

# Bicker Manor: A Cross-Media Environmental Campaign using Missions

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## ABSTRACT

In this paper, we describe the design and implementation of a cross-media environmental campaign called Bicker Manor. We describe how the experience allowed players to participate using mobile phones by sending SMS and MMS messages, the web and interactive television. We describe how the experience used characters to playfully challenge players to complete missions with an environmental twist, before describing a generic, reusable mission framework and implementation with associated authoring and orchestration tools. Finally, we briefly describe the pilot of the experience and initial findings from an ongoing evaluation.

## Categories and Subject Descriptors

H.5 [Information Interfaces and Presentation]; K.8 [Personal Computing]: Games.

## General Terms

Design, Experimentation

## Keywords

Cross-media, Missions, Convergence, Web, Mobile, IPTV, Authoring, Orchestration, Campaign

## 1. INTRODUCTION

Cross-media and pervasive games make use of a variety of gaming devices and gaming interfaces to allow players to make use of a variety of different forms of participation, and to expand the conventional “play session” to encompass and interweave with elements of everyday life. In particular, Day of the Figurines [3] used SMS in a long-running game that allowed players to participate whenever and wherever they wished. The Epidemic Menace [6] mixed mobile game play with more traditional media, including professionally produced television.

Experiences such as Hitchers [2] and Mobi-Missions [4] proposed

the idea of a mission, a small challenge that a player can complete using their own mobile phone to progress within the game, before returning to their everyday activities. Professor Tanda’s ‘Guess A Where’ [1] is a mobile phone-based game in which a fictitious character asks players questions about their day to day life to establish a profile of their environmental footprint, while delivering hints and tips about ways to reduce it.

This paper builds on these ideas, describing the design, implementation and initial trial of an experimental campaign called Bicker Manor. The experience allows members of the public to use a combination of the Web, their mobile phones and interactive television to report and compare their environmental behaviours and attitudes. Bicker Manor mixes elements of Web 2.0, social networking, games and television in an attempt to create an engaging cross platform experience. At the heart of Bicker Manor is the idea of a ‘mission’ as a bite-sized chunk of authored content that drives players to engage in different ways at different times and locations, and that can be integrated into a larger campaign narrative.

## 2. AN OVERVIEW OF BICKER MANOR

Bicker Manor is an interactive game experience that playfully asks members of the public to engage in a series of ‘environmental’ missions, challenging them to reflect on the impact their actions have on the environment. A pilot of Bicker Manor ran for 21 days in November 2008 with approximately 80 players taking part.

A fictitious family named ‘the Bickers’ provide a framework for the experience and enable players to share a common goal. The Bickers are an archetypal but dysfunctional family. Michaela, the teenage daughter, guides players through the experience and provides an overall narrative, in addition to showcasing the ‘best of’ content submitted by players. She introduces the campaign as a contest between her parents, Eve; a green environmental evangelist, and Isambard; who is thrifty but skeptical. Players are asked to choose between Eve and Isambard as their host character, and both offer missions which challenge users to do a variety of activities and tasks on their behalf. The overall goal for players is to have a fun experience engaging in a variety of playful, educational and challenging missions, in an attempt to support their chosen character in winning the family contest.

Players are challenged to complete a ‘mini’ mission each day, and one or two ‘mega’ missions each week for the duration of the experience. Missions range from answering simple multiple choice quiz questions, discovering and reporting facts from

around the home, to taking pictures and creating videos. Each mission and subsequent responses to the player are voiced by the character that they have chosen to support.

### Mission Result

#### Isambard's Eco Mentor Mini Mission

Isambard's Reply



03/03/2009 09:29 - Overrated in my opinion. But, you could discuss the inconvenient truths of modern life. The pros and cons of offsetting carbon emissions perhaps? Isambard

#### Overall Results

Wouldn't it be great to tackle all those tricky 'climate change' issues over dinner with your favourite Environmentalist? I asked my gang who they'd like to invite from my notable guest list which included, Leonardo DiCaprio, Al Gore, Chico Mendes or Swampy. The perfect dinner guest, by popular demand was Al Gore.



