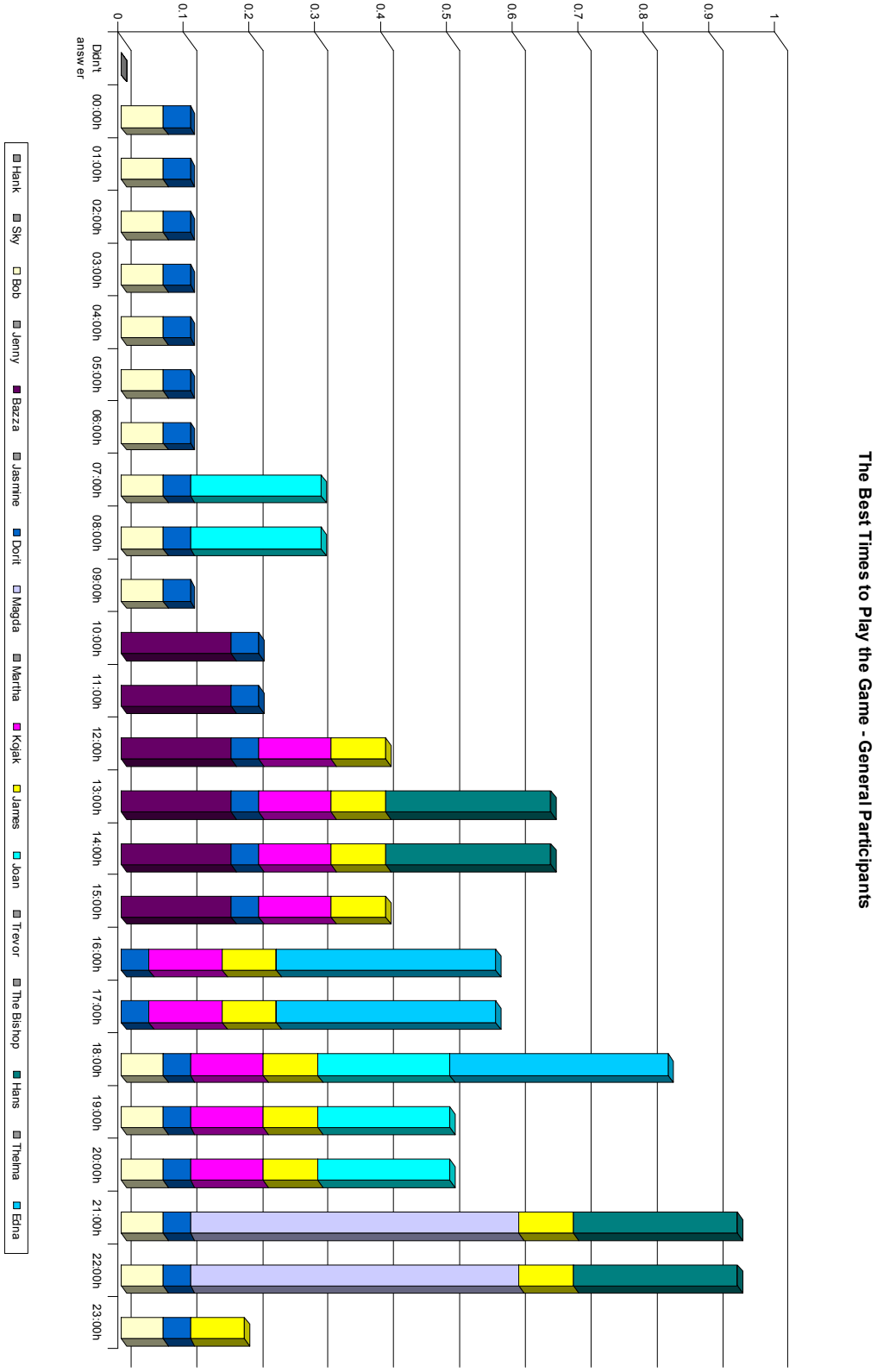

Figure 4.11. The Best Times to Play the Game – General Participants

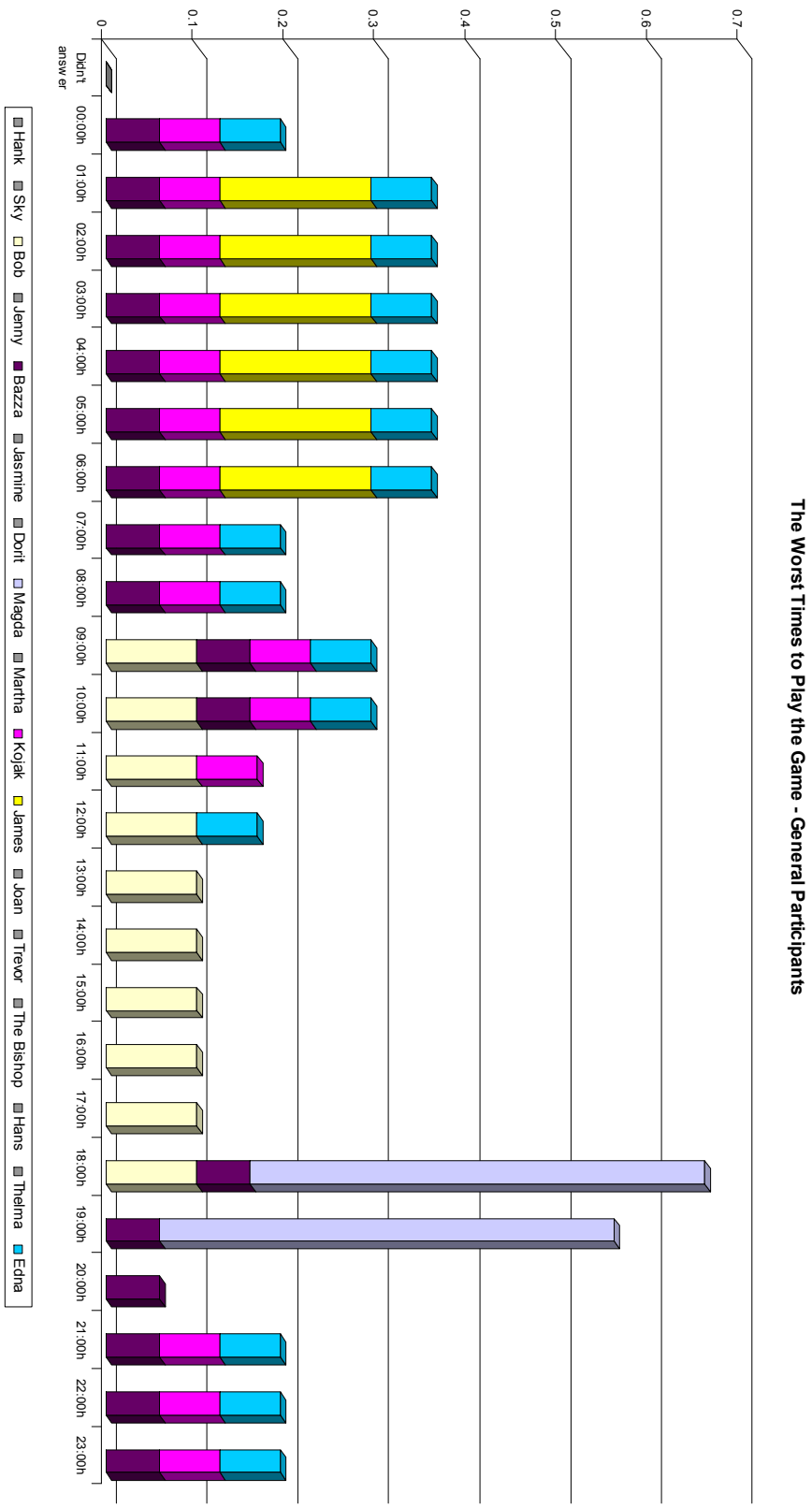

Figure 4.12. The Worst Times to Play the Game – General Participants

Players offered the following general comments about the best times to play:

- "10am – 3pm. Being at work".
- "I didn't ever play in the night, that would've been a real intrusion. Then it just depended on what was going on during my day. Sometimes I'm more busy in the morning, sometimes more in the evening. When I was engaged in other stuff it could be pretty annoying".
- "Between midday and 8PM. We tended to be spending time on the move – in the car – during this time when it was good to play. Also, we played as a family and this was the time when everyone was up. However, I did like sometimes getting a final message right at the end of the day – kind of set up a cliff hanger for the next day".
- "Between midday and 8 pm. It briefly distracted me from work".
- "Before and after work".
- "Between 8pm and 9pm. Because I'm at home most evenings, and have time to check for messages".
- "About 3 in the afternoon. Because there was nothing much else going on".
- "4-6pm, afternoon time. More time in early evening and tired in late evening".

Unsurprisingly, in terms of the worst times of day to play, there is a preference to avoid the small hours of the morning, but otherwise opinions and reasons varied:

- "6pm – 10am. Being disturbed during my own time".
- "If I was doing something else it could sometimes be annoying distracting, especially if I missed the change to respond to something that might've turned out to be interesting".
- "James likes to sleep till 11am".
- "Breakfast and supper – the beginning and end of day with the kids".
- "Not sure – maybe between 5 and 8 pm. End of work – before dinner & going out".
- "7-11am. Because in the morning there are more important things to do".
- "Any time before 5pm. I had other things to do and didn't have time to play the game".
- "Early morning, midday and late night. Asleep, busy and tired".
- "When I was out at during the morning I tended not to participate".

Again, we can also look at the game logs of messages that were actually sent and received at different hours of the day, as shown by the following histogram (for all 85 players) – Figure 4.13. As expected, nearly all of the play occurs between 10 in the morning and 11 at night. There are possible peaks from midmorning to lunch and around 8 o'clock at night and possibly troughs around lunch and evening meals.

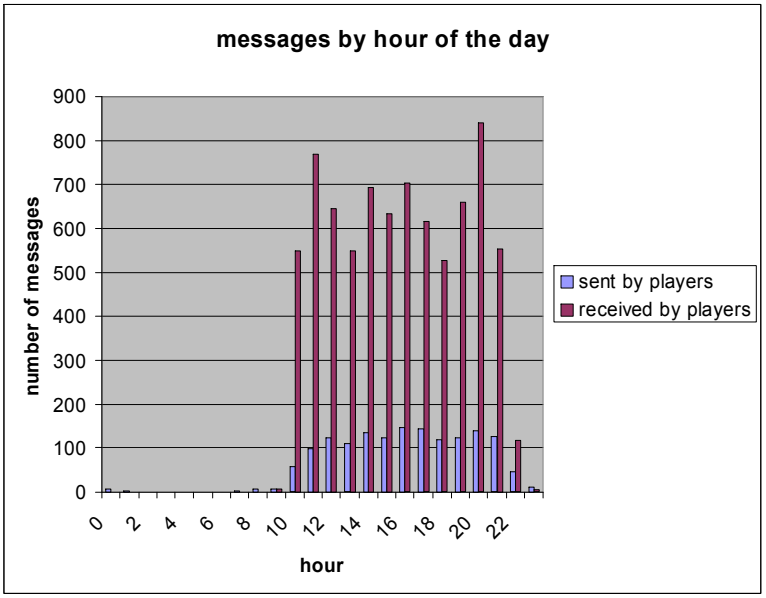

Figure 4.13. Messages by Hour of the Day

Summary of Good and Bad Times of Play

Overall, it appears to be more difficult to see any overall trend in time of day compared to day of the week. It is an open question as to whether it would be worth trying to capture preference for time of day as part of an initial player profiling exercise.

In general, this kind of information about the distribution of messages across day of the week and time of day may also help us choose and negotiate text messaging deals with operators Not only can we estimate the overall volume of messages, but also their potential distribution over time. Another implication may in relating our requirements for volume on different days and the need to responsiveness in the game with operators knowledge of patterns of text traffic in terms of peaks and troughs and patterns of delay in delivering messages.

4.4 Good and Bad Places to Play

The next two figures (4.14 and 4.15) summarise general participant's opinions of the best and worst places to play. In general, home appears to be a good place, receiving the most votes for best place and 0 votes for worst place. Playing at work on the other hand is a more divisive issue, receiving relatively large numbers of votes as both a best and worst place to play. This is understandable; playing at work is an engaging diversion for some players while it may be a distraction or at least problematic for others.

Other potentially good places to play appear to be busses, trains, shops and cafes/restaurants all of which receive positive and no negative votes. Playing in cars on the other hand received a split response while playing while walking received a negative response. Playing when talking to others also received negative votes, although as we see from the players' comments below, playing in the presence of, and indeed with input from, friends was also sometimes seen as a positive factor which may have contributed to the popularity of cafes and restaurants as places to play.

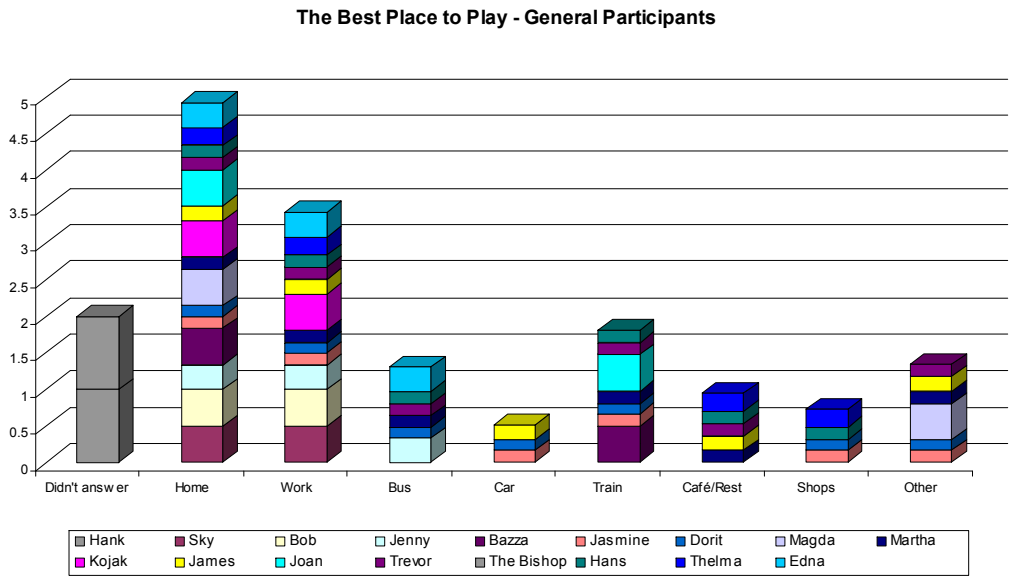

Figure 4.14. The Best Place to Play – General Participants

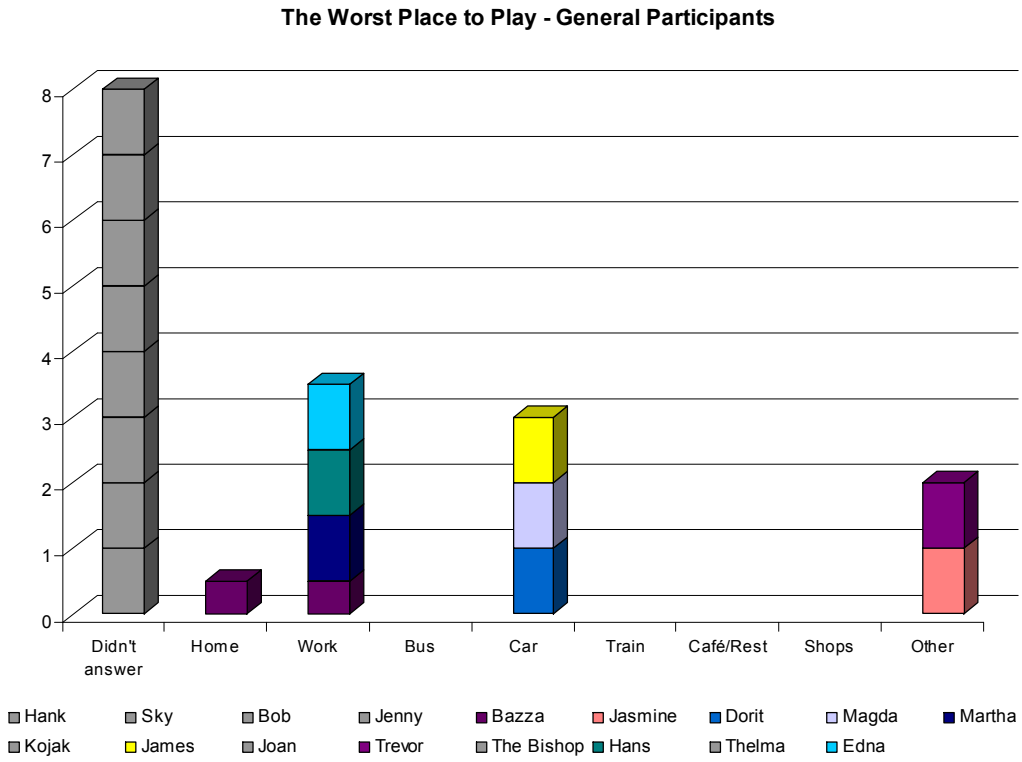

Figure 4.15. The Worst Place to Play – General Participants

Several players commented that they tended to play the game everywhere, responding to incoming messages as they arrived.

Explicit feedback on preferred places to play included several references to the positive aspect of being surrounded by friends, for example in a pub when they would

read aloud the message received. Another noted that if she was with friends, the message was read out and someone always would say "Oh! You should do this!". One player enjoyed the curiosity of strangers when he was playing by himself in a public transport. One player noted a preference for playing the game when he was travelling or when he was in the car waiting for something or someone.

In terms of dislikes, one player noted problems with mealtimes: "I was really meant to be doing other things. At the dinner table – it's a bit rude." and another noted a dislike for playing "when driving or expecting a text from someone else" (we return to this latter issue below).

In contrast to previous comments, some players disliked playing in the presence of friends: "out with friends, at my studio." Indeed, playing in the presence of others would seem to be a significant and possibly divisive issue. It is also one that ties in strongly with one of the underlying design themes of IPerG, that of social adaptability – the need for or ability of a game to adapt to its social situation (a particular focus for workpackage 9). We also return to this issue later on when discussing interruptions.

As a further observation here, it is interesting to note how players interpret the notion of 'place' in answering this question. Not only do they refer to conventional places such as 'home' and 'work' or on different modes of transport, but they also consider activities such as 'walking' or 'talking to other people' to be acceptable places, at least for the purposes of this discussion.

4.5 The Volume and Flow of Messages

Analysis of the game logs reveals the numbers of messages sent and revealed by different players throughout the game. The total number of messages sent to the game by all 85 players was 1562. The minimum sent by an individual player was 0, the maximum was 84 and the mean average was 18 with a standard deviation of 17. The following histogram (fig. 4.16) shows a steadily falling distribution in terms of the number of players who sent increasing numbers of messages. This distribution has a relatively long tail that covers a few players who were particularly active senders. Specifically, 7 players (under 10% of the total population) sent more than 60 messages. Of these top 7, only 2 were members of the development team, whereas 5 were general participants, 1 of whom answered the exit questionnaire.

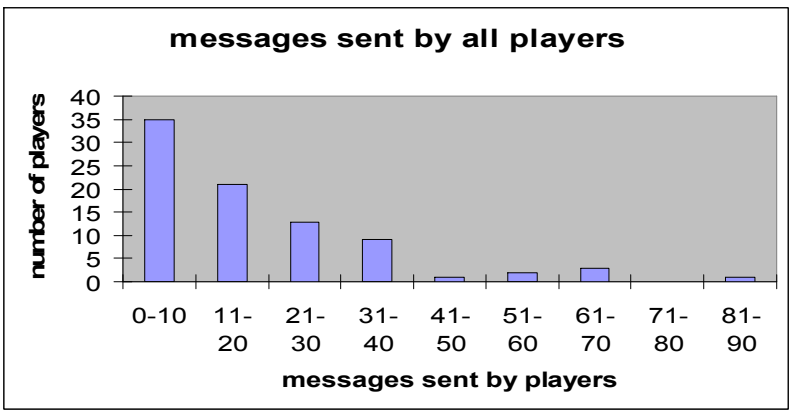

Figure 4.16. Messages Sent by All Players

The following is the distribution of all 7744 messages received by our 85 players from the game – Figure 4.17. In this case, the minimum received by any one player was 9, the maximum 219, and the mean 92 with a standard deviation of 50. This distribution takes the form of a normal distribution that is somewhat skewed to the right.

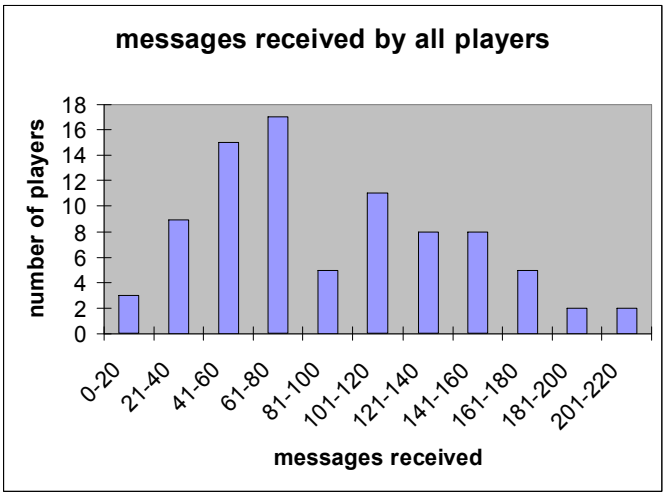

Figure 4.17. Messages Received by All Players

Clearly, the players received many more messages from the game than they sent to it. On average just under 5 times as many messages were received by players than were sent by them, a figure that needs to be borne in mind when projecting the costs of staging a larger scale game. For example, assuming that these figures would scale linearly, staging a future version of the game for 1000 players would require the game to send 91,000 messages to players and for them to send more than 18,000 messages to us. Of course, these figures may change – for example we may we able to redesign the game to increase player engagement – but that said, we clearly should consider the financial consequences of these numbers, for example in terms of negotiating bulk messaging deals with operators.

The following histogram (fig. 4.18) shows the distribution of the ratios of messages sent to messages received across all 85 players.

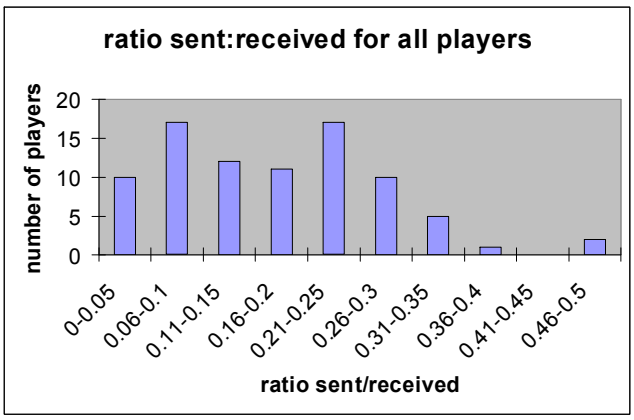

Figure 4.18. Ratio Sent:Received for All Players

Here we see what appears to be a broadly normal distribution. The minimum for any player is a ratio of 0, the maximum is 0.49 (only twice as many were sent to the player as were received from them), the mean is 0.17 with a standard deviation of 0.1.

The following table (tab. 4.1) compares the general population of 85 players with our 17 general participants.

Table 4.1. Comparing the Ratio Sent:Received between General Population and General Participants

	Messages sent to all players	Messages sent to general participants	Messages received by all players	Messages received by general participants	Ratio sent:received for all players	Ratio sent:received for general participants
Total	1562	336	7744	1601		
Minimum	0	2	9	17	0.0	0.09
Maximum	84	42	219	200	0.49	0.35
Mean	18	21	92	100	0.17	0.20
Standard deviation	17	14	50	54	0.1	0.07

Inspection of these figures suggests that our sample of 17 players who answered exit questionnaires and that who were not part of the development team is broadly representative of the broader population of 85 players. This provides some evidence that we can take them to be reasonably representative of the population as a whole.

Earlier tests of Day of the Figurines had suggested that it is important to manage the flow of text messages to players, specifically that players could easily become annoyed by being flooded with messages from the game. In response, we provided the game operators will tools to try to regulate the flow of messages (see IPerG deliverable 12.2 for details of their design and implementation). To briefly recap, these included an interface that indicated one of three possible levels of engagement for each player (the same that we used when discussing shifting patterns of engagement previously):

- Engaged – they had sent a message to the game in the last 24 hours
- Dormant – they had last sent a message sometime between 24 and 48 hours ago
- Disengaged – they had not sent a message for 48 hours or more

A further interface then enabled the operators to examine the messages that had been generated by the system for each player and to decide which to send and which to discard according to their current level of engagement and also knowledge of their recent history of sent and received messages. Specifically, operators were asked to limit the number of messages send to disengaged players to one a day if possible (although there was some discretion here if additional messages were deemed to be critical to the gameplay). Later on we shall describe how the operators applied this mechanism. For now, we will focus on how the players experienced the flow of text messages and what they did on receiving them.

In the next figure (fig. 4.19) summarises general participants' responses to the question: "on a scale of -5 to +5 please indicate below whether you received too many, too few or about the right amount of text messages throughout the game?" The mean average response was -0.2 suggesting that the number of messages was about right overall, although once again a high standard deviation (2.6) indicates a high degree of variation within this.

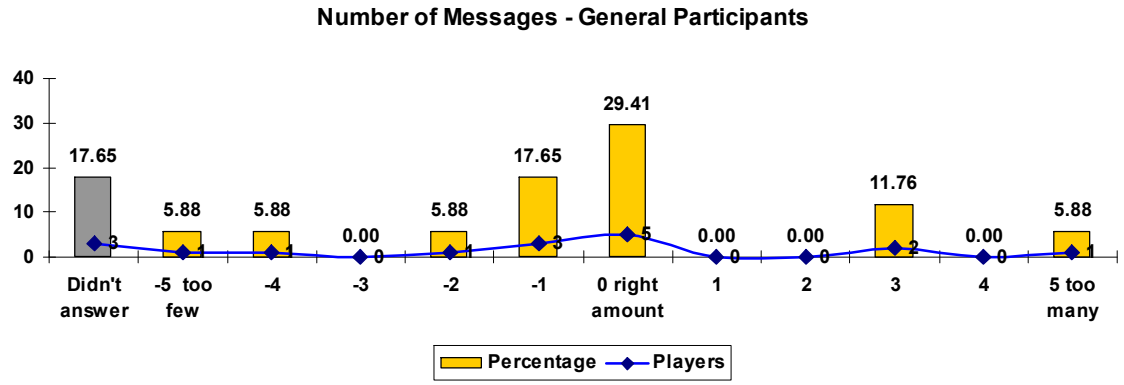

Figure 4.19. Number of Messages – General Participants

However, free-form responses to the question: "Please tell us about any occasions when you received too many text messages from the game?" highlighted some specific concerns. The volume of chat messages could become a problem, especially in crowded destinations:

- "Yes when in Café too many conversations".
- "In Kath's café – just too much chat so I had to get out".
- "When I was in the XXX cinema, people chatting".
- "In the one club, I received lots of slightly tedious messages. I asked if anyone wanted to go to the garage and it took several hours for various players to reply with rather dull answers. There seemed to be little direction in the game".
- "At the Lorcano, people 'chatting' to each other, but messages were sent to everyone in that location, even though the messages were irrelevant unless you were joining in/part of the conversation".

Indeed, one very busy conversation on Kath's cafe (mentioned twice in the above comments) appears to have led one player, Achim, to quit the game (officially indicated by the words 'LEAVES TOWN' in his final text message) as shown by the following extract from the text logs (fig. 4.20):

Sent/Received: 4:46pm Sun Jul31 custom	"12:48pm, Achim walks confidently and upright into Kaths Cafe." **- customised**

Sent/Received: 7:06pm Sun Jul31 reminder	"12:48pm, Achim is at Kaths Cafe with Hassan, Rob and Edie. Should he stay here or go somewhere else?" **- customised**
Sent/Received: 7:06pm Sun Jul31 destination other arrival	"12:48pm, Wim has arrived at Kaths Cafe."
Incoming: 7:19pm Sun Jul31 chat	"**Get the 10k pounds that hassan owes and get out. Plane 2 catch.**"
Sent/Received: 10:10pm Sun Jul31 chat forwarded	"12:54pm, Wim replies to Hassan: i'm selling my bmw parked outside. Are you interested?"
Sent/Received: 11:08am Mon Aug1 destination other arrival	"1:00pm, Ginny Good has arrived at Kaths Cafe."
Incoming: 11:12am Mon Aug1 chat	"**Get the 10k from hassan or take the bmw and get out of town. The canaries are calling.**"
Sent/Received: 11:40am Mon Aug1 chat forwarded	"1:06pm, Hassan says: Can i test drive your bmw?" **- customised**
Sent/Received: 12:06pm Mon Aug1 chat forwarded	"1:06pm, Wim says to hassan: of course you can test drive. Just let me finish my coffee first." **- customised**
Sent/Received: 2:19pm Mon Aug1 destination other arrival	"1:18pm, Hans has arrived at Kaths Cafe."
Sent/Received: 3:26pm Mon Aug1 chat forwarded	"1:42pm, Hassan says: did anyone see a big marquee arriving in town on a truck?" **- customised**
Sent/Received: 3:26pm Mon Aug1 destination other arrival	"1:42pm, Martha has arrived at Kaths Cafe. She appears excited and nervous." **- customised**
Sent/Received: 8:16pm Mon Aug1 chat forwarded	"1:54pm, Martha says: No thank you."
Sent/Received: 8:17pm Mon Aug1 chat forwarded	"1:54pm, Hans says: No i haven't is there a fair coming to town?"
Sent/Received: 8:37pm Mon Aug1 chat forwarded	"1:54pm, Hans says: Martha, that chicken smells good can i get you something?"
Sent/Received: 8:38pm Mon Aug1 chat forwarded	"1:54pm, Hassan says: maybe there is hans. I'm going to try to find it."
Incoming: 8:39pm Mon Aug1 leave town	"**Achim takes the bmw and LEAVES TOWN. PLS NO MORE TEXTS.**"

Sent/Received: 8:48pm Mon Aug1 end of game	"2:00pm, Achim leaves town, the day is over for Achim. Thanks for playing Day Of The Figurines."

