



A Special Interest Group for the Game-based
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Report

*Work progress, activities and results achieved by the Task Force:
Educational game platforms*

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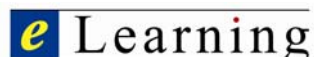


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1 Game-based Learning: Low Tech Social Games

One of the major goals of SIG-GLUE has been the establishment of several different Task Forces to work on interesting subjects (these were to be identified and defined by the participating members based on the common interests, user analysis and the developments in the area). The main target set was to identify the future trends and try to influence them as early as possible in order to ensure more educational (as well as recreational) value of innovative learning approaches. In this report we present the main activities of the Task Force Educational game Platforms and present the insights that we won during our work as well as our future plans for activity in the SIG-GLUE community.

The workgroup activities concentrated on social learning games that can be played with the use of discussion Forums, chat rooms, the Internet, E-mail or with commercial and open source eLearning platforms (also called Virtual Learning Environments, VLEs, and course management systems). Such games are referred to here as Low Tech Social Games. Within the EC supported SIG-GLUE Project (A Special Interest Group for Game-based Learning in Universities and lifelong learning, www.sig-glue.net) we wished to encourage information and current practices exchange on the application and use of low tech social games, as well as an in depth discussion of the successes, failures or implications of their use in education. Educators and students were invited to play an E-Mail game and to discuss about the application of such games in their educational settings. The learning games and results of this activity were presented to an international group of educators participating in the Online Education and Training Course (Institute of Education, January-April, 2005, University of London). The analysis of the discussion of this group illustrated the perceptions, doubts, and arguments that educational practitioners have toward the adoption of game-based approaches in learning and teaching processes. Issues addressed included learners' motivation and engagement, the role of assessment, learning game creation for specific learning objectives, and perceived restrictions of the game-based approach.

1.1 Educational Game Platforms: Low Tech Social Games

An integral part of education is the creation of challenging learning environments and effective learning opportunities that facilitate the learning process and help learners achieve their or the pre-described learning objectives. Educators strive to create environments in which a majority of learners are happy to learn, where the role of the teacher takes the form of the instructional designer and where learners are responsible for what they learn, in an active manner and through social interaction (Peltz, 2004). Constructivist understandings of learning emphasise the active role played by the learner in the organising of his or her own understanding, and many highly influential early approaches to the use of computers in teaching and learning have built on this theoretical basis. Along these lines a variety of reasons for using digital games in education have been suggested (Prensky, 2001, Malone, 1981(b), Macleod, Heywood, Heywood and Littleton, 2004).

Many of the digital games that are being played by learners in their free time and that are discussed as having learning and educational value require very good equipped and expensive hardware and software and offer exciting user experiences. For this reason our interest focused this time on games that can be played with ICT tools that are more accessible to educators and learners and which are social in nature.

When we refer to accessible ICT on the one hand we address free, accessible on the Internet discussion Forums (also called discussion boards), chat rooms, the Internet, and e-mail. On the other hand we address commercial and open source eLearning platforms (also called Virtual Learning Environments, VLEs, and course management systems). eLearning Platforms are for example applications like WebCT (<http://www.webct.com/>) or Blackboard (<http://www.blackboard.com/>), open source learning systems like Moodle (<http://moodle.org/>). In this way we wish to address educators and educational institutions which do not have sophisticated computers and computer departments available for the learners.

With social games we mean games in which learners practice their social skills (collaborative work, discourse, argumentation, etc) and in which learners learn through social interaction. The importance of social interaction and collaboration has been highlighted as the key element of learning (Baker, Vries, Lund, Quignard 1999, Teasley and Roschelle, 1993, Jermann and Dillenbourgh, 1999) and role of the teachers in their endeavours is to facilitate learners

interaction with each other (Pincas, 1998). It might be the case that low tech social games will provide another form of framework for discourse construction.

1.1.1 Aims and Objectives

The aim of the workgroup activities described below was to create a knowledge pool of the kind of learning games teachers can integrate in their instructional designs (blended contexts and fully online), and to identify the key issues and concerns of teachers with applying this method.

