

The development of the KubeMatrix™ as a mobile app for Market Research Online Communities

Deborah Wilson and David F. Birks

Abstract

The Talking Walls® is a multimedia application that can be adapted to suit any heritage site or historical building. The application recreates specific timeslices of a space, for example as defined by the architectural changes to the property. The application has been designed to be delivered via a range of different technologies such as DVD, Kiosk and via a mobile / PDA / small screen devices. The template components are libraries of 3D objects of different historical periods, educational puzzles, history fact sheets and lifestyle images and audio. The application uses the KubeMatrix™ which acts as a navigational tool, representing time, and space in an n -dimensional format. This paper explores the potential applications and challenges of developing the KubeMatrix in the context of engaging with participants in brand based Market Research Online Community (MROC). In order to make the connection between the KubeMatrix and market research, three contemporary research challenges are addressed. The challenges of participant engagement, gamification and mobile device design are briefly presented to show their interconnections and relationship to brand MROCs. A key purpose and element of the brand MROC is to communicate to participants. The nature and enjoyment of such communications can impact upon the quality and quantity of research conducted in a community. The paper posits that the KubeMatrix could play a major role both communicating and eliciting a breadth of quantitative and qualitative information from participants in brand MROCs. This role can work in manner that delivers bespoke experiences for participants and can do much for their engagement and enjoyment of the research experience.

Keywords

KubeMatrix, market research online community, participant engagement, gamification, mobile device, brand heritage.

1. Introduction

The purpose of this paper is to evaluate the potential of KubeMatrix technology to be developed as a mobile application for brand based Market Research Online Communities. We start by describing the

purpose and main context in which KubeMatrix was first used. This main context was for The Talking Walls, a heritage application delivered by a kiosk at Beaulieu Abbey. We then describe and illustrate the nature of KubeMatrix, as it was used in this kiosk context. The challenges of developing KubeMatrix for mobile devices are then evaluated. These descriptions are then used to speculate how KubeMatrix could work in the context of a number of debates and developments in market and social research. This context brings together the challenges of: participant engagement, gamification, and mobile survey design in the use of online communities. The final section addresses the value of KubeMatrix as an app that would both inform community participants and elicit a breadth of information from them, in an approach that is both engaging and mobile. This section presents an example of how the KubeMatrix could work for mobile phone brand.

2. The Talking Walls®

The Talking Walls is a multimedia template application that can be adapted to suit any heritage site, museum or historical building. The concept was initially devised to provide children with visually rich 3D material on which their imagination could feed and expand. It was subsequently developed to engage an array of visitor types and modes of engagement at a number of heritage sites. A major project for the application was a multimedia and digital form of storytelling in a permanent kiosk installed at Beaulieu Abbey's Domus Museum. The project involved the visual restoration of Beaulieu Abbey, a Cistercian Monastery that was partially destroyed during the Reformation. Virtual tours of the monks' stories, historical developments and a visualisation of their lifestyles provided a guide for an array of visitor types to the Abbey and as an educational tool. The exterior of the Abbey was shown in 3D with the ability to 'fly around' the structures using the mouse or pointing device of the computer equipment. It was also possible to enter the interior of the main buildings, 'walk through' them, look up, down and around, and zoom in to view specific features such as stone carvings, windows, doors, altar pieces and other fixtures.

The application was designed to enable heritage sites visitors to learn about the history of a specific place / space / object and be able to visualise how this has changed over time. It was intended to be a replacement for conventional hard copy guide books and an array of hard signage that can clutter a heritage site. A replacement for such 'linear' experiences can create considerable problems for the designer. No longer can the designer create content and dictate the path of the user, this could make it a passive and perhaps boring experience. In the case of the guidebook, even with excellent referencing the reader still has to flick through to find elements of specific interest. In the case of hard signage, the visitor has to select elements of the sign that they think are relevant. In the case of an electronic signage, the user would have nothing to do but sit back and watch what happens, or at the very least, click the buttons indicated for another static image. By being able to browse the Talking Walls before

a visit, expectations could be shaped and visitors could tailor their plans. By being able to browse on site, visitors could enjoy a shared, tailored and more convenient relationship with their surroundings. Overall, it was expected to deliver a more engaging experience for visitors. Engaging in this context could be seen from the perspective of visitors relating to the heritage site and from the perspective relating to the Talking Walls app.

