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»A curiously challenging fantasy: towards an understanding of learning environments as games«

Michael Begg, Fiona Littleton, Hamish Macleod University of Edinburgh, UK

Interest in the educational potential of computer games began relatively early in the life of the phenomenon, with the seminal work of Malone (1981) identifying the design principles of challenge, fantasy and curiosity as key to the engagement that these games appeared to evoke. Despite early work showing rich inferential learning taking place as a result of game play (Greenfield, 1984), the goal of much of the effort devoted to deploying computer games for educational purposes has been towards using the game as a host into which curricular content is somehow embedded. This understanding is fundamentally behaviourist, assuming that the schedules of reinforcement derived from successful progress through the game can somehow be redirected towards a set of (almost certainly teacher-centred) learning objectives. An awareness of the so-called constructivist theories of learning proposed by Piaget and Vygotsky, when viewed through the lens of Gee's groundbreaking analysis of the principals of learning that already exist within successful videogames (Gee, 2003), allow for a much richer interpretation. Primarily, the suggestion is that rather than seeking to shoehorn learning into a game, a more game-like approach should be informing learning design – game informed learning as opposed to game based learning.

This paper attempts to approach an understanding of the educational importance of games and play from two directions. First, it offers an analysis of the ways in which educational practice can be informed by an understanding of existing digital games as powerful environments for learning. Secondly, it seeks to explore how those steeped in a culture of digital game play might approach their academic study.

Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. New York, Palgrave Macmillan.

Greenfield, P. M. (1984). *Mind and media : the effects of television, video games, and computers*. Cambridge, Mass., Harvard University Press.

Malone, T. W. (1981). Toward a Theory of Intrinsically Motivating Instruction. *Cognitive Science* 5(4): 333-369.

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»An interactions approach for analysing collaborative gaming activity«

Philip Bonanno, University of Malta

This presentation summarises the findings, as reported in published papers, and discusses current investigations undertaken as part of the research work on the use of Collaborative Gaming for learning.

A preliminary investigation about 'Patterns of Gaming' was done to establish the most common gaming devices used, time dedicated for gaming, and most popular games and game genre. The results were interpreted from a Cognitive Neuroscience perspective that disclosed a number of underlying cognitive and motivational gender-related trends.

The decision to focus research on collaborative (co-operative and competitive) gaming scenarios, instead of the frequently researched solitary aspects, demanded an epistemological and methodological shift. Technology Intensive Collaborative Learning Environments demand a shift in underlying pedagogical models. Consequently an Interactions oriented model was developed that identifies interactions along Domain, Technology and Community dimensions across three pedagogical levels. A version of this model is developed for Game-based learning scenarios. This model was used to investigate factors that determine Task and Person-oriented interactions. Three main categories of factors were identified, mainly:

Individual factors: Personality traits (Extro/Introvert tendencies), Gaming competence, Adopted roles while gaming.

Group-based characteristics: Patterns of Communication, Heterogeneity.

Gender in relation to Cognitive Propensities, Socio-emotional climate and gender scripts.

Game features: 'Shareability', Skills Demanded.

Each of these factors comprises a number of independent variables that will be operationalized through hypotheses and related variables to be measured quantitatively. Analyzing video recorded gaming sessions and using a checklist incorporating typologies of interactions, the frequency of different types of interactions was established. Considering such frequency data as the dependent variable this was analysed through SPSS in relation to the identified independent variables.

Data related to Personality traits (Extro/Introvert tendencies), Gaming competence and Adopted gaming roles were analysed and organised into a paper to be presented at the IADIS Conference on Mobile Learning, Malta 28 – 30th June, 2005. For each personality dimension, as determined by the Myer-Briggs Personality Type Indicator, an interactions profile was developed relating it to gaming competence and manifested gaming roles. A concluding remark referred to the potential of using such profiling method in relation to adaptivity when designing collaborative learning environments and collaborative games.

Presently data is being analysed to develop a paper entitled: 'The Influence of Group-based characteristics in Collaborative Gaming'. Patterns of Communication, namely interactions frequency and directionality will be analysed

in relation to group heterogeneity (group composition by gender, friendship level, gaming competence, game type and group size).

Later on data related to Gender-based propensities and game features will be analysed and used to develop papers around the same model. A comparison of the outcomes for competitive and co-operative gaming will be done to try to establish any shift in the role of factors that determine interactions. At the end an evaluation of the proposed interactions-oriented model will be carried out. The main conclusions from the different treatment phases and papers will be used to develop a model about the factors that determine interactions in collaborative gaming contexts and propose how this can be exploited to design pedagogically sound games.

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»Youngnet: learning community for collaborative gaming and learning«
Fabian Kempf, IAO Stuttgart, Germany

Within the research project »YoungNet« an e-learning platform was developed. Following an edutainment principle the content is presented in a playful and game like manner. Young people aged from eight to fourteen years could contact, work and exchange information in this virtual environment.