Figure 1: Viewing the Results of a Quiz Mission on the Web

A website acts as a hub for all players and enables them to interact fully with the experience, selecting and responding to missions, viewing other players' responses to missions and keeping track of their chosen character's progress. Once signed-up, players may also choose to sign-up to additionally participate using a mobile phone, via SMS and MMS messaging, and IPTV (Internet Protocol Television) provided by BT's Vision platform, with each supporting a subset of the experience's functionality, depending on the technical limitations of each platform. A new mission is automatically allocated to players each day, with each player receiving a notification via their preferred platform that they have a new mission – an SMS for those with mobile phones, an email for the website or a notification message for IPTV, asking players to log on and check out the latest mission.

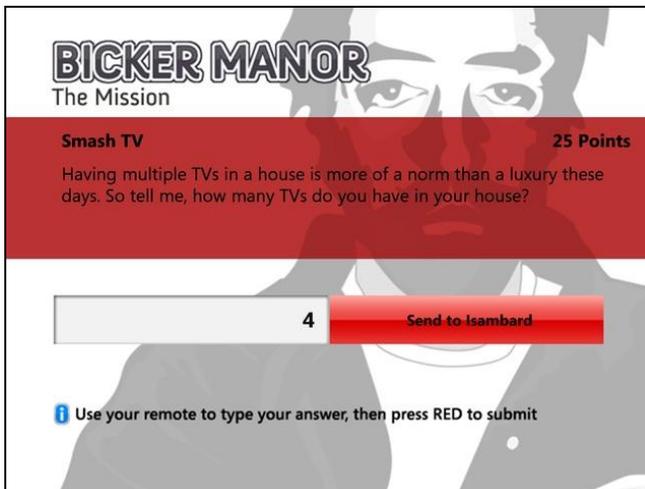


Figure 2: A Measure and Count Mission on IPTV

Daily mini missions are designed in such a way that they can be completed immediately using any of the platforms, with additional background information and media added as the platform allows.

Below is an example of a multiple-choice quiz question received on a player's mobile phone via SMS:

*How much rubbish do you think the average person throws away each year? A) 10 times, B) 25 times, C) 50 times, or D) 100 times, their own body weight? Isambard.*

Response: C

*50 you say. Well you're only 500% out! On average people in the UK actually throw away about 10 times their own body weight in rubbish each year. Ta, Isambard*

The player submits their answer back to the system using SMS, and in return receives some more relevant information, which may include aggregated summaries of the answers received from other players so far, allowing the player to compare their own answer against others.

Some missions involve the player investigating something in their own local environment and reporting back, before the character draws attention to a relevant environmental fact:

*How many 'plugins' air fresheners have you got around your house?*

Response: 3

*Just getting rid of one could save you 21.9 kWh hours a year! The average number of the little blighters was 2*

Mega missions ask players to perform a task, and then document it using photos or video for other players and the characters to see. The 'Soggy Moggy' mega mission asks players to keep a record of excess water boiled in a kettle, and document themselves doing this, while the 'Cardboard Henge' mega mission asks players to collect cardboard packaging, use it to create a sculpture and then document and upload the results. Players can upload pictures and video using MMS via a mobile phone, or directly via the web. In this way, a mobile phone can be used in tandem with the IPTV platform, which does not support media uploads, to create a media-rich experience for the television.

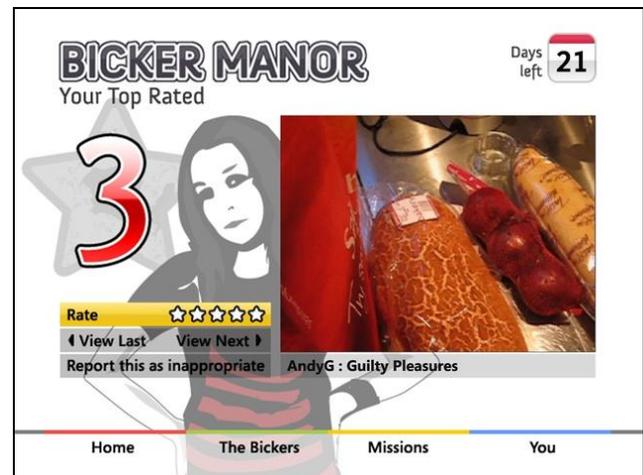


Figure 3: Viewing Top Rated Uploads on IPTV

While the notification of each new mission is pushed to the player, and is designed to encourage them to take part when they receive it, players are given 24 hours in which to complete their current mini mission, or a few days for a mega mission. If they fail to respond within this time, they receive a final notification that,

in keeping with the characters, gently chastises them but also encourages them to come back and attempt further missions. Missions that players have been allocated, but not completed, are available in a mission 'pool' and can be attempted again at a later date, along with a number of additional missions that can be used to score extra points for a particular character. Missions also attempt to ramp-up player participation – once they have completed a simple multiple-choice quiz mission, the character's response encourages the player to move onto one of the more involved mega missions available in the pool.

