Day of the Figurines: A Slow Narrative-Driven Game for Mobile Phones Using Text Messaging

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ABSTRACT

Day of the Figurines (DoF) is a text messaging pervasive game for mobile phones that is designed to be slow and interwoven with the patterns of players' daily lives over a month of play. We describe the design and realisation of DoF showing how it is driven by a strong narrative that is crafted from destinations, times and events and yet supports interactivity through chat, the use of objects, health and dilemmas, all of which can be combined into more complex missions. Feedback from a deployment at Singapore that was played by 141 paying players was positive, with 71% of 24 questionnaire respondents saying they would play again and suggests that this format has potential to broaden the demographic for computer games.

Author Keywords

Mobile phones, games, entertainment, text messaging, SMS

ACM Classification Keywords

H.5.3 [Information Systems] Group and Organization Interfaces – *Collaborative Computing*.

INTRODUCTION

Day of the Figurines (DoF) is a pervasive game for mobile phones. It is intended to be a relatively large-scale, long-term and slow experience, being played by hundreds of players over a period of a month, with each player interacting with the game only a few times a day.

To situate DoF in the broader context of pervasive gaming, we turn to the work of Montola and colleagues who have proposed that pervasive games can be seen as extending conventional computer games along three dimensions [10]:

- **Spatially** – enabling players to roam widely throughout the real world as they play and using location-based technologies to connect physical and virtual locations. There are already many examples of such games in the research literature, ranging from reinterpretations of classic computer games such as Quake [12], Unreal Tournament [9] and Pacman [4], to artistic [5] and educational [3] location-based games.

- **Socially** – building on and enhancing social relationships among players and also addressing bystanders. Examples here include digitally augmented board (which are traditionally highly social activities) [8] as well as games that reflect the potential opportunities and risks of involving passers-by in highly public settings such as the city streets [2, 11].

- **Temporally** – being played over extended time frames, existing in the backgrounds of players' lives and being interwoven with their other daily activities, including commuting and travel. Recent examples of such games include Mogi Mogi [7] and feeding Yoshii [1].

DoF provides a further example of the temporal expansion of pervasive games, being fundamentally concerned with how an ongoing pervasive game can be interwoven with the patterns of players' daily lives. However, it also sets out to address some other key concerns. It provides an example of an artistically and narrative driven game, in which a rich vein of pre-authored material is interwoven with player' actions and chat as they role play different characters.

DoF also provides a novel example of how a public 'spectator interface' can enhance a highly distributed pervasive game, framing the experience for new players and providing a global overview of the state of the game.

Finally, in order to ensure that as many players as possible would be able to play DoF using their own mobile phones, it was decided early on in the design process to base the game on SMS text messaging. DoF therefore provides an example of how a traditional multiplayer text game might be adapted to the peculiar characteristics of SMS text messaging (short, slow and relatively expensive messages), building on and extending observations and design guidelines that have emerged from previous text messaging games [6, 13].

DoF has been iteratively developed over a period of more than two years, involving public deployments in London, Barcelona, Berlin and most recently Singapore. This paper provides an overview of the current version of the game from Singapore, summarizing its design and realization and providing initial feedback from players.

AN OVERVIEW OF DAY OF THE FIGURINES

Day of the Figurines can perhaps best be envisaged as a massively multiplayer board game that is played using text messaging on mobile phones. The game follows twenty four hours in the life of a small virtual town. Each player chooses and subsequently controls (via their phone) a small plastic figurine that represents their character, journeys through the town, meets and talks to other figurines, visits destinations, finds and uses objects, resolves dilemmas and undertakes missions.

The twenty four hours of virtual game time are mapped onto twenty four days of real time. Unlike most simulation games in which game time is usually accelerated relative to real-time, in DoF it is slowed down so as to deliberately create a slow game that unfolds in the background of players' ongoing lives, perhaps only involving the exchange of a few text messages each day.

As an artistically driven game, DoF is unlike conventional games in other ways too. The objective is deliberately ambiguous; players are released into the town and told that their goal is to help other players, the rules that govern the virtual city have to be discovered, and there is a strong emphasis on emergent game play in which players construct elements of the game through the exchange of SMS messages.

The back story to the game is that the players are refugees who have arrived in a British Town. The players have to learn how to survive, get to experience various events within the town and ultimately have to decide whether or not to side with an army of soldiers who enter the town towards the end of the game. Players can become more or less healthy and can even die, but beyond this there is no explicit winning or losing. Rather the game is concerned with exploring and constructing a shared narrative through role play, hopefully resulting in an engaging and even provocative experience. In this sense, it is a blend of artistic performance and computer game.