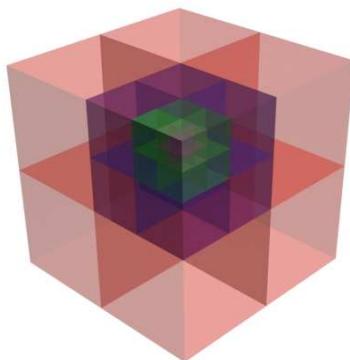
3. The KubeMatrix™

a) The concept

The KubeMatrix was first developed to enable visitors to Dunster Castle to explore the site in architectural time slices. This exploration allowed users to explore different eras of architectural change from the 1100s to date; the chosen eras were termed as 'levels'. Within these levels, there were spaces, i.e. the various buildings/rooms which were termed as 'cubes'. To connect the rooms in their geographical spaces, corridors are used which form a visual navigation through the building, which were termed as 'links'.

In this way, the KubeMatrix worked as cubes within cubes, offering sub-categories of content within one 'folder' using connections and links, vertically and horizontally to portray hierarchy and relevance. This is illustrated in Figure 1 which shows 'folders within a folder', matrix within a matrix, i.e. content depth.

Figure 1. The KubeMatrix™ concept



The design also needed to be a simple visual point and click method of access to content, (in some ways similar to the icon display on the iPhone) to encourage children to interact with the KubeMatrix

and therefore the content. In the process of developing this concept, the possibility of how the KubeMatrix would translate to other forms of content became apparent.

b) Kiosk application

The opportunity to create the Beaulieu application with a kiosk interface further developed the KubeMatrix. Users were able to set their age range and choose different types of content. Adults, academics and children were able to explore a historical background and sense of a past life at a level more suited to their learning ability in a way that conventional guides cannot and have a more engaging experience.

To give a sense of the experience in the Beaulieu context, the KubeMatrix user would be presented with a homepage as illustrated in Figure 2, which would display the following options:

Characters. When the app was launched the user would choose one of nine characters. The chosen character would relate tales of their working day/ life to the user at different steps of the tour and historical information of the site. Each character would impart knowledge of their era, transferring tacit knowledge such as cultural and social values and morals.

Tours. Once a character had been chosen, the user could start the tour by clicking on one of the cubes of the KubeMatrix. This would play a video of that ‘area’ of the site with an audio guide from the chosen character who would relay the historical information. The user could navigate around the tour by clicking on the different cubes to select the next clip. The tours were based on pre-defined routes, typical to the physical guided tour at most heritage sites.

Ages of Abbey. This section is where the user was able to explore the timeline of the property, using the matrix to click on the era (level/layer) they want to explore. By clicking on a cube (space/building/room), a ‘jump-up’ to the same space in a later year would appear, allowing the option to visually explore the space whilst standing in the current. Each space would have an ‘alt tag’ type pop up box as the user moved over the room, to indicate which space it was.

Quiz'ed. This contained short educational time-based quizzes and a number of puzzle games encouraging interaction with the history of the site, and at the same time providing explicit knowledge.

Write a story. Children (or adults) were able to write and submit their own story to the website, either of their daily life, their imagined life at the property in a particular era / timeslice, or what they thought of the visit. There would be an automated response thanking them for the story, and letting them know that it will be published in a specific area on the website for them to read the next day, so that they could share their work with friends, parents, grandparents or teachers.

