Events

UIDSS2023 Applied Games for Heritage Education

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Between 19 and 24 June 2023 in Brixen-Bressanone, the *UIDSS2023*, UID PhD Summer School was held, which, as every year, the Scientific Technical Committee funds by supporting the higher education of ICAR17 PhD students nationwide (fig.1). Participation in *UIDSS2023* was possible following applications in response to a call for applications, and followed criteria based on plurality, rotation and the promotion of the participation of small and medium-sized sites. The number of applications exceeded 40 compared to the available places, which were 15 financed by the UID and 10 self-financed by the campuses, and PhD students of the XXXVI, XXXVII and XXXVIII cycles from 14 different universities (University of Bergamo, Cagliari, Catania, Chieti-Pescara, Florence, Genoa, Perugia, Pisa, Roma Tre, Roma Sapienza, Napoli 'Federico II', Sassari and the Politecnico di Milano e di Torino) participated.

The theme of *UIDSS2023* was *Applied Games for Heritage Education* and was chosen as the context for bringing together expertise within the domain of our discipline and a wide range of interdisciplinary skills needed to finalize the work of digitizing and interpreting heritage. Heritage digitization, as is well known, is a broad spectrum of activities that shares only the first phase of detection while it differs considerably in the finalization of acquisitions in often very different contexts: whether it is documentation for conservation, museum exhibition, VR, AR and MR use or the realization of educational pathways, it is clear how the methodological approach on the one hand and the necessary know-how on the other can change radically. In this multifaceted context, where the possible fields of application can often change and in which we must be ready to seize new opportunities for scientific research, the increasing use of applied games and video games in general for heritage enhancement is evident.

The video game itself is becoming recognizable as a cultural product, like other media that in recent decades have progressively transcended the limit of the technological product to become cultural products –such as photography, radio, cinema, television etc.– and the time is ripe to consider it as a privileged field of research.

While the scientific literature on the importance of games in the construction of social competences and socialization processes is extensive, from Piaget's and Vygotsky's theories to Pellis' social game theories, game studies is a growing discipline that recognizes the importance of video games not only as forms of entertainment, but as cultural, educational and social tools and that analyses not only the games themselves, but also the players' experiences, gaming communities, the gaming industry and the impact of video games on society.

Within this framework, James Paul Gee's volume entitled *What Video Games Have to Teach Us About Learning and Literacy* [Gee 2003] sets out a series of learning principles capable of developing multimodal skills, such as, for instance, visual reading to interpret maps and other representations, systemic thinking to understand the complex organizational systems of a video game, or online/offline collaboration to work with other players to achieve common goals.

Over the years, video games have emerged as important cultural products, influencing and reflecting the social, artistic and technological dynamics of our era. Initially perceived as forms of entertainment, video games are now recognized as complex media that combine storytelling, visual art, music and interactivity to create immersive experiences not only because they make use of technologies related to virtual or augmented reality systems, but because the gameplay on which the narrative hinges is immersive.

Fig. 1. Flyer of the event.

Fig. 2. Study sketches of the scenarios.

Video games have begun to explore complex themes such as morality, psychology, history and culture, contributing to a broader dialogue on contemporary social issues such as discrimination, climate change and social inequalities, making them ideal tools for educating and raising awareness among a young audience increasingly removed from traditional media.

Now recognized as a form of cultural and artistic expression not only by the public and critics, but also by cultural and academic institutions, applied games offer new ways of exploring, learning and interacting with history, art and traditions. On the one hand, video games can recreate historical environments in detail, allowing players to explore cities, buildings and landscapes as they appeared in past eras. On the other hand, they can combine fun with learning, making the discovery of cultural heritage an educational experience through quizzes, puzzles or treasure hunts that help consolidate knowledge.

Often reference is also made to commercial titles that provide opportunities to educate on heritage –such as the *Assassin's Creed© Discovery Tours* released by UbiSoft for ancient Egypt, ancient Greece and the Viking Age– but it is clear that the large productions of the video game industry cannot meet the needs of a widespread, often minority and peripheral heritage that would benefit from valorization methods capable of alternative engagement.

For these –and other– reasons, it seemed opportune to train our future PhDs in the design and realization of games for heritage education and to give them prospects for the development of promising areas of research in the near future (figs. 2-5).