The game board and figurines

Another performative aspect of DoF can be found in the use of a physical game board which is housed in a public venue (the National Museum of Singapore in the most recent deployment). The board is a large and distinctive physical structure which shows the destinations within the town and the positions of the figurines that are playing at any moment in time. Players have to visit the board to register and it is therefore their first point of contact with the game. The board is continually tended by a team of human operators throughout the ten hours of every day when the game is active. These operators register players and manually move physical figurines across the board, following instructions from the game engine, projected onto the table as a series of visible augmentations. Operators are therefore publicly performing the operation of the game, revealing its inner workings for new players and passing spectators, serving to attract attention, generate interest, and frame the overall experience for new players.

Ongoing game play through text messaging

Once a player has registered for the game, which includes choosing key attributes of their figurine such as its name and description and also entering their phone number into the system, they are free to leave the venue. From now on, they control their figurine by sending SMS text messages to the game server, receiving further messages in return that tell them what their figurine sees, hears and experiences. Players control their figurines through a small set of predefined commands and each SMS message that they send has to begin with a recognised command name:

- **GO <destination>** – move to the named destination

- **SAY <message>** – sends this message to nearby players

- **FIND <player>** – checks whether the named player is at the current destination and if they are moves this player to be within talking distance of them

- **PICK <object>** – picks up the named object

- **DROP** – drops the currently held object

- **USE** – uses the currently held object, triggering its particular effect

- **UPDATE** – tells the player which other players and objects they can currently see nearby and reminds them of their current health status

- **HELP** – returns a message directing players where to find online help and also logs a help request in the system for operators to deal with later on

- **LEAVE TOWN** – quits the game for this player

Players can visit fifty distinct destinations. Each time they arrive at a destination they receive its description. Depending on the current game time, destinations may be open, in which case players receive its 'inside the destination' description, or closed in which case they receive its 'outside the destination' description. Internally,

destinations are structured into multiple invisible 'silos' which automatically group players into conversational subgroups such that the SAY messages that a player sends are only distributed to those other players who are in their current silo. Each destination has its own silo size enabling some destinations to feel more crowded and busy (e.g., the Locarno nightclub which has a silo size of 10) while others feel quiet and solitary (e.g., the Cemetery which has a silo size of 1 so that you are always alone).

Each player has a health score that reflects their overall status in the game. Players change their health or the health of others by finding and using objects. For example, using food and drink objects will often increase their health whereas the pool cue is essentially a weapon. Many objects have dual uses, directly or indirectly increasing health when used at some moments and decreasing health at others. For example the plank of wood often acts as a weapon, but is actually needed for breaking into the boarded up shop as part of a mission. A player's health can deteriorate to the point where they become incapacitated, meaning that they cannot move, drop all objects and can only talk to other nearby players. These players may help them by using various objects, most notably the defibrillator which restores incapacitated players (but backfires and hurts its wielder or bystanders if no incapacitated players ate present when it is used). If a player's health diminishes further then they will die and their game is over. It is possible to kill other players by repeatedly using a weapon object on them.

As well as chatting to one another, players interact with various kinds of pre-scripted content. **Events** are authored SMS messages that are associated with a set of destinations and that are sent to players at predetermined times, providing the game with a basic underlying narrative of action that unfolds over time. **Dilemmas** are events that demand a multiple choice response that in turn triggers a subsequent response message and also a change to the player's health level. Finally, **missions** combine multiple events, dilemmas, destinations and objects into more complex and longer-running structures. For example, players at the Internet Café will be allocated a mission to free the dogs from the Rat Research Institute. Completing this mission involves finding a stepladder object (which can be found at the Lock) taking this to the Institute and then using it to scale the walls to get inside. Once inside they have to correctly answer a dilemma about where to run to next. Selecting the correct response tells them to pick up a sick dog object at which point the mission is completed successfully and their health increases. On the other hand, the mission fails if the player gives the wrong response to the dilemma or fails to complete all of the steps within the prescribed time limit, in which case their health decreases. Special 'help player' missions will be automated generated for some incapacitated players, inviting other players in the game to find them and restore them back to better health.

