Real-time Messaging Platforms for Storytelling and Gamification in Museums: A case history in Milan

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1. INTRODUCTION

Statistics about social media usage show that instant messaging apps are increasingly popular (Kemp 2016). So far only a few museums use instant messaging to get in touch with their public, actual and potential. In 2014 and 2016 for example the Horniman Museum in South London experimented using WhatsApp to communicate with their visitors (Murphy 2016), while the Brooklyn Museum launched in 2015 a proprietary chat app called ASK with a dedicated answering team (Simon 2015). Even if completely different in scale, both experiments share the same goal: to provide real-time answers by human staff to visitors' questions about the museums and the collections.

Both systems are not tour based: they try to tackle single visitor's needs during fixed days or timeframes.

During the first months of 2016, we tried to understand if the guided tour concept could be transferred onto instant messaging platforms. We did this working closely with Art in the City, a Milan based art centre specialised in technology-enhanced guided tours and cultural experiences. The first idea we explored was to use the broadcast feature of WhatsApp to send messages to multiple users. This feature was useful for our goal because it prevents participants from seeing each other 's number, differently from what happens in WhatsApp groups. Privacy is of course a major concern when it comes to private telephone numbers; with the broadcast feature, only the tour organiser gets the number of the participants.

After some tests we decided that the guided tour model was not suitable for our projects, because for a single guide it's too difficult to follow even a small number of visitors at the same time via chat. This happens because it's very complex for a human being to handle effectively many conversations at the same time keeping a good pace and a good quality of answers, especially on subjects that require a deep comprehension. Moreover, cultural users expect high-quality tailored answers, not just cut and paste ready-made ones. That's why the Brooklyn Museum staff dedicated to the ASK Project is growing: up to eight full and part-time operators. Our goal though was to study a cheap solution suitable even for small and understaffed museums and independent from a big team or the development of proprietary software.

2. GAMIFICATION

Games and informal learning techniques are increasingly being used in museums as educational tools (Beale 2011, Sanchez et al. 2015). Games can be very effective in enhancing learning and content retention, as we could test in March 2016 when we launched our "Escape Tours" with Art in the City. An escape room, according to Wikipedia, is "a physical adventure game in which players are locked in a room and have to use elements of the room to solve a series of puzzles and escape within a set time limit". We designed an evolution of the Escape Room concept by adding a guided visit to a real monument with a licensed guide. The guide has to put into the explanations some small details helpful to solve the enigmas of the Escape Room. Our first tours with real users show clearly both a higher appreciation and a higher degree of attention than the traditional guided tours.

This positive experience with the Escape Tours convinced us that educational gaming could be

suitable also for instant messaging platforms, more than the guided tour model we were following.

3. OUR GAME *ADVENTOURS*

We then started to design two different gaming experiences, that we called *Adventours* to stress the fact that they were a combination of adventures and educational tours. One experience is based on WhatsApp and the other one on Facebook Messenger. Even if target and cultural contents are similar, they have a rather different format. Both are currently being tested in Milan. The results of our testing will be published by the end of 2016.

3.1 The WhatsApp Adventour

Our WhatsApp educational game is based on a human guide, specifically trained, who follows for a limited period of time (usually 2 hours) a group of visitors, challenging them to find answers to specific cultural questions. Questions are sent via the broadcast feature of WhatsApp. Answers are sent singularly by every visitor (or group of visitors) and can be texts, images or short videos, since WhatsApp allows all of them.

The human guide (that we call "the game master" as in board games) is physically situated inside the museum, invisible to the public, while the players have a meeting point outside the museum, in a public space.

The meeting point is intentionally vague, like a big and crowded square, because we don't want participants to the tour to immediately spot the other participants. This makes the experience more singular and immersive, and having to guess who the other participants are adds an extra touch of suspense. From a desktop computer with the WhatsApp desktop app, the game master starts sending the players messages and questions, and they have to find the answer as quickly as possible. Questions are carefully prepared in order to convey an educational content and to slowly bring the group inside the museum, where they eventually gather into a specific room to solve the final mystery.

The game master main duties are:

1) ensuring all registered players are connected. If a player is late, the other participants can start playing, because the format allows asynchronous starts.
2) delivering the story plot to players
3) asking them to send back photos of certain architectural details as a proof they are there or to solve story-related quizzes
4) interpreting the photos received to confirm players they can go on to the next level

5) answering any kind of question players could ask

The game will be tested during the month of June 2016 with different number of users (from 4 to 10 single players or small groups), in order to assess which is the maximum number of contemporary players the game master can effectively support.

3.2 The Facebook Messenger Adventour

The Facebook Messenger will be based on the same concept (players being driven by questions and answers from a place in the centre of Milan until they get into the Museum) using a chatbot instead of a human guide.

The IT industry is trying to make chat teams more efficient by developing automated chatbots that use Artificial Intelligence technology to assist humans in tasks like finding the cheapest tickets, or delivering tailored weather forecasts. At the 2016 *F8 developer conference* Mark Zuckerberg, Facebook founder and CEO, announced the development of AI-capable chatbots as one of Facebook priorities for the future (Constant 2016).

Chatbot experiments are not new in the museum sector; for example we built a Leonardo-based chatbot when we were working at the Science Museum of Milan (Boiano et al, 2003), but so far this technology has never been applied in museums on a large scale. The main difficulty for an automated chatbot is to effectively understand the nuances of human language, and deliver relevant answers, especially on complex subjects like art and culture.

Our chatbot will be based on OnSequel, an online platform for building rich content, interactive stories. OnSequel has an intuitive authoring system that allows to build a complete dialogue with the user, adding extra characters to the dialogue and sending users text messages, images and videos. Users can interact with the system using Actionable buttons, so it's not an open-ended dialogue but only a limited-choice interaction. Anyway this could be a good feature for our purpose, because it takes out the problem of the bot not understanding users' answers. OnSequel lets you decide the timing between messages, so you can find the perfect timing to keep the dialogue realistic and engaging and adapt to the average user reading times. All of this will be tested during the month of June 2016.

3.3 Possible Developments

If the tests are successful, in fall 2016 we will offer museums the possibility to try our chat adventours. We think museums could be attracted by the idea of testing the potential of messaging platforms,

both as a new way of engaging audiences and as a marketing tool to attract new visitors.

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