Figure 4.20. Busy Moments at Kate's Café

One player felt that the messages that were sent when players parted company were unnecessary:

- "Yes: sometimes it felt like the games was just repeating what I had told them. And also sometimes the parting messages seemed irrelevant."

Others were concerned about the lack of time to respond when several messages arrived in close proximity or had problems with the synchronisation of messages, for example when messages in a conversational thread were separated by other messages. Finally, some players' experience of the flow of messages appears to have been influenced by real-world factors including their mood:

- "When it got a bit police state it started doing my head in, maybe it was the time of year, relaxing in the sunshine ad then receiving messages about helicopters and army got a bit annoying."

And whether they were waiting for other 'more important' text messages:

- "At times when I was receiving texts about something else, or was waiting for an important text from someone else."

We also asked players: "Please tell us about any occasions when you received too few messages from the game?" Their' responses suggest that it is important to receive a message from the game everyday otherwise they loose the sense that anything is happening or may even assume that the game is broken:

- "Some days I wanted to know what my character was experiencing, but there were no messages."
- "I think the messages we quite consistent for me but there was an odd day when I received none, this is when the game leaves you and you become less attached."
- "I think there was a couple of days when Dorit was in the allotments and nothing was going on, I didn't get any messages at all, I don't think I knew whether she'd arrived or not and I thought the game had broken."
- "Some days none received and felt that some were received out of sequence time wise."

There was also a sense that players could end up stuck in places where nothing interesting was happening at that particular time. It appears that the game might have taken a more active role in steering them towards more interesting places:

- "Towards the end of the game. I was at the rec and given no impetus to move or engage with the game"

Some players noted that wanted quicker responses at points in the game when they were being active (i.e., to messages they had sent):

- "Often replies quite slow during a potential exciting piece of action or interaction."
- "Sometimes when I was talking the initiative I wanted quicker or more responses. I felt that the game ignored my suggestions once or twice (I remember giving up and leaving the pound ship after trying to search for some items and just getting no response)"
- "I stopped because my texts were not being implemented and answers and moves were very slow."

We also asked players: "Do you feel that the game adapted to your level of engagement, by sending you more messages when you were active and less when you were not? We received only three answers to this question and these ventured differing opinions:

- "Not sure about that, It seemed to send lots at some points even when I didn't reply".
- "Yes when I communicated with the game and other players there were more messages".
- "Yes, but I wanted something to enlighten me and encourage me to play during the last week".

In commenting on their patterns of play, several players noted that it was episodic:

- "It completely depended on how busy I was, some days I didn't play at all, other I got involved more and had conversations etc. Also, reaching my text limit was an issue".
- "Very episodic. I went through phases of great interest and activity. Then for one reason or another became very passive. I certainly enjoyed very much just hearing what others were up to: it became like a fascinating story where I had the opportunity to intervene but rarely felt the need/desire to".
- "I played in bunches. Some days I didn't text at all and some days I'd send lots. I depended on what was happening and who I was talking to".
- "Sometimes I had more time to pay attention to it than at others. At the start I was moving around more trying to work out if anything was going on, and where people were. It seemed a bit more interesting for a while when Dorit made a friend that she seemed to travel about with. There were times when I interacted with the game more because I felt obliged to the other player".
- "The amount of time I spent checking my texts varied according to what I was doing. There was no set pattern, however I did make sure that if I hadn't looked during the day I would check before I went to bed".

This final comment also suggests the importance of sending at least one message a day.

4.6 Players Responses to Messages

We are also interested in when and how players responded to messages – especially how quickly they responded. Figure 4.21 summarises general participants' responses to the question: "how long after receiving did you usually answer the message?" This suggests that many players (47%) adopted a fairly relaxed view as to when they should respond, although a large minority (41%) appears have felt driven to respond quickly, either immediately (12%) or on completing their current activity (29%).

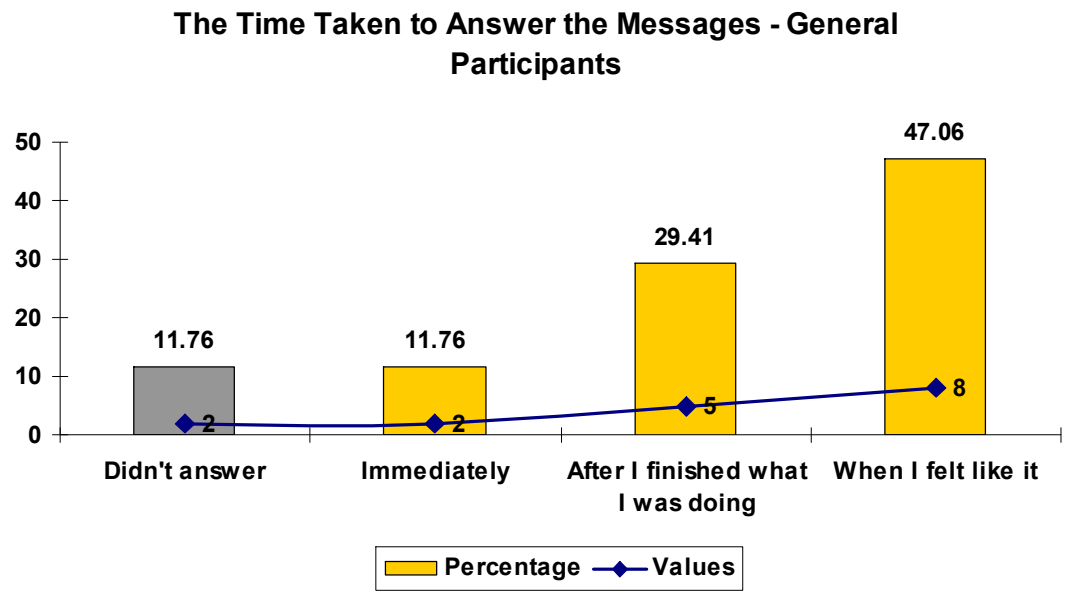

Figure 4.21. The Time Taken to Answer the Messages – General Participants

Related to this is the issue of how messages from the game interrupted ongoing activities. The next graph (fig. 4.22) summarises general participants' responses to the question: "did the messages disrupt your activities [mostly in a pleasant way; mostly in an annoying way; sometimes pleasant, sometimes annoying]?" Overall, it appears that interruptions were more pleasant than annoying. Over half or respondents said that responses were mostly pleasant, none said that they were mostly annoying and 30% reported a mixed response. However, that is not to say that there weren't occasional problems. For example, one player commented: "again because it felt like it was invading my space and time a bit too much. Especially when you're having a night in with your boyfriend and you're getting about 10 texts one after the other. He starts to get a bit suspicious!".

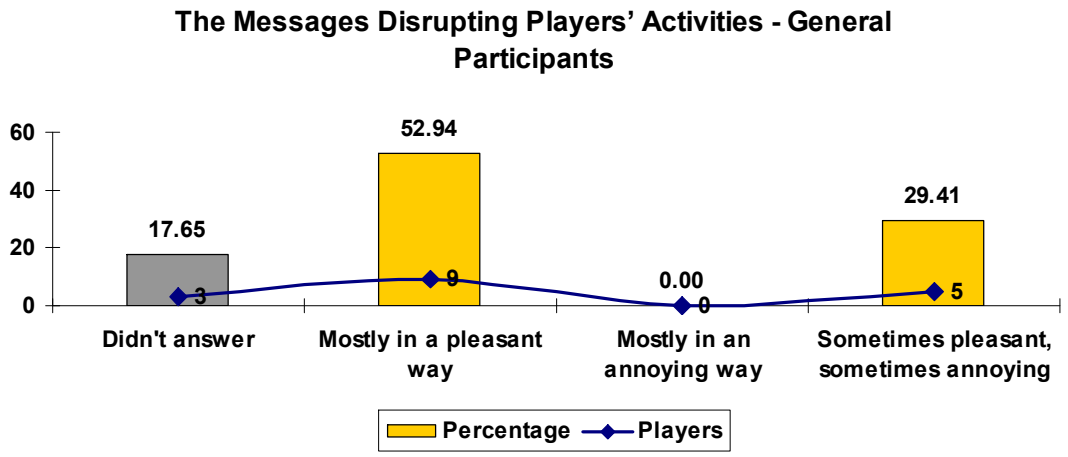

Figure 4.22. The Messages Disrupting Players' Activities – General Participants

We asked players: "Did your reaction to an incoming message change from your reaction prior to playing DOTF?" In their responses, some players noted a tendency to treat incoming messages as being less urgent, for example:

- "Because eventually I started thinking 'oh it'll be blast theory', rather than one of my friends etc and didn't look at it straight away".
- "I knew that it might be from the game and so therefore not as important to as it might otherwise be".
- "I usually check my msgs immediately, but when playing DOTF I knew many of the incoming msgs were from the game so I didn't read the texts straight away".
- "Weren't so quick to check phone as probably not a friend but DOTF".

However, another noted that the game increased her response to text messages:

- "Usually not that concerned about receiving text messages, but when I was feeling quite involved in the game towards the end I was more eagerly anticipating messages looking for an answer".

One player noted that she immediately stopped to read every incoming message from day of the figurines because "I was awaiting news of the birth of my first grandchild".

Others could be disappointed by receiving messages from the game when waiting for other more personally important messages:

- "Weren't so quick to check phone as probably not a friend but DOTF".
- "Sometimes I was a little disappointed if I was expecting a message from a friend, and it turned out to be just another message from the game, it would've been nice to be able to have a different message tone set on my phone for messages from the game in order to differentiate, but I'm not sure that's possible".

This last suggestion to provide a Day of the Figurines message tone is particularly interesting.

Summary for the Flow and Volume of Messages and Players' Responses

In very general terms, the answers to these questions suggest that our strategy of managing the flow of messages was reasonably effective as on average players found the flow about right and were not greatly annoyed by interruptions. However, there is considerable variation in responses which implies that we may wish to refine the strategy and supporting mechanisms to make it more responsive to individual players' preferences.

Perhaps in an experience such as this in which players interact a relatively few number of times (sending just a few tens of text messages over a month) we need to bear in mind that every message from a player is a highly significant event. If a player has composed, sent and paid for a text then maybe we should offer an immediate response (perhaps not even waiting until the next hourly turn). However, when players are not interacting, it is important to back off and not flood them with messages, although maintaining contact through one message a day appears to be a good rule of thumb.

4.7 Storing and Revisiting Messages

Another aspect of players' responses to messages is whether (and when) they deleted them from their phone and if they didn't delete them, whether they revisited them later on. The next two figures (4.23 and 4.24) summarise general participants' responses to the questions: "what did you do with the messages sent to you from the game?" and "if you saved them, did you ever go back and read the old messages?"

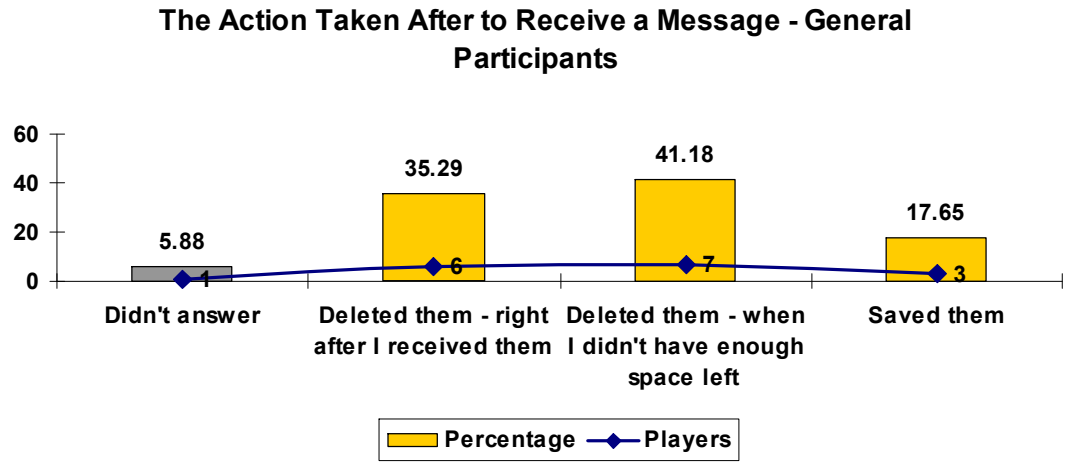

Figure 4.23. The Action Taken After to Receive a Message – General Participants

The majority of participants (59%) appear to have wanted to retain messages, although this was clearly problematic for many who had to delete them when they ran out of storage. A large minority (35%) did delete them right away however.

Of those who did save the messages, just under half reviewed them occasionally and only a few reviewed them regularly.

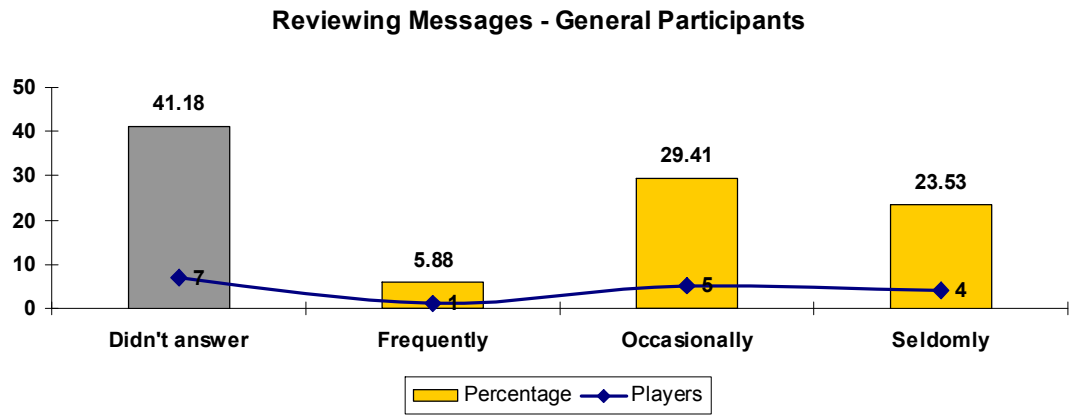

Figure 4.24. Reviewing Messages – General Participants

Turning to their comments, two players observed that they lost all messages when their phone stopped working (one due to a flat battery which caused various other difficulties and another for an unspecified reason). Reasons for saving messages included wanting to deal with them at a later time and valuing the more 'poetic' messages. Reasons for deleting them right away included being annoyed by receiving too many messages.

One response to these comments might be to provide a separate browsable history of messages for each player. This might be accessible via the online interface or possibly downloaded to the phone on request. This could mitigate problems with limited storage and reliability of phones. It might also enhance the management of dormant or disengaged players; these could be sent very few messages and might then access the history once they were ready to reengage.

4.8 The nature of Messages: Personalisation, Mood and Comprehensibility

We now turn to the content of the text messages. The next graph (fig. 4.25) summarises to what extent players found messages inappropriate or incomprehensible. On average, players seem to have found some messages inappropriate or incomprehensible (mean value 0.9), but again with great variation (standard deviation of 3.3).

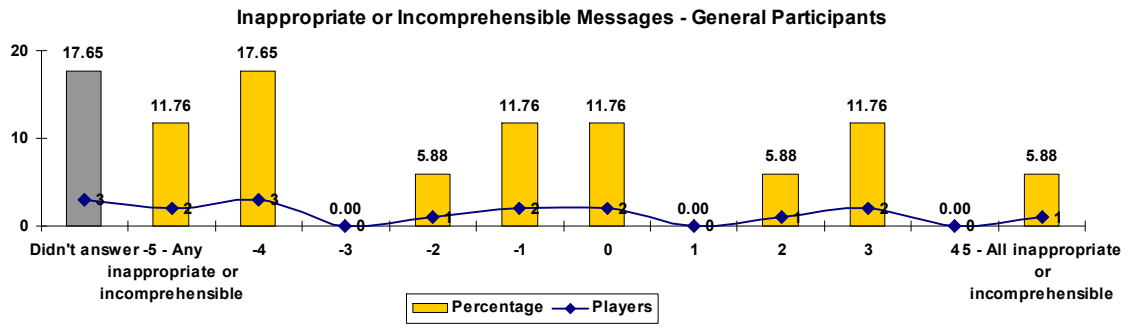

Figure 4.25. Inappropriate or Incomprehensible Messages – General Participants

In positive comments, several players noted that they were able to imagine the city and other figurines from just the text messages alone. Indeed, it appears to be an attractive feature of an experience based on SMS that there is a great deal for space for players to use their own imaginations. One player observed that she managed to imagine the environment and the figurines through the messages that she was receiving and that she used her imagination based on her background as a writer and reader. Another observed that both figurines and environment could be imagined with the given description. However, one player explicitly stated that they found imagining the world of the game to be difficult.

However, players did mention some specific problems with messages. One became confused when they thought that they were inside a destination, but turned out to be outside. Another experienced some problems with consistency; there was a dilemma where a colonel (a non-player character) asked her to help disperse a crowd. The player asked who was around her and the game replied that the figurine was alone (presumably there were no other players present, but the operators neglected to consider the presence of 'the colonel'). A third source of confusion arose from conversation with other players. For example, one player noted problems with trying to contact a figurine who had already passed by. Indeed, as we shall also see later, the conversation model in Day of Figurines proved to problematic, both in terms of synchronizing encounters and also in terms of flooding participants with messages. All three of these issues need addressing in future iterations of the game.

Another key aspect of Day of the Figurines is the way in which it tries to balance automatically generated with human generated messages, the latter including text chat from players as well as improvised messages from operators and authors. Furthermore, as we shall discuss later, operators would also manually edit some of the automatically generated messages. The next graph (fig. 4.26) summarises the responses of general participants to the question: "On a scale of -5 to +5 below please indicate the amount of messages that you received that you think were automatically generated compared to those that you think were created by a human". The responses suggest that in general, players felt that messages were balanced between automatically and human generated (mean of 0), but again with a wide variation (standard deviation of 2.7). While it is not clear what an ideal balance should be, this measure from this test may serve as a useful benchmark for future tests which aim for a more scalable version of the game which will by necessity require fewer instances of direct operator intervention.

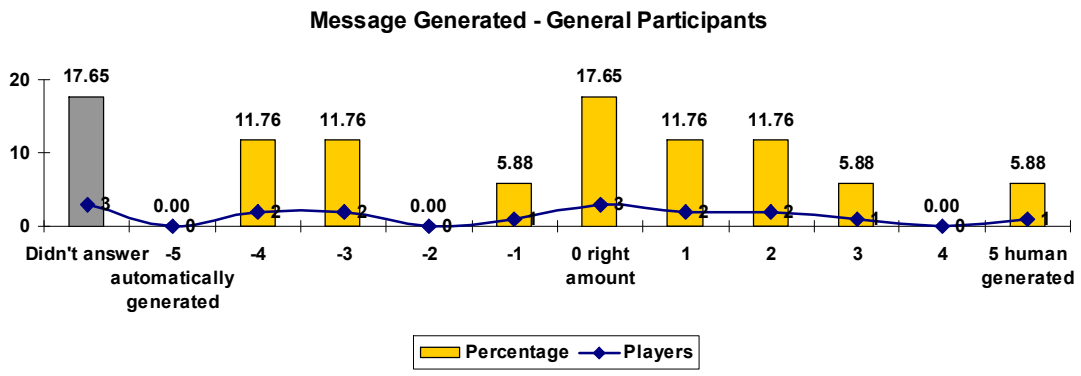

Figure 4.26. Message Generated – General Participants

Several players noted that there were times when they were not sure whether messages were automated or from humans:

- "There were a few I wasn't sure about, since they seemed to respond to something in a text I sent, which wasn't a direct request to move somewhere, but they resulted in that, I wondered whether a person involved in running the game made that decision and responded to that."
- "Partly the bad spelling. Texts from other players were often confused. But then again I did have a feeling that Hassan might not be just another player as he actually seemed to have an idea of what was going on… but then again his use of English was quite ropey…or was that on purpose?!?!?"

This ambiguity between human and system generated messages feels like a potentially productive area for future versions of Day of the Figurines to explore in greater detail. With this in mind, this last comment raises the possibility that automated game messages might deliberately contain spelling and grammatical mistakes to make them appear to be human generated.

Some of the reasons for realising that game messages were automated included repetition and also observing that other players had received the same message:

- "Because my colleague got a lot of the same messages"

These factors might be mitigated by using a wider range of templates for generating messages, especially if we could determine players who routinely meet one another in the physical world (a potential use of cellular positioning technologies).

4.9 The Need for Greater Structure

Perhaps the major content-related issue raised by players was the need for greater and clearer structuring of the experience, as revealed by responses to the question: "Do you think you missed any important events in the game? If so, why" ?

Several players had the feeling that they were always on the periphery of the action. They were aware of apparently interesting events taking place elsewhere, but were unable to take part of clearly understand what had taken place:

- "Yes – I don't feel like I found anything that important, it was like Dorit was shuffling about on the edges not really getting to anything. I heard about a few minor incidents from other characters, but Dorit didn't get involved in anything. Also there seemed to be a few signs of things happening elsewhere, but I never found them".
- "I don't know what I missed since I missed it. Maybe exciting stuff happened in other parts of town".
- "Yes, I missed what was going on with the explosion and the soldiers and I never found out what happened or why Hassan was making me go to the bunker. I think if I had been playing the game longer and had been able to travel around the town more I would have felt more involved".

- "I feel I missed the explosion at the pub (which I heard about later) and the interactions with the soldiers (though I did have one). I felt mostly on the periphery of things".
- "Yes, I felt like I did because I received texts that told me about events and happenings I missed out".

Others were particularly concerned by the lack of a clear ending, resolution or climax:

- "Don't know. What happened in the end, does it just finish"?
- "Yes. I have heard of event that happened and feel the story lines encouraged game play. I would of liked an interesting event to of happened in the last week at the rec, of to of been told where an interesting event was taking place".

Whereas others appear to have wanted a stronger sense of mission or plot throughout:

- "No, as there wasn't any mission or plot".
- "I felt like I didn't have a sense of what was happening generally, and so had to create my own sub stories".

Responses to the question: "Were then any occasions when you temporarily stopped playing the game? When were these and why did you stop?" also revealed a need for greater direction and steering of the experience:

- "Yes, I was bored. Couldn't see where it was all going. Tried to be experimental but my actions did not seem to have any impact. It was like pushing bits of info to me all the time but without anything more than that. Most of the conversations were also around 'what to do".
- "Yes, I got bored a couple of times because I couldn't seem to find anything interesting to do. I can't remember when exactly this was".
- "I also stopped the game because I became frustrated with it. The game felt like a bulldozer sometimes .. things happened to my character regardless of what I chose to do or the direction I wanted to take. That is ok every now and again … but for it to happen constantly became frustrating".

Other players felt that the beginning of the game was slow:

- "In the first couple of weeks, there was nothing exciting happening and no good events or dilemmas like later on in the game".

4.10 The Relationship between Players and Their Figurines

Our next topic concerns the relationship between players and their figurines and in particular, to what extent players were being themselves or acting out a distinct role. The following diagram (fig. 4.27) summarises general participants' responses to the question: "how close do you feel to your figurine? Are they 'you' or are they someone else?"

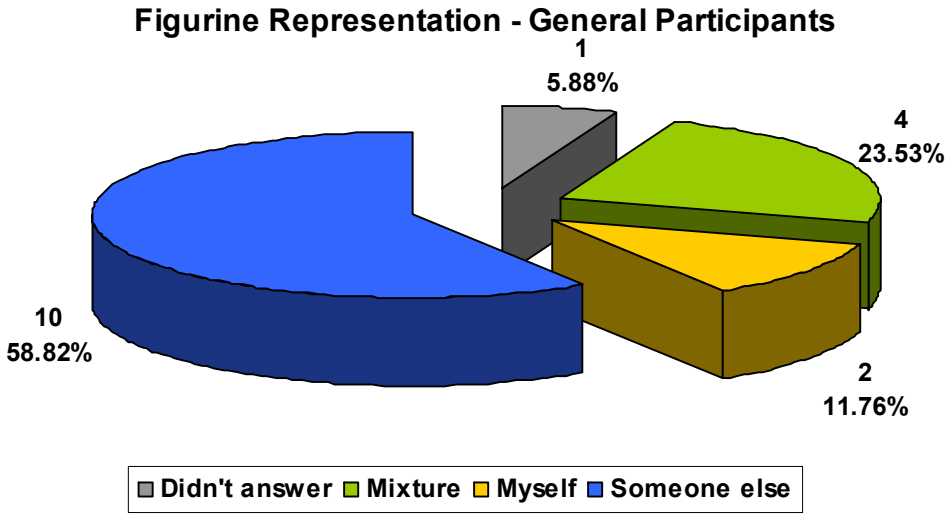

Figure 4.27. Figure Representation – General Participants

Only a relatively small proportion of players claimed that the figurines represented themselves (12%) whereas nearly 60% claimed that they were playing someone else. 24% on the other hand claimed that the figurine was a mixture.

We also asked players to what extent their mood influenced the messages that they sent – Figure 4.28.

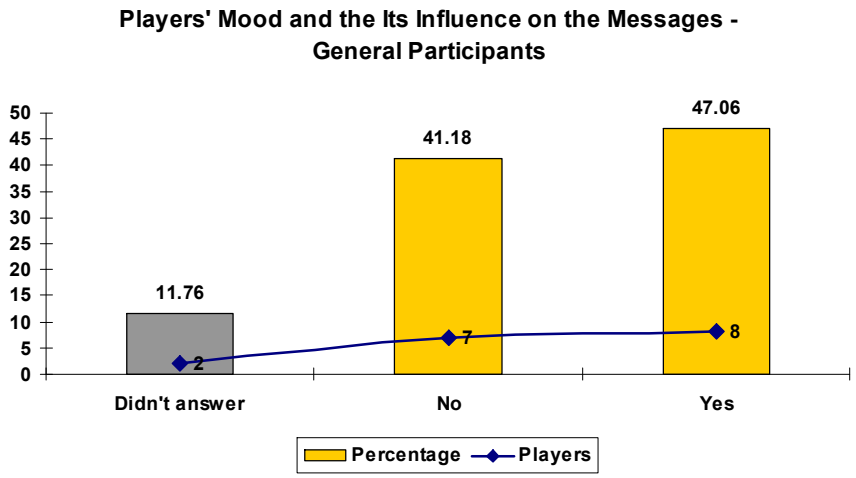

Figure 4.28. Players' Mood and Its Influence on the Messages – General Participants

Here we see that 47% of all players (more than 50% of those who answered), claimed that their mood in the real-world did influence the messages that they sent via their figurines.

Player comments shed further light on these data. Some noted that their figurine's behaviour reflected their own actions and mood in the real world. For example, one recalled a moment when his figurine asked for a full English breakfast because the

player was hungry at that moment and also observed that if his figurine was apparently not in good mood, it was because the player himself was also not in good mood. A second player noted that there were moments when he was watching television and put some of that information/creativity into his figurines messages. However, other players took a different view, observing that their figurines were completely different from themselves and were not affected by their current mood or real-world activities.

The nature of and motivations for role-play in interactive computer games is a complex topic that has been explored in detail by many researchers. That said, the comments from our players suggest to us that Day of the Figurines raises an intriguing new possibility. Perhaps a pervasive game that mixes interactive role play with everyday life to a greater degree than conventional online games (in which players chose the time of play and may play from familiar and possibly relatively isolated environments) may lead to a blurring of the boundary between the personality of the player and that of the character being played. In essence, being interrupted by the game and playing in different contexts may lead to attributes of the real world – the players personality, their current activities and situation (possibly including comments from other people nearby as discussed previously) – leaking through to the character that they are playing. In fact, this possibility was raised by one of our players, Dorit, who subsequently wrote a detailed report on the game with a particular focus on this issue which we include below as Appendix D.

4.11 Use of the Map

Our final issue concerns use of the map. Each player received a hard copy of a map of the game board including the names of streets and destinations. Players could also see the area around their figurine via an online version of the map at the game website.