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»Learning with digital agents - integration of simulations, games, and
storytelling«
Ulrike Spierling, University of Applied Sciences Erfurt, Germany

In this contribution, the possibility space that is provided by digital agent technologies will be explored. Depending on the different mental models and metaphors that come along with digital agents, various experiences can be shaped. Therefore, at first a clarification of terms (such as constructivism, immersion, agency, storytelling, drama, simulation, etc.) will be provided, and conceptual models are presented that map out the various qualitative forms employing aspects of storytelling, simulations and games. Further, scenarios are provided that show how the distinct forms can be used in diverse learning situations dealing with social skills. Some application examples (digital and real-life) will be used to illustrate the given theoretical foundation, and the project "Interparolo" will be described (a project dealing with the application of chatbot and simulation technology to key qualification courses at the Erfurt University of Applied Sciences). Finally, the question will be raised what necessary preconditions have to be met to make these applications commonplace in learning environments such as a public university.

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»Games and learning - starting from the learning perspective«

Chris Brannigan, Caspianlearning, UK

Educators have concerns over the learning value of educational computer games, this is a key barrier to the widespread adoption of such technologies within education. I will describe our work at Caspian Learning in approaching this problem by embedding cognitive tools, transference and assessment into Learning Based Games. This approach has been used to create over 20 Learning Based Games across the whole curriculum. I will demonstrate a number of these titles, such as, Bram Stokers Dracula, Volcanoes, Sun and Moon and Electricity, and discuss the reactions of educators and students. Learning Based Games *can* be powerful learning tools in the classroom that enhance engagement, encoding and assessment. Fun is only part of it!

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»Dramaturgic e-learning strategy«

Theory: Frank Thissen, Stuttgart Media University, Germany

Evaluation: Michael Burmester, Daniela Edinger, Stuttgart Media University, Germany

Application: Babak Aghajani, Stuttgart Media University, Germany

The presentation gives first an overview on the elements of dramaturgic e-learning strategy and shows it's roots. Then first results of an evaluation study of the dramaturgical e-learning strategy will be presented. At the Stuttgart Media University a story based e-learning seminar was carried out. The seminar was developed and designed on the basis of the dramaturgic e-learning strategy. The subjects of the seminar were integrated into a story. The dramaturgical e-learning strategy assumes that emotional engagement has an influence on the learning success. The story based e-learning seminar was accompanied by empiric and formative evaluation. Furthermore, a summative evaluation was carried out in order to evaluate the learning effects of the dramaturgic seminar. 130 students participated in the evaluation study.

That followed an implementation and application of the dramaturgical e-learning strategy will be presented: Cinema management with Lara Kraft.

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»Storytelling based edutainment applications for museums«

Stefan Göbel, Anja Hoffmann, ZGDV Darmstadt, Germany

Museums are one of the most interesting places to access cultural heritage, to learn about history or physical and biological phenomena. Hence, several people describe museums as 3rd learning place apart from the parents house and school/university. Museums provide a great variety of original data and exhibits enhanced by digital media. This trend results in guided tours (with tour guides or with mobile companions: audio-based, PDA, smartphone) or interactive installations. Especially

young visitors compare museums with science centers or theme parks and expect highly interactive artifacts providing a gamebased physical setup or rallies to explore history or any phenomena. However, concerning the development of such applications there still exist several technical and practical obstacles: On the one hand, museum staff has the need for content creation and adequate representation enhanced by digital media and appropriate interaction metaphors and exciting physical setups and appropriate learning concepts and matching the interests and background of (a lot of) different visitor groups. On the other hand, visitors have to be high-tech friendly, should be able to combine the real with the virtual and spend some time to plan their individual museum visits. Based on that situation, the presentation describes methods and concepts, but also practical examples of Storytelling based Edutainment Applications for museums.

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»Learning by fooling (around)«

Lotte Krisper-Ullyett, factline Webservices GmbH,
Germany/Austria & FH Burgenland, Austria

At first, "The Fooling Game" will be presented: The rules of the game: 1st round: Each student is asked to post three topic-related statements in his/her own words, based on selected scientific literature. But: one statement has to be a "foul statement" - i.e. it still sounds scientific, but is proven nonsense. 2nd round: The students have to classify each other's statements: OK or nonsense? 3rd round: The cards are put on the table: which of the statements have been manipulated? Reflexions on this and other collaborative blended learning courses suggest the following conclusions: 1 Just take pencil, paper and a group of people - and you can play a thousand games 2 Therefore, almost every normal internet platform can be used for playing 3 Students play with students, not with teachers. 4 All in all, it doesn't even take a game to create a playful atmosphere: collaborative platforms provide that certain kind of communication space, where group oriented playfulness will emerge - under certain conditions.

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»Knowledge pool for game based learning«
Maja Pivec, FH Joanneum, Austria and

The SIG-GLUE community is formatted to provide a world wide communication and exchange platform for game-based learning in the field of universities and lifelong learning. The community could be seen as "knowledge pool" i.e. a resource of guidelines and practical examples that can be taken over thus facilitating the application of game-based learning. In this talk we describe formation process, theoretical background, tools and resources of the SIG-GLUE. The aim of SIG-GLUE is establishing of the structured collaboration and research in the game-based learning area, exchange of knowledge, experience in the game-based learning, monitoring the quality and establishing a quality stamp for game-based learning resources, contributing to innovation of the European and Worldwide institutions and Universities

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