Supporting episodic play

In terms of its underlying realization, DoF includes some techniques that are intended to adapt the experience to the episodic and highly constrained nature of playing via text messaging. Feedback from early deployments suggested that it was important to carefully manage the flow of messages to and from players both for reasons of cost and so as not to annoy them. It was important not to flood players with messages and yet at the same time was necessary to respond to their messages quickly and also to send them at least one message a day so as to maintain their contact with the game. We implemented these guidelines in a set of pacing rules. The silo mechanism described above was a further way in which we tried to prevent players from being flooded with too many chat messages.

We also introduced a message aggregation mechanism to ensure that we used as much of the precious bandwidth of each SMS message sent to players as possible (especially as we were trying to limit the number of messages). This mechanism takes an outgoing message to a player generated by a game event and appends additional information about nearby players and objects and also their current status until the 160 character SMS limit is used up.

In order to support episodic play with appropriate quick responses, we developed a movement model in which players would move directly from a destination to a central hub where they would be allocated either a game event, dilemma or encounter with another player also at the hub, before then being moved to their destination. Consequently, all destinations were in fact equidistant (in spite of the board suggesting otherwise) and players would be quickly allocated a new piece of content as soon as they moved.

AN EXAMPLE PLAYER EXPERIENCE

In order to further clarify the nature of DoF we now present a brief walk through of an example player experience which serves to illustrate the main features of the game.

The experience begins with the player's introduction to the augmented game board at the venue where they choose a figurine from a table of available figurines (figures 1 and 2) and then register their details. Their figurine is placed onto the main game board, initially waiting at the 'edge of town' (see the line of figurines in the foreground of figure 3). The player can inspect the board, seeing its destinations and other figurines (figure 4) and also viewing live text messages that are displayed on a screen attached to the table (the blue screen in then near foreground of figure 3).
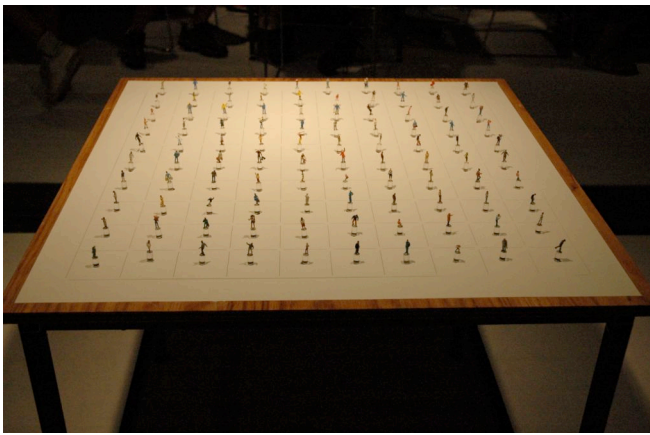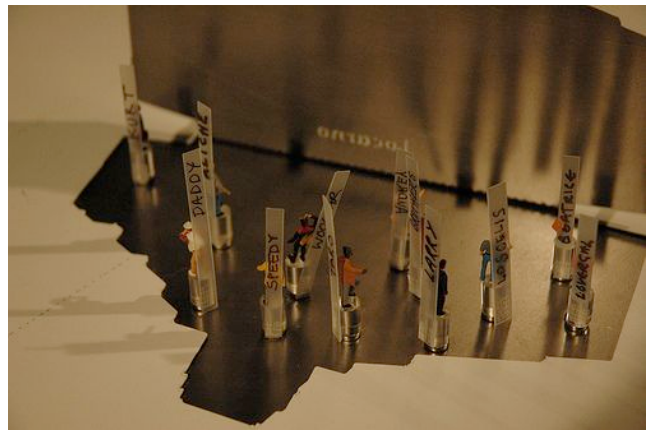
Figure 1:The table of waiting Figurines