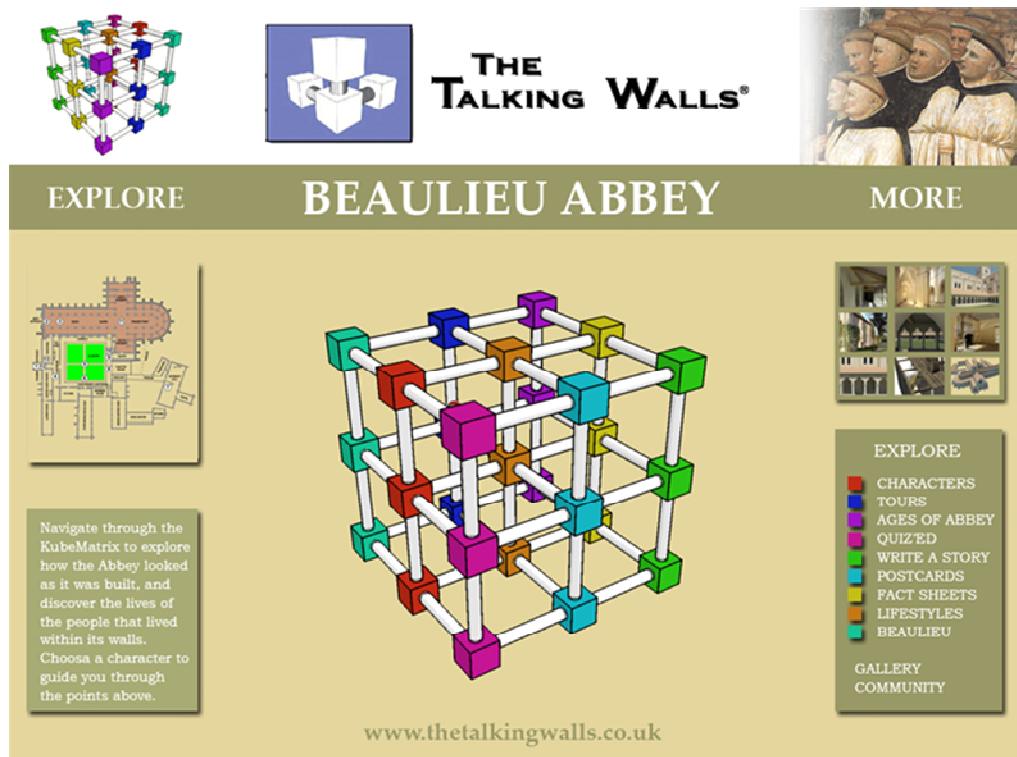
Send a Postcard. This section had a number of Abbey images from which the user could choose to send as a postcard via email to a recipient of their choice. They would also be able to upload their own images and send these as postcards.

Factsheets. This section had approximately ninety text and image pages accessed via nine sections covering historical information related to the heritage site such as 'Building the Abbey', 'Farming and Food', 'Sanctuary', and 'Herbs and Medicines'.

Lifestyles. This section had nine categories, which contained text and imagery regarding the different elements of social history within the timeslices of the heritage site, for example: Clothing, Education and Village Life.

Beaulieu. This section provided information about the heritage site in general, including other areas to visit, in this instance the National Motor Museum, Bucklers Hard, Secret Army Exhibition, James Bond and Palace House.

Figure 2. Kiosk/Web screen design



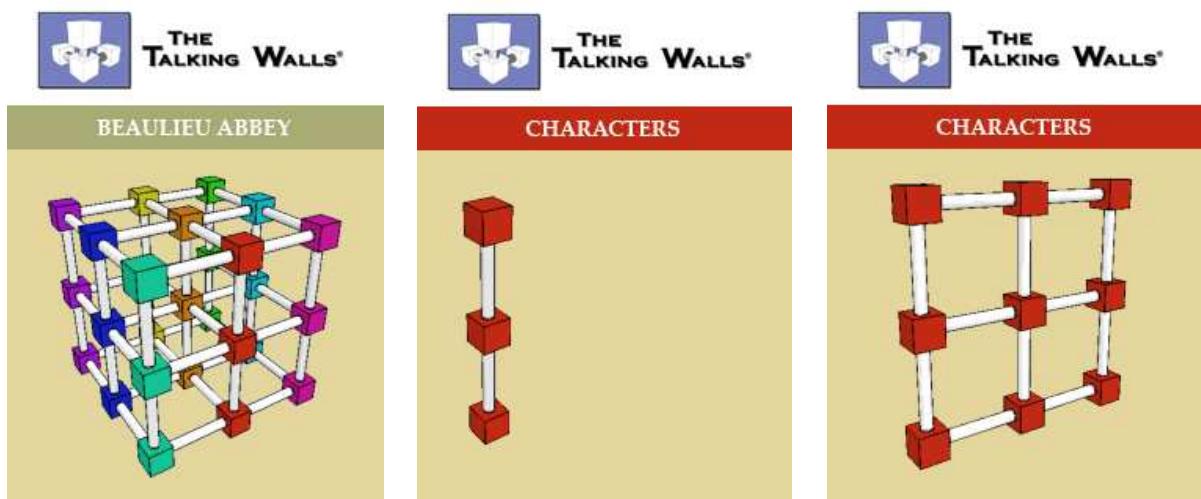
c)The challenges of developing the KubeMatrix™ for Mobile devices