The following graph (fig. 4.29) summarises general participants' responses to the question: "Did you have access to a map? Printed/online? And how often did you refer to it?". We see that a large majority came to use the map, even if only after some time into the game.

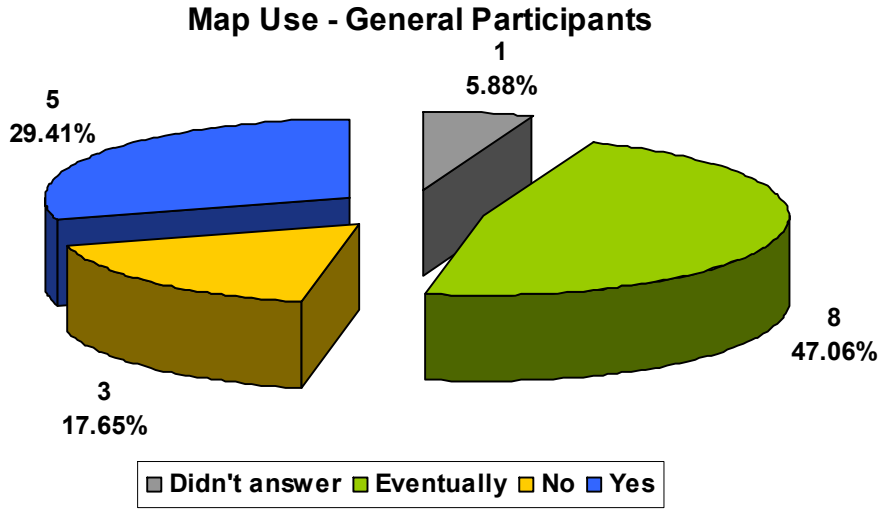

Figure 4.29 Map Use – General Participants

In their comments on map use, two players noted how they used the map as a starting point for imagining the virtual city as a real place with real people. Other players commented that they used the map until they lost it or threw it away by mistake.

4.12 Summary and Recommendations

In summary, our analysis of the player experience has raised a variety of points that might be addressed in future developments of Day of the Figurines or indeed, that might provide a launching point for further research into general issues surrounding pervasive gaming.

- Overall, players slightly tended towards enjoyment of Day of the Figurines. However, opinions were quite polarised (as indeed they were on many of the more specific issues that we asked about).
- One key improvement would be to provide greater structure and a clearer overall purpose, while still retaining the overall approach of an open, improvised and emergent narrative. Some players enjoyed the dilemmas and so these may provide a good starting point for moving forward, for example towards a more mission-based experience.
- Players exhibit quite individual preferences as to good and bad days and times of day to play. We should consider whether to try and establish this information as part of a personal profile, either at induction or during the game. The most notable preference is that a minority of players appear to feel strongly about not playing at weekends for reasons given in section 4.3. We also seem to get clear preferences if we ask people when they prefer **not** to play rather than when they prefer to play.
- Home appears to be a popular place to play. Other good places are on buses, trains and in cafes and restaurants. Playing at work is more controversial, although some clearly enjoy the distraction.
- Some players really enjoyed playing in the company of others, reading messages aloud and soliciting their suggestions and input. Interrupting social occasions was a problem for others though.
- Our approach to managing the flow of messages (monitoring levels of engagement and manually discarding many message) seems to have been broadly successful, although we may wish to fine tune this and consider how it can be more automated and therefore scaled up in future versions of Day of the Figurines.
- One area that does appear to be problematic is the chat mechanism. Players experienced difficulties in synchronising with others and it was easy to become overloaded with messages. In particular, there is a need to manage the flow of chat messages in crowded destinations. Perhaps only active speakers should receive chat messages and/or maybe some form of digestifying or otherwise filtering chat messages can be introduced for less active speakers.
- Conversely, it also appears to be important to respond to players quickly – possibly immediately – whenever they do choose to send a message.
- It is also important to send players at least one message a day to maintain their contact with the game.

- The cost of text messaging was a barrier for some players. We might consider collecting information about contract types and budgets in advance of the game and using this as part of managing the flow of messages to and from players.
- Some more minor gameplay issues that need to be fixed include clarifying whether players are in side or outside destinations and also recognising the presence of non-player characters (i.e., those who are not figurines, but who appear in the text messages).
- Interruptions from the game were mostly (but not always) welcome or at least not a major problem. We see this as a major risk for this type of pervasive game and it is reassuring that it does not appear to be a 'killer' problem. However some players were disappointed to receive messages from the game when they were awaiting important personal messages. This might be mitigated by providing a Day of the Figurines ring tone that could be installed and downloaded by players.
- Some players like to revisit previous messages. However, storing messages on their phones can be difficult due to limited space or failures which cause them to be lost. Some other solution may be required such as a browsable history of their play on the game web site.
- The paper map was useful for some, but could be lost or thrown away. We might consider providing a downloadable version of the map for mobile phones as a further game accessory.
- More generally, it appears that Day of the Figurines may open up an interesting new aspect of interactive role play. There is some evidence to suggest that a pervasive game that interweaves gameplay with everyday life may lead to aspects of players' personalities, real-world activities and situations bleeding through into the game, possibly opening up some intriguing new possibilities for role-playing in general.
- Another intriguing possibility is that role-play by short text messages leaves a great deal of space for players to use their imagination in envisaging destinations, other players and events.

5 EVALUATING DAY OF THE FIGURINES FROM THE OPERATOR PERSPECTIVE

We now turn from the player perspective on Day of the Figurines to the operator perspective, utilising ethnographic study to unpack the behind-the-scenes activities of orchestrating the experience.

Day of the Figurines is in essential ways socially produced through behind-the-scenes-work done by operators and authors over the actual course of gameplay.[1] Behind-the-scenes work consists of a lived orderliness of practical action and practical reasoning whereby gameplay is orchestrated. We begin with a brief consideration of the orderly character of the physical setting or the 'ecology' of behind-the-scenes work, which draws our attention to the kinds of practical activities constitutive of orchestration work. We then move on to consider the 'uniquely adequate' [6] or core activities that gameplay observably and reportably turns upon, particularly the orderliness of the practical action and practical reasoning constitutive of "customisation". Simply put, the efficacy of gameplay relies on orchestration work and the efficacy of orchestration work consists of what behind-the-scenes staff call "customisation". Just what that terms means we will gloss over and pass by for the time being, it's meaning is something we will arrive at over the course of the report, suffice to say that it is closely related to the commonsense notion of modifying things or events to suit some individual person or task. Unpacking the situated meaning of "customisation" – what it means in the context of Day of the Figurines, what it looks like on the ground, what it consists of as a practical achievement for behind-the-scenes staff – is the primary purpose of this part of the report. The situated meaning of "customisation" will be unpacked by working through a series of ethnographic instances or vignettes [7] – textually rendered extracts from video recordings gathered by a fieldworker which detail the situated character of "customisation". Working out what "customisation" means for ongoing purposes of technical innovation is also of concern here. The principle technical challenge is one of 'scaling up' or making Day of the Figurines available to a potentially large number of players (1000+). Scaling up requires technical innovation to address the thorny challenges of human-computer communication [8] particularly the 'recipient design' of gameplay narratives that stands at the heart of "customisation" and makes Day of the Figurines into a personal and even engaging event that is responsive to individual participants.

5.1 The Ecology of Behind-the-Scenes Work

Day of the Figurines not only takes place in a digital environment but in physical environments as well. There are the physical environments that players inhabit (home, work, cars, buses, trains, etc., as detailed to some extent in the survey reported in

[1] 'Operators' are people who practically administer and manage the game. 'Authors' are people who design the game. The rules of the game are evolving and so the relationship between operators and authors is dynamic. This part of the report covers something of the dynamics of the relationship as given in the *in vivo* course of gameplay; that is, as a feature of gameplay rather than after the event where reflections on gameplay might be brought to bear on the ongoing development of the game.

Section 4) and there is the physical environment that operators and authors inhabit. Over the life of this particular incarnation of Day of the Figurines the operators and authors were located in two different settings: the Laban School of Contemporary Dance and Blast Theory's design studio. Despite the differences between the two settings several common ecological features maintain and are essential to the orchestration of gameplay in this incarnation of the game. In this section we describe common ecological features in order to identify core activities constitutive of behind-the-scenes work.

5.1.1 The "Board"

On entering the operators and authors physical environment the first thing that one notices is the "board" or the physical representation of the game city (fig. 5.1).

Figure 5.1. The Game City or "Board"

The board has a public character. It is a site where would-be-players make first contact with the game and is part and parcel of what operators describe as the process of "initiation" – a site where players are introduced to the game by operators and authors, where they are enticed to take part, and where they congregate with other players prior to playing the game proper. Following initiation, people who want to play the game are "inducted", which takes place at different sites. The board is also a site of coordination, where operators administer "turns" in the game. A turn is taken every 75 minutes and consists of moving players to different positions on the board (though not every player moves on every turn) and of documenting the achievement by taking a photograph of the reordered board. Turns are organized from a computer terminal which automatically generates coordinates where players are to be moved to on the board (fig. 5.2). Figurines may be reposition either individually or in concert (fig. 5.3), with the "game operator" and "turn operator" collaborating to achieve the turn (and where collaboration consists of the turn operator reading out the player name and the coordinates and the

game operator moving the player's figurine accordingly).2 Messages are then sent out the players informing them of the movement of their figurine.

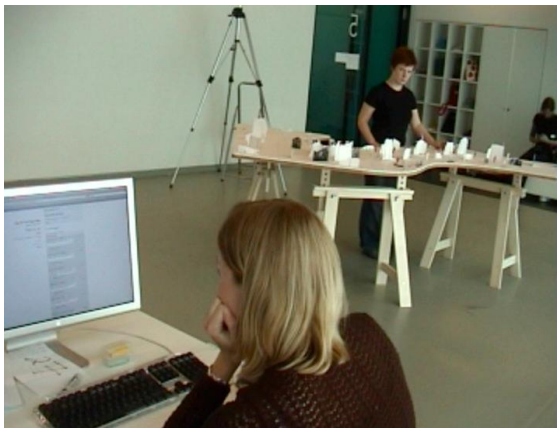

Figure 5.2. New Coordinates

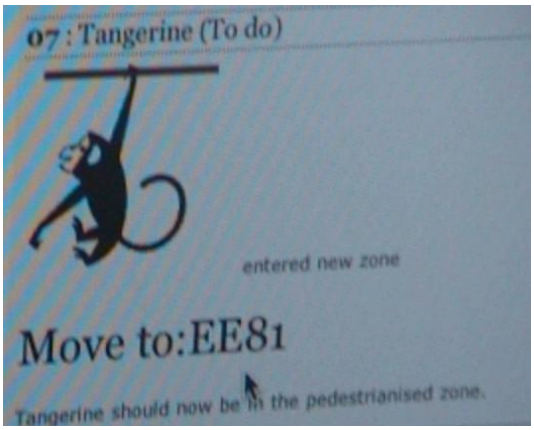

Figure 5.3. Concertedly Achieving the Turn

5.1.2 "Induction"

Induction occurs across three related sites which demark the boundaries between the public and behind-the scenes staff. They include a series of shelves where player figurines are located (fig. 5.4), a table located in the middle of the room where participants provide their player details (fig. 5.5 background), and a computer terminal where player details are processed (fig. 5.5 foreground).

Figure 5.4. Figurines to be Selected

Figure 5.5. Providing and Processing Player Details

[2] It is important to note that the "turn operator" and "game operator" do not refer to a particular person – e.g., to Kate or Sally respectively. Rather, either Kate or Sally may occupy either category or both as circumstances dictate (one of them may already be doing one of these jobs so the other takes the other job, or one may have gone to lunch so the other may do both, or they may both do the same job together if nothing else needs doing at the current moment in time, for example). "Turn operator" and "game operator" refer to distinct activities that are undertaken by different people at different times and not to a person whose job it is to do them.

Players select a figurine of their choice from those on the shelves and fill in a card that details the name of their figurine, their gender, whether they are a lover or a fighter, what they least like about other people, what is most striking about their appearance, how they move, what they most like about themselves, how they feel toady, where they slept last night, and on the reverse of the card they provide their player name, email address, a secret word, and their phone number for SMS messages. The player gives their figurine and card to the "game operator" who assigns a player number and attaches the figurine to a "flag", a small piece of card with the player number on one side and the number and figurine name on the other (fig 5.6), and gives the player a copy of the gameplay rules (fig. 5.7 and 5.8) before processing the player details, which consists of creating a digital profile based on the details provided.

Figure 5.6. Flagged Figurine

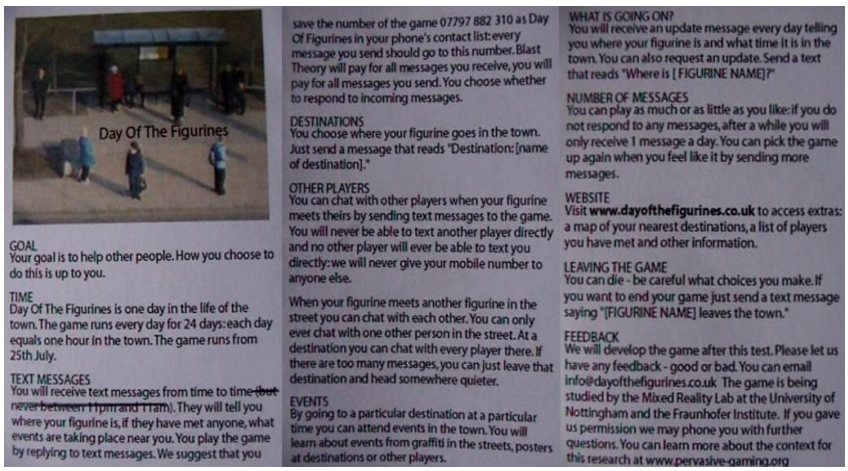

Figure 5.7. Player Instructions

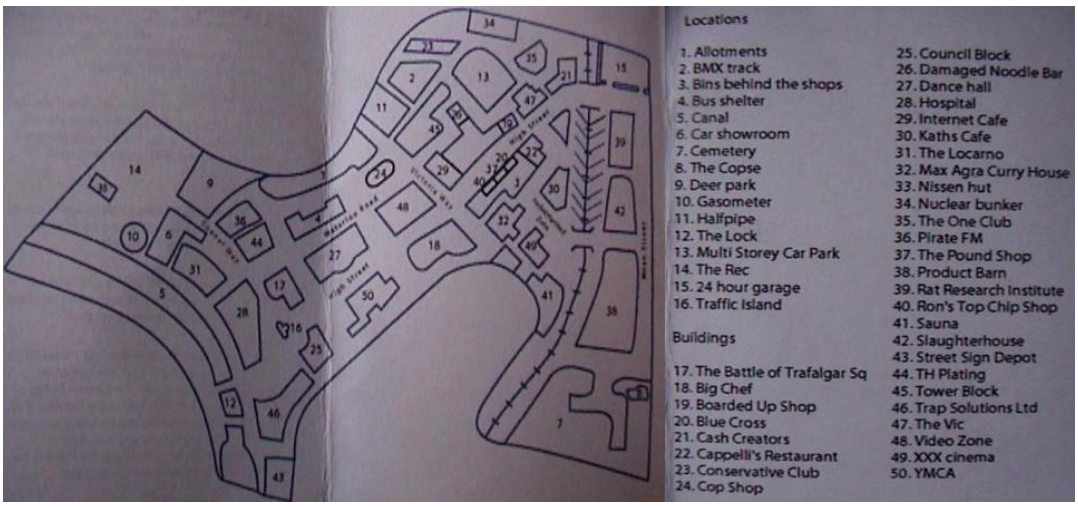

Figure 5.8. Player Instructions

Start coordinates are automatically generated by the computer, the player's figurine is then placed on the board at the start coordinates, and a welcome message is sent. The player is in the game and may now send messages requesting moves to destinations

listed in the rules (fig. 5.8) and, on meeting other players by being notified by the game operator that they are in the same vicinity, they may also send messages to them as well, albeit not directly as all incoming messages are "handled" by the game operator just as all turn related messages are "handled" by the turn operator. Orchestration of the game turns upon the "handling" of messages. It is through such things as issuing instructions and timely responses that players come to engage in the game and it is through messaging that the game is irremediably constituted – that players play, explore, meet, chat, and journey the game city together. While much else could change (one might dispense with the physical board, for example, and replace or augment it with a digital facsimile) messaging is indispensable.

5.1.3 The Development Area

The indispensability of messaging is reflected in the design of the final site in the environment: the development area. While there is a degree of technical work here, involving such things as database administration and other computing related matters, the primary function of the development area is that of designing and implementing gameplay narratives, scripts, and events. These are initially embedded in and worked up through an array of artefacts that adorn the walls of the development area (fig. 5.9) and they articulate the domain of the authors. It is for them to work out how to engage the players, what narratives will encourage their participation, how those narratives should be scripted, and what events they should engender. The development area is a site where operators may turn to for help in handling messages and support in crafting the experiences of players.

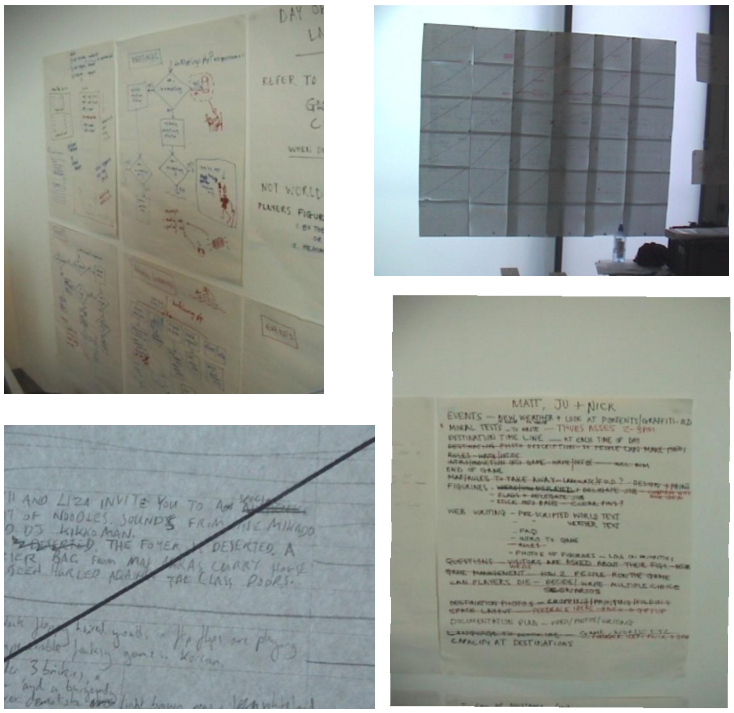

Figure 5.9. The Development Area: Planning Game Narratives, Scripts and Events

Messaging is not only an irremediable feature of the game but an evolving feature as well. Working out what to do, what to say, and how to say it unfolds as the game

unfolds and contingent situations emerge to shed new light on the situation. While the evolution of narratives, scripts and events is not treated in this part of the report - as it is not a feature of gameplay but a product of gameplay – it is worth noting that authors and operators actively prepared for evolution, implementing recording procedures to document emergent contingencies to provide for standardized responses over time.

5.1.4 The Significance of the Ecology

The ecology of work draws our attention to core activities. By seeing how the environment is organized we can see the kinds of things that go on there. An unremarkable observation in itself – when we look at roads, houses, parks, cafes, etc. – we can see at-a-glance what kinds of activities occur within them, for as members of ordinary society we are familiar with the ways in which environments are designed for activities and how the design of space reflexively articulates 'what goes on within'. Day of the Figurines is not a familiar activity, however, but a novel event. Nevertheless even a cursory investigation of the ecology of the environment where it is orchestrated – of the sites that environment is constructed from and the artefacts that populate it - instructs us as to the constitutive activities shaping the game in its current incarnation: initiation, induction, turns, and that most essential ingredient of the game itself, messaging.

Furthermore, even a cursory look at the ecology of the orchestration environment reveals that the activities populating it are socially organized. At its most basic there is a division of labour 'at work', which is reflected by the environment. Thus we can see sites where would-be-players are initiated, sites where players are inducted, sites where incoming messages are handled, sites where turns are ordered, and sites where narratives are formulated and where help might be obtained. We can also see that the function of sites changes or is different at different times depending upon who occupies it. Thus, the board is at one time a public venue for initiating would-be-players and at another a site for coordinating turns, and we can see that sites are tied together such that players move from the board and initiation to the table in the middle of the room and induction, and then to the game operator's terminal for processing. There is a flow of activities across ecological sites which both marks out where in the division of labour the work is and in the course of that flow reflexively transforms the working object – a person – from a would-be-player into an "initiate", then an "inductee", and finally a "player" whose figurine occupies concrete coordinates on the board and who can, therefore, send messages and thus engage in the game. What we want to understand now is what engagement turns upon as a concerted practical achievement. More specifically, and in details of the practical action and practical reasoning that inhabits the orchestration ecology, we want to identify and unpack the behind-the-scenes work that makes the game work.

5.2 The Behind-the-Scenes Work that Makes the Game Work

Below we offer a series of complementary vignettes that elaborate the behind the scenes work that makes the game work. They revolve around the irremediable and indispensable work of messaging and each articulates topics that are intimately bound up with engaging players in the game. The vignettes are presented in a list-like fashion, and in no particular order other than the order in which they happened, and they are accompanied by a short description highlighting the salient features of the work. Having

presented the vignettes we move on to provide a more comprehensive account that reconciles the fragmentary glimpses provided by this 'corpus of exhibits' [9] and highlights major findings for consideration in technical innovation.

#1. Handling Welcome Messages

Sally, the game operator, has just been creating a new player profile.

Sally: After that, you click on the person (returns to admin list where all players are listed) – so you've got Alfred, there (selects player from list). **Custom message** for this player and this (points to text on interface) is the welcome message.

Sally: So, you put "Welcome …" - you just fill it (the text box) in really. Everyone gets a welcome message and then it's up to them straight away where should they go and straight away they're interactively playing the game.

Sally: It (the system) tells you where his day has begun, so Alfred should now be near the traffic island.

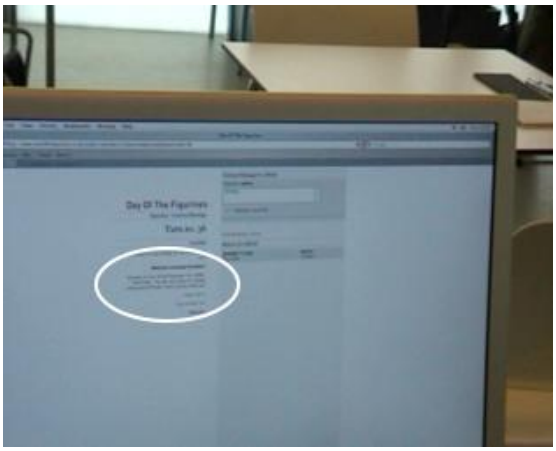

Figure 5.10. System generated Welcome Message for New Player

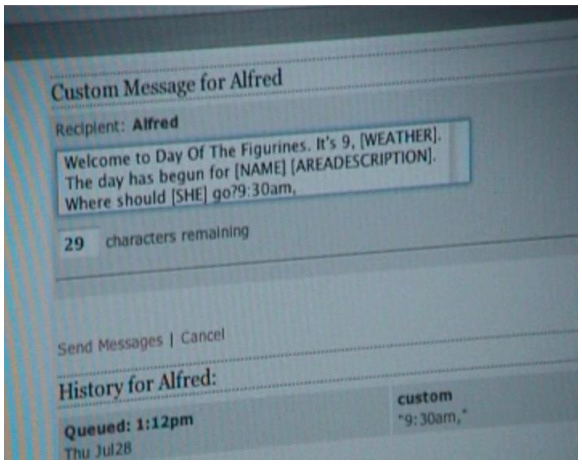

Figure 5.11. Recipient Design: "customising" the Welcome Message

This vignette shows that from the outset handling messages is a matter of "customisation". Even a simple, straightforward, welcome message is tailored to fit the recipient (fig 5.10). Customisation is a matter of recipient design then, where texts or utterances more generally are crafted to fit the particular individual who will receive them. Thus, and for example, while a welcome message is automatically generated for Alfred, it is content free and the game operator must add detail – weather, player name, area description and gender (fig. 5.11) – to make it meaningful to the recipient.

#2. Categorizing Messages

Kate: There's a message from Tangerine.

Sally: (selects message) "Hi Pinky. Where are you wandering? Do you need and angel?"

Figure 5.12. Messages Sent to and by a Player

Kate: It's a chat.

Sally: We have to customise these messages as well.

Kate: It's a chat message so you just need to send it on to Pinky.

Kate: Messages are to other players and to the game sometimes, so you have to decide what kind of message it is. That one was a chat message to another player called Pinky, so Pinky's now been sent the message. Every message that gets sent gets sent through the game. We have to decide whether it's a chat message or whether they want to change destination (etc.).

As each and every message (fig. 5.12) is handled by an operator then each and every message needs to be categorised as being of 'this' or 'that' type in order to ensure that it is handled appropriately. A message may be assigned to one four basic categories – 'chat' as above, or 'status requests', or 'no reply/done', or as 'custom'. Assigning a message to a category requires that the character and meaning of a message be "decided" or determined. Handling messages is a matter of interpretation, sense-making and judgement then and while the sense and meaning of the message in this case is easy to discern, categorizing messages is not always so straightforward a matter. Furthermore, and as Sally alludes to in the vignette, categorization is related to customization in ways yet to be specified.

#3. Interpreting the Sense and Meaning of Messages (fig. 5.13)

Kate: (looking at messages as Sally works through them) "Joan leaves town after an argument with Miya." So …

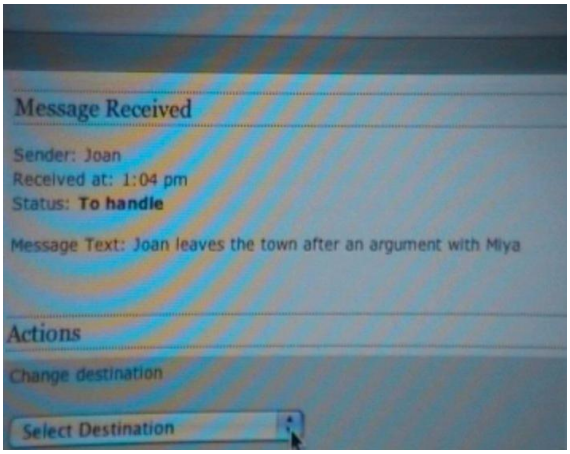

Figure 5.13. "Joan leaves the town after an argument with Miya"

Sally: Where would we direct her?

Kate: I think she wants to leave the game. So – that's what it suggests to me.

Sally: Leaves completely?

Kate: Mmm.

Sally: Leaves the town?

Kate: I mean we could send her to the cemetery or something (laughs).

Sally: (Laughs).

Sally: Shall we leave that one for moment?

Kate: While we talk to (one of the authors).

Sally: Yeah.

Sally: Sometimes you have to decide what to do with these messages, so I'm going to let someone else look. This one, "Joan leaves town after an argument with Miya" – that may suggest that she wants to leave the game or might mean she just wants to leave the section she's in, so I'm not sure what to do with that one. Some of them aren't specific, whether they are chat messages or … normally I'll ask Nick (one of the authors) or someone and they'll say what they think is best. It's up to the discretion of who kind of deals with them really.

This vignette provides an example of the interpretive work implicated in handling messages. Is this a request to leave the game or a request to change destination? The operators are not sure, it is not immediately evident what the sense of the message is. Sure, it looks like Joan wants to leave town but she has only just started playing the game. Determining the sense and meaning of messages is tied, then, to the player's "biography", meaning the combination of information that they initially provided about themselves and their figurine as part of induction into the game, combined with the known history of their experience in the game, including messages that they have sent and received. In cases where the interpretation is difficult and the sense and meaning of

a message cannot be determined, the operators suspend judgement and elect to consult the authors to make sense of the message and determine an appropriate course of action. Interpreting and making sense of messages is a collaborative achievement then, not just between operators but across the division of labour between operators and authors.

#4. Interpreting Ambiguous Messages (fig. 5.14)

Sally returns to the inbox and sees that another player has sent a message, which she selects to read (that a new message has been sent is easy to see as the player's name is highlighted in bold print).

Sally: Atoine, "Hey Jenny good to meet you. Would you like to join me for coffee?" So that's a chat message.

Kate: Uh-uh.

Sally: So …

Kate: So that's to Jenny

Sally: … you can send that.

Kate: Yeah.

