Why so Serious? Raising Curiosity Towards Cultural Heritage with Playful Games

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Abstract. *Serious games* have an important role in supporting access to cultural heritage through storytelling and game mechanics. These games, however, are more suitable for learning environments: in order to stimulate people to look for cultural content, other means are necessary. In this paper we present our view on the role *playful games* may have in eliciting curiosity and how a specific gaming mechanics, customised characters building, may change the way technological systems contribute in attracting people to cultural sites.

1 Introduction

The term *gamification* has become very popular in the last years, as digital games are becoming more and more integrated with everyday life. The term indicates the process of adding a layer of mechanics, typically associated with games, to certain tasks in order to make them less imposing. Gamification approaches may also be designed to introduce a rewarding factor to the decision making process, so that people perform the task in a way that the designer considers advantageous, as in the case of points collection in supermarkets. People engaged in gamified tasks have a serious attitude and gamification results in minimally invasive mechanics that are well-integrated with the task at hand.

The gamification idea is sometimes abused and may give rise to misunderstandings. Following [14, p. 46], although players "[...] might be motivated for a while by shiny prizes, real engagement requires a much stronger lure. That means a deeper, more interesting system design must be developed". It is therefore important to understand that the goal of gamification is not to amuse people but to reduce the negative impact of due tasks. Using games to support learning has proven itself to be effective. Games designed with a main purpose other than pure entertainment are called *serious games*. Compared to gamified tasks, serious games do not integrate a pre-existing experience and make use of more complex mechanics, thus being completely independent objects. In these games,

the intended message is set in the forefront, users become rapidly aware that the main goal of the experience is not pure entertainment. Serious games find their natural application in teaching environments. In the context of cultural heritage, their use has been repeatedly tested with promising results concerning the *learning* experience. Some examples are "Icura" [13], "The battle of Thermopylae" [6] and "Thiatro" [11,12]. For a full review of serious games for cultural heritage, see [27].

Re-establishing the connection between people and cultural heritage is a topic that challenges modern museums as they struggle to find a place in the information age. The definition given by the International Council of Museums states that museums are institutions that should provide *education, study and enjoyment*. The museum is, therefore, not only a place to learn but also a place people may choose to look for enjoyment. One of the ways museums can provide enjoyment is by satisfying curiosity about cultural heritage. It is therefore necessary to elicit this curiosity in order to let people rediscover museums. Serious games, being designed for learning tasks, tend to be based on an extrinsic motivation provided by the learning environment or by rewards favouring task completion *as it is supposed to be done*. Extrinsic motivation is known, however, to have a detrimental effect on intrinsic motivation [9]. As curiosity is an intrinsic motivational force, it cannot be elicited with *due* tasks, regardless of their gamified looks. Intrinsic motivation comes from personal disposition of doing something *for its own sake*, like to have fun: it is through this path that curiosity can be activated.

If we relate differences in game mechanics complexity, separating gamified tasks from serious games with the specific goal of letting people *have fun*, we obtain puzzles and playful games. The former are defined in the dictionaries as toys, games or other contrivances to be solved by ingenuity or persistence. The latter are much more complex to define but a common feature is that "[...] a good game is a machine that generates stories when people play it" [31, p.300]. Such games are of interest for museums as storytelling has an important communicative function in cultural heritage [2,19].

In this work, we will examine the role playful games can have in generating curiosity towards cultural heritage through technological approaches. While there are many aspects of playful games that can help accomplish this goal, we will concentrate on one particular feature that, in our opinion, has also the potential to provide critical information to artificial intelligence systems for automated narrative adaptation and guided tours: customised characters creation.

2 Just for fun

Although the positive impact of games in serious activities is proven, the main reason why people play is simple: having fun. Gamified tasks and serious games act as the classic *spoonful of sugar*, making due tasks less imposing but their main goal is not to entertain people. On the other hand, entertaining media, like movies, have the power to influence people's opinions and motivation. Re-

