

Creative Agents and Triggers (CAT) Game Design method for Crisis Communication

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Abstract—This paper introduces an early stage design method for online Serious Games. The examples are from a crisis communication project with role-playing public relations experts and journalists. The CAT method (Creative Agents and Triggers) aims for the elicitation of domain knowledge and vocabulary and to assist understanding of elementary logic and AI for games. It uses limited UML diagrams and Trigger documents to bridge a divide between design and software engineering. Select CAT method techniques are outlined in this paper and have been successfully used in a series of participatory design workshops with professionals.

Keywords - Game design, Semantic web, Serious Game methodologies, Modeling, Participatory design, Complex systems, Crisis communication.

I. INTRODUCTION

This paper introduces a method for early design techniques for online Serious Games. The examples presented are for crisis communication concepts between role-playing[1] public relations (PR) experts and journalists. The CAT method (Creative Agents and Triggers) is characterized by three main features to assist, elicitation, representation and modeling. It uses Trigger documents in lightly iterative and agile participatory workshops with professionals for: (1) the elicitation of professional knowledge and vocabulary (2) understanding agents and (3) formal modeling to build logic and basic artificial intelligence (AI) elements for games.

A series of design workshops have so far been successful for eliciting vocabulary that can be used for Semantic Web labels and for transforming professional knowledge into manageable elements for game-play. The workshop tasks were framed by codes and rules of the participating professions with a context for online learning. They have provided a starting point for valid representations and rules for play and offer potential for improved communication between content development and software engineering

II. CHALLENGES FOR SERIOUS GAMES

The CAT method uses multidisciplinary approaches and is influenced by the Third Space in HCI for co-operative design work'[2], in particular for the elicitation, transformation and representation of knowledge. It addresses design challenges by guided creativity with professionals for the articulation of vocabulary, conditions and logic. The activities and tasks promote learning about:

abstract objects and classifications; UML¹ models; and labeling for Semantic Web environments.

The CAT method combines Participatory Design (PD) with other techniques. Agent-based modeling (ABM) also does this. It uses PD and UML to understand and communicate problems in complex systems[3]. For example, in natural eco systems where there are problems with 'sustainable practices amongst locals...over water resources' [4]. In Europe participation and modeling has also been used for understanding 'urban environments and strategic behavior for privatized electricity grids'[5].

Elicitation, representation and communication are important challenges for online Serious Games, and they are necessary to beat the *paradigm of existing systems*. In particular, the algorithms and game engines with action features 'to dodge...overpower...injure psychologically or attack'[6]. These features don't translate well for games that require *non-violent* diplomacy, such as a role-playing game between PR experts and journalists learning about crisis situations.

III. THE THIRD & FOURTH SPACE

The tools & techniques used in Participatory Design (PD), including scenarios, mock-ups, simulations..' [7] and personas[8] can generate 'concrete descriptions'[9]. The CAT method embraces these methods and adds techniques to include the Semantic Web and AI. The Semantic Web, using XML and scripts like the Linden Script®, combined with fast processors, can generate interactions at new speeds. This is an invitation for improved techniques to label, classify and sort large volumes of information for retrieval at high speeds.

Design for online Serious Games is perhaps a Fourth Space beyond Muller's Third Space, where 'practices...[were] in neither the user's turf nor the software professionals' turf'[2]. In the early 21st century professional strategies and tactics happen via blogs, news stories are syndicated by users and captions are delivered to mobile devices with connectivity to social media and Virtual Worlds (VR). Information between systems can now be easily exchanged, from finance to spaceships, and yet design is still about border zones for 'mutual or reciprocal learning'[2] and needs 'drama, games, language, workshops, photos, descriptions'[2] and other media.

The CAT method reflects on the Third Space and adds techniques for: labeling & classifying; communicating

¹ UML (Unified Modeling Language) is a general modeling language.

complexity; and understanding AI, logic and agents in the design process. It makes a contribution so that Serious Games has a *relevant* contemporary design method.

IV. SELECT FEATURES OF THE CAT METHOD

Creativity via ‘new connections or associations between existing memories’ [10] may keep players engaged whilst learning. This implies a need for substantial content, which in PR can be drawn from an established author[11] in that field. The content can then be embedded in *Trigger documents* for use in workshops to elicit vocabulary and clarify behaviors to help build logic for synthetic or real players. These features can be represented as outlined in the following sections.

A. Trigger Documents

A Trigger document (see Table 1) may include a small list of objects, which helps trigger a growing list of objects and small contextual actions and tasks. As professional participants fill in the lists they draw on their rich professional domain knowledge and vocabulary.

TABLE 1. A TRIGGER DOCUMENT FOR OBJECTS, ACTIONS AND TASKS COMPLETED BY PARTICIPANTS, INDICATED IN ITALICS

Objects	Actions	Task
Video footage	<i>Check source</i>	<i>Authenticate story</i>
Mobile phone	<i>Download image</i>	<i>Verify report</i>
<i>Online News Sites</i>	<i>Monitor issue</i>	<i>Update situation</i>

Trigger documents have already been successfully used in workshops by the author with participants from the ABC, SBS² and a PR company. The inclusion of actions and tasks as verbs was explained to participants as similar to functions within class structures, to assist programming.

B. Conditional Logic and a Creative Agent

Trigger documents can also be used for agile learning about logic and agents. A conditional statement or two can trigger articulation about other professional conditions, and can include a fictional agent and the ‘*what if.*’ clause. A creative song line (see Table 2) can also be used to illustrate an artificial response to a preset condition.

TABLE 2. A TRIGGER DOCUMENT FOR FICTIONAL AGENT CONDITIONS

If ... (condition detected by agent)	... then (song line response)
...a media report has been incorrectly confirmed by a politician.	"The Fool on the Hill"
...journalists don't have communication links on Fancy Island to follow up story.	"We Can Work It Out"

Participants learn how an agent might function within a game, including ‘hide and reveal’ [6] techniques or about the design of an autonomous agent with adaptive capabilities to optimize learning opportunities for players.

² The Australian Broadcasting Corporation and the Special Broadcasting Service are national media organisations in Australia.

C. Modelling with UML

The CAT Method uses select UML diagrams, such as the Activity diagram for communication and representation of professional process and decision making (see Fig. 1)

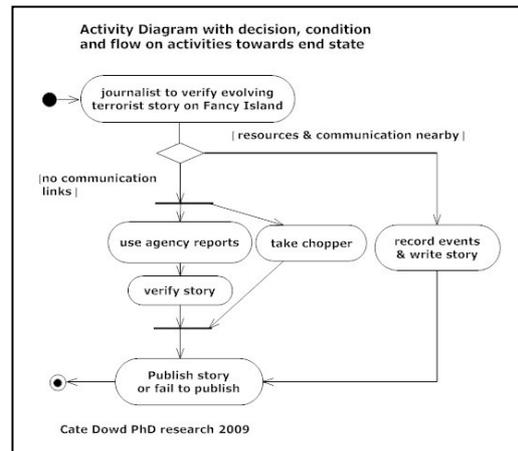


Figure 1. An Activity diagram to capture and simplify paths and decisions for a professional process in a fictional crisis situation.

V. CONCLUSION

The CAT method is a multidisciplinary method to initiate and improve the early design stage for online Serious Games. It places attention on elicitation, transformation and representation to improve communication, modeling and pedagogical contributions for Serious Game design. The CAT method could be used in knowledge domains beyond what is presented here.

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