Figure 4: Figurines gather at the Locarno

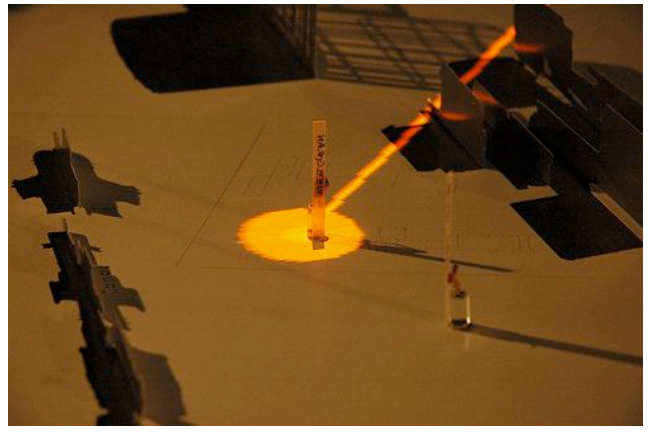**Figure 2: Choosing a Figurine**

Figure 5: Board Augmentation

Figure 3: The Board and Spectator Interface

Figure 6: Moving a Figurine

A projector located below the table shines visible augmentations onto its surface (figure 5), through a hole (figure 6) and mirror mounted above, to help the game operators update the positions of the figurines and to reveal recent movements of figurines to watching spectators. An arrow labeled with the figurine's name is projected to show its journey from its current to its next destination (figure 6).

From this point onwards the game is played by sending and receiving SMS messages. The fragments below show key moments of game play taken from the history of the figurine *FLOSS*. Each fragment shows the messages that the player *received* from and *sent* to the game. It also shows the day and time at which this happened with the fragments occurring between December 6th and 29th, revealing the

overall slowness of the game. Inspection of these timings (which we encourage the reader to do as they go through the fragments) reveals the episodic nature of play and the way in which the game's pacing and aggregation rules try to support this. At it quickest, players exchange messages with the game once every few minutes, with the game responding within a few minutes every time the player takes the initiative. However, there can be considerably longer gaps in between player initiated messages, during which the game backs off from sending all but essential messages – scripted events and other players' chat. In particular, players are not automatically notified of many events (e.g., individual players entering and leaving destinations). Instead, information about who and what is present is aggregated onto the end of more significant messages. Finally, it needs to be borne in mind that there are typically far longer gaps between these fragments.

We begin with Floss's introduction to the game and her movement to a first destination, Kath's Café, via the hub where she is allocated a dilemma.

Received **03:02** GMT Wed 06 Dec	06:00am, welcome to Day Of The Figurines. FLOSS has been dropped by a truck at the edge of town. You are feeling OK. Where do you want to go?
Sent **09:49** GMT Wed 06 Dec	Go kaths
Received **09:54** GMT Wed 06 Dec	06:41am, a cloud passes; a chill runs through you; in the distance shouting. Do you A: Continue on to a street corner B: Rest a moment?
Received **10:29** GMT Wed 06 Dec	06:45am, you carry on; a group of men, pre-occupied with a figure on the ground, are shouting. They notice you. The shouting changes. You keep moving.
Received **10:38** GMT Wed 06 Dec	06:46am, you've arrived at Kath's Cafe, brickies demolish white food. There are many steaming hot mugs of TEA here. You are feeling OK.

Sometime later Floss is talking to the figurine XIAOCONDOM at the Internet Café when she is allocated the mission of freeing the dogs from the Rat Research Institute. Please note the player, object and destination names are always capitalised in messages.

Received **09:52** GMT Sat 09 Dec	09:45am, new task: while online your pc judders; the screen goes black; luminous green text appears: get those DOGS out of the Rat Research Institute now.
Sent **10:00** GMT Sat 09 Dec	Say scrambled eggs 'n' red bull sounds good to me. Hey i just got a mesg on my screen about freeing some dogs. Did u get that?
Received **10:05** GMT Sat	09:46am, XIAOCONDOM said: "to floss "yeah man! Am preparing a script while i dream about my red bull. Got that message too think we

09 Dec	have to go to the rat research to get the do"
Sent **10:19** GMT Sat 09 Dec	Say yeah lets head for the RRI to free those dogs!
Sent **10:30** GMT Sat 09 Dec	Go rat

In the following, we rejoin Floss sometime later as she nears the end of this mission. She has been to the Rat Research Institute and realised that she would need a step ladder to get in. She has since found a step ladder at the Lock, picked it up and returned to the Institute. The following sequence shows how missions combine other game mechanisms such as the use of objects (in this case a stepladder) and dilemmas into more complex and sustained sequences of action. Floss chooses the wrong option in the final dilemma and fails her mission.