1.2 Knowledge Pool and the SIG-GLUE Game

Once we have identified the topic of interest of the working group within the SIG-GLUE project we strived to initiate an information and knowledge exchange process. What kind of games do teachers and students play as part of their teaching and learning activities? Do they play these games online (e.g. in a blended learning scenario or a distance course), or if not, do they think that this game can be played online with the use of ICT and why? What are their experiences with playing these games online?

The first step has been to invite our target group to share their learning games, their ideas and resources within the SIG-GLUE community. To achieve this aim we decided to follow a playful approach and organise an online learning game. For our purposes we chose the C3PO game.

1.2.1 The C3PO Game: Information Sharing

C3PO is an e-mail game that stands for Challenge, Pool, Poll, Predict, and Outcome. The application of this game is described in the book “e-tivities: the key to active online learning” by Gilly Salmon, (Salmon 2002, www.e-tivities.com). C3PO is proposed and played by Marie Jasinski and Sivasailam “Thiagi” Thiagarajan (Jasinsky and Thiagarajan, 2000, www.thiagi.com).

The original purpose of this e-mail game is collaborative problem solving. C3PO is played with the use of the players own mailing system (mailbox) and goes on for 3 weeks. Players receive 4 e-mails overall and need to reply to 3 of them in order to play the game to the end. In Gilly Salmons book the game is described as follows (Salmon, 2000, pp. 134):

- In round one of C3PO players receive an open-ended *challenge*. Each player sends the e-moderator three ideas to meet this challenge.
- In round 2 the game e-moderator¹ sends the resulting *pool* of ideas back to the players and asks them to generate a priority list. Players read through the pool of ideas select the three that personally appeal to them most, and send them to the e-moderator.
- In round 3, players review the same pool of ideas and make a prediction of how the entire group would have voted and identify the top three that would have received the most votes. During round 2 the players consider how they personally feel and react to the ideas. During round 3 the players put themselves in other players' positions and predict the reaction of the population.
- The player with the closest prediction is the winner.
- After the results have been announced, players participate in online Forum to debrief each other and analyse the game.”

1.2.2 SIG-GLUE: A Game about Learning Games

Through public announcements on the SIG-GLUE website, Mailing lists and eLearning communities we invited trainers and students to participate. Game participants were invited to:

- **play** the game and enjoy a real experience of game-based learning
- take the opportunity and **share** their ideas and experience on the application of learning games with others
- **network** with members of the SIG-GLUE community
- **discuss** and **learn** about key issues about game-based learning
- **win**

Important to mention might also be the way we adapted the game to address the “learning” objectives of the SIG-GLUE activity. In stage one the challenge was to provide a description of a

¹ Gilly Salmon uses the term e-Moderator for the person who is organising and running on line activities. This function could be taken by a trainer, teacher, facilitator, tutor, animator, etc

game scenario they played as a student, or as a trainer with their students, or a game that they played in class but think could be adapted to be played online. Some suggestions of the type of information they could include were:

- a) The learning objectives of the game experience
- b) The story (some call it a theme, or a scenario) or the aspects that make the game engaging for players
- c) The aims of the player
- d) The basic set of players activities and/or rules
- e) An internet site with more information if there is one

The first suggestion to players has been to include the learning objectives of their game, because we considered this as the most important criterion of trainers for choosing a learning game for the learners (Dondi, C. and Moretti, 2004). A trainer should start by keeping in mind the learning objectives for the learners and then choose from a variety of options the right medium to achieve these objectives. This is a learner oriented approach as opposed to a medium oriented approach. In the second stage players were asked to review the pool of games, select the 4 most appealing games to them and prioritise them. In stage three players received the same pool of games and were asked to predict what the whole group of players voted in stage two.

17 trainers and 1 student responded to the game invitation and wished to take part in the game. Unfortunately only 7 of them sent us their game idea and proceeded with the next step. Only two out of 7 players responded to the last part of the game about predicting the votes of the group of players. Many factors might have prevented the players from taking part in the third stage. We assume that players did not respond in stage three because they did not know who else was playing, therefore could not make a prediction. This problem might have created uncertainty to the players in terms of what criteria they could use to predict the choice of the group. Because stage three was not played, the winners were drawn from stage two of the game. The full texts of the game scenarios and ideas and the game winners are published on the SIG-GLUE site in the SIG-GLUE Events area of the Library.