The organization of *UIDSS2023* was shared between the host institution –the

Faculty of Education in Bressanone, Free University of Bozen/Bolzano– and the School of Architecture and Design of the University of Camerino, and was integrated with the interdisciplinary and international conference EARTH2023 Digital Environment for Heritage Education, organized by the EARTH Lab of the Free University of Bozen/Bolzano, as an initial training phase for the PhD students participating in *UIDSS2023*. On 19 and 20 June, in fact, there were presentations by the philosopher of science and pedagogue Stefano Moriggi with a keynote speech entitled *For a media archaeology of educational environments* (full proceedings in progress with the publisher Springer) and several dozen research paper presentations in which digital environments were developed to host heritage education processes or, vice versa, heritage education processes were developed in digital environments. This apparent play on words, however, tells of the symmetry between the work of those who digitize and interpret heritage versus those who deal with educational and cognitive processes in digital environments, and explains very pragmatically the need for our field to develop research in this context.

The following days saw many training lectures by tutors and experts and many fieldwork and design activities for four applied games, which we will briefly describe below. The lectures were given by Waltraud Kofler, art historian who introduced the participants to the historical and artistic heritage of Brixen, Demis Basso, full professor of General Psychology who provided a framework on the cognitive aspects of videogames, and Andrea Dresseno, president of *IVI-PRO - Italian Videogame PROgram* who proposed critical readings, taxonomies and case studies on the relationship between videogames and heritage.

Participants were also able to experiment with expeditious digitization methodologies using neural radiance fields (NeRf) to produce assets to be inserted directly into three-dimensional scenes or, as in some cases, use the same methodology to create the entire game environment.

Four application areas were identified on which the participants focused, as if they were four chapters of a single story. For each of a group application, a 'Game Design Document' (GDD) was developed, an essential design document for the planning and development of a video game that provides a comprehensive and detailed overview of the project and serves as a guide and reference for the entire development team.

The GDD usually illustrates the general outline of the game, including genre, target audience and main objectives; a brief description of the gameplay including game mechanics, control system, rules, animations and interactions; a description of the visual style of the game, by means of moodboard images and sketches illustrating the appearance of characters, environments and props; and the design of the user interface and navigation systems.

The four designed games tell four stories that can be considered as episodes of a unified story of the heritage of Brixen that takes place in the streets and buildings of the city. The game dynamics and the stories are different from each other, but they all have the same educational objective: to tell the story of the material and immaterial cultural heritage belonging to them through a language, that of the video game, which, like others in the past, is increasingly becoming a medium capable of cultural expression. In particular: *The Mysteries of St. Michael* tells of an art historian who, as is the custom of the
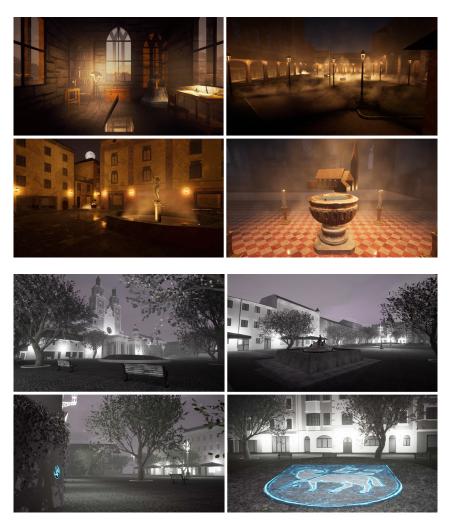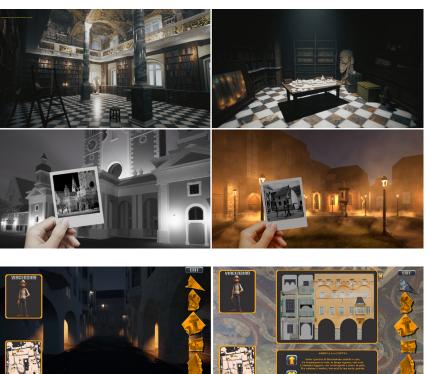

Fig. 3. Scenarios taken from the game *The Mysteries of St. Michael*, designed by Arianna Lo Pilato, Enrico Pupi, Piergiuseppe Rechichi, Michela Schiaroli and Elisabetta Tortora.