Received **09:01** GMT Sun 10 Dec	10:36am, the fence is high. A passing workman gazes up at that high fence: Gor blimey, guvnor, you ain't getting over that without a step ladder, so you isn't.
Sent **09:05** GMT Sun 10 Dec	Say hey everyone, i found a load of stepladders at the lock. Let's see if they get me in.
Sent **09:06** GMT Sun 10 Dec	Use stepladder
Received **09:08** GMT Sun 10 Dec	10:36am, You are feeling OK.
Received **09:11** GMT Sun 10 Dec	10:37am, you nip up the steps and jump down inside the yard. Fantastic work, liberator! Wait for a second to catch your breath.
Received **09:36** GMT Sun 10 Dec	10:39am, now do you A: Run across the car park in a crouch to reception B: Creep around the perimeter to a fire exit C: Smash a slot window at basement level?
Sent **10:01** GMT Sun 10 Dec	A
Received **10:06** GMT Sun 10 Dec	10:42am, you stumble on a patch of greasy substance, alerting a guard in reception. Task failed. You head for the exit and come across a SICK DOG. Pick it up.

Our next fragment shows the use of objects to change a player's health. In this case, Floss downs a pint of Vale (beer) which improves her health level to "well".

Received **12:06** GMT Thu	09:57pm, you've arrived at the Trafalgar Sq, Italian football is on the telly. BERNARD, EVE and SUCHDA are here. There are many PINTS

21 Dec	here.
Sent **12:09** GMT Thu 21 Dec	Use pint
Received **12:13** GMT Thu 21 Dec	09:57pm, you down the pint of Vale leaving a modest foam moustache on your top lip. You are feeling well.

The first message in this sequence shows the DoF message aggregation technique in action. The first part of the message ("09:57pm, you've arrived at the Trafalgar Sq, Italian football is on the telly.") is a pre-authored destination description message that is sent to players when ever they arrive at the pub "The Battle of Trafalgar Square". The text "BERNARD, EVE and SUCHDA are here. There are many PINTS here." has been dynamically appended to this in order to give the player information about their current surroundings, trying to maximise the use of SMS bandwidth.

Players can also explicitly request information about their current state, surroundings and mission if they have been assigned one via the UPDATE command. In this example, Floss is on a mission to find a wristband.

Sent **05:01** GMT Mon 11 Dec	Update
Received **05:05** GMT Mon 11 Dec	11:12am, You're at the Video Zone. You are feeling ill. You're looking for a WRISTBAND.

The following message shows that objects can also damage health as the player ADOLPH hits Floss with a crowbar, reducing her health to "OK".

Received **12:27** GMT Sat 09 Dec	09:57am, ADOLF tosses a CROWBAR in the air. Flashing white pain as it catches you in the back of the neck as it falls. You are feeling OK.

It is also possible to use objects such as the defibrillator to restore other players to health. In the following sequence as Floss arrives at the boarded up shop, the player GRANNY FLY has become so unwell that she is incapacitated, i.e., can no longer move, or carry and use objects for herself. Luckily BERNARD applies his defibrillator to restore her to health, although it does take two attempts.

Sent **05:43** GMT Mon 11 Dec	Go boarded
Received **05:48** GMT Mon 11 Dec	11:16am, you are near the honking corpse of a maggoty rat, on your way to the Boarded Up Shop.
Received	11:21am, you've arrived at the Boarded Up

06:34 GMT Mon 11 Dec	Shop, covered in peeling posters. GRANNY FLY and DESHAWN, wearing a FLEECE are here.
Received **10:02** GMT Mon 11 Dec	11:41am, BERNARD leans over GRANNY FLY & presses the pads of a DEFIBRILLATOR to his chest; he sits upright; looking much better. GRANNY FLY is here.
Received **10:13** GMT Mon 11 Dec	11:42am, BERNARD said: "Granny, are u feeling better now?"
Received **10:16** GMT Mon 11 Dec	11:43am, GRANNY FLY said: "BERNARD thanks i just collapsed again i'm going to die!"
Received **10:17** GMT Mon 11 Dec	11:43am, BERNARD leans over GRANNY FLY & presses the pads of a DEFIBRILLATOR to his chest; he sits upright; looking much better.
Received **10:21** GMT Mon 11 Dec	11:43am, GRANNY FLY said: "bernard, u are such a dear, helping an old lady, god bless your kind soul!"

Players receive at least one daily introduction message at the start of each day to keep them in touch with the game, as in the following example:

Received **03:00** GMT Thu 07 Dec	07:00am, a stringy mist weaves through the streets. You can feel bargains in the air, You're at Kath's Cafe. You are feeling OK.