sults presented in [5] showed that, seeing the "JFK" movie was associated with a significant decrease in viewers' reported intentions to vote or make political contributions. The study presented in [8] showed that "Malcolm X" significantly increased people awareness concerning discrimination issues. More recently, [1] showed that both "The rainmaker" and "As good as it gets" increased people's support for Obama's *Affordable Care Act*. It is not uncommon, today, to see digital games adopt complex themes like the risks involved in pervasive surveillance systems depicted in "Watchdogs" and the metaphor of racial hate used in "Deus-Ex: mankind divided". The line separating a serious game from a playful game, in the cultural heritage field, is subtle as both include fun and cultural components. Serious games appear to be more common and aim at improving the quality of the learning experience. Playful games should aim, instead, at increasing the general curiosity of people towards cultural heritage. The importance of storytelling to deliver such contents is well established and, nowadays, interactive applications are common. In the case of games, however, being interactive is not enough: player choices must have a clear impact on the story being told, thus evoking a sense of *agency*. Agency may be obtained in multiple ways, like with branching stories. It represents a fundamental component for successful games: professional designers highlight that "[...] a failure to provide a convincing sense of agency is frequently a reason that game scenes (or entire games) fall flat" [17, p. 106].

Although artificial intelligence has been traditionally used in digital games to act as the player's opponent and to control virtual allies, experimental approaches use it to monitor user choices to dynamically adjust the narrative. These challenge traditional theoretical frameworks of narrative description [22]. They may take into account, for example, the manually annotated tension of narrative events, as in "Façade", or the user inclination towards specific playing styles to predict emotional feedback [16]. These systems appear, however, not to be taking full advantage from mechanics traditionally used in the gaming world to support the emergence of engaging, collaboratively built narratives. Among these, customised character creation is the most relevant.

3 Customised characters

Character creation has multiple applications in the framework of cultural heritage enjoyment. In this section we examine the potential impact of this mechanics in the field of AI for cultural heritage.

3.1 Collaborative narrative

AI-controlled narrative systems appear to start from a common assumption: the player is totally unknown to the system when the game begins. This, however, is rarely the case with playful games. First of all, it is mandatory for these to provide an invitation to play. When accepted, this testifies the user's will of entering

lusory attitude: the "curious state of affairs wherein one adopts rules which require one to employ worse rather than better means for reaching an end" [32, p. 23]. This element is critical for technological systems as it gives users a socially acceptable reason to contribute to narrative building, through the constraints established by the game. Professional game designers stress that "crafting this invitation to play, making it visceral and compelling to your target audience, is an important part of playcentric design" [14, p. 56]. Through the ways a player can contribute to the narrative, the system should try to adapt the story. Meaningful choices are a widely used element to involve people in shaping the narrative but game designers have also devised other means to accomplish this. Role playing games (RPGs), in particular, have explored the topic substantially with great success. While RPGs have been proposed for cultural heritage, there is still confusion about the relationship between the player and player controlled characters (if they are even present). One common misunderstanding lies in assuming that the player *is* the character. In RPGs, the player *creates* a character she would like to guide through the narrative by exploiting his capabilities and, as importantly, dealing with his deficiencies. While the classic "Dungeons and Dragons" (Gygax & Arneson, 1974) mechanics dealt most with defining action-oriented activity, there are other role-playing games that greatly focus on the character creation system by adding, for example, rules to balance virtues and disadvantages, as in the case of "Cyberpunk 2020" (Talsorian Games, 1988) and of the Storytelling system introduced by the more recent "World of Darkness" (White Wolf Gaming Studio, 2004). From the point of view of artificial storytelling, RPGs have the additional advantage of being designed to be played by small groups of people, which is of interest for cultural heritage [3,10]. The social component that comes from creating collaborating characters is a strong feature of this kind of game: the range of available abilities is wide and it is not possible for a single character to master them all. RPGs are designed in such a way that small groups of people can describe the role they would like to have in shaping the narrative together, which is also of interest for cultural heritage [30,21]. This, combined with social data coming from sources normally used for recommendation (see [28,29]) may yield critical insight to start adapting the narrative to the group even before the beginning of the experience.

3.2 Emotion elicitation

Playful games should provide fun to the players. Fun is a strongly emotional concept and can be defined as "pleasure with surprises" [31, p. 36]. Character creation is an activity that provides a lot of fun, as testified by the success of pen-and-paper RPGs but also by digital games like "the Sims". Attachment to the created characters is a powerful key to elicit players emotions, as shown by the "XCOM" series through the use of *permadeath*. Fun games, therefore, elicit emotions and characters are a strong mean to access the players' mind as they "[...] often wince in imagined pain upon seeing their avatar suffer a blow or sigh in relief upon seeing their avatar escaping physical harm." [31, p. 348]. The player builds strong empathic ties with her characters as she shapes them.