1.3 Knowledge Sharing: SIG-GLUE Game

Many approaches have been followed in order to initiate discussion about the application of games to reflect on the learning experience and to collect feedback from the game participants and from the wider community of practitioners. Some of them have been fruitful and some other not. This section discusses the collected feedback and identifies the major interests and concerns of the participants.

1.3.1 Feedback within the SIG-GLUE Community

We expected that the games we shared would provide a shared reference for discussion on the SIG-GLUE Community Site in the Discussion Forum area. Game Participants and the wider community have been invited to join an online discussion, provide feedback about their experience with games they played and discuss issues of the application of learning games in their educational settings. Unfortunately only one participant visited the site to post a contribution and no discussion developed. This can be due to many factors. One inhibitory factor might have been that the participants had to visit a website in order to take part in the discussion. Participants might contribute to the discussion if it was happening in their mailboxes through a mailing list for example. Another factor might have been that the participants did not feel as members of a group, in a sense that they did not know each other and they never expressed a commitment of working together. Other factors could be that the value of the discussion has not been clear to the participants, and that there have been no explicit communication rules or requirements for participation.

Although the game participants never completed the game by taking part in the planned feedback session, they contributed feedback about the C3PO game and the criteria for selecting the games that were shared within it in their reply emails during the game. We also identified common features in the winning games that reveal the criteria according to which they were selected. From this sample we can assume that the selection criteria have been:

- Relevance and potential application possibility with the use of online communication tools
- The amount of effort that would need to be invested to create the resources for the game
- The clarity of learning objectives

- How engaging it could be for the learners

1.3.2 Good Practice

Lotte Krisper-Ullyet claims that we can play 1000 games if we have a group of people, paper and pencil. The Fooling game has been one of the learning activities she designed to help the learners understand and critically think about the use of scientific language. Lotte Krisper-Ullyet provided feedback and an evaluation of the “Fooling Game” (game description in English can be found on the SIG-GLUE site in the Library area). The game idea was developed from an existing paper and pencil based game and played it with 30 students in her class at the University of Applied Sciences Burgenland, Austria. She reported about her work in a short paper (www.factline.com, the evaluation of the game can be found in this address and is in German Language). From this experience she reports that:

- No hi-tech game software is needed to initiate game-based learning processes
- All collaborative e-learning activities carry the potential for embedding game elements and to enhance the learners intrinsic motivation
- The “fooling game” can be played in a variety of learning disciplines and learning organisations
- Students spend more time than required in carrying out the game-based learning activity
- Students don’t play with their teachers

Some of her considerations are that:

- An inhibitory factor for game-based learning activities in taught courses is that the learners feel that their performance in the game affects their assessment for the course.
- The students positive feedback might rely on the novelty of the activity. The question is whether learners would find such activities engaging even if they were played in parallel in more of their course modules.

1.4 Knowledge Sharing: The opinions of Educational Practitioners

A great variety of feedback on the application of learning games and valuable discussions has been gathered by the discussions carried out within the Group On-site of the Online Education and Training course, offered by the Institute of Education, University of London, by Anita Pincas (January-April, 2005). One of the courses task during week 2 has been to consider the potential for using ICT to re-engineer a face to face teaching event into a blended learning experience. I took this opportunity to introduce the C3PO game to the group I was assigned in and to highlight some of the advantages of this approach that would arise from the inclusion of the learning game as an online component into a face to face course. Then the task for week 3 has been to: “select a response from one person in Week 2, where their proposal is very different from your own and comment on why, or why not, you could use it for your own teaching purposes”. To my surprise, there have been many contributions from members of my group who chose to carry out their task using the learning game example, presumably because it has been significantly different from their own, but also because the idea of embedding learning games in the existing practice sounded very exciting to them.