The experience supports a basic level of social networking via the website and IPTV platforms. Each player can create a personalized list of people they know, which can then be used to keep track of what others are doing, how many points they have scored and the number of missions completed. Players can also view and rate (using a 5 star system) media content uploaded by other players and these ratings are used to populate a 'top ten' list for each character.

### 3. A FRAMEWORK FOR MISSIONS

Bicker Manor is implemented within a generic, reusable mission engine that supports the fundamental mission logic of the Bicker Manor experience. We define a mission as an atomic challenge given to a player that elicits a single answer, to which the player then receives a response. Basic mission types can be nested or grouped together to create more complicated missions, and all of the missions viewed together form a campaign. Our missions framework currently supports four basic types of mission, which require varying levels of effort to be invested by a player:

**Multiple Choice Question Missions:** This is the simplest and quickest mission to complete. These take the form of a single question that has between two and four pre-defined possible answers included. All multiple choice question missions are text based questions, meaning that they can be responded to via the website, mobile phone or IPTV platforms. Typically, they should take a user no longer than 60 seconds to complete. Each possible answer results in a response to the player from the system, attempting to place their answer in context and including information regarding how other players have answered.

**Measure and Count Missions:** These missions focus on asking players to measure or count things in their local environment and then to provide this information to the system. These measurements could be done with or without tools, but should typically take no longer than 5 minutes to complete. However, they may require the player to wait until they can take a specific reading, for example measuring the depth of their bath water, or taking a gas meter reading. Some questions could be answered immediately, such as counting the number of tungsten and eco-friendly light bulbs in their home.

**Answer and Explain Missions:** These missions are designed to solicit significantly deeper insights from players as to their knowledge and views surrounding issues and topics highlighted within the theme of the experience. In Bicker Manor, for example, players were challenged to think of thrifty green tips for saving money around the home, and to think of how farmers might reuse old car tyres. These missions can only be completed on platforms that allow text input, excluding the IPTV platform. In response, players receive a generic thank you message from the character, while all responses are made available for browsing online.

**Capture and Create Mega Missions:** These missions ask players to perform a creative task, such as creating a sculpture using recycled cardboard as described earlier, and then to document it with photographs, videos and an optional text description, which are then uploaded to the system. Typically these mega missions are provided by Eve and Isambard every 4 or 5 days during the experience, however during the last week of the pilot a series of five mega missions was created to explore how effective daily prompts were at encouraging players to take photos at regularly timed intervals. These mega missions can only be completed on platforms that support media uploading, for example via web or via MMS from a mobile phone, although these missions can be completed on the IPTV platform by uploading images using a phone and then browsing and submitting them using IPTV. Again, in response players receive a generic thank you message from the character, while all responses are made available for browsing and rating by other players.

Each mission has one or more authored *rules* that define how a player is expected to respond in order to complete the mission, and what kind of data is expected as an answer. Each rule has a subsequent *response* that is given to the player if the rule is fired correctly. For example, a mission rule may define how long the player has to complete it, with a response that describes actions to take when this time runs out. A collection of further rules will fire if the player responds with A, B, C etc, or a certain range of numbers if asked for numeric input. The experience author defines *types of information* that the player is allowed to submit, for example, a number between 0 and 50, a letter choice of A, B, or C for multiple choice quizzes, or a flexible mixed-media response of text, images and video. In keeping with our previous definition of a mission that sets a challenge, elicits an answer and then gives a response, each atomic mission has an associated *prompt* that is sent to the player when the mission is allocated, containing information about their task and how they are expected to respond. For example, in a Multiple Choice Quiz mission the prompt would contain the question.