While empathy towards virtual characters is taken into account when designing virtual companions for guided tours, as in the case of "A stroll with Carletto" [7], customised characters have the potential to go beyond simple sympathy and activate the cognitive mechanisms related to emotions. This is the case of regret [18] as a consequence of agency because "[...] what matters for feeling regret is that the individual represents - even a posteriori - the situation as a choice" [26, p. 89]. In RPGs, players *gamble* the result of their creative effort, characters, by exposing them to a story that may damage, or even destroy, them. The menace of impending punishment on the character is one of the key components in making a game fun, as the risk of experiencing it creates endogenous value, provides excitement and increases challenge [31] by anticipating possible regret. Relief, on the other hand, "[...] increases with effort expenditure" [26, p. 106] which, in games, is provided by the challenges created through mechanics. Automatically balancing the challenge while keeping consistency with player expectations is an important task usually assigned to AI systems in digital games. From the player's point of view, preventing the threat of seeing *her* characters harmed creates the first component of fun: pleasure. Stories, on the other hand, are designed to provide the second component of fun: surprises. The relationship between surprise and curiosity is very strong and, in general, surprising events have the potential to generate curiosity. According to [24], curiosity reflects the desire to close inherently unpleasant information gaps. This desire, however, depends on the perceived likelihood that the gap will be closed by accessing information. [25]. Moreover, it has also been suggested that "[...] the amount of pre-existing knowledge in a particular domain may impact on the perceived likelihood of closure" [26, p. 57]. Specifically, the more information one already possesses on a certain domain, the more curious she becomes about the subject. This implies that curiosity may arise not only by increasing the amount of information available, but also by reducing the *perceived* size of the domain. Museums can be intimidating for the general public as information gaps may be perceived as less likely to be closed because of topics wideness. If the story is designed to leave small information gaps, however, the interest domain will be constrained to the story itself, which is more manageable and therefore likely to stimulate curiosity. Information gaps in such stories should lie in the background and left to be filled after the story has been told. Examples of how to accomplish this may be recurring jokes, historical background and casual conversations among non-playing characters.

3.3 Support the visit

In our view, as playful games are meant to stimulate curiosity towards cultural heritage, they must be conceived to be experienced off-site: the playful component must not interfere with on-site activities aimed at delivering the information. Customised characters may constitute an element of continuity between the different phases of cultural heritage experience described in [23]. They may accompany the transition from a playful activity, the game, to a serious one, the

visit, to the last one, summarisation. Their use may solve a number of problems interactive avatars have. First of all, when a user activates such a guide, a phase of acquaintance is necessary either to introduce the virtual character or simply the user interface. This implies a novelty effect that may interfere with the learning experience until it wears off, as shown by [20]. By allowing the automated guide system to assume the looks of the customised character, however, this effect may be reduced. Having a well known character associated with a playful experience also introduces the possibility of exploiting the power of the story in a completely new way. In museums, it has been observed that removing the object from its original context has the detrimental effect of atomisation. Stories, however, have the power to reinstate the context lost by atomisation while creating meaning, relevance and empathy [15]. The idea of putting stories before collections for museums has been explored in [4]. By observing the engagement readers displayed towards journalistic material combining rigorous research with vivid storytelling, the authors tested the same approach in museums. Specifically, they observed that people resisted to *cognitive kickouts* aimed at providing deeper contents and chose not abandon the story. This problem may arise because the two moments were mixed up: the engaging power of the narrative may prevent the user to access deeper contents while the story is being told. In order to separate the two phases, it may be necessary to provide a strong element of continuity to make people perceive information gaps as more likely to be closed. Customised characters, using their empathic value, can appeal to a powerful contextualisation strategy: recall of a shared experience. Specifically, the character can insert references to the story she lived with the player so that context is not built *during* the visit but is first provided off-site and then evoked on-site.

4 Conclusions

Numerous digital games have been designed to support cultural heritage but the majority of these appear to fall into the serious games category, as teaching is their main goal. Switching to a view that considers pure entertainment as the objective, however, we hypothesise that it is possible to recover concepts and mechanics coming from the digital gaming industry to stimulate curiosity towards cultural contents. We highlighted how the use of customised characters can support long-term interaction with cultural contents, social enjoyment of museums and AI controlled narrative development.

Future work will consist in producing prototypes to evaluate the impact of this particular mechanics and to explore the potential of other strategies used in playful games to stimulate curiosity towards cultural heritage.

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