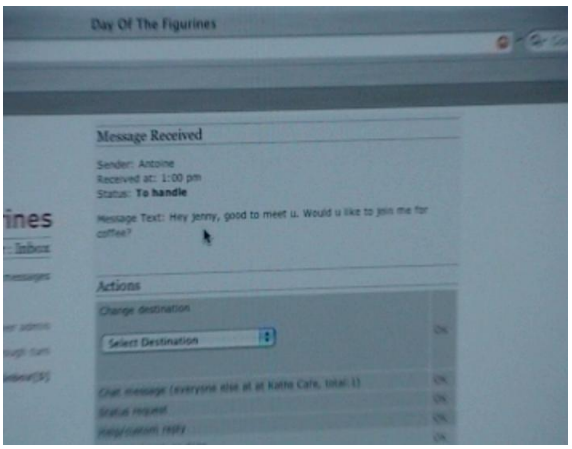

Figure 5.14. Message from Antoine to Jenny

This is followed by a message from Jenny: "Ask politely what the white food is. Anything local?"

Sally: "Ask politely what the white food is. Anything local?" It doesn't say who to. I think … (reading messages sent by Antoine) "would you like to join me for coffee". I'm not quite sure who it's for. It could be Antoine who says "Hey Jenny good to meet you. Would you like to join me for coffee?" But I'm not sure, that to me doesn't make much sense: "Ask politely what the white food is. Anything local?" I'm not sure.

Evidently there may be an ambiguity to messages that makes interpreting and determining their sense difficult. One way in which operators try to handle ambiguity is by consulting messages sent by other players, in this case Antoine. So not only do operators draw on the sender's biography to interpret and make sense of the meaning of messages but they may also exploit their sense of the potential recipient's biography to determine the sense and meaning of a message. Handling messages appropriately thus

seems to rely as much on the operators' sense of gameplay status (e.g., on who is talking to who) as much as it does on the contents of any particular message. Furthermore, it is evident that that the operators' sense of collaboration in the game is worked up by consulting the biography's of senders and potential recipients and that this is not always sufficient to make a concrete determination of meaning, in which case further collaboration with the authors may be required.

#5. Crafting Gameplay (fig. 5.15)

Sally selects an outstanding message from Achim: "He should follow the next person that comes along"

Kate: I think that one's – we can leave that till someone does arrive then we can send them off to the next place.

Sally: Yeah.

Kate goes off for her lunch break and shortly afterwards Nick, one of the authors, joins Sally.

Sally: There was a message from Achim saying he wanted to follow the nearest person or something and we're trying to find a person that's near him and where they're going so he can follow (Sally retrieves message from Achim).

Nick: Can you send him to the council block?

Sally: The council block?

Nick: He's going to go past Kojak, past the council block, so maybe – that's at least two people, but Hans and Kojak aren't moving but it might prompt them to join the game a bit – Hans hasn't sent any messages to say where he wants to go yet and Kojak hasn't sent any messages at all.

Nick and Sally are looking at the personal histories of players in Achim's vicinity, Kojak and Hans.

Sally: So he's going to follow Hans or not?

Nick: He needs find the next person that comes along. Well, if we just send him to the council block (inaudible).

Sally: The council block (changes Achim's destination). Do you just put OK or do you have to put a custom first (talking about type of message to send to Achim).

Nick: No, click OK then just edit it a bit (auto response is put in textbox):

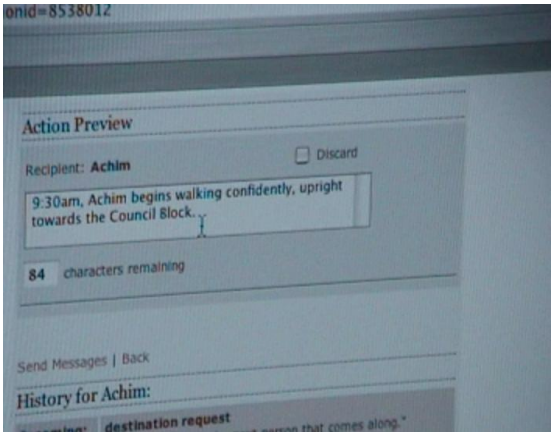

Figure 5.15. Automatic message generated from selecting change of destination

Sally: Oh right, OK. "Achim begins walking … towards the council block." You can put "following …

Nick: … "where he sees Kojak."

Sally: Yeah.

Nick: Oh, actually that might imply that they are going to see them there.

Sally: "Where he follows Kojak"?

Nick" Or may be "Where he can see Kojak in the distance" just to make it clear that they can't (talk).

Sally: Yep (types in message).

Nick: OK.

Sally: Shall I send it?

Nick: Uh-uh.

In this vignette we can see that interpreting the sense and meaning of message draws on the use of multiple biographies to determine an appropriate response. The sender's message is understood with reference not only to adjacent players but also with reference to their gameplay status – to what others in the vicinity are doing right now. The biographies of other players are drawn upon and exploited as resources to make the game work, to involve them in the game, to "join the game". Making sense of a message is not only about understanding that it is a request to meet someone then, but also a matter of determining what that might mean in terms of playing the game. Biographies are drawn upon to craft gameplay and, in this case, the crafting consists of fostering potential relationships between players. The vignette also instructs us further in the recipient designed character of responses, where the operator and author collaborate to formulate the correct wording. Formulating the 'correct wording' is, in this case, a matter of furnishing the player with adequate instructions as to what will happen next: Achim will be able to see Kojak but he won't be able to talk to him yet.

#6. Crafting Personal Responses (fig. 5.16 to fig. 5.18)

Nick: Are there any other weird ones?

Sally: Yeah. "Ask politely what the white food is. Anything local?" I wasn't sure who that was to.

Nick: I reckon that's to someone who's working at the café (looking at previous messages). There's someone else there. You can just make it a chat message.

Sally: (looking at prior messages) Those two are to Antoine, I think (clicks OK to send chat message):

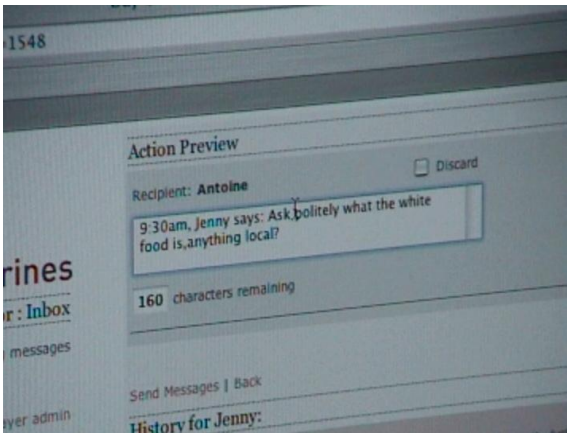

Figure 5.16. Chat Message Prior to Tailoring

Nick: Just "Jenny asks".

Sally: Yeah (deletes "says" and change "ask" to "asks"):

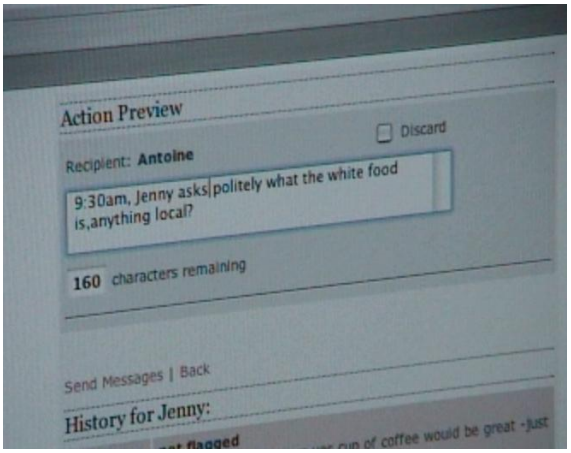

Figure 5.17. Chat Message After Tailoring

Sally: Right, shall I send it (pauses a moment then sends). I don't know if there are any other ones (returns to inbox). "Joan leaves" – oh that's it – "Joan leaves town after an argument with Miya." So I don't know if that implied that she wanted to leave the game.

Nick: Yeah, she wants to leave the game. So, we haven't set up for people who want to leave the game yet. I think you should just send her a custom replay saying "Joan leaves town."

Sally: (selects custom message) "9.38 Joan leaves town." and that's it?

Nick: "Thanks for playing the Day of the Figurines."

Sally: continues typing: "9.38 Joan leaves town thanks for playing Day of the Figurines"

Nick: Capital O and capital T.

Sally: Oh, yeah (makes changes).

Nick: And may be just a comma or full stop after Joan leaves town.

Sally: Yeah (inserts a comma).

Nick: That looks good.

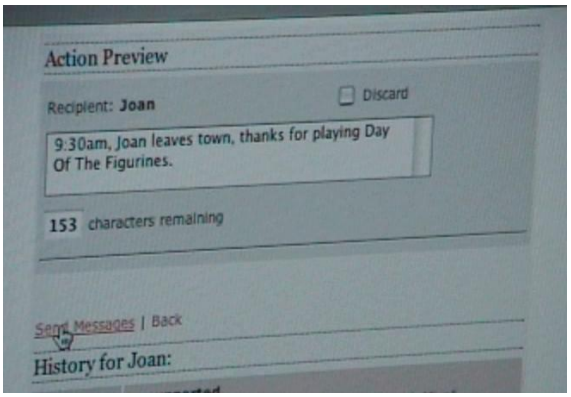

Figure 5.18. Carefully Designing Responses

Sally: (sends message).

In addition to providing a simple case of collaboration between operators and authors in determining the meaning of a message, the significance of this vignette is that it instructs as to the finer points of recipient design. The operator and author again collaborate to formulating the correct wording of a response, where the 'correct wording' in this case is a matter of crafting a personal response. In Jenny's case "says" and "asks" give the appearance of an automated response, which it is, and the operator and author work together to formulate a response that is much more natural. Similarly, in Joan's case, the cold machine response "Joan leaves town" is made more personal and natural with the addition of "Thank you for playing Day Of The Figurines". Joan's case also instructs as to the authors concern with grammar, again a matter that lends to the naturalness of the talk. What we mean by 'naturalness' is nothing more, or less, than that responses are crafted with an eye towards the ordinary ways in which people talk to one another – a sensitivity that is lacking in the automated responses of the machine.

#7. Crafting Responses through a Reciprocity of Perspectives (fig. 5.19)

Sally: One there to do (selects message from inbox). "I look at the door to see when it opens."

Sally: (reading previous messages - operators and authors can see at-a-glance messages sent by the game (which are grey), messages sent by players (which are pink) and messages sent to players but not received as yet (which are blue):

Sally: Shall we custom it saying "The door is open" or something? Or is it a chat?

Nick: He's already had a message saying it was closed.

Nick: Send him a custom message saying that it opens at 10 o'clock or something.

Sally: OK. "The door opens at 10am."

Nick: It's kind of – if you imagine that you were there.

Sally: Yeah.

Nick: And you were describing what someone could see.

Sally: Um.

Nick: So there wouldn't be something that just said that the door opens at 10. It would be …

Sally: The sign says …

Nick: The sign on the door says …

Sally: Yeah.

Nick: … the shop opens at 10am.

Sally types the message and sends:

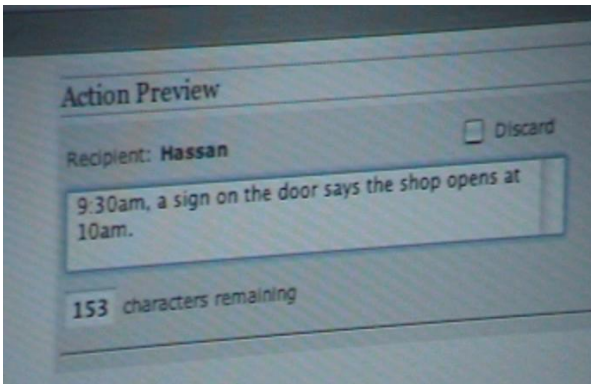

Figure 5.19. Crafting Responses: "imagining" Player's Perspective

This vignette shows the retrospective-prospective use of biographies – of previous messages sent to players – as means of interpreting what a current message is about and of determining what its meaning is. It also shows that responses are crafted through exercising a reciprocity of perspectives – by 'imagining that you were there' and seeing what the player sees figuratively speaking. Adopting and exploiting a reciprocity of perspectives is an essential feature of the intersubjective intelligibility of social action. Not only does it enable people to 'see' (i.e., understand) the sense of people's actions but by putting ourselves in their shoes, as it were, it enables us to respond appropriately to those actions. Thus, and over the course of a retrospective-prospective reading, the operator and author come to see the sense of Hassan's message "I look at the door to see when it opens" as a query as to what time the shop opens and together they craft a response that answers that query: "A sign on the door says the shop opens at 10am."

#8. Crafting Responses to Manage Gameplay (fig. 5.20 and 5.21)

Sally and Kate have just 'done the turn' – i.e., generated new coordinates for the players figurines and moved them accordingly. After the figurines have been moved, messages are sent out to the players.

Kate: There are different messages for different reasons. So there's ones when you're passing through somewhere, like Achim who's going near the Lacano, but we won't send those ones because if we did we'd be barraging people with … but if they're on a long journey then you might send them the odd one just so that they're still in the game really.

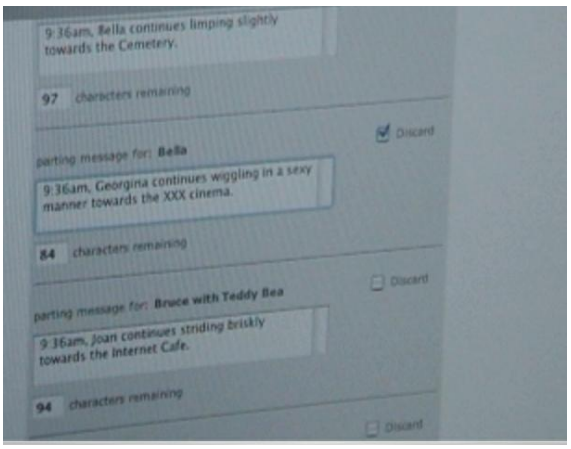

Figure 5.20. **Messages to Players, Completing Turn**

Kate: These are parting messages. So we'll keep those because they've been talking to each other or have been in the vicinity so they could talk to each other. So now we've got to send them messages to say you're out of the area.

Kate: We send most of them but just check for any strange things that happen, which "Bruce approaches Leon" - I guess that would be "in Ron's Top chip shop" (edits text).

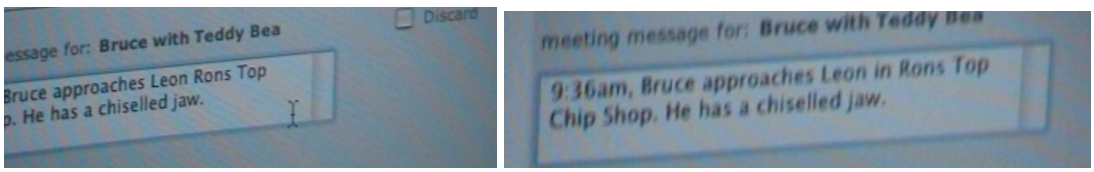

Figure 5.21. **Customising Automatically Generated Messages**

Kate: Petra is on her way somewhere so she doesn't need to know on every turn exactly where she is, 'cause if she did she'd be getting a text message every hour saying "your still on …" - but there's two of those because she's on a crossroads so she would have had two today telling her she's in two different places (Kate deletes one of the messages).

Kate: We don't send people messages every hour unless they write to us. If they don't write to us we only text them 3 or 4 times a day –

not even that – so the less someone texts you the less they get sent back.

The vignette makes it visible that different kinds of messages are sent depending on a player's situation. Thus, players who move into proximity of one another following a turn receive 'meeting messages' informing them of the encounter, players who move out of proximity with one another receive 'parting messages' informing them of the end of an encounter, and players who move are given some sense of their new location. These messages are automatically generated but each must be checked and those that are sent must often be customised. The meeting message to Bruce, for example, is edited to make it intelligible (from "Bruce approaches Leons Rons Top Chip Shop" to "Bruce approaches Leon in Ron's Top Chip Shop.") Messages sent on the turn are customised for a host of other reasons. The game operators do not want to "barrage" players with messages, particularly when they are just moving through the game city, and so messages generated on the turn are often discarded. Turn messages may also be confusing, as in the case of Petra who is at a crossroads where the machine generates two different location messages. And operators also customise messages to reassure players, sending the "odd one" when players are on a long journey to let them know that there are "still in the game". In these details the vignette instructs us that customising messages extends beyond a concern with intelligibility to exploit a reciprocity of perspectives that enables operators to craft messages that resonate with a player's circumstances following a turn.

#9. Crafting Messages to Account for Player Circumstances (fig. 5.22 and 5.23)

Kate is going through inbox, looking at a message from Bella: "Can Bella please say hi to Georgina and ask her if she say anything strange at Capelli/'s last night?"

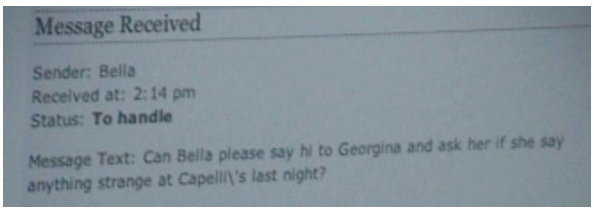

Figure 5.22. **Request from Player to Talk to Another**

Kate: This one I don't know quite what to do with. I'm going to have to talk to Nick about that at some point because she wants to talk to Georgina but Georgina isn't anywhere near her so she can't. I think I'll just text back to her, "No one is nearby" but I'll have to get the exact wording from Nick or Matt or Ju. Yeah, see, she's had a parting message.

Caitlin (the project manager, approaches Kate): Tell us where you're at?

Kate: I've just got a message from Bella that says "Can Bella please say hi to Georgina and ask her … ", but she's not there – she's been given a parting message so I just need to basically either resend that or say no one's nearby.

Caitlin: Yeah, I think so. It needs to be "Bella is alone outside blah, blah, blah. Georgina has left." Just to double confirm that we hear the request.

Kate goes to the board to find out Bella's current position and then returns to the computer, types and sends:

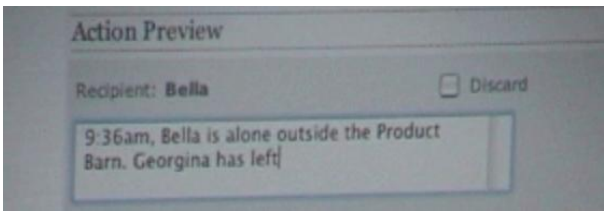

Figure 5.23. **Request Denied and Reason Why**

Kate: OK, we're all up to date for the next go, which is at 3 o'clock.

This vignette instructs that efforts to craft messages that resonate with a player's circumstances following a turn do not always work – players do not always take on board the implications of what is being said and there is a need for "clarification". Here the operator and project manager collaborate to formulate a response that will clarify Bella's situation. The draws upon Bella's biography – she has received a parting message – but does not understand it and on Bella's current location on the game city board, which enables the turn operator to specify where Bella is now. A second message is then sent to clarify her situation, informing Bella that she "is alone outside the Product Barn" and that "Georgina has left", which provides Bella with a reason as to why she cannot talk to Georgina. There is then and accountability built into messaging, where operators furnish reasons, and are expected to furnish reasons (seen from the natural attitude Bella's question begs for reasons to be supplied) to players to clarify, explain, and other ways make intelligible what their circumstances are, which in turn enables players to establish where in the game they are now and what might be done next.

#10. The Accountable Character of Player Requests

Gary: One more thing, I didn't kill off H285.

Sarah: Is he the one that doesn't want the messages anymore?

Gary: Yeah.

Sarah: Let's get rid of him.

Gary: If he whines again then let's throw him out I suppose.

Sarah: The problem is, all he'll remember of the game is that we pissed him off with text messages. It doesn't really work that way.

Tim: I think we just send him one more. If he's said he wants out of the game, just send him one more saying – only to clarify his request – 'cause

Sarah: He didn't yesterday, we just sent them out the game.

Tim: Well his request was "I don't want to receive any more of these messages", it wasn't an explicit "I want out of the game".

Sarah: "I don't want to receive any more of these messages" – yesterday the message we got is "Don't send me any more texts". To me they're both the same, one's just more direct.

Tim: Yeah. Has he left the game then?

Sarah: No, he should do.

Tim: He should, yeah.

Sarah: 'cause otherwise it is a matter of us keep going "Oh we don't want to send him any more texts, oh we can't send him any more texts" and then there's no point being in the game anyway if he's not going to receive any more texts, 'cause that's the whole point of the game.

Gary: Well some people just want to stay quiet, you know.

Sarah: They want to stay quiet but they receive their text messages.

Tim: He's saying he doesn't want the texts that's the same as saying he doesn't want to be in the game.

Sarah: Yeah.

Gary: Well has he just got bombarded with like, you know, like six this morning?

Tim: No.

This vignette extends our understanding of the accountable character of messaging. It shows us that accountability is not just a one-way street, something that flows from operators to players, but rather, that it is reciprocal in nature and also obtains between players and operators. Requests from players, such as those sent by H285, have to be 'seen' – i.e., read, interpreted, and be capable of being made sense of – in reasonable ways. They have to have to have a reasonable character where the 'reasonableness' of the matter is settled by appeal to the rules or spirit of the game. Thus, H285's request is interpreted as meaning that "he doesn't want to be in the game" because receiving messages is "the whole point in the game". It is also evident that what the player's request means cannot simply be read off from what he says – a case has to be made, the point is argued for and against, reasons are given for his unreasonableness, there might be mitigating circumstances, such as "some people just want to stay quiet" or being "bombarded" with messages, and reasons are given against this interpretation, such as "quiet" people still "receive their messages". Whatever the particular case, it is evident that players' requests are accountable to operators understanding of what the game is 'all about', what it is reasonable to do, and whether or not the request accords with the spirit of gameplay, and it is against this scheme of interpretation that messages are read and responded to.

5.3 Transcending the Corpus of Exhibits: The Problem of Human-Computer Communication

Our aim in this section of the report is to situate the corpus of exhibits in a broader analytic context that is of relevance to design in order that appropriate insights informing continued innovation might be derived. Given the technical ambitions to 'scale up' Day of the Figurines and make it available to 1000+ players, we focus particularly on Lucy Suchman's [8] ethnomethodological approach towards understanding human-computer communication. Suchman's work is salient in that addresses the nature of communication between humans and machines and thus situates

analysis within the context of automating communication. This may at first glance seem a strange place to situate analysis, as communication in the game is shaped by human interaction, with the machine playing a passive role in the enterprise (text messages are merely passed to and fro by the technology). However, as communication is clearly central to Day of the Figurines and occupies a great deal of the behind-the-scenes work that makes gameplay possible, the suggestion here is that scaling the game up will consist, in some as yet unspecified ways, of automating communication to support the essential work that gameplay turns upon. Understanding the nature of human-computer communication and the implications that 'message handling' in Day of the Figurines has for ongoing design is, therefore, a matter of some relevance to ongoing development activities. Accordingly, we revise basic tenants of Suchman's approach and show how the corpus of exhibits extends it to shed further light on the complex problem of human-computer communication and the implications this has for the ongoing development of Day of the Figurines.

> *The practical problem with which the designer of an interactive machine must contend is how to ensure that machine responds appropriately to the user's actions [8].*

At the heart of Suchman's analysis of human-computer communication stands the mutual intelligibility of human and machine responses: machines must be able to respond to humans in situationally appropriate ways if they are to be effective and to achieve this designers and users exploit "certain conventions of human conversation" (ibid.). In other words, effective human-computer communication relies upon essential conventions of human communication and Suchman unpacks these conventions in terms of those that designers exploit and those that users exploit. Salient features of each of these categories of communication are briefly considered below before we treat the corpus of exhibits.

5.3.1 Conventions of Human Conversation Exploited by Designers

The mutual intelligibility of communication relies on the recipient design of utterances, whether they be textual or verbal in nature. The paradigm case of recipient design is to be found in human conversation, where speakers craft their utterances such that they make sense to the particular listeners who are party to the conversation [10]. The problem of machine communication is that recipient design cannot exploit the local and situated nuances that shape human communication – the quizzical looks, the physical and verbal affirmations of understanding, questions begging clarification, and so on – but must instead rely on other resources to craft communication to the recipient. Suchman suggests that these resources are drawn from designers understanding of how action is naturally organized and how that organization is communicated. Thus, 1) planning models are adopted to account for the organization of action and to prescribe sequences of action providing for the realization of the plan. 2) Plans are communicated through the specification what Suchman calls "rules for their expression", typically procedural instructions or 'scripts' which articulate sequences of action by elaborating situations of use. 3) The procedural sense of instructions relies on the background knowledge of recipients, particularly knowledge of how to read instructions and how, if it is not already known, on the occasion of reading to uncover what constitutes the situation of use. Through the specification of plans and instructions, and with the

presumption that users will exploit background knowledge to interpret instructions in situ on this occasion of use, designers provide for the recipient design of machine communication and with that, mutual intelligibility. Thus, and as Suchman puts it,

> *The design strategy ... is to try to provide the effect of an occasioned response, through the use of a predictive model. That is to say, the designer predicts that user will have one of a set of possible goals, of the form "use the machine to accomplish outcome x." Given that statement of intent, the machine displays a set of instructions that prescribe the actions to be taken, at a level of generality designed to ensure their relevance to any user, whatever the details of her particular situation. Ideally, the instructions tell the user what aspects of her particular situation are relevant for the execution of this plan, and for the machine's operation. By finding or producing the objects and actions described, the user anchors the general instructions to her unique circumstances.* (ibid.)

The mutual intelligibility of communication upon which the effective automation of interactive systems rely turns upon the ability of designers to provide for the recipient design of communications. This means that machine-based communications are readable as 'occasioned responses' that anchor any of a perceptibly relevant range of general procedural instructions to the users particular circumstances of action and, as an accomplished feature of that anchoring, provide for the undertaking of appropriate next actions.

5.3.2 Conventions of Human Conversation Exploited by Users

The question that Suchman begs of the design view is, how is the anchoring of plan and instruction to action accomplished, how do machine-based communications become readable as occasioned responses that permit appropriate next actions (and thus, for example, the unfolding of gameplay)? The answer is not to be found in the planning model or the instructions that articulate it, as they are but abstract representations of bodily achievements:

> *While plans presuppose the embodied practices and changing circumstances of situated action, the efficiency of plans as representations comes precisely from the fact that they do not represent those practices and circumstances in all their concrete detail. So, for example, in planning to run a series of rapids in a canoe, one is very likely to sit for a while above the falls and plan one's descent. The plan might go something like "I'll get as far as to the left as possible, try to make it between those two large rocks, then backferry hard to the right to make it around that next bunch." A great deal of deliberation, discussion, simulation, and reconstruction may go into such a plan. But, however detailed, the plan stops short of the actual business of getting your canoe through the falls. When it really comes down to the details of responding to the currents and handling*

> *a canoe, you effectively abandon the plan and fall back on whatever embodied skills are available to you.* (ibid.)

A less dramatic way of putting it is to say that there is a gap between plans, instructions and their realization and that that gap consists of embodied practices and skills, which are presupposed by the plan and its means of articulation. From the design view, the presupposition consists of 'background' knowledge or 'common sense' knowledge, which is exploited in taken for granted ways by users. The presupposition consists in an underlying assumption that such knowledge is essentially located "in-the-user's-head" to be drawn upon to interpret plans and procedural instructions as contingencies dictate. Suchman adopts a different position, however, suggesting that background knowledge or common sense knowledge is "generated by the activity of accounting for an action when the premise of the action is called into question." Background knowledge is occasioned then, situated, and embodied in a situation. Consequently, the ways in which plans are realized is not to found by consulting what is in users heads but what is "outside of our heads" in the "situation of action", and in "action's actual circumstances" in particular (ibid.). Thus, while interpretation is central to understanding how the anchoring of plan and instruction to action is accomplished, the concern is not with interpretations as mental states but with interpretations as the achievements of situated action, as embodied practices and skills.

> *The foundations of action by this account is not plans, but local interactions with our environment, more or less informed by reference to abstract representations of situations and actions, and more or less available to representation themselves. The function of abstract representations is not to serve as specifications for the local interactions, but rather to orient or position us in a way that will allow us, through local interactions, to exploit some contingencies of our environment, and to avoid others. While plans can be elaborated indefinitely, they elaborate actions just to the level that elaboration is useful; they are vague with respect to the details of action precisely at the level at which it makes sense to forego abstract representation, and rely on the availability of a particular, embodied response. The interesting problem for an account of action ... is not to improve upon ... plans, but to describe how it is that we are able to bring efficient descriptions (such as plans) and particular circumstances into* ***productive interaction***. (ibid., my emphasis)

The suggestion is, then, that to understand how machine-based communications become readable as recipient designed occasioned responses providing for appropriate next actions, we need to unpack the embodied practices and skills or the 'work' whereby interpretations are achieved in local or situated interactions with the machine and how the plan articulated by the machine is, therefore, brought into productive interaction. The machine in Suchman's study was the photocopier and her study notably drew attention to the conditional relevance of responses to the 'interpretive work' implicated in situated interaction:

> *Most generally, designer and user share the expectation that the relevance of each utterance is conditional upon the last; that given an action by one party that calls for a response, for example, the other's next action will be a response. The expectation does not ensure that any next action in fact will be a response to the last, but it does mean that, wherever possible, the user will look for an interpretation of the next action as a response. The user's expectation, in other words, is that each system response conveys, either implicitly or explicitly, an assessment of the last action she has taken and a recommendation for what to do next.* (ibid.)