The KubeMatrix was designed as a navigational application for handheld devices based upon wireless and GPS technology. It was initially conceived to be used for a variety of subject areas e.g. finding a home, local tourist information, navigating a hospital or museum, or document management. Using the KubeMatrix as a mobile application was envisioned before the kiosk design application at Beaulieu. In particular consideration was given to how the visual interface of the KubeMatrix would work on a mobile screen. In the Beaulieu context, a mobile app would enable heritage site visitors to download and engage with Talking Walls before their visit. It would also enable them to use their mobile device as they experienced the Abbey and its grounds. This latter aspect of the app design could see it supersede the expense and sometimes cumbersome use of guided tours and audio devices. As well as delivering value to the mobile app users, there would also be benefits to the owners of any heritage site. Through the use of GPS technology, the KubeMatrix could have the ability to track the areas most (or least) visited, and record the user's visit. The recording could then be given or sold back to the user as a memento of their day, and can be stored for future visits. Should the user return, they would be able to track the areas already visited and explore new areas. Finally, it could be used as a medium to feedback other characteristics of the visit, be they comments, answers to specific questions or photographs.

The focus at the time of Beaulieu development was upon enabling navigation, not only in content but also the connections between different parts of the supporting website. At the time of development, Papervision 3D was the software used to create 3D interactive content through Adobe Flash. Using this, a rotating cube was created which enabled the user to click from a 'page' to another page which could be video, images or text. The idea behind this was to create a 9 'cubed' 3D rotating square. The user would be able to physically rotate the cube using their finger and click on the cube to take them to their chosen content. As they hovered over each cube, a content tag would appear, an image would also be mapped onto each cube to give a visual clue to the content. The decision was made not to enable the user to rotate the KubeMatrix as this would result in the possibility of the user 'losing' where they were in 3D space with regards to for example, a specific Tours or Ages of an Abbey.

For future applications there would be three layers: professional/academic, adult and child. Choosing one of these would flow content pitched at a chosen level. Each of the 3D cubes would be a category, colour coded to create visual thematic navigation. The content of each category could be anything from a set of characters, to a set of videos or another matrix (see Figure 3 below). Clicking on one of the category cubes, took the user to that category giving the initial 3 visible cubes of content as a single vertical layer (see Figure 4 below). Further content could be planned by extending to a 9 sided matrix (see Figure 5 below). It was this design that was further developed.

Fig. 3 New KubeMatrix™ design Fig. 4 Single category design Fig. 5 Expanded category



4. Applying the KubeMatrix™ to contemporary market research challenges

There are a number of developments in the design and application of market research for which the KubeMatrix could offer benefits. These applications could work in the established KubeMatrix mode of online and kiosk engagements. However, it is felt that far more value could be generated by exploring the opportunities afforded to conducting research using mobile devices. Primarily, it is envisioned that KubeMatrix used on mobile devices could offer great benefits in designing research conducted via brand market research online communities (MROC).