1.4.1 Motivation and Engagement

Many of participants in the online Education and Training group suggested that a game-based learning approach adds a dynamic element into taught course would increase intrinsic motivation and engagement of learners in the use of ICT for learning and would help them in their first steps with the use of “new” technology. Contributions explicitly stating these values have been posted in the On-site Group week 9 and 10 from the majority of the group participants: Luis Oliveira, 29. March and 7. April, Marina Chavez, 31. März 2005, Maka Sivale, 7. April, Ingeborg Pamminger, 6. April, Masahito Watanabe, 7. April, Timothy Workman, 6. April,

From: Luis Oliveira
29. März 2005

Dear Natasa

I was delighted to read your message. Games! That's very nice. When we are children we begin by learning playing games. «It is in games that many men discover their paradise. »

From: Paul Turner
4. April 2005

... Natasa's game is in itself simple and fun and promotes collaboration and the building and sharing of knowledge. I am definitely keeping this in the back of my mind, waiting for the opportunity to apply it to my own teaching.

thanks for that, Lucy and Anastasia – Paul

The participants of the OET course suggested many ways of applying the C3PO game to their blended learning contexts. Marina Chavez suggested playing the game for practicing writing.

From: Marina Chavez

31. März 2005

Anastasia,

I find the description of the game very attractive for language learning in many ways: as an icebreaking activity, to motivate the conformation of a virtual community, to practice writing, and others.

Marina

1.4.2 Adaptation of Games

The participants suggested ways of adapting the C3PO game and applying it to their blended learning contexts. Lucy Collins for example suggested playing the game for supporting learners to determine which are the right questions to ask.

From: Lucy Collins

1. April 2005

My instinct in the past has been that games are difficult to use productively in areas that are philosophically based. However, since there are also creative aspects to my teaching I've been encouraged to consider this issue further.

.... (the game) struck me a strategy most suited to a problem-based learning approach and thus not easily amenable to my subject area (literature/creative writing). Occasionally, though, I use quizzes at the start of f2f modules, especially those that require a certain level of background or historical knowledge and I think following this model, it may be possible for students to set their own quizzes, via email, the answers to which can be drawn from certain core texts or defined reading materials. This would enable students to be involved not only in answering the questions but in determining which are the key ones to ask.

Lucy

Thinking about learning objectives and the possibility to use a learning game for achieving them, some participants were inspired to create and think about other kinds of learning games. For example Luis Oliveira (On-site, 4. April 2005) suggests that “You can turn almost everything into a «game»” and suggests a role playing game. Ingeborg Pamminger (On-site, 7. April 2005) proposes another game to the group, which she things has a strong competitive and creative aspect.

1.4.3 Application Effort

The amount of effort that would need to be invested to create the resources for the game is also mentioned by Masahito Watanabe in his contribution on the 7. April, by commenting that the online game is free of moderation.

1.4.4 Game Restrictions

In the discussion a variety of restrictions of playing the C3PO game (and in a broader sense playing social interaction games) were also mentioned. Masahito Watanabe (On-site, 7. April 2005) points out that the game requires high level language skills. Ingeborg Pamminger (On-site, 7. April 2005) on the other hand suggest that games might be used with learners to improve their language skills and that they “might even be of motivational advantage as they can see that they are not the only ones struggling with a language and they practise REAL communication”.

Ingeborg Pamminger (On-site, 7. April 2005) suggested another restriction and which is that not all learners like games. Learners might feel they are too old to be playing games when they are in a transition stage in their education, or learners might not like playing games for learning. No didactical method is suitable for all learners due to their individual differences.

Timothy Workman (8. April 2005) points out to the issue that learning games are not being accepted as valued learning activities by the learners. He writes: “When I try to demonstrate a pedagogical rationale for using "games," it generally gets a response of "Okay, but bottom line it's just a game, right?" Amusingly, when I stop telling people that I want to use games and that I want to use "interactive objective-based learning activities," they have no problem with that! If "games" are simply designed to wrap learning in a self-motivational wrapper for the learner, is that such a bad thing?”

1.4.5 Discussion of analysis

The SIG-GLUE learning game and the discussions of the On-site Group of the Online Education and Training course about the game that was played and the games that were shared helped us gain a greater understanding of the issues that concern teachers. Unfortunately only one student participated in the game and did not take part in the discussions, so the key issues that were addressed come from the educators’ point of view. Some feedback about the learners’ experience

has been shared by the SIG-GLUE game participant Lotte Krisper. They showed that a learning game can be engaging when learners lose the fear of assessment and suggests that this cannot happen when they play with their teachers.