As a feature of the interpretive work embodied in local interaction, the conditional relevance of responses played out in some of the following ways: new instructions confirm the previous action: when the machine issued new instructions, users interpreted it as meaning that the previous action had been completed; no response indicates that the previous action is incomplete: when users undertake an action that is intended to satisfy an instruction and the action fails to elicit a response, the absence of a response is interpreted as meaning that the action has not been properly executed; repetition as iteration: when undertaking composite instructions the machine may present the same instruction recursively and in such a situation users interpret the instruction as iterating an unfolding course of next actions. The point of these examples is not to provide an overview of Suchman's findings in relation to photocopiers, but to draw attention to the fundamental nature of human-computer communication.

The ways in which the conditional relevance of responses plays out, how machine-based communications are interpreted *in situ*, make a much more general phenomenon available for consideration and that is what might be called the 'art and craft' of communication. The art and craft of communication is of equal concern to designers and users: designers seek to make machine-based communication respect natural features of communication and provide for the recipient designed character of communication where machine-based communications are readable as occasioned responses; and users interpret those occasioned responses as conditional responses which articulate in uniquely adequate ways (e.g., as confirming action, indicating incompleteness, specifying iteration, etc.) appropriate next actions. The point here is not to labour Suchman's analysis but to exploit her general observation as a means of drawing out the significance of the corpus of exhibits. Accordingly, we now turn to consider the art and craft of communication displayed by the corpus of exhibits.

5.3.3 The Art and Craft of Communication in Day of the Figurines

The corpus of exhibits instructs us that the primary business or work of behind-the-scenes staff, the activity they invest most effort in, is in "customising" responses to players. Whether those responses be automatically generated machine-based responses or responses between players, their "customisation" brings them into productive interaction and consists of two distinct elements:

1. How responses are *made sense of* by behind-the-scenes staff such that appropriate next actions may be determined.

2. How responses are *crafted* by behind the scenes staff such that appropriate next actions may be conveyed to players.

Categorizing Messages

A first action in making sense of responses or messages from players is to categorize them and so assign them to one of four basic types of message: 'chat', 'status request', 'no reply/done', or 'custom'. Categorization of messages enables staff to determine an appropriate next action – whether to forward the message as chat, respond to a request, customise the message or make no response at all. Even though only four categories are 'at work', categorization is not always straightforward and essentially relies on interpretation and judgement. As we can see in vignette #3, for example, understanding the message "Joan leaves town after an argument with Miya" requires staff to work out what the message might be about (i.e., to make a judgement as to its intention), and working out what it might be about consists of 1) having some sense of a player's history or biography (in this case Joan has only recently started playing the game) and 2) of aligning the response with one of a range of potential, and situationally relevant, courses of action that are available from this point in the game. Thus, in this case, the message may be about 'leaving the game' or 'leaving the section' the player is in. As the player has only recently started playing the game, it is not at all clear just what her intention is as one interpretation of the message is that she wants to cease engagement altogether and the other is that she is requesting a change of destination. The efficacy of interpreting responses, and thus of assigning a message to an appropriate category and of determining an appropriate next action, ultimately relies on the detail furnished by a player in their response. As the operator puts it, "some of them aren't specific".

Ambiguous Messages

Ambiguity is real problem to be reckoned with when interpreting responses and operators have developed strategies towards handling this. Not only may operators draw on their sense of the player's biography – where they are in the game as it were – but, as we can see in vignette #4, they may also draw on their sense of other player's biographies as well. Thus, and in this case, it is not at all clear who Jenny's message is addressed to, which must be established before it can be assigned to an appropriate category. The operator attempts to resolve the ambiguity by appealing to the biographies of other players, one of which, Antoine, has just asked Jenny if she would like to join him for coffee? The appeal to another player's biography in this case trades on the operator's competence as a speaker of natural language and her recognition of an 'adjacency pairing' – question-answer, in this case. The appeal to biography is, then, one done to identify potential parties to a conversation, to see if the response from one player looks like it 'fits' with the prior responses of other players. Identification is contingently achieved and operators may rely on their knowledge of the game (of who is talking to who and who a likely candidate might therefore be) or they might consult player biographies reading prior messages received by the sender in a retrospective-prospective fashion to work out what the meaning of a response is and who it is directed to (as in vignette #7). In either case, or both, operators exploit their familiarity with the workings or 'mechanics' of natural language (of knowing that questions are often paired with answers, for example). Again, this is not as straightforward as it may seem as a response, for natural language speakers, must be hearable as an answer to a question for

it to be treated as such (and thus, in this case, be assigned to a category of action). In other words, answers are 'conditionally relevant', and the interpretation of a response as an answer to a question relies on the operator exploiting his or her natural sensibilities and 'seeing' the conditional relevance of the response. In Jenny's case the conditional relevance of her response, ""Ask politely what the white food is. Anything local?", is in question as it doesn't sound like a relevant response to the question "would (Jenny) like to join me for coffee?" As the operator puts it, "that to me doesn't make much sense." Ultimately, resolving the ambiguity relies on passing unintelligible messages over to authors, who make a judgement call that also exploits awareness of the proximity of players, which suggests that as they are virtually co-located they probably are talking to one another and that the response is indeed an answer to Antoine's question and thus a 'chat' message (see vignette #6).

In all cases, interpreting player responses trades upon the accountable character of those responses. Not only do they have to be compatible with one of a range of situation ally relevant courses of action from a player's current point in the game and/or make sense in relation to the actions of other players where collaboration occurs in the game, they also have to be reasonable, where the reasonableness of a response turns upon its compatibility with the rules or spirit of the game. In vignette #10, for example H285's response "I don't want to receive any more of these messages" is construed of as an unreasonable request. The player has not been "bombarded" with messages, which may be good grounds for making such a request. It is also recognized that players may choose to be "quiet", but that in such cases they still receive their messages. The operators cannot see any good reason as to why the request not to receive messages should be complied with as receiving messages is "the whole point of the game". The request is denied then and the player is "killed off" instead. Determining the accountable character of responses is not a straightforward matter. The game is dynamic, it evolves over the course of its playing. As one operator puts it, players usually "try to explore their environment" and they may do so in unusual and unexpected ways – on arriving at the garage several players wanted to go for a 'joy ride' in a car, for example, a request that was complied with under the auspices of a 'destination change'. This course of action was not provided for in the rules of the game, however, which is why a distinction is drawn between the rules of the game and the spirit of the game. The rules of the game emerge to some large extent from the contingencies of gameplay, the reasonableness of which is determined by the operators and authors understanding of what the game is 'all about', what is and may be reasonable to do, and whether or not the request accords with the spirit of gameplay. It is against this scheme of interpretation, which (like Suchman's background knowledge) is generated by the activity of making actions accountable when the premise of action is called into question that responses are interpreted and assigned to distinct categories providing for appropriate next actions.

Crafting Responses

The sense made of responses is intimately bound up with the ways in which responses are crafted by operators, indeed they are two sides of the same coin. Crafting a response consists of a different ensemble of practical actions and modes of reasoning, however. In the first instance, responses to players must be recipient designed. Even in simple responses, such as sending welcome messages (vignette #1), the content of automatically generated responses must be tailored and shaped to fit to the individual

player. Content is shaped in a number of ways and through distinct modes of practical reasoning that are essential to productive interaction. In vignettes #6 and #8 we can see the ordinary work of writing that we might expect to see when people craft texts. Small details like repeated and redundant words are attended to, as is grammar. While seemingly trivial these are important aspects of shaping content, they provide for the intelligibility of the text and they make it 'natural' – i.e., not just legible but meaningful in a human way that transcends the readability of automatically generated texts. Thus, and for example, ", thank you for playing Day Of The Figurines" is added to the automatically generated response "Joan leaves town" and the message is, thereby, made into a personal response not only in that it is tailored to Joan but in that its tailoring consists of exercising the ordinary civilities and niceties that we exhibit in our mundane conversations together. These vignettes show that the 'personal' crafting of content is provided for through the formulation of the 'correct wording' and punctuation of responses to make them intelligible and to respect what might be called the 'moral order' that ordinarily inhabits talk and interaction. In this respect it might be said that gameplay trades on and relies upon natural linguistic competences as it is through the exercise of those competences that engagement with the game is articulated and expressed.

Promoting Engagement

Content is further shaped, and responses recipient designed, through other formulations that are designed to promote engagement in the game. Vignette #5 shows the operators and authors concern not only to craft an appropriate response to a player, but to foster participation in the game in doing so. They draw on multiple biographies to formulate a response to Achim's request "He should follow the next person that comes along". The 'draw' consists of exploiting their sense of where Achim is in relation to other players (Kojak and Hans) and of consulting their biographies to see what they are doing. As none of the players are engaged in conversation, the operator and author formulate a response that provides Achim with instructions as to what to do next in order to achieve the intention expressed in his message and foster both his own and Kojak's involvement in the game. This is done by "imagining" the player's context and what it makes sense to say from that point of view. Thus, Achim is told "Achim begins walking towards the council block where he can see Kojak in the distance." Formulating instructions is essential to gameplay and vignette #7 illuminates an essential mode of reasoning that underpins their formulation, one which consists of putting yourself in the player's shoes. This reciprocity of perspectives – 'seeing' responses from the recipient's perspective – is an essential feature of talk, it inhabits conversation everywhere though we rarely have occasion to reflect upon it (except, for example, on occasions when we misunderstand one another and it becomes a remarkable topic). Nevertheless, it is indispensable to conversation in general and to the formulation of instructions in particular, providing for their intentionality, pointedness, and direction, though not necessarily for their realization. Instructions are not always clear, the meaning of what they prescribe not only vague but not even recognized. Vignette #9 provides such an example, where after receiving a message instructing her that her conversational partner, Georgina, has left, Bella requests to continue talking to her. In cases like these the operators and authors must formulate a response that repairs the instruction. Thus a response is formulated that instructs Bella that she "is alone outside the Product Barn" and that "Georgina has left", which provides Bella with an intelligible reason as to why she cannot talk to Georgina. Formulating adequate

instructions on occasion demands that accountability be designed into the response to clarify, explain, and other ways make intelligible what the player's circumstances are. In turn, this enables players to establish where in the game they are now and what might be done next.

The work involved in designing responses for recipients – shaping content by personalizing responses in accordance with natural conventions of talk, by promoting engagement through consulting player biographies, by formulating instructions through adopting the reciprocity of perspectives, and by providing further instruction through formulating an account of the player's current situation – is the work whereby productive interaction is practically produced and practically managed.

Managing the Flow of Responses

The management of productive interaction also consists of some other 'jobs' of work that are worthy of consideration. In vignette #8 we can see, for example, that a "turn" in the game is brought to completion through managing the flow of responses to players. Messages are automatically generated 'on the turn' but operators do not send all of them To support this, the operator's interface enables them to preview all messages before they are sent, along with a history of previously sent messages and responses from the players, and to edit or discard them as appropriate.

While it is important to update players when they move into or out of proximity with others, they do not want to "barrage" players with messages. Rather, the operators have to strike a balance between the players' personal life and the game; how many messages and when to send them to a player without disturbing him/her but rather, keep him/her engaged in the game. As we have seen before (chapter 4) the best time and place for the game differed between the players. Consequently, the operators try to develop a sensitivity to a player's circumstances and control the flow of messages to match those circumstances, discarding those responses deemed irrelevant (such as repetitive messages that simple tell a player they are moving through the city or messages that may be confusing given a player's current location at a crossroads, for example).

As the game evolves and more players join in, developing and maintaining a sensitivity to players' circumstances becomes more difficult and operators have had to develop alternate methods of support that go beyond what they can remember. As one operator puts it,

> *"There are a few things you need to get your head round. For example, the garage situation is one because we've got two separate groups of people there that we try and keep separate simply from convenience point of view. The same thing's happening at the cemetery, that's why they're visually laid out separately over there. The two people in yellow and red are the people who have just got there." (fig. 5.24)*

Figure 5.24. **Managing Narratives: Spatial Groupings**

"We have to make a note of the fact that they (the two groups at the cemetery) are best kept separate, because means that people only get half the text messages."

Grouping Players

One of the strategies was to keep the groups of players somewhat separate from each other. Operators stressed that "you have to know the situation" i.e. the figurines and what is going on at the particular time and place. A particularly expedient and economic ways of 'making a note' is to arrange players into conversational groups on the game board itself. This enables operators and authors to see at-a-glance who is talking to who and manage the flow of responses accordingly. A small group was more straightforward and convenient to monitor for the operators. It made it easier to keep track on the conversation and what was going on between the participants. Operators believed that small groups made it also possible to keep the messages personal and therefore even more engaging,. When a group got bigger it became more difficult to send messages that made sense for everyone. Unclear messages could lead to a "chat" between the players with several follow up messages for operators to deal with. In addition, since everyone in the group received same messages, even those who did not play actively, players did not experience them engaging, but rather annoying. In one comparable situation (vignette #10) a player found it so bothersome that he sent a message "Can you please stop sending me text!" and wanted to leave the game.

The use of the game board as a device for managing the flow of responses makes it perspicuous that responses are not one off events but part and parcel of unfolding "narratives" that players are invited to participate in and which operators, authors and players collaboratively produce. The narratives are the game experience and their ongoing, unfolding, developing production and trajectory must be managed to keep the game in order and on track. There are two notable ways in which narrative production is managed by behind-the-scenes staff: 1) through controlling narrative production and 2) through coordinating ongoing narrative production between shifts of behind-the-scenes staff.

Controlling Narrative Production

The rationale at work in controlling narrative production is summed by Tim, one the operators:

"The conversation here is that they've arrived at the garage (and found some cars) abandon on the forecourt. In this case, because they've gone as group trying to find a TV or radio to find out what's happening in town, because they've been receiving all these strange messages telling them that people are passing army trucks and things like that, so here we have characters saying "Turn on the radios on one of the abandoned cars." We've replied "The cars are locked, their engines off." And their reply is "Pick up a brick from the forecourt and smash the car window and then turn on the radio." So you can see, they are pushing us as far as they can to try to get their own way. Again, my reply to that is "Jasmine finds a brick and breaks the car window. Without a key the engine won't start. Hotwiring is out of the question." So we're trying to make it lively for them without it necessarily seeming like we're sort of denying them what they want to do."

Operators needed to find a balance between the players' urge to explore things and at the same time maintaining the storyline. For example, if a television was mentioned in a destination description, players might ask what was on. Operators then had to handle this situation and sometimes even "cut players off" in order to keep the narrative from expanding and escalating in undesired directions. In practice, the operators told the players right away that "there was no food, no TV, no radio, etc, nothing to do" at that particular place in order to get the players moving somewhere else. In addition, operators mentioned the following "strategies" for dealing with players' engagement:

- Engage players with other players that are active instead of those that are not.
- Give time for the players to move around in order to avoid accidentally passing and therefore missing each other.
- Not everyone needs to know everything: consider who and what kind of messages you send and to whom.
- Play along with participants' fantasies: honour the requests the players have for example, in cases they want to meet someone for a particular reason.
- Individual contacts keep players engaged.

The reasoning shows the fine balance between when, for whom and what message should be sent. One example on individual contacts was an ongoing "romantic meeting" between two figurines in the Deer Park. The operators could more or less forward messages between the two and maintain their engagement as well as keep the story moving on. But also, the operators could keep these messages away from all the rest of the participants, since "it was not necessary for everyone else there to know what kind of wine the couple was drinking" as one of the operators reasoned.

Controlling narrative production is a matter of formulating appropriate responses, where the 'appropriateness' of the matter is determined by a request's accountable relationship to the rules or spirit of the game. As noted above, that is an evolving relationship and what counts as reasonable or unreasonable is a matter of ongoing

negotiation done as an essential feature of playing the game. In other words, the collaborative production of narratives is a negotiated production, where players 'push' the boundaries of the game and operators 'push' to maintain those boundaries.

Strategies for managing players' engagement and for controlling narrative production, also worked as operators' strategies for personalizing messages. For example, if groups were small it was easier for operators to remember the dialogue, who said what to whom without getting confused. Therefore it was also easier to make sure that the messages seemed personal. It was also possible to forward some of the messages without any changes and consequently fit them into an ongoing conversation between the players. Message logs provided a valuable storage of history to choose from while editing and personalising the messages. Obviously, this was easier to handle when there were only a few figurines and just their histories to consider.

Handing over Between Shifts

Operator's work in shifts over the day and narrative production must, therefore, be coordinated between different sets of operators:

> *Yesterday at some point we had 3 people moving to the cemetery and one of them didn't want the other people to know that he was going and he wanted to surprise them when they arrived. So I've been I've been sort of working out the logistics of that – because the other two have just arrived, they've got arrival messages ready to go but they need to be customised to incorporate the surprise. And the third character needs now to know that the others have arrived and that he's surprised them. We dealt with it yesterday but because of the time scale of the game it's taken them up to now to get there. Phillip left a note about it (picks note up off desk), he'd obviously seen it today and registered it, as something that needed monitoring.*

Between the shifts operators needed to inform each other on what had happened during the previous shift as well as what might be expected to happen next. During the final week of the game the operators commented that this handing over procedure had become rather "unproblematic", particularly in the afternoons:

> *Two operators are gathered around the work desks with the computers and the board with the figurines. Mike is about to finish his morning shift and Jim is taking over for the evening. The discussion goes to the latest developments of the game, Mike starts by saying: "Really, the only thing left, you got the Joyride happening here soon, I suppose." Jim makes a note on a piece of paper and asks "And on what stage is that in [unclear]? Have they given them a destination already?" Mike is shaking his head while he is operating the mouse on the computer and says "No." The discussion is interrupted when someone enters with small pies and handles them over to the operators. Then Mike*

continues "Yesterday or day before yesterday you guys left me a message that Picaroon [name of a figurine] wants to surprise Tickety Boo [figurine] in the cemetery." "Yes." "That is happening […] you have to deal with that tonight. […] Picaroon actually got there first. […] Just read the message that Picaroon sent. Eh, what else?" Jim asks "What's happening at the Product Barn"? […] Do they know that they are on their own now?" "Yes. […] And people are still talking in the Deer Park."

As we see here, there were several events in the day's work centred around the Product Barn, the Joyride, the Cemetery and the Deer Park. These events had been going on for a while, engaging a number of players in various situations in the game. Somewhat fragmented questions and fragmented answers in the conversation between the operators support the unproblematic nature of dealing with shift changes. The basic storyline did not change dramatically between the shifts, which probably made it easier to refer to ongoing events.

Coordinating narrative production is a matter of tracking narrative production, which the operators currently accomplish through word of mouth (debriefing each other as to who is talking to who, what events are afoot, what's outstanding, etc.) and by writing what events are to be tracked down on paper, either on lists or notes. Paper is, as we all know, an extremely flexible resource but the point to appreciate here is that notes are exploited in similar way as the figurines on the game board when they are arranged to display groups, indeed the use of paper is tied to this use of the game board, and that is as a physical marker of events to handle. Leaving notes on desks displays events that need to be handled and serves to maintain awareness of the ongoing production of narratives and to "register and monitor" the actions that need to be performed by operators to ensure that production continues and is accomplished in a timely way.

Sometimes rather personal notes were left behind from the operators who has managed the previous shift. In order to get more detailed information of what had been going on, the operators read the message logs for the dialog history between the players.

However, starting in the morning and dealing with events that had happened overnight, worked somewhat differently. Even if notes were left behind, the operator depended on the message logs from the previous afternoon and evening. Evenings were also the time when the players were more active, which meant that there was more to catch up in the morning which could take a considerable time. Particularly frustrating, according to one of the operators, was "to need to go through every figurine", even for players who had not been active for some time. An automation of their figurines as well as the figurines that do not have a "reminder" would speed up the procedure, the operator believed.

During each shift, the operators coordinated narrative production by dividing the handling the figurines between them. The following example is from the beginning of an afternoon shift when the operators were setting up for the next turn and were about to start to handle the players' messages:

The operators Jim and Emma sit by their work desks next to each other working at their computers. At the same time they talk about the expected events and movements for today.

Jim: "Can you leave 78 and 79 for me? That's Tickety Boo and Picaroon."

Emma: "78 and 79?"

Jim: "Yes."

Their conversation ends and attention goes back to the sent messages. After a while Jim says to Emma "I got Jasmine". He makes notes on a piece of paper.

Emma: "Do you have Roy as well?"

Jim: "No. Why? Should I? I have Blah […]."

A short pause and Emma asks "James, is that you? No, James is [not recognizable]."

Jim: "Blah is mine".

The dialog reflects the rather informal division of figurines between the operators. The storyline is already discussed and the current focus is on the figurines. The operators use the names of the figurines instead of the players' personal names. There seem not to be any confusion between the figurines. Nor is there disagreement on who is handling which figurine.

5.4 The Amount of Work Involved in Customization

We have seen the kinds of activities that were involved in the customization of messages by operators. However, if we are to design a more scalable version of Day of the Figurines in the future, we need to also understand the *amount* of work that was involved and especially where effort might potentially be saved. For this, we once again turn to the game logs (as we did earlier to provide additional insight into player feedback).

We begin with the classification of incoming messages from players. The following pie-chart (fig. 5.25) summarises the proportions of incoming messages as they were classified by the operators.

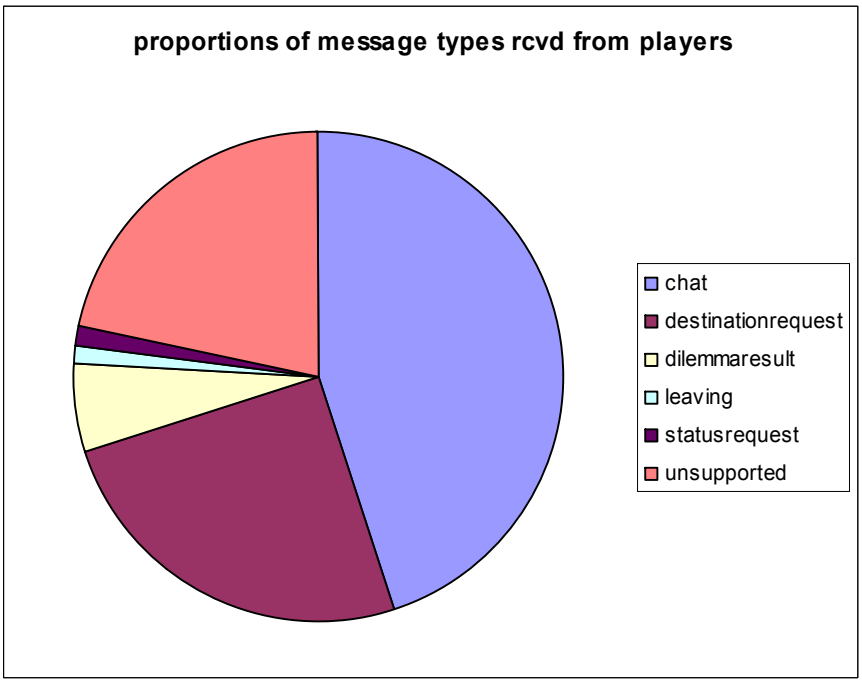

Figure 5.25 Proportions of Message Types Received from Players

The largest category is chat messages (689 messages, 45% of the total). Next are destination change requests (382 messages, 25%). The third largest category is particularly interesting; unsupported messages are those that operators couldn't match to a predefined category. There are 332 (22%) of such messages. This relatively large proportion suggests that we need to refine our pre-defined categories for incoming messages and the rules for handling them to reflect players' actual requested actions. For example, many players appear to have requested to undertake specific actions within the game (e.g., smash a window or steal a car), but there is no explicit 'action' category and associated sequence of processing rules supported by the game. Further work is required to analyse and codify the category of unsupported messages so as to understand how we might refine the game grammar in the future.

Turning to discarding and editing messages, the following table shows, for the different categories of message: the number of messages generated by the system; the number of these that were sent; the number that were discarded by the operators; the percentage of generated messages that were discarded; the number of messages that were edited before being sent; and the percentage of sent messages that were edited.

We see that, overall, 26% of generated messages were discarded. The largest category affected was area change messages, being both the largest and most discarded category (1126 messages, 49%, discarded). The next biggest category in terms of volume and percentage were the reminder messages that were sent to apparently disengaged players (680, 41% of these were discarded). Generating less of these messages in the first place might save the operators considerable work in choosing to discard them later with negligible impact on players.

Finally, we anticipate that editing individual messages would have been the most labour intensive of the message processing activities for operators to perform (and

hence an area where the greatest scalability benefits might be achieved). Overall, 41% of sent messages were edited first. In terms of edited messages, the largest volume of work was for forwarded chat messages between players, with 1181 (63% of all messages) being edited before being forwarded. The next most problematic category was reminder messages with 785 (81%) of those sent being edited – Table 5.1.

Table 5.1. Message Summary

message type	Generated	Sent	Disgarded	%disgarded	Edited (& sent)	%Edited (& sent)
unknown	127	127	0	0%	0	0%
Area change	2317	1191	1126	49%	183	15%
arrival	208	197	11	5%	116	59%
Arrival full/closed	96	88	8	8%	46	52%
Chat forwarded	2168	1882	286	13%	1181	63%
custom	406	406	0	0%	0	0%
Destination meeting	230	136	94	41%	31	23%
Destination other arrival	71	66	5	7%	26	39%
Destination update	429	410	19	4%	82	20%
dilemma	181	162	19	10%	115	71%
event	1012	954	58	6%	332	35%
meeting	650	495	155	24%	140	28%
No one nearby	20	20	0	0%	11	55%
parting	1115	748	367	33%	149	20%
reminder	1649	969	680	41%	785	81%
Status area	12	12	0	0%	0	0%
Status destination	6	6	0	0%	6	100%
total	**10697**	**7869**	**2828**	**26%**	**3203**	**41%**

Even this initial and cursory summary suggests some potential refinements to messaging in Day of the Figurines. For example:

- Reminder messages appear to an especially problematic category, with many being discarded and then very many of the remainder that was sent being edited. We also made earlier observations that reminder messages could might be made more useful, for example by suggesting what disengaged players might do to get into the game. This is clearly a category of message that requires redesign.
- Parting messages were also frequently discarded. This might explain some of the synchronisation problems reported with the chat mechanism.
- Chat messages were seen as more important to the game (only 13% were discarded), but did demand intensive editing work by the operators. This is a very large and important category of messages and the nature of editing work here requires further investigation.

Clearly, considerable further analysis is required (and indeed is ongoing) to understand the detailed nature of classifications, discards and edits, for example inspecting and coding the different kinds of actions that occurred, so as to be able to make detailed design alterations to Day of the Figurines.

5.5 Recommendations

In introducing this section of the report we said that "customisation" was a core part of orchestrating gameplay and that we would gloss over it beyond saying that it is closely related to commonsense notion of modifying things or events to suit some individual person or task. The purpose of the report was to unpack the situated meaning of "customisation" and provide an account of what it means in the context of Day of the Figurines, and in the work of behind-the-scenes staff in particular. Over the course of the report we have suggested that the situated meaning of "customisation" consists of a lived orderliness of practical action and practical reasoning whereby gameplay is orchestrated and that *that* lived orderliness consists of constitutive activities shaping the game in its current incarnation: initiation, induction, turns, and that most essential ingredient of the game itself, messaging. Messaging is indispensable to gameplay. It is, as one operator puts it, "the whole point of the game", and a corpus of exhibits was gathered and consulted to unpack the behind-the-scenes work implicated in message handling. 'Unpacking' the behind the scenes work of messaging also consisted of situating the corpus of exhibits in the broader analytic context of human-computer communication, which drew our attention to the embodied practices and skills that shape communication and provide for productive interaction. The suggestion is, then, that the situated meaning of "customisation" is to be found in a lived orderliness of practical action and reasoning, which is embodied in a set of ecologically situated activities, which are achieved through an ensemble of embodied practices and skills, which articulate the 'art and craft' of communication and provide for productive interaction. In the case of Day of the Figurines, the art and craft of communication consists of three distinct but interrelated 'jobs' of work – categorization, recipient design, and managing and tracking narrative production – which in details of their local, concerted accomplishment give "customisation" its situated sense and meaning. To summarize those details, "customisation" consists of the following.

Categorization: In order to determine an appropriate response to a player's message it is necessary to assign it to an appropriate category of action. This relies on interpretation and the judgement of operators and authors to work out what a message might be about. This 'interpretive work' consists of exploiting a player's history or biography to determine their current situation and of aligning the message with one of a range of potential, and situationally relevant, courses of action that are available from this point in the game. Interpretation essentially relies on the detail contained in a response as a lack of 'specifics' leads to ambiguity. Ambiguity is handled by exploiting the player's biography (where in the game they are now and who, if anyone, they have been talking to) to determine their current situation and to interpret what the response might be about given that situation. Where potential 'chat' messages are concerned, operators and authors exploit the biographies of other players see if the response looks like it 'fits' with the prior responses of other players. This aspect of interpretive work trades on and exploits operators and authors competences as speakers of a natural language, particularly their ability to recognize conditionally relevant responses where responses might be determined to appropriate parts of a pair of utterances in a sequential order of talk (such as question-and-answer). Interpretation also relies upon awareness of proximity – of player's virtual location – where being close to each other supports the recognition of conditional responses and the assignation of responses to appropriate categories of action. The interpretation of responses also relies on their accountable character or on the 'reasonableness' of a response, which turns upon interpreting its

compatibility with the rules or spirit of the game. Interpreting the reasonableness of a response cannot simply read of the rules, however, as the game is dynamic and the scheme of interpretation that provides for judgements of reasonableness evolves as contingencies arise and the spirit of the game is brought into question and resolved.