A dedicated brand MROC can enable a company to recruit a panel of 'consumer-advisers'. A company and their researchers can engage with them using a variety of tools and techniques, often over a period of months. The brand MROC establishes a channel that managers and designers within a company can use to communicate with participants and engage in projects ranging from insights exploration and ethnography, to concept and product development and testing (Kennedy and Verrard, 2009). Brand MROCs can be seen as a means to address research objectives. However, a fundamental difference of the brand MROC compared to other research approaches is the extent to which they feature brand engagement. They actively seek to invite participants to immerse themselves in the world of the brand. This can mean that the aim of a MROC is to develop a relationship with participants to a stage where they become 'critical friends' to the brand, offering continuing 'honest' feedback (Child *et al.* 2010). Ewing (2010) reinforces this by arguing that brand MROCs are not just research tools. He points out that research is often rather low on the agenda for brands investing in communities, which are seen as part of a wider spectrum of marketing functions.

In this wide spectrum of marketing functions, communicating to a brand community can fulfil three distinct purposes. There may be elements of all three purposes fulfilled in a brand panel, but a specific purpose may be seen as the main driver. The first would be to create *brand ambassadors*, i.e. by nurturing participants that are seen as thought leaders. With a deep understanding of the values and personality of a brand, plus an emotional commitment to the brand, these participants could be highly persuasive to an array of target markets. The second would be to create *brand analyst*, i.e. by nurturing participants that would test particular concepts and designs. Again, with a deep understanding of the brand, the 'fit' of a new idea to the values of a brand could be tested. This form of testing could be in the use of words, e.g. a new product description; of images, e.g. the use of new celebrity endorsement; of design, e.g. the look, form and function of a new product. The third would be to create *consumer insight*, i.e. by eliciting characteristics of participants' behaviour, attitudes and emotions. Measuring and understanding characteristics of participants, could work using a breadth of research techniques, allowing participants to reflect and express themselves in a variety of manners.

Where some emphasis of the brand panel is towards researching and testing participants, communicating to a community is vital to improve the ultimate quality of research. Every brand has distinctive values, a competitive landscape and potential directions in which it may develop. Participants can enrich their understanding of a brand and appreciate the array of managerial and design decisions that can shape a brands future. With such enrichment and appreciation, participants can respond to research challenges in a most positive manner. They may play with ideas, share particular challenges, and reflect upon solutions. What it means to 'communicate' to panel participants is big question, but clearly it does not mean presenting reams of brand facts, images or designs. Whatever the primary purpose of a brand MROC, if research is being conducted, there is also a communications challenge to be faced. There are a number of broader research challenges that can be addressed by the use of the brand MROC. These research challenges also say much about the communication challenges that researchers face. These challenges are participant engagement, gamification, and mobile survey design.

a) Participant engagement

'Engagement' is the manner in which research participants relate to the process of research, researchers and the topics of study. For a number of years, participant engagement has been seen as central to the future success of the research industry (Reid *et al.* 2007). Falling response rates across most forms of research approaches and markets can be seen as one symptom of a lack of engagement. But beyond gaining initial access to participants lies the less quantifiable challenges of how much they think about, understand and reflect upon the topics they are questioned about. To address these

challenges, researchers have used many tactics to make the research process more fun, interesting and relevant to individual participants, gamification being an excellent example.

b) Gamification

The concept of "game play" is deeply embedded in consumers' lives the world over. (Baskin, 2011) The continued strength, development and sophistication of the electronics games industry bear witness to how consumers experience their world. Gaming has been fuelled by the growth of in-home internet penetration, faster connections and increased platform options, such as smart-phones and mobile devices (Nathans, 2011). Developing an element of gaming within a research approach can make the process more fun for participants. The process can draw on the focus, energy and commitment of participants as they enjoy and interact with games. Such approaches and thinking have long been used in qualitative research. However, it is in the electronic rather than physical realm of play and in the quantitative rather than qualitative that the challenges lie in integrating games with research approaches.

c) Mobile survey design

Mobile devices offer great possibilities for researchers to engage participants in a quick and convenient mode that is not limited to a single location or device. This can yield benefits in terms of speed of response, participant panel churn and quality of data (Macer *et al.* 2009). They can be used by research participants to 'tell stories', i.e. to craft and present their lives in words, sounds and images. They can enable participants to portray their feelings as much as their thinking, in a real context. Mobile devices are an effective way to collect, analyse and share information to decision-maker and designers' imaginations. (D'Orazio, Garland and Crawford, 2011) In addition to the opportunities of proactive engagement of participants, they also offer the ability to collect passive observations of real-time geographic information about participants. (Micu, 2011)