From a teachers point of view one of the important issues identified have been the importance of motivation and engagement. Motivation and engagement might, however, not occur when a learning game is accepted by the learners not as a game but as a learning activity, as posted by Timothy Workman in the OET course (8. April 2005). It was claimed that although the C3PO game is called game, it should be called a collaborative project. It seems that in our effort to engage learners in intrinsically motivating activities, we design activities that increase their extrinsic motivation. If a learning game context acts as a reward for a typical learning activity, then this context could be considered as offering a reward to the learners. Other issues that were addressed have been the adaptation of games for other learning objectives, the effort involved in applying a game and learning game restrictions.

Future investigation and effort is concentrating in facilitating and supporting more information and knowledge exchange between educators and students, and the evaluation of more games in blended learning scenarios. A very interesting idea that will be realised on the SIG-GLUE community by a group of interested practitioners will be the creation of a Good Practice catalogue of which practitioners can choose from and get ideas for their own practices. The contribution of game scenarios and other resources on this virtual environment offer the possibility of discussion about each one of them with other practitioners and will support the development of a community of practice among educators who apply learning games in their educational contexts (Barab, 2000).

1.4.6 Acknowledgements

Many thanks to all SIG-GLUE members and all participants from the course Online Education and Training, from the Institute of Education in University of London, who shared their experiences and opinions with us, for the fruitful discussions that led to this work. I would also like to thank Anita Pincas, the course leader of the Online Education and Training, whose online lectures, resources and course design made it possible for me to learn while working on my special interests.

1.5 References

Barab, S. A., & Duffy, T. (2000). From practice fields to communities of practice. In D. Jonassen, & S. M. Land. (Eds.). *Theoretical Foundations of Learning Environments* (pp. 25-56). Mahwah, NJ: Lawrence Erlbaum Associates.

Boud, D., Cohen, R., Walker, D. (1993). *Using experience for learning*. Society for Research into Higher Education, Open University Press.

Boud, D., Miller, N. (1996). *Working with experience : animating learning*. London, Routledge.

Jasinsky and Thiagarajan, 2000, www.thiagi.com, accessed in May 2005

Caine, R.N., Caine, G. (1994). *Making connections : teaching and the human brain*. Menlo Park, Calif., Addison-Wesley Pub. Co.

Dondi, C., Edvinsson, B., Moretti, M. (2004). *Why Choose a Game for Improving Learning and Teaching Processes, Guidelines for Game-based Learning*; Maja Pivec, Anni Koubek, Claudio Dondi (Eds.), Pabst Science Publishers, Germany, November 2004

Krisper-Ullyet, Lotte (2004). *Das Spiel "Lexicon" als Vorlage für spielerisches kollaboratives e-learning*, www.factline.com, accessed in May 2005

Macleod, H., Heywood, J., Heywood, D. Littleton, F. (2004). *Choosing and Using a Learning Game, Guidelines for Game-based Learning*; Maja Pivec, Anni Koubek, Claudio Dondi (Eds.), Pabst Science Publishers, Germany, November 2004

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

Malone, T.W. (1981(b)). "What makes computer games fun?" *Byte* December 1981.

Papert, S. (1980). *Mindstorms : children, computers, and powerful ideas*. New York, Basic Books.

Online-Education and Training Course (January-April 2005). Institute of Education, University of London, course Leader: Anita Pincas.
http://ioewebsserver.ioe.ac.uk/ioe/cms/get.asp?cid=882&882_1=830&var1=6&var2=CCOET
(accessed: 20.03.06)

Petz, B. (2004). *My three principles of online effective pedagogy*. *JALN* Issue 8, Volume 3

Pincas, A. (1998). *Successful online course design: Virtual Frameworks for discourse construction*. *Educational Technology & Society* 1(1)

Prensky, M. (2001). *Digital game-based learning*. New York ; London, McGraw-Hill.

Papert, S. (1993). *The children's machine: rethinking school in the age of the computer*. New York, BasicBooks.

Salmon, Gilly (2002). E-tivities. London: Kogan Page Limited.

SIG-GLUE Game learning Scenarios and Winners: http://www.sig-glue.net/modules.php?name=Literature&op=showcategory&c_id=3&offset=0 (accessed 20.03.06)

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