Recipient Design: Responses of all kinds must be tailored and shaped to fit to individual players and make them personal. The 'shaping' consists of exercising the ordinary civilities and niceties that we exhibit in our mundane conversations together, which is done through the formulation of the correct wording and punctuation where 'correctness' is a matter of making responses intelligible and bringing them into accord with the moral order that ordinarily inhabits talk and interaction. It is through the exercise of these natural linguistic competences that engagement with the game is articulated and expressed and, in this respect, productive interaction relies upon them. Responses are also formulated to promote active participation in the game. This is done by relating a player's circumstances and intentions as expressed in his or her responses to those of other players in the virtual vicinity. Thus, the biographies of other players are drawn upon to identify potential collaborators and to formulate instructions that will promote collaboration between players. The formulation of instructions is essential to gameplay and relies on the operators and authors' ability to adopt and exploit a reciprocity of perspectives – to stand in the shoes of the player as it were and see the response from his or her point of view. This involves 'imagining' the player's context and 'seeing' what he or she would see given the wording of a response and it leads to the formulation and reformulation of responses until they adequately convey appropriate instructions as to what a player should do next. Instructions are not infallible, however, and so it is necessary on occasion for operators and authors to formulate responses that repair them. The 'repair' consists of formulating a response that accounts for prior instructions and which clarify, explain and in other ways make intelligible what the player's circumstances are now such that what might be done next might be inferred by the player.

Managing and Tracking Narrative Production: Responses are not one off events but part and parcel of evolving narratives produced by operators, authors, and players in collaboration. The collaboration consists of the continuous negotiation of what it is and is not reasonable to do in the game. The negotiation is done through the practical management of narratives, which seeks to keep narratives within the spirit if not the rules of the game. The practical management of narratives consists, on the on hand, of controlling the flow of responses to players to make sure that they are not 'bombarded' with messages and that the right players receive the right messages given their circumstances. This consists of developing a sensitivity, a knowledge, of what player circumstances are: that they are travelling through the city alone, that they are at a crossroads, that they are in a group amongst other players at a location, and so on. Where groups of players are concerned, operators manage the flow of messages by exploiting the game board, arranging figurines into groups to enable them to see at-a-glance who is talking to who, which in turn enables them to determine the flow of messages to groups of players. On the other hand, and as complement to this, operators manage narrative production by tracking it as it unfolds. This is done through word of mouth as operators hand over between shifts and by writing what events are to be tracked down on paper. Like physical arrangement of figurines to manage the flow of responses, notes are used as physical markers of events to handle and serve to coordinate the management of narrative production across the division of labour.

Writing lists of things-to-do and leaving notes on desks displays events that need to be handled and serves to maintain awareness of the ongoing production of narratives. Through the production and arrangement of physical markers (figurines and notes), operators 'register and monitor' the actions that need to be performed to ensure that narrative production continues and is accomplished in a timely way.

These embodied practices and skills show what the modification of things or events (i.e., responses) to suit some individual person or task (i.e., players and gameplay) consist of concretely in the behind-the-scenes work of Day of the Figurines. In details of a lived orderliness of practical action and practical reasoning that inhabits behind-the-scenes work, they show what "customisation" means in this context, for operators and authors, as a concerted achievement of local work. "Customisation" means, then, being able to categorize messages appropriately and determine appropriate responses, being able to design responses to promote engagement, instruct players what to do, and repair instructions, and being able to manage and track narrative production, and it means being able to do these things in the artful and craftful ways that they are done.

The situated meaning of "customisation" has profound implications for the continued development of technical support, where the ambition is to 'scale up' to 1000+ players. Without increasing the size of behind-the-scenes staff, this implies automation of behind-the-scenes work and as the burden of behind-the-scenes work is dedicated "customisation", this implies automating message handling to some degree. The question is, to what degree or how? One way in which we might conceive of automation is to view the ecology of orchestration as a box and the box as a machine. A naïve conception granted but this is, in many respects, an orientation that underpins the design of computing machines (consider office automation and workflow systems, for example). Thus, what goes on in the box is what the machine will automate. As what goes on in this box is the work of "customisation", the design issue becomes one of how we design for the art and craft of communication in its situated particulars. It is for this reason that the corpus of exhibits was situated in relation to the problem of human-computer communication. Suchman's achievement is not only to show that there is an art and a craft to human-computer communication but to show that design for this is insufficient. Thus, while users interpret machine responses in conditionally relevant ways, those ways are as often wrong as they are right. Furthermore, and critically, as there are few other resources to work with other than machine responses, when things go wrong there is little possibility of repair and so communication *breaks down*. There is, then, a communicative asymmetry between human and machine as the machine is not sufficiently attuned to the art and craft of communication and cannot, therefore, respond appropriately.

With respect to Day of the Figurines, we can easily imagine automating categorization as it is a matter of aligning a response with one of a range of situationally relevant courses of action that are available from this point in the game. If we know where in the game the player is now, including her actual or potential relations to other players, we can determine what of the range is appropriate or at least offer the range for consideration to the player. This kind of approach exploits the planning model and while it may be useful insofar as the game becomes standardized, the rules fixed as it were, it is not all clear how the machine would or could cope with the interpretive work that is implicated in categorization and which is particularly prominent where ambiguities arise. Thus, and in the absence of competence in natural language, we might

ask how the machine might recognize whether or not a response 'fits' with that of another player? On what basis would the machine recognize the conditional relevance of response and so come to 'see' that it is part of a conversational pair? Appealing to the proximity of players is not sufficient, proximity is only a partial resource for making decisions and one that may become problematic in circumstances where many players are virtually co-located. Furthermore, how is the machine to recognize the reasonableness of a response? While machines are very good at exploiting rules, how are they to respond when responses go beyond the rules? How is the machine to determine whether or not a response is in accord with the spirit of the game? It cannot appeal to some predefined scheme of interpretation without compromising gameplay, as that scheme is not concretely predefined. Rather, it emerges as and when contingencies emerge to challenge it and call it into account and through being called into account, the scheme of interpretation evolves and so too does the game. Similarly, we might ask how the machine will design responses for recipients? While it is conceivable that the machine could promote gameplay by pairing players based on their virtual vicinities and proximity to one another, how is it to craft responses so that they accord with the moral order that ordinarily inhabits talk and interaction? How is it to adopt the reciprocity of perspectives that is essential to formulating instructions and how is it to repair such formulations and formulate an account that clarifies, explains and in other ways makes the player's situation intelligible? One potential solution to many of these questions may be to craft responses in advance and have the machine deliver them, but the negotiated character of gameplay draws such an approach into serious question. As noted above, responses are not one off events but part and parcel of unfolding narratives that are the game. Beyond having to address the reasonableness of responses and the narratives they open up, how is the machine to manage the production of these narratives, to ensure the flow of messages to players, and track narrative production to ensure that responses are delivered to the right players at the right times?

No doubt a host of other questions could be asked of the machine as well. The list appears innumerable and suggests that, if not impossible, then it is a least unfeasible to automate "customisation" and that it is best to leave the art and craft of communication to human operators. Alternatively, then, we might leave to human skill and judgement what human and skill and judgement does well and instead seek to augment "customisation". Two distinct possibilities exist in this respect. On the one hand we might seek to exploit computing capabilities to support the practical management and tracking of narrative production. This is an essential feature of the game's production. It is the point at which operators, authors and players meet and the boundaries of the game are pushed. As the game scales up, we might reasonably expect that this is going to become a much more intense, laborious and time-consuming feature of behind-the-scenes work. The ways in which operators and authors currently manage and track narrative production suggest some possibilities for augmenting the work and developing computer support, however. In the first instance we have the way in which operators manage the flow of responses by exploiting the game board. Here they arrange figurines to display their relationships and mark out distinct groups of players. In this respect computer support might be directed at augmenting the operators' ecology with large computer generated representations that enable such displays. Why bother, it might be asked, when players can already do this with the game board? Well, the arrangement of figurines is also tied to the production of list and notes that are tied to what is happening on the game board, providing another set of physical markers in the ecology that mark

out things to do. Right now the two sets of physical markers that operators and authors exploit to manage narrative production are physically separate – figurines are located on the game board, notes and lists at operator's terminals. The development of computer support might reconcile the two such that figurines and actions 'sit together' and are displayed in such ways that what is to be done can be inscribed onto the representation at appropriate locations (e.g., around a particular group of players) and be made visible at-a-glance across the division of labour, thus supporting awareness and coordination.

On the other hand, we might seek to exploit computing capabilities to support player "customisation" of the game. As a feature of managing narrative production, operators must be sensitive to the flow of messages and this requires that they know something of the player's circumstances in order to match the flow of messages to them. However, a player's circumstances are not just those 'on the board' (i.e., whether are meeting or parting or moving through city alone or at a crossroads where multiple messages may be generated, etc.) but, as Chapter 4 elaborates, are intimately bound up with the physical environments they inhabit and the rhythms of their everyday lives. Thus, some players want more or less messages than others and at different times of the day, and on different days even, and the possibility exists to shift some of the burden of "customisation" onto the players. There is no reason, in principle, why players should not be able to specify, via a web browser say, at what times of day they receive messages and how many they wish to receive, nor that they should be able to tailor that as their circumstances dictate (such that they receive less during the week and more at weekends, for example). It is also clear from Chapter 4, that many players revisited their messages and further support may be developed here, making 'conversational threads' available online for players to revisit.[3] Similarly, a version of the digital representation of the game board could be made available online so that players could develop a better understanding of the virtual landscape and see things that are happening there, which in turn might further promote engagement.

[3] This may also be of benefit to operators. Right now operators must uncover relationships between players by inspecting individual biographies. Supporting 'conversational threads' would enable operators to see at-a-glance who is talking to who and help them handle ambiguities.

6 SUMMARY AND RECOMMENDATIONS

The previous chapters have presented different perspectives on the first public trial of Day of the Figurines. We have seen an analysis of players' reactions to the experience gathered through post-event questionnaires and interviews along with a corresponding analysis of the work of operators in orchestrating the game. This final chapter brings together these different perspectives to draw out a common set of issues and themes. We divide these into two parts:

- Recommendations for the further development of Day of the Figurines, a process that is beginning at the time of writing and that will eventually lead to a second large-scale public performance later in 2006; and
- Identification of broader research implications along with suggestions for how these relate to other IPerG workpackages.

6.1 Recommendations or the Further Development of Day of The Figurines

Our analysis suggests that overall this first public test of Day of the Figurines was reasonably successful, in that there appears to be the potential to create a unique and engaging experience, although equally clearly, some key issues need to be addressed first and it is to these that we now turn.

6.1.1 Greater Structure, Clearer Overall Purpose and Specific Missions

Both our analysis of player feedback and the later discussion of narrative structure suggest that the experience would have benefited from greater structure and a clearer sense of purpose for players, both in terms of the overall trajectory of the game as well specific moment-by-moment actions. This is perhaps best captured by the feedback that some players felt themselves to always be on the periphery of exciting events that were happening elsewhere. While such a feeling can be a useful device for stimulating engagement, this leads us to recommend some issues for further consideration.

It may be important to give greater guidance as to what players can and should do, where they need to go and what actions are possible or appropriate. This might involve:

- Giving individual players explicit missions within the game that provide a focus for activity and that provide clear feedback as to progress. The current dilemmas mechanism may be a good starting point for this;
- Providing more information as to key events that are unfolding elsewhere, perhaps through news services or graffiti (ideas that featured in an earlier test) or other occasional digests of recent action. An alternative might be to enhance the online experience with greater access to the history of events;
- Introducing a more explicit rule-set and corresponding structure for messages so that players are aware of the basic options that are open to them. This could also help with the processing of text messages by the operators as discussed below.
- Replacing or at least extending messages that give negative feedback (e.g., that a player is still at a destination, what do they want to do?; that a requested action is

not possible; or that no-one is near by) with positive suggestions as to what to do next so that players do not become stuck (as was reported by some).

However, we need to be careful with such mechanisms. One of the most distinctive features of Day of the Figurines is its openness and emergent structure which appears to fit well with a slow pervasive game based on text messaging. In introducing mechanisms such as explicit missions and structured rules and messages, we need to avoid removing this emergent nature and tempering with the subtle negotiations that take place between (at least some) players, operators and authors as to how gameplay unfolds.

We have also identified some specific structural problems that do need fixing in future versions of the game. There was some confusion over arrival at destinations, specifically the distinction between being inside and outside and whether they were open and closed. There was also some confusion about the presence of non-player characters (e.g., introduced in dilemmas). Most notable, however, were problems with conversation management as we now discuss.

6.1.2 Managing Conversations

Perhaps the most problematic aspect of the current design of Day of the Figurines is the conversation mechanism. Players appear to have been confused about who they were talking to, there were inconsistencies around meetings and partings, and conversations in crowded destinations could potentially flood players with large numbers of text messages. It was also difficult for players to stay in a conversation with another that they passed in the street, or to arrange to follow them or rendezvous with them, which some players appear to have wanted to do.

Our ethnographic study showed that, in response to these issues, operators developed their own mechanisms for managing conversations including forming explicit conversational sub-groups of crowded destinations and trying to supporting rendezvous requests. However, these operator mechanisms existed outside of the game software, being supported by discussions, paper notes and the visual grouping of figurines on the board. We have also seen that operators made extensive use of the history of previous messages in deciding how to route new messages, for example, recognising that there were conversational threads even though the game software does not support any explicit notion of threading.

We recommend redefining the conversation mechanism, considering ideas such as:

- Adopting a more explicit model where players stop to speak to one another until one of them chooses to break off and then they both resume their journey (at the moment players talk as they move past one another)
- Supporting explicit sub-groupings of players or a notion of conversational threads. Perhaps operators could assign people to conversations and the system could then route messages accordingly.
- Providing a mechanism to enable players to journey together, for example allowing one player to follow another. This might be player or operator initiated.
- Extending the current routing model to take account of the proximity of other players, for example routing players around crowds or routing them towards other

isolated players with whom they might strike up a conversation (as we saw operators suggesting).

- Providing operators and possible players (see below) with greater access to the history of messages in a conversation.

6.1.3 Managing Engagement

From earlier tests, we anticipated that issue of varying engagement with a pervasive game, especially in relation to managing the flow of text messages and fitting to patterns of everyday life, would be a major concern for Day of the Figurines, and this turned out to be the case.

The good news is that this does not appear to have been a major problem for the game. On the whole, players found interruptions from the game to be more pleasant than annoying and, again in general, do not appear to have been uncomfortably flooded with text messages. Conversely, there appear to be some interesting consequences of mixing slow text-based play with everyday life in terms of playing in social situations and perhaps a blurring between fictional and real roles (as we discuss in greater detail below). This said, we did learn a great deal about the how to manage engagement in Day of the Figurines.

Given that we send relatively few messages to players, certainly when compared to real-time environments such as MUDS, it seems that the engagement of players always hangs by a thin thread. Specifically:

- Each message counts. If we are only sending a few messages per day, then it is important that each message adds to engagement and does not annoy the player.
- Players clearly can be annoyed by receiving too many text messages. While it appears that we managed the flow of messages quite well, there is probably still room for improvement. It appears that operators were sensitive to not barraging players' with messages and made use of their ability to discard messages. On the other hand it is not clear that the three state model of being engaged, dormant or disengaged was of much value to them, although it is not so clear whether this is because he approach is inappropriate or whether the way in which it is presented needs refining (e.g., might we use some of the visualisation techniques from our own analysis).
- A further issue for the flow of text messages is variation in phone types and contracts meaning that some players have very limited budgets and storage on their phones. It may be useful to know who these are and to adapt the game accordingly and also to provide them with an alternative way of accessing their game history (e.g. through an online interface as noted previously).
- Conversely, when players are engaged, for example when they go to the bother and incur the cost of sending us a message, they want a quick response. It may be too long to even wait for an hour (a turn) or a few tens of minutes as the player's real-world circumstances may well have changed by then. We need to maximize our responsiveness to those moments where players do engage.
- Players who appear to be disengaged may still appreciate daily contact from the game. As with many online environments, it seems that some players do 'lurk', that is enjoy receiving messages without sending. Some players also reported feeling

increasingly disengaged if they didn't receive a message in a day. It seems important to send at least one message a day even to players who appear to be disengaged and that (following on from our discussion above) this message should imply a positive course of action that would lead to engagement.

In summary, we appear to be engaged in a careful balancing act. We need to respond quickly when players chose to engage, back off quickly when they do not, and yet not completely back off unless they chose to leave the game.

We have also seen that patterns of engagement appear to vary considerably among players. That said, the most common mode of play appears to be episodic, moving between periods of active engagement and then disengagement. Can we adapt the way we design and manage gameplay accordingly? For example, players may experience a background level of play out on the streets (movement and the odd meeting) and may then swap over to more intense moments of play if they choose to enter a destination at the time of an event. Perhaps players can signal that they wish to journey slowly towards a destination to arrive at a particular event and time, so that they can anticipate or even plan periods of active engagement with the game?

We have also gathered information about people's preferred times and locations of play. Again this varies considerably. Perhaps the most notable aspects of this are:

- Observed levels of play peak midweek and trough on a Sunday, and some players prefer quite strongly not to play at weekends. We need to watch out for these players, and explore whether there might be a potential handover between more weekday and weekend oriented players.
- Home is a universally popular place to play whereas playing at work is more controversial. Buses, trains and cafes are also popular.
- Many players seemed to enjoy playing when friends and colleagues were nearby, although some clearly did not. Providing a downloadable Day of the Figurines message alert tone might help players to better manage this issue.

6.1.4 Scaling Up

Perhaps the single greatest challenge for the future development of Day of the Figurines is that of scaling up – specifically, increasing the numbers of players by approximately tenfold without increasing the overhead of running the game in terms of the number of operators. The key bottleneck then is the extensive work of the operators which has been described in detail by our ethnographic study. We have seen that operators are intimately involved in the running of the game and especially in the core activity of 'customisation' which is essential to the emergent nature of the experience and which is seen to involve several related sub-activities: classification of incoming messages; recipient design through editing of messages; and tracking and managing narrative production, including managing conversations as discussed previously.

One aspect of scalability is to remove any unnecessary work. For example, operators reported mostly disgarding some outgoing classes of messages such as 'area changes'. A further analysis of system logs could help identify classes of messages that were generated by the system and therefore had to be processed by the operators but that do not appear to have had much impact on players (perhaps because they were

never sent such as 'area changes' or perhaps because they weren't especially engaging (e.g., the current reminder messages which don't suggest a particular course of action to players). Similarly, we would recommend analysing in detail how operators edited individual messages as this may suggest changes in the way in which they were generated in the first place that could save a great deal of operator time).

A second aspect is to automate further aspects of the operators' tasks. We might consider automating aspects of:

- **Classification** – by providing players with an explicit set of message types and structures that could easily be automatically classified or adding a degree of intelligence to the system to categorise free-form messages (though the latter may be difficult to do reliably).
- **Recipient design** – by adding intelligence to enable the system to personalise messages according to a player's history and circumstances, although again this seems technically challenging.
- **Narrative production** – enabling the system to automate aspects of conversation management or of gameplay in general. This feels more promising. We have already noted the need for a revised conversation mechanism which should be designed to save the operators' efforts. Our previous proposal about focusing intense gameplay more on certain events and downplaying the general background activity of moving about suggests a model in which the system handles the background activities, leaving operators to focus on customising key moments (which could fit with our observations about supporting episodic play and also our discussion of soap-opera structures).

Our ethnographic analysis included an extensive discussion of the issues surrounding greater automation and there are clearly risks here in terms of breaking the emergent, improvised and personalised nature of Day of the Figurines that lie at its heart. We therefore need to treat automation with care. Our current recommendations are that the activities of narrative production and classification may provide the greatest scope.

More generally, the whole essence of Day of the Figurines can be seen as a three way negotiation between players, operators (and through them authors) and the system. The nature of the game hinges on the subtle balance between these and the way in which they work together to realise a flexible and emergent system of play. Identifying the operators as the main bottleneck to scalability implies shifting the balance of work to one of the other two elements: either to the system by saving wasted work, imposing more rigid structure, or introducing greater 'intelligence'; or possibly passing on the work to players, for example by requiring them to use a more structured message format.

A further aspect of scalability to consider is that of 'provisioning', ensuring the adequate supply of resources to support a future event. In this case, this means estimating the likely volume of text messaging in a future large-scale version of Day of the Figurines and dealing with budgetary issues (e.g., negotiating bulk-buy packages with operators or at least being able to estimate how much it will cost to stage the game). The figures we have obtained for patterns of message flow provide useful provisioning information, assuming that the pattern of any future event is broadly like that of the recent one.

6.1.5 The Role of the Physical Board

Our operators were also required to update the physical game board in response to movements generated by the system. Perhaps one way to achieve scalability would be to replace the physical board with an automated one, perhaps exploiting some form of projected computer driven interface? This naturally leads us to consider the role of the physical game board in Day of the Figurines.

We suggest that the physical game board can play three important and distinct roles in the experience:

Framing a player's experience – the act of visiting the board, choosing a figurine and having it placed on the board may be a significant event for players, giving them an initial view of the virtual city and the experience which they may not see again for the remainder of the game. The distinctive nature of the first encounter with the city may itself be memorable, and yet leave space for players to fill in imagery from their own imaginations when they are subsequently away from the board, as some payers mentioned in their feedback.

Supporting orchestration work – as shown by our ethnography, orchestrators were able to easily group the physical figurines on the table to represent the state of sub-managed conversations at a destination, supplemented with physical notes to support handovers between sessions. The open and configurable nature of the physical board naturally supports this.

Providing a public spectacle – although not a focus of our evaluation, it needs to be borne in mind that the board, with operators moving figurines, provides an interesting spectacle and that this may be particularly important – perhaps even necessary – if the work is to be commissioned for major public galleries and similar venues.

It is likely that future work will explore how to augment the current physical board with digital information, to support players, spectators or operators. Our ethnographic study suggests ways in which it might be enhanced for the latter, for example supporting annotations and forming ad-hoc conversational subgroups.

6.2 Broader Research Implications and Relation to IPerG Workpackages

We conclude this deliverable by noting some broader research themes emerging from this evaluation along with links to other workpackages within IPerG.

6.2.1 Studying the Temporal Aspects of Pervasive Games

Pervasive computing is often characterised as being about 'anywhere, anytime' computing. Much previous research in pervasive gaming has focused on the 'anywhere', i.e., on the spatial aspects of pervasiveness such as supporting location-based play and understanding how a player's experience is affected by and affects their physical surroundings. In contrast, our study of Day of the Figurines is one of the first to focus primarily on the 'anytime' aspects, i.e., on the temporal aspects of pervasiveness. At its heart, Day of the Figurines is about how a pervasive game can be interwoven with the daily patterns of life and as such, it occupies a unique niche within IPerG and perhaps even more broadly within the pervasive gaming research field.

This then is one of the first studies of a long-term pervasive game, and as such its main value may be as a 'broad brush' study that helps to frame key issues for future research. Key issues that have emerged include:

- Understanding and managing players shifting patterns of engagement: when and where they like to play; and how they like to manage the flow of messages to and from the game;
- Observing that there may be a subtle shift in the nature of role-playing in a long-term pervasive game in terms of the blurring of the boundaries between fictional and everyday roles; and
- Seeing new possibilities for interactive narrative afforded by the slow nature of text messaging which opens up new space for improvised and emergent narrative and also the episodic nature of play;

We now consider each of these in turn.

6.2.2 Shifting Patterns of Engagement

Our study has revealed information about likely patterns of play in pervasive games. Firstly, we see that such patterns are variable, suggesting that a high degree of personalisation, individual adaptation, and even contextual awareness may be required. We see that playing at weekends can be a sensitive issue; that many but not all, players enjoy playing in social situations; and that play at home is broadly acceptable while playing at work is a more controversial issue (but is clearly a positive diversion for some).

We also see that players are very sensitive to the flow of messages from the game. They may want a quick response when they are ready to play, regular but occasional updates when they are not, and not be to flooded with messages at inconvenient times. It seems that the game has to be particularly responsive, engaging at a moment's notice and then backing right off again.

Many, but again not all, players are also quite episodic in their engagement with the game, occasionally disengaging for a few days before becoming active again.

These observations can help shape the concept of 'socially adaptable games' within IPerG, the idea that games need to adapt themselves to their social setting, which forms the basis of work within IPerG showcase 9 and that has been widely discussed in workpackage 5 (Design and Evaluation). Our study of Day of the Figurines reveals aspects of social adaptation including when and where players like to play (background context to support adaptation) and how play affects and is affected by the presence of others. This kind of information can usefully inform the design of context-aware mechanisms that adapt play to the characteristics of a social setting. Furthermore, our approach to adapting the flow of messages based upon notions of engagement provides a concrete example of social adaptation in action.

6.2.3 The Distinctive Characteristics of Role-Play in Pervasive Games

Our evaluation of Day of the Figurines has revealed a potentially interesting relationship between role-play and long-term pervasive games in terms of an apparent blurring of the boundaries between fictional and real roles. Specifically, it appears that

the boundary between fictional roles and one's everyday self may become more blurred due to play occurring in many different contexts, especially social ones in which others are present and may contribute ideas, and possibly also due to players being interrupted by the game and taken by surprise.

6.2.4 The Distinctive Nature of Narrative in Pervasive Games

Related to the above we also see distinctive approaches to narrative structure within Day of the Figurines, especially in the emergent nature of rules and the blending of pre-scripted and improvised content, and textual communication through the use of small numbers of short text messages to convey maximum information. A key issue is that the inherent slowness of a long-term pervasive game based on text messaging may open up an interesting space in which the games authors and operators can respond to a player's input in a highly personalised way. However, we have also seen that while there are interesting possibilities here, there is also a potential problem of scale if we wish to avoid having to employ very large numbers of human operators. The challenge is how to manage scaling up while retaining the improvised and emergent nature of the experience.

The episodic nature of play also suggests authoring even more episodic content. It may be that in contrast to conventional computer games or broadcast media such as television, pervasive games need to be designed to be playable in very short bursts. We have also seen in Day of the Figurines that this may require special consideration to be given to how players can access the history of the experience whenever they resume, which can be especially difficult on current mobile phones which may have limited and/or unreliable local storage capability.

These issues of role-play and narrative warrant further study and also discussion within WP5, Design and Evaluation.

We also see two further interesting connections between our study of Day of the Figurines and other IPerG workpackages.

6.2.5 Authoring and Orchestration Tools

Day of the Figurines has been supported by a set of authoring and orchestration tools that enable players, authors and operators to negotiate emergent gameplay. A particularly interesting feature of these tools is the way in which they blend authoring and orchestration, supporting the ongoing definition of both the spatial and temporal aspects of the game. These tools might be generalised through the Tools workpackage (WP7) and potentially used in other role-play oriented showcases such as eLARP (WP11), especially if they make use of text messaging to coordinate or prompt distributed role playing.

6.2.6 Business Models

The provisioning information gathered from Day of the Figurines describing volumes and patterns of activity could support the development of business models in WP4, both specifically for Day of the Figurines (how can it become financially viable within the marketplace of publicly subsidised art) and potentially to support other genres of pervasive game.

6.2.7 Research Method and Tools

Finally we need to reflect on and refine our evaluation methodology (in association with WP5) and supporting tools (in association with WP7). In particular, evaluations of future versions of Day of the Figurines should make use of the polling and possibly the log analysis tools that have emerged from the first phase of WP7.

Equally, it may be that other showcases can learn from our approach that combines player feedback with ethnography and analysis of system logs in order to paint a rich picture of a long-term, distributed and pervasive experience.

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8 APPENDIX A : EXIT QUESTIONNAIRE FOR PLAYERS

Short boring questions or longer more interesting ones? The dilemma of any feedback questionnaire. In this one I have tried to give you a mixture of quick structured questions but also with some space for more expressive longer responses without requiring them. The more you feel you can give, the more the game can be improved for next time. This questionnaire is an evaluation process handled by the Mixed Reality Laboratory and Fraunhofer Institute as part of IPerG project.

My preferred way for you to complete this is to type into this Word doc and email it to me: Mauricio Capra: mxc@cs.nott.ac.uk

Or if you'd rather, print it out, write your responses and post it to me: Mauricio Capra, School of Computer Science & IT, The University of Nottingham, Jubilee Campus, Wollaton Road, Nottingham, NG8 1BB.

Thanks, in advance, for giving up the time to complete this.