Although there is only a small set of commands to deal with, players can still make mistakes or circumstances can render a command impossible to carry out, in which case the system must return an error message as we see in the following example in which Floss tries to pick up an object that isn't there. However, the game does provide aliases for commands, destinations and objects in order to be as flexible as possible. In this case 'defib' is a valid alias for a DEFIBRILLATOR.

Sent **09:42** GMT Wed 27 Dec	Pick defib
Received **09:44** GMT Wed 27 Dec	03:41am, you can't see an object of that name to pick up. Perhaps someone else has taken it?

Finally, the following extended sequence shows the end of the game for Floss. She is one of the lucky players who made it to the Recreation Ground by the end of the game and were airlifted to safety (everyone else died), though not without first experiencing some trepidation.

Received **06:20** GMT Fri 29 Dec	05:21am, DELIGHT said: "I'm ill but don't think i should leave this place if e helicopter is arriving here right?"

Received **06:38** GMT Fri 29 Dec	05:23am, MIDNITE said: "delight why not?"
Received **06:51** GMT Fri 29 Dec	05:24am, DELIGHT said: "THERE'S A HELICOPTER COMING THAT'S SUPPOSED TO SAVE US"
Received **07:14** GMT Fri 29 Dec	05:27am, CHERYL said: "its not time yet."
Received **07:16** GMT Fri 29 Dec	05:27am, DELIGHT said: "isn't e game ending today?"
Received **07:29** GMT Fri 29 Dec	05:28am, CHERYL said: "yeah. Thats what i thought too. I think it does at 9 in the night."
Received **07:42** GMT Fri 29 Dec	05:30am, as you all wait, a soldier moves down the line. He stops and shoves you. Do you A: cower B: stare him in the eye C: shove him back?
Received **08:21** GMT Fri 29 Dec	05:34am, you can smell sweat mingled with aftershave as he leans close. He flicks you on the nose, giggles and moves on. You are feeling a bit well.
Received **10:09** GMT Fri 29 Dec	05:45am, soldiers shove you onto a metal ramp and into the back of the helicopter. It's a crush: HALO, MIMIMOMO, SAMANTHA and PUPPET are here.
Sent **10:14** GMT Fri 29 Dec	Say Looks like this is the survivors party. At least i hope so
Received **10:18** GMT Fri 29 Dec	05:45am, SAMANTHA said: "i hope this is not a one way ticket to the concentration camp..."
Received **11:18** GMT Fri 29 Dec	05:52am, the metal door of the helicopter slams shut, plunging you into darkness apart from a tiny port hole. Through the scratched perspex you can see grass.
Received **12:07** GMT Fri 29 Dec	05:57am, with a roar the chopper sways and takes off. Below in the town you see scattered refugees stranded as you bank away into the grey dawn light.
Received **13:17** GMT Fri 29 Dec	06:04am, dawn rises over the town as refugees flood the streets. 75 people have died but some have survived. The day is over. Thank you for playing Day of the Figurines.

PLAYERS' OPINIONS OF DAY OF THE FIGURINES

We now turn our attention to players' opinions of Day of the Figurines from when it was deployed in Singapore, identifying those aspects of the game that they liked, those they disliked and also their suggestions for improvement.

DoF in Singapore was played by 141 players who collectively sent a total of 12,685 messages to the game and received a total of 21,767 messages from it (a ratio of 1.7). Players had to pay an initial ticket price of 5 euros to join the game and subsequently had to pay for any text messages that they sent.

Figure 7 summarises the overall pattern of players joining the game, voluntarily leaving the game or being forced to leave it through being killed. The large majority of players joined during the first nine days. 18 (13%) players chose to leave of their own accord. 59 (42%) players were killed, mostly at the end of the game.
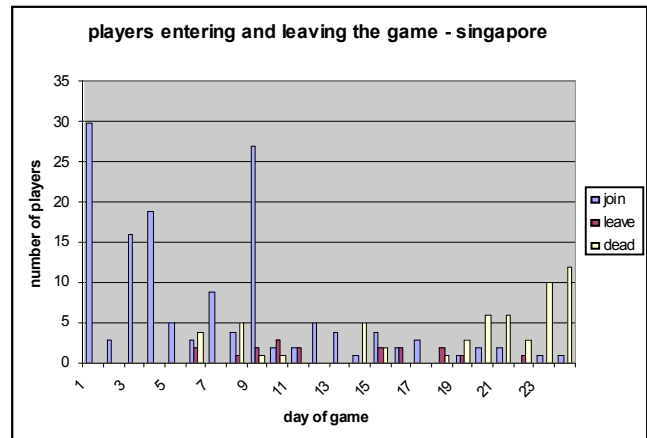

Figure 7: Players joining, leaving and dying over 24 days

We administered an online questionnaire that probed players' attitudes to and experience of the game. The questionnaire was made available to public players, but not to any of the game's developers and operators and other close insiders who took part in order to ensure the most unbiased opinion possible. Players were paid 10 euros in gift tokens after completing the questionnaire.