5. Discussion

Brands have many stories or a heritage associated to their development. Heritage is a key component of what makes them distinctive and authentic in the eyes of consumers. (den Bergh, De Ruyck, and Van Kemseke, 2009). Authenticity for some consumers drives a passion about particular brands, going beyond being loyal purchasers, to immersing themselves and their lives into the stories of their favourite brands. These consumers can be advocates of a brand and articulate what they feel has and is good or bad about its development. Such consumers may exist in natural communities (which may be online) which researchers can observe and sometimes interact with. Because their members want them

to exist, they often form spontaneously, and, if they become irrelevant, they shrivel and die (Poynter, 2010). Brand MROCs differ from natural communities as they are created specifically to allow brands to create conversations. In creating research communities, much debate has been addressed at how a community is motivated and how communications are managed (De Ruyck *et al.* 2010). It is within this context and debate that the value of the KubeMatrix may be viewed.

The KubeMatrix has the potential to be adapted for use on mobile devices. Its initial conception and design was built around the design and use of mobile devices and all the possibilities and advantages that 'mobile' offers to researchers. It can communicate by delivering a great breadth of written, audio and visual material, dedicated to the heritage and stories of a brand. By nurturing a relationship with a community, it can be used to persuade members to download and use other apps. The material and links could be updated, refreshed and represent something of the feedback from a community over time. The delivery of this material can be experienced in close to a bespoke manner that is relevant to participants. The material can be pitched at different levels and can be explored and played with in different manners. Participants can blog, write stories, capture and send images to encapsulate their engagement and brand stories. They can be 'Quiz'ed', which could be a mixture of puzzle games and answers to specific questions. What makes up the dimensions of the KubeMatrix, would be entirely designed by the researcher. These could be elements of communication and elements of elicitation. Both sets of elements could have games built in, and be engaging in the many ways that listening to and creating stories allows. The engagement delivered by the KubeMatrix could go beyond participant enjoyment, to one of a more considered and improved quality of response.

The following appendix illustrates how the KubeMatrix could look for a brand MROC. In this example a mobile phone brand could use a MROC to support the design of a phone, and its packaging, accessories and service support. It could help to build an understanding of how consumers experience their mobile devices. In this example, the design could be pitched at three levels: 40+ yr old male, 20+ yr old male, male teenager. There could be nine sections for participants to 'play' with. Within these sections could be elements that: 1) communicate characteristics of the brand and the phone, 2) question participants – requiring responses to scaled items, open narrative and visuals (consumer insight), 3) test particular design ideas and concepts (brand analyst), 4) share ideas and designs with a range of friends (brand ambassador).

6. Conclusions

Ewing (2010) has argued that the history of market research has been the history of an industry building on quite an unnatural format; asking individuals a series of fixed questions with limited and

abstract answers. There is much in this assertion as survey researchers impose their language and logic on participants, i.e. they design a linear experience that they believe will elicit the information they desire. This imposition may make little sense, have little relevance and be greatly boring to participants. Researchers have generally recognised that they cannot continue with such impositions, they must design their approaches that reflect participant expectations. This is not new, researchers have long been debating and working to create techniques that improve participant engagement so as to maximise quality and quantity of response. (Swahar and Swahar, 2010) The brand MROC is relatively new as an approach to maximise the quality and quantity of response. It has the ability to tailor both quantitative and qualitative research techniques, enabling distinctive expressions of the language and logic of participants. With the freedom of their distinct language and logic, participants can articulate how they think and feel about a brand. To discover how they think and feel about a brand, participants need to learn about a brand from many perspectives. It is thus vital for researchers to consider how and what they communicate to participants, especially when immersing them in the world of particular brands. The KubeMatrix can play a major role in enabling participants to learn about the heritage and developments of brands. It can help elicit the language (written, audio and visual) and logic of participants. It can achieve both of these roles in most engaging manners. The next stage in the development of the KubeMatrix could offer much to the market research industry.

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