Fig. 4. Scenarios taken from the game *Brixner Dom. A letter from the past*, designed by Stefano Botta, Michela Ceracchi, Francesco Cotana, Salvatore Di Pace, Federica Itri and Giancarlo Sanna.

Fig. 5. Scenarios taken from the game Aurora, designed by Simone Cera, Alessio Buonacucina, Dina Jovanovic, Roberta Ferretti, Pietro Azzola and Marco Proietti.

Fig. 6. Scenarios taken from the game Brixen Quest. In Search of the Lost Cavallefante, designed by Jacopo Bono, Martina Castaldi, Gloria Russo, Andrea Sias and Fabio Zollo.

municipal administration of Brixen/Bressanone, is invited to visit the town's landmark tower: the Weisser Turm, and from that moment on, a narrative plan begins in which he finds himself on an intricate journey that, through enigmas and trials, will lead him to discover that the apparently evil 'master builder' is a character who has been waiting to be freed for centuries, and with it the secret of the cultural heritage he conceals.

Brixner Dom. A letter from the past revolves around the cathedral and the square in front of it in Brixner Dom, where a young artist in search of new inspiration uses riddles and the eerie guidance of six signs left by the Krampus. Collecting cards that tell the story of the city's cultural heritage, the protagonist will eventually discover that the fatuous fire that guided him is none other than Paul Troger, who frescoed the cathedral and the fake dome that was incredibly concealed by a 19th-century remodeling.

Aurora takes place in the 18th-century library of the Major Seminary and tells the story of Elga, a young architecture enthusiast who decides to track down the places portrayed in some old family photos Through a journey through memories, made up of challenges and enigmas to be solved, Elga will realize that she wants to stay in this place, taking the place of the previous librarian: her grandmother Aurora.

Brixen Quest. In Search of the Lost Cavallefante revolves around the well-known fresco of the Cavallefante, allegedly stolen by the Krampus on the night of 5 December before the arrival of St. Nicholas, which will instead turn out to have been stolen from the community by other ill-intentioned persons who will be unmasked by the protagonist following a series of vicissitudes that will lead him and the players to the discovery of Brixen's heritage.

Credits

CTS Working Group: Francesca, Fatta Elena Ippoliti, Alberto Sdegno, Ornella Zerlenga.

Scientific Coordinators: Alessandro Luigini (Free University of Bozen), Daniele Rossi (University of Camerino)

Lecturers: Waltraud Kofler (Free University of Bozen), Demis Basso (Free University of Bozen), Andrea Dresseno (IVIPRO).

Tutor: Alessandro Basso (University of Camerino), Francesca Condorelli (Free University of Bozen), Elisabetta Caterina Giovannini (Politecnico di Torino), Maurizio Perticarini (University of Camerino), Giuseppe Nicastro (Free University of Bozen).

Partecipants: Pietro Azzola (University of Bergamo), Jacopo Bono (Politecnico di Torino), Stefano Botta (Roma Tre University), Alessio Buonacucina (Sapienza Università di Roma), Martina Castaldi (University of Genoa), Simone Cera (University of Cagliari), Michela Ceracchi (Sapienza Università di Roma), Francesco Cotana (Università degli Studi di Perugia), Salvatore Di Pace (Sapienza Università di Roma), Roberta Ferretti (University of Florence), Federica Itri (Università degli Studi di Napoli 'Federico II'), Dina Jovanovic (Politecnico di Milano), Arianna Lo Pilato (Università degli Studi di Napoli 'Federico II'), Marco Proietti (Sapienza Università di Roma), Enrico Pupi (Politecnico di Torino), Piergiuseppe Rechichi (Università di Pisa), Gloria Russo (Università di Catania), Giancarlo Sanna (Università degli Studi di Cagliari), Michela Schiaroli (Roma Tre University), Andrea Sias (University of Sassari), Elisabetta Tortora (Roma Tre University), Fabio Zollo (Università degli Studi G. d'Annunzio Chieti-Pescara).

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Reference List

Gee, J.P. (2003). *What Video Games Have to Teach Us About Learning and Literacy*. New York: Palgrave MacMillan.