1. Your figurine and the town

1.1 What was the name of your figurine?

1.2 How close do you feel to your figurine? Are they 'you' or are they someone else?

1.3 Would you want to revive your figurine in a future game?

What can you tell me about your figurine that I may not know?

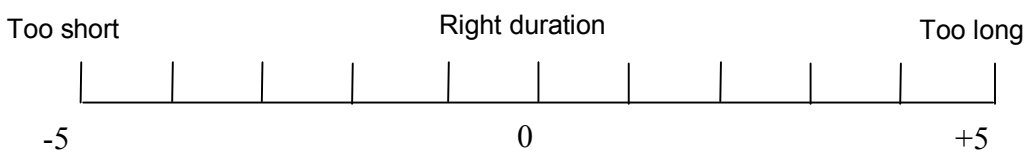
1.4 Can you describe where your figurine has been in the town and what they did.

1.5 What kind of place did the town feel like to you?

Did you have access to a map? Printed/online? And how often did you refer to it?

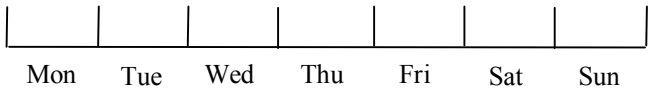
2. Duration and timing of the game

2.1. On a scale of -5 to +5 please indicate below whether the game felt like it was too long, too short or about right.



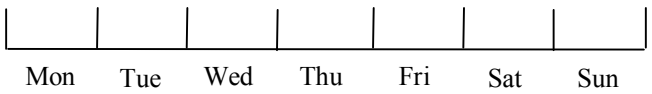
2.2. How did your pattern of play (e.g., the amount of time you spent playing, and the places and times where you played) change over the course of the game?

2.3. Please mark below which days of the week you preferred playing on.



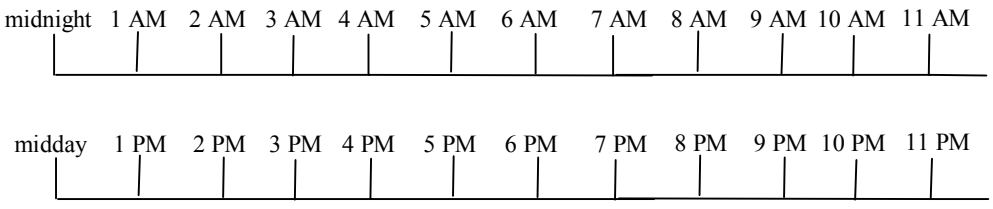
2.4. Why did you most prefer playing on these days?

2.5. Please mark below which days of the week felt **worst** to play



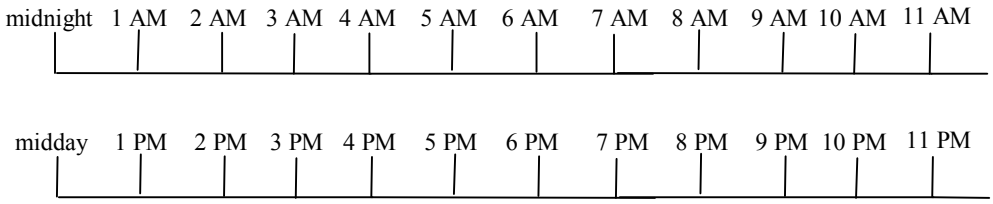
2.6. Why did you least prefer playing on these days?

2.7. Please mark below which times of day it felt **best** to play?



2.8.Why did you most prefer playing at these times of day?

2.9. Please mark below which times of day it felt **worst** to play?



2.10. Why did you least prefer playing at these times of day?

2.11. Do you feel like the time of day when you composed and sent a message had an impact on the content of the message?

[ ] yes

[ ] no

Comments:

3. Places where you played

3.1. Please indicate in which real physical places did you tend to play the game?

[ ]	Home	[ ]	Café/restaurant
[ ]	Work	[ ]	Shops
[ ]	Bus	[ ]	Other (please list these below)
[ ]	Car		
[ ]	Train		

3.2. Why did you choose to play the game in these places?

3.3. Which places felt **best** to play the game and why?

3.4. Which places felt **worst** to play the game and why?

3.5. Do you feel like the place you were in when you composed and sent the message had an impact on the content of the message?

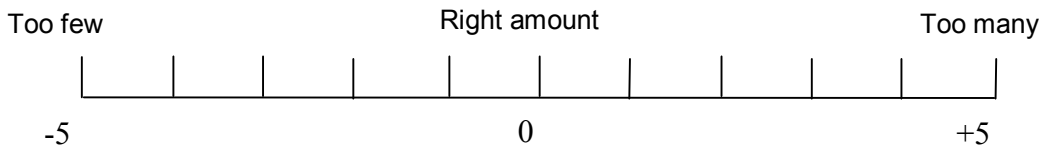
[ ] yes

[ ] no

Comments:

4. Managing the flow of text messages

4.1. On a scale of -5 to +5 please indicate below whether you received too many, too few or about the right amount of text messages throughout the game:



4.2. Please tell us about any occasions when you received too many text messages from the game?

4.3. Please tell us about any occasions when you received too few messages from the game?

4.4. Were then any occasions when you temporarily stopped playing the game? When were these and why did you stop?

4.5 Do you feel that the game adapted to your level of engagement, by sending you more messages when you were active and less when you were not?

4.6. Do you think that you missed any important events in the game? If so, why?

4.7. Did you stop doing what you were doing to check the message?

4.8. Did the messages disrupt your activities?

[ ] mostly in a pleasant way

[ ] mostly in an annoying way

[ ]sometimes pleasant, sometimes annoying.

Comments:

4.9. How long after receiving did you usually answer the message?

[ ] immediately

[ ] after I finished what I was doing

[ ] when I felt like it

Comments:

4.10. Did your way to react to an incoming message change from the way of your reaction prior to playing DOTF?

[ ] yes

[ ] no

If yes, in which way did it change?

4.11. Do you feel like the mood you were in influenced the type of message you sent and the behaviour of your figurine?

[ ] yes

[ ] no

Comments:

4.12. What did you do with the messages sent to you from the game?

[ ] deleted them:

- [ ] right after I received them
- [ ] when I didn't have enough space left

[ ] saved them

Comments:

4.13. If you saved them, did you ever go back and read the old messages?

[ ] seldomly

[ ] occasionally

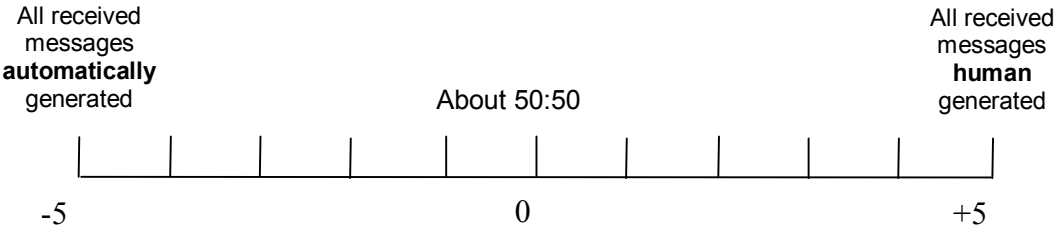
[ ] frequently

Comments:

4.14 Was the cost of sending text messages an issue for you?

5. Personalisation

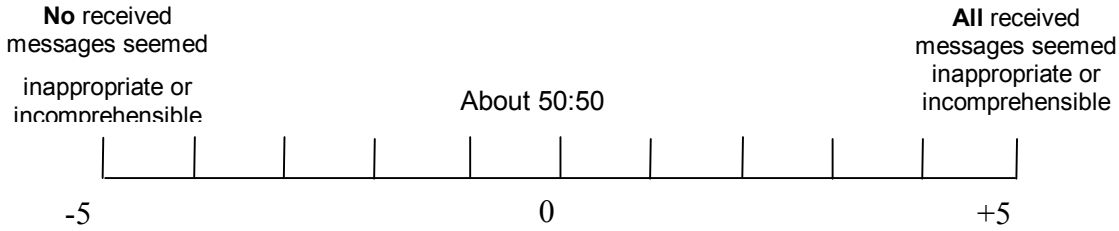
5.1. On a scale of -5 to +5 below please indicate the amount of messages that you received that you think were automatically generated compared to those that you think were created by a human:



5.2 .Why do you think this?

5.3. Could you distinguish text messages from the game from others that you received? Why?

5.4. On a scale of -5 to +5 below please estimate the amount of messages that you received that seemed inappropriate or incomprehensible?

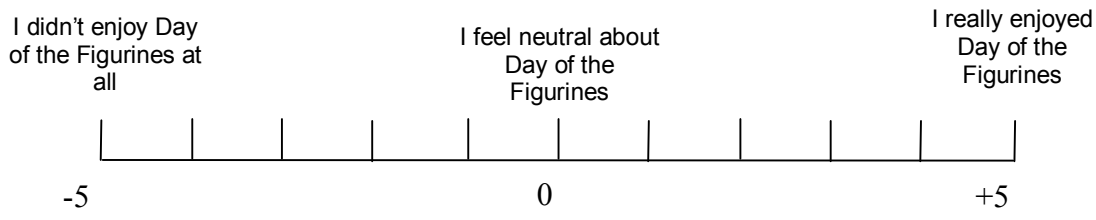


5.5. Please give us examples of any messages that seemed inappropriate or incomprehensible.

5.6. Did you deliberately structure the text messages that you sent in a particular way?

6. General feedback

6.1. On a scale of -5 to +5 below rate how much you enjoyed Day of the Figurines:



6.2. What did you like about Day of the Figurines?

6.3. What didn't you like about Day of the Figurines? Where did it break or feel like it let you down?

6.4. How could we improve the game next time we play it?

6.5. Would you like to take part in future games of Day of the Figurines?

6.6. Would you be willing to take part in a follow up telephone interview to discuss your opinions?

9 APPENDIX B: ENTRY QUESTIONNAIRE FOR PLAYERS

"Dear Player,"

we are conducting research and we kindly ask you to take a few minutes to answer a couple of questions before getting started with the game. The information gathered from this questionnaire as well as during the game will be used for our research. We assure that your information will be anonymous. We hope to use your information to improve the game for the next version!

Thank you for your cooperation.

GENERAL

Gender: [ ] female [ ] male

Game-entrance date: ___/___/_____

Your Age:_____

Where do you live?_____
City Country

"How did you hear from ""Day Of The Figurines""? "

[ ] Personal invitation of Blast Theory

[ ] Friend of Blast Theory

[ ] Laban Email circular

[ ] International Summer School

[ ] Advertisement

MOBILE PHONE USE

What kind of mobile phone do you own?

Please state the manufacturer's name and the model type. _____

"On a scale from -5 to +5, how much do you use your mobile for work vs. private life?"

only work equal only private

-5 0 5

How often do you make / receive mobile phone calls?

[ ] more than 15 per day

[ ] more than 10 per day

[ ] more than 5 per day

[ ] at least once a day

[ ] every other day

[ ] few per week

[ ] hardly any

[ ] never

How often do you send / receive text messages?

[ ] more than 15 per day

[ ] more than 10 per day

[ ] more than 5 per day

[ ] at least once a day

[ ] every other day

[ ] few per week

[ ] hardly any

[ ] never

What kind of other functions does your mobile have?

[ ] photo camera

[ ] video camera

[ ] mp3 player

[ ] games

[ ] Internet access

Which of these functions do you use?

[ ] photo camera

[ ] video camera

[ ] mp3 player

[ ] games

[ ] Internet access

How do you pay for use of your mobile phone?

[ ] contract

[ ] pre-paid

[ ] company

When do you carry your mobile with you?

[ ] always

[ ] working-hours

[ ] spare time

[ ] on weekends

[ ] occasionally

For how much of the time you are awake is your mobile switched on?

_____ %

CONTACT DETAILS

Name: _____

Mobile No.:_____

Email: _____

"Finally, we would like to know if it is OK to ask you a couple of game-related questions "on the phone during the game.

[ ] OK

[ ] Rather not

Thank you very much for your assistance!

Day Of The Figurines is a collaboration between:

"Blast Theory, UK: www.blasttheory.org"

"Fraunhofer Institute FIT, Germany: www.fit.fraunhofer.de"

"Sony NetServices, Germany: www.sonynetservices.com"

"Mixed Reality Lab at the University of Nottingham, UK: mrl.nott.ac.uk"

10 APPENDIX C : STRUCTURE AND FRAGMENT OF SYSTEM LOGS

All messages sent and received by the game server are logged in the server's internal database. The database is updated by the game server as incoming message are received from a player and classified by an operator, and outgoing messages are queued, customised, sent or discarded and finally received by a player. The system logs are generated from the database, and as such reflect the final state of each message.

Each message is assigned a unique numeric identifier when it is created. The other fields in the database are assigned according to whether the message is incoming or outgoing and its type.

The type of a message is either selected by the game server when an outgoing message is generated, or determined by an operator when an incoming message has been read. Supported message types and a description of each are shown in the Table 11.1 below.

Table 10.1 Messages Types and Descriptions

Message type	Incoming/Outgoing	Usage
Area change	Outgoing	A player enters a new description region
Arrival	Outgoing	A player arrives at a destination
Arrival full/closed	Outgoing	A player arrives at a destination and it is full
Chat	Incoming	A chat message received from a player
Chat forwarded	Outgoing	A chat message forwarded to other players
Custom	Outgoing	A message created by an operator not supported by the system
Destination Meeting	Outgoing	A player has met other players at a destination
Destination Other Arrival	Outgoing	Another player has arrived at a destination this player is already at
Destination Request	Incoming	A player wishes to move towards a new destination
Destination Update	Outgoing	A description of how and where a player is moving to
Dilemma	Outgoing	A description of a dilemma event

Dilemma Result	Incoming	A players response to a dilemma event
Event	Outgoing	A description of an event
Leaving	Incoming	A player wishes to leave the game
Meeting	Outgoing	A player has met another player whilst not at a destination
No-one nearby	Outgoing	A player attempts to chat when there are no other players within range
Parting	Outgoing	Another player leaves the current meeting
Reminder	Outgoing	A player has not interacted with the game for some time
Status Request	Incoming	A player wishes to know where they are and who with
Status(area)	Outgoing	An update of the players location if they are not at a destination
Status(destination)	Outgoing	An update of the players location and who they are with at a destination
Unsupported	Incoming	A message cannot be classified as any of the incoming types and requires a custom response

Messages in the system log contain several optional timestamps, which are set based on a message was sent or received, or discarded. These are the turn in the game that the message was generated in game turn units, the time and date that the message was received by the game server for incoming messages, the time and date that the message was queued for sending, and the time and date that it was received by the player if the message was not discarded.

Each message contains either the name of the player that sent it, for incoming messages, or the name of the player that it was intended to be sent to, for outgoing messages. The message status field indicates if an incoming message has been read and handled by an operator, and if it has been discarded, received or its delivery failed for outgoing messages. Messages that have been sent by the system to a player contain a unique octet identifier that allows the status of the SMS message - whether it has been delivered to a player's phone - to be tracked.

Finally the system log contains a record of the text of each SMS message sent and received, after any modifications to the generated text have been made by an operator for outgoing messages. To supplement the system log, we have added additional fields to indicate the original, unmodified message text as generated by the game server,

before customisation by an operator. A final field indicates if the message was indeed customised, and if so to what extent.

Table 11.2 and 11.3 shows an example line from the system log and labels each field as described above, for both an incoming message and an outgoing message.

Table 10.2. Example of System Log – Incoming Message

Field name	Value
Unique Id	1184
Type	Destination request
Time turn	
Time sent	
Time queued	
Time received	12:37pm Wed Jul27
Recipient	
Sender	Hassan
SMS text	Breakfast done. Its time 2 head 4 the pound shop.
SMS id	
Status	read
Original generated text	
Modifications made	
Type of modifications	

Table 10.3. Example of System Log – Outgoing Message

Field name	Value
Unique Id	9859
Type	Chat forwarded
Time turn	192
Time sent	3:23pm Sat Aug13
Time queued	
Time received	3:23pm Sat Aug13
Recipient	Susie
Sender	
SMS text	1:06am, Hans says: is there anywhere else interesting to go now?

SMS id	C2F7529701F95129
Status	Received
Original generated text	1:06am, Hans says: Hans says is there anywhere else interesting to go now?
Modifications made	Modified
Type of modifications	wordsremoved,92pcpreserved

Types of modification made to outgoing messages are determined by comparing the actual SMS text of the message to the text originally generated by the game server for each message type. We indicate whether the case of any letters has been changed, if any punctuation has been added or removed, if the total number of words has increased or decreased, and what percentage of words from the original message remain in the final message.

11 APPENDIX D: ROLE PLAY AND NARRATIVE IN DAY OF THE FIGURINES

(A personal reflection of Day of the Figurines by Dr Ella Tallyn – Dorit)

The main part of this deliverable has evaluated Day of the Figurines from two perspectives – those of players and operators. This Appendix takes a different tack, discussing some broader issues surrounding the relationship between Day of the Figurines and other role–playing and interactive narrative experiences. This material was written by Dr Ella Tallyn who played the figurine Dorit in the game. Although she was a member of the MRL at the time, Dr Tallyn was not a member of the development team, nor indeed was she working on IPerG. She was not familiar with Day of the Figurines before playing and so her report offers an external but also expert opinion on both her experience of participating, and also on the relationship of Day of the Figurines to the broader field of interactive role–play.

This Appendix is included because it offers some new insights into the relationship between role–playing and pervasive games that could form the basis of future research in IPerG, both in terms of evaluating future versions of Day of the Figurines and also potentially in terms of design and evaluation guidelines within Workpackage 5.

Following the introduction, sections 11.2 and 11.3 review relevant background literature on role playing games and role playing in relationship to identity. After this, section 11.4 discusses role-playing in relation to Day of the Figurines.

11.1 Introduction

In the last few years computer–mediated games have become the centre of much academic attention. Games have long been examined for their strategic and analytic qualities (for example game theory in economics). More recently with the opportunities that computer mediated spaces offer, and the attention of other academic disciplines such as sociology and media studies, this has extended into the study of games as emotional and social experiences.

Day of the Figurines was a unique experience in several ways, but for me, the most interesting aspects of it relate to the relationship between the players and their figurines, and the link between the players' interactions in Day of the Figurines and their real lives. This process seems related to the dynamics of role–play, and what is interesting is the players' role–playing behaviour with regard to effects of the particular Day of the Figurines structure and use of media. I believe that several of the unique structural aspects of Day of the Figurines, such as playing via SMS text messaging, had a variety of interesting influences on role–play behaviours:

- The degree to which Day of the Figurines was integrated into a player's real life seems greater than in other comparable role–playing experiences. For most people their mobile phone is their main contact with the rest of the real–world outside their immediate physical location. So communication with people in other real places is the same as the fictional space of Day of the Figurines. Furthermore interactions are not always initiated by the player, and could interrupt a player's real life at any time. This lack of distinction between real–life, day–to–day interactions and their Day of

the Figurines play is likely to have had an impact on their experience, possibly merging real life behaviours with role–playing behaviours.

- The interactions were stripped down and minimal because of the SMS medium used, and only very brief descriptions of places, figurines and events were available. Players were unable to view the world, their figurines, or others figurines after the initial kick–off process. This may have allowed more room for players to develop their own impressions and interpretations of the world, events and interactions with other players, thus enhancing their own individual role–play.
- The method of constructing and developing the figurine personality was quite tightly constrained in some respects and this may have encouraged players to play a particular type of character that is not common in ordinary role–playing situations.

Because role–playing seems central to the experience of playing Day of the Figurines, I thought it might be interesting to look more closely at this process to try and understand the motives that drive it. Why do some people like it? And some hate it? What do people get out of it? And when does it work particularly well? Having some idea about the answers to these questions may provide some insight into how people related to their figurines and the roles they created for them in Day of the Figurines. My first thought was to look at role–playing games (RPG's). But having begun to explore the literature here, I think that taking it further by looking at role–play in greater depth and in a wider range of contexts would also be worth while. I've then attempted to begin to locate Day of the Figurines in this context.

11.2 Role–Playing Games

The traditional RPG's came originally from board games, played with figurines, pencil, paper and dice, such as Dungeons and Dragons. The basic premise of these games is that players are each given a role (for example warlock, cleric etc) which they must adhere to and develop. They are led through a series of experiences by a game master, who may introduce new events, play a variety of supporting characters (such as villains trying to prevent the players from succeeding in their quest), and divine the outcomes of battles and exchanges based on the game logic, and using dice to determine random aspects. Unlike many other competitive games, there is often a high degree of cooperation between players. Role–playing games, stimulated by the development of computer–generated environments, have evolved in many different directions from these early days. Some focus on creating sets of complex rules to simulate reality, others place more importance on communication, storytelling and character development.

11.2.1 Constrained Versus Freeform

From a quick scan of the related literature on RPG's it seems that the term 'Role–playing' describes a very broad spectrum of experiences. Some of these are tightly constrained and directed, and others are much more open–ended and enable far more self–expression.

At one end RPG's are frequently associated with the experience of journeying through a fantasy world on a quest, and building up statistics of one's character. In these the role–play is very constrained (for example, board games such as Dungeon's and

Dragons, and computer games such as Final Fantasy, Ys, and Fantasy Star.) There may be only one character to play through, and players must stick to a fairly pre–defined set of behaviours and event progressions. Exploring the emotional dimensions of characters as part of a story or through social activity doesn't feature greatly in these. In fact many computer games seem to provide an aspect of this type of constrained role–play, and some of these are occasionally (and confusingly) referred to as RPG's. For example, in some 3D shooters, players control a specified character (e.g. in Tomb Raider where we can play Lara Croft) that can run around and attack other CG characters and in networked environments, other players. These games, although constrained, give the player the ability to experiment with actions that they are unlikely to take in real life. They also offer a structured experience of progressive achievement. Therefore perhaps offering players a chance to experience what it is like to have that sense of physical power, control, an ability to dominate and succeed, perhaps in ways they find difficult in real life. So although they are structured and constrained, it is possible that for some players these experiences might provide a greater degree of escapism than games that encourage a more individual, and personal approach to character development. In these tightly predefined games, game designers develop the characters and behavioural patterns, events and outcomes that players might not be able to imagine for themselves, and thereby take them further away from their real–lives and real–selves.

In other games the scope for experimenting with personal approaches to role–play is much greater. For example, more open–ended, environments such as 'Second Life' and 'There' include advanced tools for creating avatars and provide a platform for entirely free form social interaction as well as more structured experiences (such as games) that are devised by other participants. In contrast to the competition based games that characterize the greater proportion of popular computer games, these tend to be more social and community based . In these there is less overt sense of winning or losing, although there are distinctive motives for players, and players may have a sense of personal progression or achievement These community based games are perhaps more similar to the computer–mediated social spaces, such as chat rooms and MUD's, where exploring and playing at being someone other that oneself in a social context is what it's all about. Experiences like 'Second Life' and 'There', tend to involve a combination of aspects from older RPG's (such as building up complex characters, gaining new physical attributes, clothing, and objects) and the MUD's (for example social aspects, like chatting to strangers and forming relationships). This provides a variety of different types of experience that people can enjoy in different ways. (See Yee's [12] table in the next section.) Within games literature Ron Edwards [13] begins to classify some of these different types of experience in what he calls GNS theory. Edwards describes GNS as three modes or approaches that can interact in different measures in role–playing situations in brief these are:

- **Gamism** is expressed by competition among participants (the real people); it includes victory and loss conditions for characters, both short–term and long–term, that reflect on the people's actual play strategies.
- **Simulationism** heightens and focuses Exploration as the priority of play. The players may be greatly concerned with the internal logic and experiential consistency of that Exploration.

- **Narrativism** is expressed by the creation, via role–playing, of a story with a recognizable theme. The characters are formal protagonists, and the players are often considered co–authors.

This is an interesting theory, and perhaps more importantly these terms are ones that game players sometimes use themselves to describe their role–playing behaviour. However this work doesn't delve deeply into the motives and pay–offs for role–playing in life more generally. But there is literature that does, and I'll describe some of that in the next section.

Another interesting aspect of RPG's is the degree to which the game–mastery is automated. There is a lot of description about RPG's on Wikipedia for example there is a small section describing semi–automated games:

> *"Computers are inarguably superior to humans in creating simulations, and they have allowed simulation games to become more realistic than ever before. They do, however, have one great drawback: They do not have the creativity and flexibility of a human referee. Some people also prefer the face–to–face interaction of paper–and–pencil role–playing games to computer games which are played over a network. Computer–assisted role–playing (CARP) seeks to overcome the limitations of both computer and paper–and–pencil games."*

I haven't looked into this aspect in any detail, but the sensitivity with which the events and interactions are guided must be very significant to the effectiveness of the role–playing experience.

11.3 Role–Playing and Identity

For most people role–playing is an integral part of life. Most of us play a variety of roles as part of our day–to–day interactions with other people. This may require us to adopt personality traits that differ slightly or greatly from what we view as our 'normal' selves. Social and recreational interactions particularly require an element of role–play, for example, where people adopt certain roles and positions in conversations. This has been explored in psychology and psychoanalytic theory, as often the roles people play are key to difficult or even criminal behaviours (see [14]). It seems likely that games which involve role–play are popular because—as with all games—they provide a safe space for us to experiment with new actions and behaviours, and in which the results do not have real or potentially damaging consequences in real life.

Role–play has been examined in several different areas of study: drama, psychology and new media and technology. In this section I'll try and describe some of the role–playing phenomena that are discussed in other work, and which I believe may have some interesting bearing on what occurred in Day of the Figurines (and I'll get to that in the next section).

It is commonly believed among people who work on dramatic productions that many actors act because they want to express themselves in a way they can't in their

real lives, are often shy, and want a license to be something or someone else, or else are extrovert and like to explore different personalities. I believe there is writing about this, but I haven't explored it.

Role–play in psychoanalysis is interesting, as I mentioned earlier, psychologist have explored role–play as part of human social interactions. Psychotherapy encourages patients and clients to explore these deep inner drives and in doing so bring them to a level of consciousness that will enable the client to gain an objective awareness of them, preventing the client from unknowingly acting them out, and thus disarming the behaviour. New studies are being developed where clients' role–play in virtual environments is used as a resource for studying behaviours the client may have difficulty in expressing in real life (see [15]). Furthermore there are many accounts of people consciously using the role–playing potential in virtual worlds to explore actions and behaviours they have not been able to explore in real life. This is something that Sherry Turkle [16] has explored in depth as part of her discourse on new media, in her discussion of the potential of role–play in virtual environments she says:

> *"The self is not only decentered but multiplied without limit. There is an unparalleled opportunity to play with one's identity and to "try out" new ones"*

I think this work is really worth a read and probably essential to developing an understanding of work in this area. In her paper 'Constructions and Reconstructions of Self in Virtual Reality' she contrasts the sorts of experiences that people gain from traditional role–playing experiences used to explore social issues and problems (in psychiatric therapy), with the types of role–playing that takes place in MUD's. In contrast to the popular view that RPG's are all about escapism, she describes how both give opportunities to be what you cannot be in real life, this can provide alternative perspectives on real situations which may be part of your real life, for example she says,

> *"Peter [an example she explores] plays what in the psychoanalytic tradition would be called an "ego ideal". Other players create a character or multiple characters that are closer to embodying aspects of themselves that they hate or fear or perhaps have not ever consciously confronted before."*

She also describes the qualities of role–play in a virtual environments that may enhance role–play experiences, in brief these are:

- The anonymity and invisibility they offer,
- That a single user can explore many different roles in multiple characters, and therefore a variety of viewpoints,
- Players characters can be as close to or distant from the self as they desire,
- And the ongoing nature of the experience, that people can (potentially) play anytime, and for as long as they want.

I would add to this:

- The potential of the environment itself for a wide range of activities that can be engaged in as part of role–play

Turkle also explores some of the complexities of a user's relationship with their character, and describes specific examples of how people have used the experience. Just to give you a flavour of this she describes the experience of one man, and quotes him,

> *"daring to be passive. I don't mean in having sex on the MUD. I mean in letting other people take the initiative in friendships, in not feeling when I am in character that I need to control everything. My mother controlled my whole family, well, certainly me. So I grew up thinking 'never again.' My 'real life' is exhausting that way. On MUDs I do something else. I didn't even realize this connection to my mother until something happened in the game and somebody tried to boss my pretty laid–back character around and I went crazy. And then I saw what I was doing."*

Many people use role–play in this way for a short period of time only, and then move on. For example people using role–play as a method of self exploration may find they learn or resolve something and the need for that role–play comes to an end. For others it may be "addictive" (Turkle also goes on to say that traditional role–play or therapy can also be addictive for some clients). However in virtual worlds there is often no enforced end to the experience and so players can continue to express sublimated needs in the virtual world, without having to bring about learning and change in the real world.