Players' backgrounds
We received 24 responses. 18 (75%) of the respondents were female and their average age was 27.

We asked players the question**: "Do you consider yourself a gaming person (for any kind of game electronic or not)?"**. 17 (71%) of our respondents answered no, 6 (25%) answered yes, and 1 did not respond.

We also asked them: "**Which of the two systems do you prefer when sending a message to another person? Mobile phone – SMS messaging or email"** 17 (71%) preferred SMS, whereas 7 (29%) preferred email. In response to the question: **"How often do you send text messages on your mobile phone?"** 4 players said between 0 and 5 every day, 8 said between 5 and 10 every day, 6 said between 10 and 15 a day, and 6 said more than 15 every day.

We asked players the question: **"Overall, how much did you enjoy Day of the Figurines? 1 being not at all and 10 being you really liked it."** The mean value of the

responses was 6.5, tending towards enjoying the game, with a standard deviation of 2.12. 2 players said that they really did not enjoy the game while 3 said they really enjoyed it.

We also asked our players: **"Would you like to take part in future games of Day of the Figurines?** 71% of players said that they would whereas 29% said that they would not.

Overall, we conclude that DoF was a generally enjoyable experience for our players.

Players' likes and dislikes

We also asked players: **"What was it you liked about the game?"**. 8 players mentioned that they liked the general idea of the game, especially its novelty, for example:

> *Interesting concept*
>
> *It's something new and the messages were entertaining at times*
>
> *The novelty*
>
> *I liked the idea of it*

The storyline appears to have been an attractive feature, especially its unpredictability, openness and interactivity:

> *Customisable. Interesting storyline*
>
> *The storyline and involvement*
>
> *The mystery and turn of events in the town. Not knowing what will happen with every step i take*
>
> *Thrill. The fact that I could die anytime.*
>
> *How it forces one to use their imagination and how players are able to shape their characters*
>
> *And the messages received had a good impression made on me*
>
> *The unusual things that happened to my figurine*
>
> *I liked how it ended*

Others liked the social aspects of the game:

> *To chat with people I would never have met otherwise. To be able to get out of the game's pre-defined (and strange) ways to build my own adventures*
>
> *Interacting with others getting involved in game developments*
>
> *Able to mix with other players*

One commented on the figurine:

> *The figurine*

And another liked the fact there was no time pressure:

> *It is played by many at the same time   and yet no time pressure*

We also asked**: "What was it you didn't like about the game?".** Some struggled to grasp its overall purpose or how to engage with specific aspects such as the health system:

> *I couldn't grasp the purpose of the game truly*
>
> *There was no clear objective*
>
> *Sometimes the ambiguity of the story*
>
> *Did not understand how to improve my health conditions*

Others found there to be too many pre-authored messages and wanted more interactivity:

> *Too many informative messages whereby players could not partake in.*
>
> *Getting too many descriptive texts*
>
> *The lack of things to do*
>
> *There weren't too many choices as to what I could do*

Slow responses from the system or from other players could also be frustrating:

> *The slow response from the system*
>
> *The replies were slow at times.*
>
> *The quiet moments when no one is responding*

As could being too ill to move and act in the game:

> *When I couldn't do anything but wait to die when I was mortally wounded*
>
> *Towards the end of the game being sent messages again and again to go somewhere and escape and knowing that I was too ill to move!*

Social interaction was not uniformly seen as a good thing:

> *Too many msgs. form unknown unrelated people saying random things*
>
> *Some unpleasant chat experiences*

Others did not enjoy the tone of the game:

> *The moral decay. nothing happy about the game.*
>
> *Unnecessarily violent*
>
> *Too decadent*

One player had problems fitting the game to the pattern of their daily life:

> *I'm usually more awake and free during the night and early morning (12am) so i didn't get to play much.*

Finally, we asked players: **"What do you think would have made your gaming experience even better?"** The most popular suggestion was for more missions and tasks:

> *More inventory and more quests*
>
> *More tasks*
>
> *More things to do with your figurine. Maybe solving a mystery could be something*
>
> *If there were alternate tasks and events*

Three players also suggested to be able to see the game board remotely via an online interface:

> *If the game board was available online for us to view rather than having to visit on location*
>
> *Interactive board on the web*
>
> *Have the board online*

Others requested better instructions:

> *Better instructions? More help?*
>
> *I think more instruction on how to play the game better should be given. as initially I am totally lost and I am not the only one*

One specific proposal for an extension was to extend the find command to locate objects as well as other players:

> Need a function ""FIND"" for objects too"

While another player would have preferred the virtual town to have been based on Singapore:

> A localised version for Singapore

The impact of the augmented game board

The physical game board with its augmentations is a particularly interesting and distinctive feature of DoF and so we wanted to understand its impact on players. We asked: "How did the physical game board contribute to your experience of Day of the Figurines?" 17 (71%) of players gave positive answers while 7 (29%) gave negative ones. Positive impacts included making the game feel more realistic and helping players visualize the town, with some players commenting on its physicality:

> That makes the games more interesting. I know where I am located and it makes the games more real too not only a game through sms.

> Made the game more realistic. It was good to see my character move around physically on the game board.

> Gives me an idea of what the town looks like and who were where

> I can picture where i am better

> It gave me mental image of areas in the game

> Gave me a visual overview - physical touch to the game

> It provides a realism to the game.

> Connectivity and a sense of weird realism

> Made experience more tangible

> Gives a blue print of the town for better representation

Some players commented that the board helped them locate other figurines:

> I can locate other players easily

> helped figure where everyone was

> yes! yay! :) i like seeing my piece move   and where the rest of the pieces are

And others noted that the table provided an opportunity to meet other players:

> Interesting to see my figurine and meet other player

While some appreciated its novelty:

> Showed my friends and they thought it was insanely cute

However, other players felt that the board had little or limited impact:

> Nothing much. Only the first time I found it interesting other than that I didn't think it would affect my game

> None. Couldn't there be a webcam or something?

> My figurine's location didn't correspond to where the messages said it was supposed to be

Summary of feedback

The majority of those players who responded to our questionnaire appears to have enjoyed playing Day of the Figurines as paying customers and would be willing to play again. Indeed, only 13% of all players chose to leave the game voluntarily. Respondents appreciated the overall concept of the game, the nature of the interactive narrative and the augmented game board, although some wanted more content, clearer instructions and remote access to the board. It seems that Day of the Figurines as delivered at Singapore provides a sound baseline for developing long-term, narrative-based pervasive games that be played using SMS on nearly every available phone.

It is also interesting to note that a large proportion of our respondents were females who made extensive use of their mobile phones, but did not describe themselves to be conventional gamers, raising the intriguing possibility that this format of pervasive game may be able to extend the demographic for games beyond its traditional limits.

That said, we require a deeper understanding of the impact of different aspects of DoF in players as well as a richer understanding of their patterns of play, both of which are subject to ongoing analysis.

CONCLUSION

We have described a pervasive game for mobile phones called Day of the Figurines. Distinctive characteristics of this game include being artist-led, narrative-driven and based on the use of SMS messaging, making it widely deployable.

Throughout more than two years of development, DoF has evolved a structure and some supporting techniques that should be adaptable to other games of this form in the future. Some key aspects of this structure include:

- A backbone of content that is based around discrete locations and times that are populated with a rich vein of pre-authored events to provide a driving narrative that underpins the experience;

- Support for player interactivity through chat, use of objects, health, simple dilemmas and the combination of these into more complex missions;

- A slow-pace of play in which hours of virtual game time are mapped on days of real time, with players on being required to send and receive a few messages each day.

- Adaptation of the game to the specific characteristics of SMS text messaging through a set of pacing rules, the use of variable size solos to constrain text chat at different destinations, and a message aggregation technique.

- The use of a physical game board and figurines, augmented with digital projections of movement information, to reveal the state of the game to spectators and to frame the experience for players.

Player feedback from a month long deployment of DoF in Singapore where it was experienced by more than 140

players was largely positive, suggesting that this format of pervasive game has the potential to engage players, possibly broadening the demographic for computer games. However, feedback also revealed that further improvements need to be made to the game.

At the time of writing, Day of the Figurines us schedules to tour the UK during 2007, which will provide opportunities for further refinement and research.

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