The mission framework is implemented as a web application that makes use of the Equip2 middleware platform [5], and is hosted within a Tomcat installation supported by MySQL. Equip2 provides a persistent Java object dataspace, and the core mission engine uses this to store authored missions and to maintain the state of ongoing mission instances. This core mission engine sits within a distributed system of platforms. Each client that players may use to participate is supported by a dedicated platform, in this case mobile, web and IPTV. Each platform is responsible for translating the generic mission definitions provided by the mission engine into an interface appropriate for each type of client. For example, the mobile phone platform is required to parse incoming SMS responses and attempt to map them to an appropriate information type for a player's current mission. Conversely, the IPTV platform takes the information type and uses it to generate an interface appropriate for interaction using BT Vision hardware, restricting the player to a certain set of options. Each of the objects that form part of a mission has a collection of text, or links to media, appropriate to each platform. For example each prompt contains a short text version of less than 160 characters that is suitable for pushing out over SMS, while a rich-text version contains more content and images for when the prompt is displayed on the website. This aims to make it reasonably straightforward to add further platforms in the future.

To facilitate the Bicker Manor experience, we provided a set of tools for *authoring* and *orchestrating* missions both prior to the pilot and while it was ongoing. As Bicker Manor consisted of a large number of complex missions, each containing many dataspace objects, to expedite mission authoring the core mission engine was extended to include a dedicated authoring tool. The tool allowed authoring against the live dataspace, enabling authors to employ a “just in time” mission authoring strategy – creating and testing the next day’s missions in-situ before they were allocated to the players, allowing rapid iterative mission development. It provides three key components – authoring individual missions, organizing missions by date to create a coherent experience, and testing and sanity checking newly authored missions. The orchestration tool provides a variety of views on the ongoing trial, including high-level summaries on the number of active and completed missions, and registered players, but also allowing an operator to drill down to examine a particular player or mission in more detail, and if necessary perform actions on behalf of the player, for example by starting or aborting a mission. Finally, the orchestration tool provides an interface to allow the moderation of free-text and media content submitted by players for copyrighted or inappropriate material, before other players may see it.

#### 4. PILOTING BICKER MANOR

The Bicker Manor experience was piloted for three weeks in November 2008, with 87 players, of whom 6 were members of the development team. Of these players, 29 additionally signed up to use the mobile platform, and 17 signed up to use the IPTV platform (a requirement being that they had a BT Vision installation in their homes). 9 players signed up to use all three of the available platforms. The pilot consisted of 42 mini, or daily missions, and 8 mega missions, with each character having their own variant of each mission. 13 players responded to a questionnaire about their experience playing Bicker Manor.

Analysis of system logs reveals that 1261 missions were completed by players, with 1622 missions being allocated but timing out. Approximately 50% of mini missions allocated were completed and approximately 20% of mega missions. Around 25% of the missions were started by players as additional missions from the mission pool. Most respondents took part in the experience for between 2-10 minutes per day, and 46% would have liked two missions a day, implying that more mini missions could have been added over mega missions. Interestingly 53% of respondents used different platforms at different times of the day and in different social settings - “web at work, BT Vision at home” and “mobile at work”.

69% of the respondents found that the tone of the experience was funny, while others were less enthusiastic, and thought that it was “silly”, “Wouldn't say humorous” and “not really (humorous)”. 38% thought that the humour in the experience persuaded them to do the mission. One person reported that the humour made the experience feel less worthy. Others felt that they would have engaged more with the characters if the content had not been aimed at children, and perhaps had a more serious environmental agenda. Encouragingly, 76% responded that they felt that they had learnt something from taking part in the experience and 84% of respondents discussed the experience with other people

Some players commented that they would have interacted with the experience more if they had a greater ability to engage with other players, and associated with this was a generally reported difficulty with making the ‘friends’ system meaningful in the context of the rest of the experience, highlighting an important area for future development particularly given the widespread use of other social networking applications. Furthermore, some players commented that they would have liked more information relating to what and why other players were doing in the missions.

Overall player feedback gathered by questionnaires was largely positive, suggesting that this format of campaign has the potential to engage players. However, the feedback also reveals that further improvements need to be made, particularly regarding the balance of mini and mega missions, the scope and nature of the narrative of the experience, and the framing of additional functionality such as scores and social networking alongside the missions.

#### 5. ACKNOWLEDGMENTS

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