Since I am discussing the of potential real life benefits of role–play, I should mention that although Turkle's [16] descriptions and ideas are very illuminating, I worry about how seriously we can take the psychiatric benefits of such behaviour when the process is purely self–directed i.e. unmediated or explored by a professional. The sheer fluidity of the other personalities in virtual worlds means it can potentially be so unlike or unrepresentative of the responses one might get from others in real life. Furthermore how can one know how to assess the responses of others in a virtual world, since it is impossible to know what their real motives or selves may be like, when so much is hidden. So if for example you are trying out some kind of unfamiliar role in a world, you may attract unrealistic and possibly unhelpful reactions to it, and because people here may not be reacting as if they were in the real world, it is hard to know what could or should be transferred back into real life. So it seems to me that learning in this respect would be limited, and possibly even damaging. However if these possibilities are borne in mind by players, then it could instead add to the learning we all do as part of our real life, and perhaps as Turkle says:

> *"Engagement with computational technology facilitates a series of "second chances" for adults to work and rework unresolved personal issues and more generally, to think through questions about the nature of self, including questions about definitions of life, intentionality, and intelligence."*

Another interesting discussion of virtual role–play phenomena is described in "Identity Tourism" by Lisa Nakamura [17]. In this paper Nakamura describes identity tourist as,

> *"The act of racial identity appropriation or "passing" in cyberspace"*

Nakamura explores players' adoption of Asian stereotypes such as a geisha's and samurai's in specific MUD's. She describes how this use of a stereotype in a virtual space (or "passing") allows a player to appropriate an Asian identity without any of the "risks" associated with being a racial minority in real life. But because stereotypes are generally chosen it blocks any experience associated with being Asian. She believes the attraction to this process may lie in the escape from the player's own fixed identity, and the belief that they might attach something of the exoticised stereotype to themselves. She goes on to discuss the phenomena she discovered in some text–based virtual worlds, where the deliberate stating of ones race was viewed by some of the participants as a provocative act of drawing attention to the issue of race, which some players viewed as unnecessary and disruptive. And so Nakamura says that this forced omission of race from avatar attributes encourages a supression of racial identity, and she therefore concludes that race is as divisive an issue in virtual worlds as in real life. She quotes from Chesher who says,

> *"In spite of the claims that everyone is the same in virtual worlds, access to technology and necessary skills will effectively replicate class divisions of the rest of reality in the virtual spaces" and "will tend to reinforce existing inequalities, and propagate already dominant ideologies"*

Nakamura says that not many people "pass" as racial identities that are not stereotyped, and she so does not describe the experience or effects of this.

It seems that certain prejudices, behaviours and unconscious actions will transfer readily to virtual worlds; it is difficult to imagine why they wouldn't. But on the other hand people are not necessarily behaving and reacting as they would in real life. What is important perhaps is that participants are aware that role–play is being used specifically by people to both experiment with understanding behaviours of their own or others, but in the same space there are people using role–play as a total escape into complete fantasy. These two approaches to role–play may be happening fluidly and unconsciously amongst many different participants interacting with each other at the same time. This could potentially create great confusion. And also raises the difficult question of how much we need to see of someone's real self in order to assess their responses to us. And indeed perhaps this process of assessment that may often be unfair or incorrect does just reflect what happens in real–life. However an awareness of these dynamics in these types of social arena in which the interactions are taking place is probably beneficial.

Another very interesting source of information on role–play is a project called The Daedalus Gateway run by Nicholas Yee, which specifically explores the psychology of MMORPG's [12]. This describes an extensive collection of data from questionnaires filled in by over 30,000 players over a 5 year period (so far). The site also provides an

insightful but objective analysis of these. His analysis of the questionnaire responses is thorough and objective, covering issues such as motivation, identity (particularly with regard to gender) and backs up the discussion of his findings with impressive statistics drawn from the questionnaires. He has also written a book chapter on this subject published in 'Avatars at Work and Play: Collaboration and Interaction in Shared Virtual Environments' which describes role–play motivations with clarity, for example in Table 6.1 he includes a framework which breaks down some of the factors that attract and engage people in MMORPG's:

Table 11.1. Breaks Down of Player's Motivation in MMORPG's

Achievement	Social	Immersion
Advancement Progress, Power, Accumulation, Status	**Socializing** Casual Chat, Helping Others, Making Friends	**Discovery** Exploration, Lore, Finding Hidden Things
Mechanics Numbers, Optimization, Templating, Analysis	**Relationship** Personal, Self-Disclosure, Find and Give Support	**Role-Playing** Story Line, Character History, Roles, Fantasy
Competition Challenging Others, Provocation, Domination	**Teamwork** Collaboration, Groups, Group Achievements	**Customization** Appearances, Accessories, Style, Color Schemes
		Escapism Relax, Escape from RL, Avoid RL Problems

This is an interesting breakdown of some of the different motivations of role–play and also includes other engaging aspects of MMORPG experiences, such as in the 'Achievement' section (also this too could be seen as a part of role–play, for some playing the role of an achiever in a virtual environment may be straightforward, but pose difficulties in in real life).

In his book chapter Yee describes the wide spread use of MMORPG's for role–playing across a broad spectrum of people of all ages. From a rigourous analysis of player's statements Yee divines 5 different player motivations, which are resonant of Edwards GNS theory [13]:

- The "Relationship" factor measures the desire of users to interact with other users, and their willingness to form meaningful relationships that are supportive in nature, and which include a certain degree of disclosure of real–life problems and issues.
- The "Manipulation" factor measures how inclined a user is to objectify other users and manipulate them for his personal gains and satisfaction. Users who score high on the "Manipulation" factor enjoy deceiving, scamming, taunting and dominating other users.
- Users who score high on the "Immersion" factor enjoy being in a fantasy world as well as being "someone else". They enjoy the story–telling aspect of these worlds and enjoy creating avatars with histories that extend and tie in with the stories and lore of the world.
- The "Escapism" factor measures how much a user is using the virtual world to temporarily avoid, forget about and escape from real–life stress and problems.

- And finally, the "Achievement" factor measures the desire to become powerful in the context of the virtual environment through the achievement of goals and accumulation of items that confer power.

Yee's work reveals many of the sorts of role–play tendencies and motivations that Turkle describes. For example he describes people who have relationships in real life (e.g. parent and child, or lovers) getting to know each other better and coming to understand the dynamics of their relationship in greater depth through role–play, and he includes a lot of interesting players quotes that illustrate this, for example:

> *"I would say rather than having learned something new about him, it was more like it emphasized differences between us that I already knew about. He is very patient, I am very impulsive, etc. And these differences are a lot more apparent in a game situation. [female, 27, dating]"*

> *"Like children who play dolls to explore social situations and different perspectives, EQ enables us to look at issues of dependence/independence, and gender perceptions. It's increased the equanimity between us, and brought us closer through exercises in trust that transcend in game terms, class, level, and gender. We will discuss game scenarios and learn from each others perception (i.e., when to run). After 3 years of playing together we are a well–oiled machine, and can lead a group, follow or solo together or apart. [female, 34, married]"*

> *"I found that my son handles himself in a very mature manner. (He's 13 now). I have also been told by many other players that know of our relationship how courteous and well spoken he is. [male, 49]"*

He also describes how people use role–play consciously to explore new behaviours, for example,

> *"In reality I'm an Army Officer, very assertive and aggressive. In MMORPGs I'm more like I wish I could be, quiet, introspective and sensitive of other's feelings. Taking on different roles has also taught me to 'walk a mile' in other shoes before judging – not useful as an army officer, perhaps, but very useful in becoming a quality human being. [male, 42]"*

Yee also describes how people use the games to learn more about a whole host of life skills, for example mediating group conflict and motivating teams. He also mentions potentially problematic usage, where players have what could be seen as an addiction to the role–play, and experience guilt and self hate that can arise from this. He concludes by saying,

> *"Our virtual identities and experiences are not separate from our identities and experiences in the material world. They co–evolve as they shape each other. MMORPGs are not a new form of play as much as a new communication medium that affords new forms of social identity and social interaction."*

Role–play in life is an important part of growing and developing socially and emotionally. These spaces that allow us to experiment with our own identity, perhaps provide an outlet to those who have repressed qualities that they wish to express and, enable people to experiment with new behaviours, to see what they feel like and how people react to them. And what's more, these virtual spaces and games provide a relatively safe environment for people to experiment, and so perhaps their popularity is not surprising. However it seems that some attention should be paid in order to develop a social sensitivity to how these activities take place, and their potential implications for a range of different players with different agendas. Exploring the level and type of mediation and guidance (or constraint) is probably crucial in this process.

11.4 Role–Play in Day of the Figurines

Based on my personal experience of playing Day of the Figurines, supplemented with a subsequent manual inspection of the questionnaires and interview transcripts, it does seem that most players were involved in some sort of role–playing activity. However Day of the Figurines is different to other experiences (including MMORPG's) in several ways, and this has some potentially interesting implications for the effects on the role–play taking place. Firstly because Day of the Figurines is played via SMS it is likely to be more closely integrated into a player's daily life than most other role–playing experiences. Secondly the choice of character and therefore perhaps the role–play itself is constrained (or guided) in some respects. And thirdly, the textual descriptions of the places, the other figurines, and even the interactions themselves are very stripped down and minimal because of the text medium.

11.4.1 Styles of Role–Play

My relationship to my own figurine seemed odd and awkward. I wasn't sure whether I was playing as myself or the character of my figurine. So I looked through the questionnaires and interview transcripts to see if I could get an idea about other players' relationships to their figurines. Were they playing as themselves? Or deliberately trying out being someone else? What actually happened in the end? Did their figurine make any difference to the way they communicated? From a cursory look through it does seem that players were experimenting with roles in a variety of different ways and possibly with different degrees of consciousness. I think it might be interesting to tease out the different approaches people have taken to playing a role, and how the particular Day of the Figurines environment and structure influenced the process.

I believe there were at least two different approaches, as suggested by literature described earlier. Some people seemed to play a role which may have been an exploration of an aspect of themselves. Others seemed to choose a particular character that they could use as a sort of template for how to behave that might be different from the way they normally behaved. It is possible that most people were doing a combination of these things, sometimes playing a character and sometimes channelling

aspects of themselves through it. From looking at the questionnaires it seems that most players do not see the figurines as themselves, although it may express a part of them, but perhaps in some kind of altered way. There are interesting points in the questionnaires in the answers to whether the figurine was 'you or someone else'.

For example here is a quote that seems to suggest this sort of role–playing behaviour, and reminds me particularly of Turkle's discussion described earlier:

> *"The game offers the chance for players to reveal their feelings or wishes that were somehow hidden inside of each of them" Capra's synopsis (Tom Pritchatel – Rob)*

My own approach to playing the figurine Dorit was a deliberate attempt to play someone different to me. I wanted to try out what is might be like to be an elderly woman in such a bleak urban landscape, and in doing so experience the reactions of other players to her. I believe Steve Benford's approach with his figurine Hassan was similar; he aimed to see what it might be like to be a young man called Hassan carrying a backpack.

In reality I'm not sure how much time I spent playing at being Dorit, I felt that I fluctuated between trying to 'be' her and just being myself. In my particular experience I didn't find the role–playing aspect particularly natural or rewarding. The character of Dorit was based on a real person I know called Dorit, and I tried to imagine what she might have done and said. However this meant that I had to try and find places for Dorit to go where she could operate and help out in her role as an elderly lady, and this seemed difficult. The allotments seemed like a good starting point, but there was no one there when she was there. It seemed there wasn't much for a character like her to do in this world. It seemed awkward because she was old. But perhaps that is a bit what it feels to old in reality.

In the next section I'll look more at the issue that starting my thinking about role–play in the first place. And that is the issue of people who seemed to become uncomfortable with the play of Day of the Figurines intruding into their real lives.

11.4.2 Close Integration with Real Life

One of the key differences between Day of the Figurines and the other Role–playing environments is the level of integration Day of the Figurines had with players' everyday lives. This interleaving with real life happened in a number of ways. The most obvious one is the use of SMS. Messages from Day of the Figurines came via players' own mobile phones, which also provide their connection with other people in the real world. Further more, messages could come in and interrupt players' real life activities at any time, which may mean that they may become involved in Day of the Figurines interactions unexpectedly, and at times that players may not have normally chosen. This could catch players unprepared. I suspect that this may have caused people to respond as themselves rather than in character, perhaps causing players to make the snap judgments and responses that represent their real selves rather than their figurines. Capra described a player's reactions that made me think about this, he described how events and feelings from the real world had bled through into the virtual world and told me about an example of a player with a child with chicken pox who described their feelings on a particular day by saying 'I just wanted to sit and cry', and felt that this

feeling was manifest in her Day of the Figurines character that day. The fact that players may interact with Day of the Figurines in places that they may not normally engage in such activities may also have had a similar effect, causing players to respond in a much less pre–meditated and more spontaneous way.

For myself, I realized after some reflection, that because the interactions were interwoven into my normal life I treated them in a similar way to other social interactions of this sort. As for many players in other role–playing scenarios, this particular attribute of Day of the Figurines led me to learn something about my own day–to–day behaviour. I realized that when playing Day of the Figurines I often felt anxious if I had not or was not able to respond to a request or comment by another player. This would not have happened in a game in which I was able to choose particular times to attend to it, I would have controlled my participation so that I never felt this way. In Day of the Figurines my normal activities got in the way which meant I could not always respond in time. Because Day of the Figurines is an artificial social construct I had a feeling that I shouldn't be feeling these things here, it shouldn't necessarily matter in an environment such as this. As a result I became sure that this feeling of anxiety was something I created for myself, rather than coming from an external demand. And this led me to reflect that I also didn't need to feel these things in real life.

I think that the kick–off process of Day of the Figurines and the player evaluation process at the end, may have also had an effect on role–play (beyond the fact that people were not entirely anonymous). It is likely at the end when they were asked to write or talk about their experiences they may have been uncomfortable. Certainly the following example made me begin to wonder whether the effect of having our role–play more closely connected to our everyday selves could have disturbing consequences for people that were role–playing aspects of themselves.

One of the first things that triggered off this whole line of thought was hearing from Capra the reaction of the person that played the character Stacey Fuckhorn. Who (understandably perhaps) did not want to discuss his actions in Day of the Figurines. However when I heard about this, I thought there must be more to this than initial embarrassment. It occurred to me that before he participated he had freely offered his personal contact details in advance, and interacted knowing that he may be contacted afterwards for a discussion. So it seemed odd that he would be reluctant to discuss his actions. Now (and I'm guessing and hypothesizing here) I suspect perhaps he did not envisage the extent to which Day of the Figurines would impinge on his ordinary life. I also wonder if he had played extensively in MMORPG's, I suspect from his actions that he had. Then, given the way that people often deliberately use and enjoy the separation, invisibility from ordinary life in these environments, he was horrified to find it leaching into his real life, and wanted nothing more to do with it. This is a really blatant example of the way in which people may have reacted to the overlap between their role–play and real life, and I suspect there are many more subtle and interesting examples. Here is a quote from Capra's transcript that sums up this type desire for the security that the game will remain fictional and separate and not become something real:

> *"She thinks that if the game became more real and if the players knew that their answers could be used for something real, the interaction would probably be least*

interesting. The players would interact less because they would know how seriously the game was, which would make them think that they could not be what they wanted and not act as they would have liked." (Alex Beech – Hans from Capra's transcript)

People who are revealing something about their real identity in the role–playing environment, or indeed just experimenting with other behaviours, may not want this to intrude into their real lives, this is probably why they do not do it in their real lives in the first place. If we look back at the previous literature to why virtual worlds are so compelling for role–play, we can see that many aspects that make this so comfortable are about the safety in the separation and anonymity. Here people who find it difficult to reveal something in real life can experiment with behaviours. Sometime these behaviours may be ones that are perceived by the player or by others to be undesirable in real life. However, it is possible that the very effect of narrowing this separation between real and virtual role–play may be part of what makes Day of the Figurines a potentially interesting and valuable experience. Perhaps the re–integration into real life could raise players awareness of their own behaviours. To understand this and get to grips with what these situations really mean to people I think it is important first to fully understand the dynamics and use of role–play, and then to explore how people would feel about the role–play and real life overlapping. Clearly there is a whole spectrum of ways in which role–play is approached and used. And a more in–depth analysis of these dynamics may reveal the dynamics of potentially valuable experiences.

11.4.3 Character Development is Structured and Constrained

In most RPG's the player is given or may choose a pre–defined character to play. Or players may choose a specific type of character to develop. In the more freeform role–playing online worlds character development can be very open–ended, and a player can construct what ever he of she wishes. In some of these games or worlds there is an emphasis of the development of character through the process of building up a character's statistics, status or reputation. However Day of the Figurines has a rather unique approach to the development of figurines' characters, in that is has an unusual mixture of constraint and flexibility in the process, and this may have had an impact on the role–playing process.

Rather like the more rigid RPG's, players must choose from a set of existing model figures, rather than define one themselves. However the players are specifically encouraged to find something they can identify with. This choice of figurine defines their visual appearance only, not their personality. For me was at this point that I identified the concept for my character. I was looking for a figurine that resonated in some way, and when I saw one of a white–haired, elderly lady, I thought of my Great Aunt, an eccentric relative who I had recently visited. I named my figurine Dorit after her. This choosing of the figurine is perhaps the first step to encouraging some form of role–play, since most people were unlikely to find ones that looked like themselves. I did look to see if there was one that might look for me, but unsurprisingly I didn't see one.

The naming of the figurines is interesting. It is one of the first obvious indications of the role–play in Day of the Figurines. For example, no one used their own name,

although perhaps the choosing of a figurine which will not be like oneself has already forced this to an extent. However nor did people use the names of any well–known or famous people, or even fictional characters (to my knowledge). But again this may have already been determined by the figurine choice. I wonder about the number of people that switched gender, we can see from the names that several players did. People tended to use unusual names that you wouldn't come across in day to day life, perhaps this is an indication of their intention to experiment.

The nature of the Day of the Figurines model world, and experience at the Laban Centre probably also set the scene for the type of characters people chose for their figurines, and the type of role–play that would ensue. For example, if the set had been obviously based on a real place (that most of the players were familiar with) then people may have chosen real people that they associate with the area e.g. The House of Commons, or if it had been a fictional place that they recognized, e.g. Albert Square from the BBC soap Eastenders, they may have chosen an Eastender's characters, or new characters that may have been interesting to play with in that space.

During the game players could direct their figurines to places in the world, but they could not control precisely their specific movements. Also the description of their figurine that other players received is given by the game, and not the player. Once the game play has begun players cannot develop their characters further, except through interactions. When players interact in conversations the game master may make their described actions concrete in such a way that they affect the figurines attributes and physical description. So in this respect players do not have complete control over their figurines.

The constrained nature of the character development was probably a frustration to some players. Indeed some did indicate a desire for more ways to develop their character in the questionnaires (e.g. the player playing figurine Bob requested more 'attributes to play with'). Also many players suggested that the character of their figurine was more developed than what they felt they had expressed in the game (see answers to the question "Is there anything you can tell me about your figurine that I may not already know?"). Some player's also expressed disappointment about not being able to express more of their figurines character in the game. For example having chosen quite a specific character with perhaps unusual traits or powers they have then not been able to demonstrate or explore these in the world. This may mean for some players they feel they have limited room to develop complex individual role–play. However, the constrained nature of the choice of figurine may have encouraged a particular type of role–play. Here one is encouraged not to be oneself, or play a stereotype, or a well–known figure. Instead one is encouraged to experiment by playing through a character who is in appearance ordinary as opposed to fantastic, and yet not oneself.

Although the loss of control over the role–play may have created a sort of interesting separation from ones character at times. The figurines have some independence and are not complete pawns over which we have total control to do with them as we choose.

Furthermore, although at first glance this process of character construction where the player has few choices would seem to encourage a model of trying out being someone else, rather than expressing something that is deep within you through a version of yourself. However the otherness of ones character is likely to have dissolved

at times, particularly because you cannot see your figurine, and then the character merely becomes a conduit for expressing ones own inner behaviours, or choice of behaviours, as in any other role–playing situation, irrespective of the way in which we might suppose a character such as our chosen figurine may act.

11.4.4 Stripped Down Information: More Space for Interpretation

In Day of the Figurines visual descriptions of the world, and the other figurines in it were very limited due to the limited lengths of text message medium. I believe this may have had the effect of letting users develop their own view of the world and characters. This could be likened to the way we construct mental images when we read a textual story. The social interactions were also terse and minimal. I believe this also may have left room for players to interpret interactions to suit their own role–play.

Players only have one opportunity to view the world of the figurines at the Laban Centre at the start of the game. Personally I didn't remember this particularly well. Instead I had an overall impression of it: a vague idea of its extents, shape and layout. Its simplicity made it colourless, and lifeless. I remembered the sorts of places that were there, and the way they were named gave it a depressed and slightly seedy atmosphere. I did have an image of the space in mind when I thought about the game. However once text descriptions started to come in I began to imagine something different. I began to 'see' the world from a figures eye view, not from above, as I had seen it at the start. Also I didn't 'see' figurines, but visualised moving characters, albeit ones that where more like animated puppets rather than real people. This was partly due to the text descriptions of their movements, which were described as a style that remained constant e.g. 'slowly', or 'like an Egyptian'. Their movements were unchanged by their interactions and seemed limited and caricatured, so I imagined that these figures were acting, putting it on. I'm sure that my 'view' of it would've been different if a digital interactive version of the world had been provided during the game. I'm sure this would have become my mental model and view of the world, which may be far less rich than the mental image I imagined in the absence of visual cues.

Because the social interactions were also minimal, I think much could be read in between the lines. We all know how difficult it can be to attempt to communicate sensitive or confusing issues either by email or text. There is so much room for misinterpretation and therefore miscommunication. However what is interesting about this in the case of Day of the Figurines is that it possibly meant that people may have read what they expected to be said as much as what was actually meant. And so as with developing their own view of the world and figurines, developed a very personal view of the interactions they had as well. Perhaps one example of this was something that Capra described to me. There was a player who left the game because of what she called an argument. What was interesting is that there didn't appear to be a dispute, but there was obviously something in that exchange that made her feel as if there was.

So it is possible that although the character development may be guided or constrained by the game, the minimal nature of the visual descriptions and social interactions enabled players to create a very individual view of the world and the events taking place. The constraints of character choice may initially discourage people playing out their own fantasies, but through playing quite ordinary characters their own tendencies are still brought to the fore. This is unusual and I'm not sure what this amounts to yet. But I think, as with the narrowing of separately between the real and the

virtual, it could possibly result in bringing a new consciousness to players regarding their own role–playing behaviours.

11.5 Narrative Structure and Day of the Figurines: Soap Opera

A change of subject: I was also thinking about the overall experience in terms of a story, and interactive story, and thinking again about all the problems of narrative structure and authorship. And what struck me was a similarity between structure of Day of the Figurines, and soaps. Soaps are episodic, and develop slowly over time, they have a much looser structure than one–off, complete narratives. In Day of the Figurines there are points of action and drama, and sometimes even small story arcs. Occasionally story arcs may be related to one another, but sometimes only by the characters involved (also like soaps). This has the looseness of a soap opera, in which story dynamics do not fit precisely to the ongoing time of the overall experience, stories develop within it, and must take into account the coming and goings of characters (writers of soaps have to take into account which actors are available for work each week, and developments in relevant current affairs which often lead to last minute re–writes). Some of the dynamics expected within more controlled narrative experience such as a film are not expected here. This has particular implications for the techniques used for audience engagement, particularly those which are often problematic in interactive media. In soaps we have story arcs that rise, peak and fall across many episodes, some may take months and some mini ones occur in a single episode. But overall what this means is a more relaxed approach to narrative structure, and indeed more relaxed expectations for resolution. But central stories resolve in the end in great 'breaking' episodes, it is the expectation of these that tends to draw audiences through the soaps.

Soap operas also tend to interject into our daily lives, they are broadcaste at a certain time (even if you get them digitally you have to wait for instalments to be made) and we may keep up, or we may miss them and hear about them from others. Major story arcs evolve slowly, and are punctuated by small ones, and we follow the progress of the story characters and their world. But we don't have to attend to them all the time. I wonder if there are similarities here also with the SMS format of Day of the Figurines.

Wikipedia provides a neat description of soaps:

> *"Soap opera is an ongoing, episodic work of fiction, usually broadcast on television or radio and most recently on mobile phones. This genre of TV and radio entertainment has been in existence long enough for audiences to recognize them simply by the term soap. What differentiates a soap from other television drama programs is their open–ended nature. Plots run concurrently, and lead into further developments: there is rarely a need to "wrap things up", although soaps that run in series for only part of the year tend to bring things to a dramatic cliffhanger."*

Like Day of the Figurines, in soaps what holds the sometimes disparate story lines together is the fictional location in which they are set, for example a particular town, a school, a space–ship.

Much of the appeal of soaps is the characters, which tend to be amusing caricatures, who may be for example, glamorous, rich, poor, unfortunate, or interesting in some other way. However aside from this questionable appeal, one of the very important aspects of soaps is that through all of the strange and unlikely twists and turns of the storylines, serious social issues are tackled, for example serious illness, teenage pregnancy, adultery, drug abuse etc. And here the entertainment is in finding out what the characters will do when faced with a crisis or dilemma. There is potentially an element of this in Day of the Figurines, where players are given 'dilemmas' to deal with.

Because of these similarities I think the way that soaps are constructed – particularly the writing of their scripts – may also be of interest. For example the tricks that scriptwriters use in order to move between the story lines in a single episode. This often involves the use of special places where characters are continually (and improbably) meeting. This often involves improbable meeting of characters for this purpose. But when characters meet information can be exchanged, and also a switch of story lines can take place in a fairly seamless way. Over time characters will have ridiculous numbers of marriages, unlikely relations appearing, and are even resurrected from the dead. What is interesting about this is the way that audiences accept the peculiar situations that writers have to create in order to keep the stories moving along, and keep them exciting, by creating cliff hangers at the end of episodes and creating dramatic peaks throughout the running of a soap.

11.6 Miscellaneous Experience Design Issues

These are just a few small points based on my own personal experience.

11.6.1 Experimenting with the Rules

Very little information was provided at the outset about how to play Day of the Figurines. Instead players were left to experiment. The problem here was perhaps that many players did not. I personally wish I have tried more things. I wish I had known. Initially I just felt that it was a bit boring that I couldn't do more. I didn't think of trying it, as some players had. I particularly felt a bit disappointed that I didn't have more ways to role–play and express the character of my figurine. However, after a while I did begin to realize that there was more to the game than was initially described. I wish this realization had dawned a bit sooner. It's clear that many players were not sure about how the play of the whole game worked. They were very few clues given as to what could be done and how it could work. For people whom role–playing came more naturally it was probably easier, or perhaps it was just a familiarity of experiences of this sort. Having said all that there was something interesting and exciting about the lack of obvious rules, since everything seems more possible, and events can develop unexpectedly. So perhaps a balance needs to be found that can retain something of the fluidity, but at the same time give players a greater awareness of the potential.

11.6.2 Just an Extra in Something Larger

The experience as a whole left me feeling as if I had merely been an extra in something larger. During the experience I suspected that I wasn't really experiencing the full potential of the game. I never seemed to be anywhere at the right time. I didn't feel like I found anything that important. I felt as if Dorit was shuffling about on the edges not

really getting to anything. I heard about a few minor incidents from other characters, but Dorit didn't get involved in anything. There did seem to be a few signs of things happening elsewhere, but I never found them.

11.6.3 Finding a Friend

I had a few interactions with other players that seemed to go somewhere, and this made the game a bit more interesting. After talking to a character called Edie, and deciding to try doing something together, we seemed to be linked, in that we could move around together. This made things more interesting, and was a definite indication that the game was more flexible than I had at first thought.

11.6.4 Out of Synch Texts

I couldn't always respond to a text if I was doing something else and this could sometimes be annoying and distracting, especially if I missed the opportunity to respond to something that might've turned out to be interesting. On reflection I realized that I this often induced feelings of guilt, or frustration, a missed opportunity to express something, or guilt at having appeared to have ignored someone's request (as described earlier in the section about integration with normal life)

Sometime this also happened because the game moved a figurine on (sometimes mine), just as a text had been sent that was potentially starting a conversation. This was a bit irritating and unnatural seeming. It seemed like the game was not responsive enough at that time to pick up what was going on.

11.7 Summary

In the future I thought it might be interesting to see what happened if the Day of the Figurines structure was used by other artists or scriptwriters to produce other worlds but with the same structure. From an experiential point of view I wonder what would stay the same and what would change. This might be an interesting way to separate the effects of the content from the effects of the structure and mechanisms.

On a more structural note it might also be interesting to assign the players tasks (or have them develop them themselves) that depend on them being in certain places at certain times. This could encourage players to develop more sophisticated strategies of movement and behaviour.

It also might be good to have a few more texts alluding to events that are happening elsewhere in the world. Then players would have more opportunity to find them, and it would make the world seem more alive.

Computer mediated role–playing experiences are on the rise. And I think there are many important issues to be explored about how they can influence our real lives and what can we learn from them. Overall I think that the Day of the Figurines structure has implications for players' attitudes towards role–play itself, and could possibly bring a new awareness of our behaviours in these types of spaces. Its integration with real life does not allow us to escape entirely into a fictional space, and perhaps this encourages a certain responsibility for our role–playing behaviours in these environments.