JISC e-Learning and Pedagogy Experts Group Meeting: Games for Learning session. A Summary Report

1: Background

The Games for Learning session was part of the JISC e-Learning and Pedagogy Experts Group meeting that was held at Armada House in Bristol on 27th June 2006. This session chaired by Sarah Knight - and facilitated by Sara de Freitas - was designed to inform the work currently being undertaken for the e-Learning and Innovation strand of the e-Learning Programme.

The facilitator, at the start of the session, gave a presentation. See powerpoint slide presentation at: http://www.jisc.ac.uk/elp_expertsjune06.html. This was followed by breakout sessions and a survey of the experts. This summary report presents the outputs of the session, including the breakout session discussions and a summary of the findings of the survey.

The structure was adapted from a workshop at the AOC-Nilta Conference 2006. See *Appendix A: e-Learning and Innovation: Games for Learning* for an outline of the structure of the session. See also *Appendix B: Games and Education: A briefing paper* which was circulated in advance of the session to inform the debate.

2: Feedback from the breakout sessions

The captured outputs of the breakout sessions are presented here in summary form. The notes - from five breakout groups - were taken by Greg Benfield, Eta De Cicco, Sara de Freitas, Rhona Sharpe and Ros Smith.

Topic 1:	What is the current practice within colleges and universities? The session revealed a wide range of uses of games and simulations across FE and HE. Across the sessions there were many examples where games and simulations were being used in representative institutions, including the following: ▪ Virtual Patient George for School of Medicine (University of Edinburgh):, ▪ SFC-funded e-Learning Transformation project e-construction project which includes a simulation for learning on how to put out fires ▪ UFI Learndirect games e.g. Max Trax (FE/HE institutions) ▪ Health and Safety in the Workplace, Art and Design Department (University of Edinburgh) ▪ Kartouche and MediaStage (Immersive Education): tools for supporting drama and media studies in FE colleges and school sixth form colleges ▪ Second Life, Drama department (University of Edinburgh) ▪ Flash games (London Metropolitan University) ▪ Virtual patient with information sent to PDAs (University of Warwick) ▪ Role-play nursing games (University of Teeside) ▪ Ardcalloch: legal practice (University of Strathclyde)
Topic 2:	What are the educational benefits/challenges? The discussions highlighted several key benefits and challenges with using games, including: ▪ Games and simulations engage learners

	▪ Games are fun ▪ Value of simulations / role plays have been used in schools for years, pedagogies and value are well understood ▪ Are games only applicable to young people? ▪ How do you embed them into practice? ▪ Games give learners control over their own learning ▪ Challenge learners, staff and institution fundamentally to reshape the curriculum ▪ Curriculum has to change in a fundamental way, e.g. even a video lecture calls into question the 50-minute lecture ▪ Offers a new method of formative assessment ▪ Helps learners with problem-solving ▪ Games have to be real to life; there is an issue around learners misinterpreting simplified models as the 'real world' ▪ Difficulty in how to plan resources ▪ Teams may not gel and may find the learning outcomes difficult to assimilate which has implications for how staff best provide support ▪ Team/collaborative work may be challenging particularly for highly individualistic learners ▪ Images used in games can fix meaning
Topic 3:	Which subject areas / learners are more likely to benefit? No particular subject area was singled out in the discussions, but observations suggested that games may: ▪ Be useful for teaching common transferable skills ▪ Help simulating expensive engineering processes ▪ Support all subject areas
Topic 4:	How can we exploit investment and incorporate what is available into our own practice? Key issues highlighted in the discussion included: ▪ Need to change licensing to spread practice ▪ Games are costly to develop ▪ Cost of games might be a deterrent and may lead to the need for large numbers of learners in order to be worthwhile ▪ Difficult to repurpose games currently

3: Survey summary of findings

A survey was distributed amongst the expert group at the meeting. 26 of the surveys were completed (n=26).

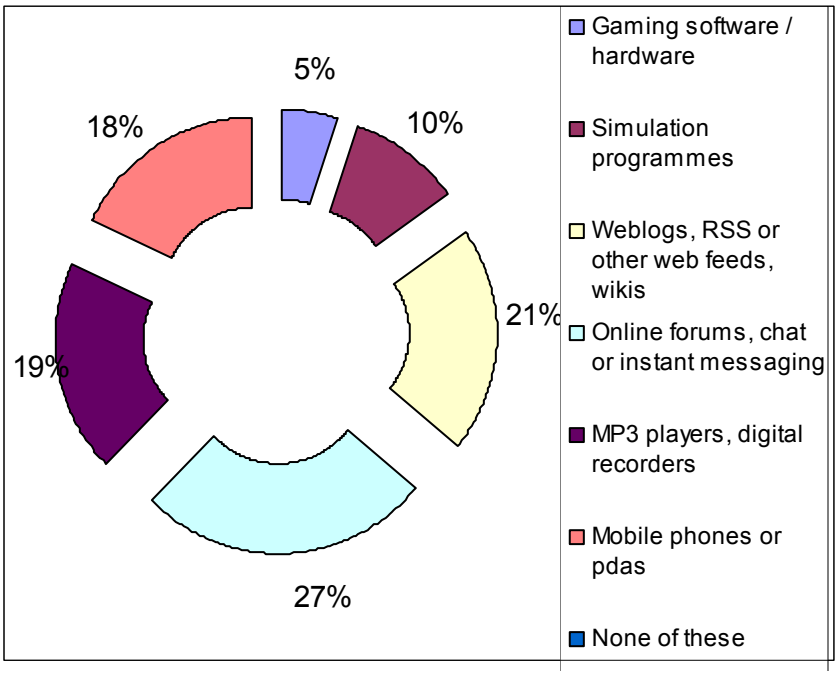
Score sheet of responses from experts (results in left hand margin - as highlighted).

A	**Which of the following new media / interactive technologies are you currently using?**	
4	Option 1	Gaming software / hardware
8	Option 2	Simulation programmes

16	Option 3	Weblogs, RSS or other web feeds, wikis
21	Option 4	Online forums, chat or instant messaging
15	Option 5	MP3 players, digital recorders
14	Option 6	mobile phones or pdas
0	Option 8	None of these
B	**How convinced are you of the educational / pedagogic benefits of these types of interactive technologies?**	
11	Option 1:	Very
14	Option 2:	Partially
1	Option 3:	Ambivalent
0	Option 4:	Not at all
C	**Where does the real benefit in adopting these technologies lie?**	
20	Option 1:	Learner engagement and recognition of learner culture
6	Option 2:	Supports staff development and reinforces the importance of innovative practice
6	Option 3:	Develops iSkills: ensures learners have the fundamental skills to navigate and function in an electronic age
11	Option 4:	Support e-literacy: develops writing, reading and communication in public and global contexts
9	Option 5:	Many new technologies are community focused: they support team work, networking and citizenship
7	Option 6	They develop decision-making, leadership and taking responsibility
2	Option 7	I am not convinced of meaningful benefits
D	**What would encourage use of these types of technologies in the seminar room?**	
8	Option 1	Better products
17	Option 2	More flexible licensing for educational use
17	Option 3	Greater ability to repurpose or adapt products
13	Option 4	Affordable hardware and licensing costs
17	Option 5	Good practice examples
8	Option 6	Greater collaboration across colleges and universities
6	Option 7	Student access to technologies – many of our learners' cannot afford new technologies
1	Option 8	Student adoption of technology – our learners are not interested in new technologies
1	Option 9	I am not convinced of the benefits.

3.1: Using technologies, tools, software in practice

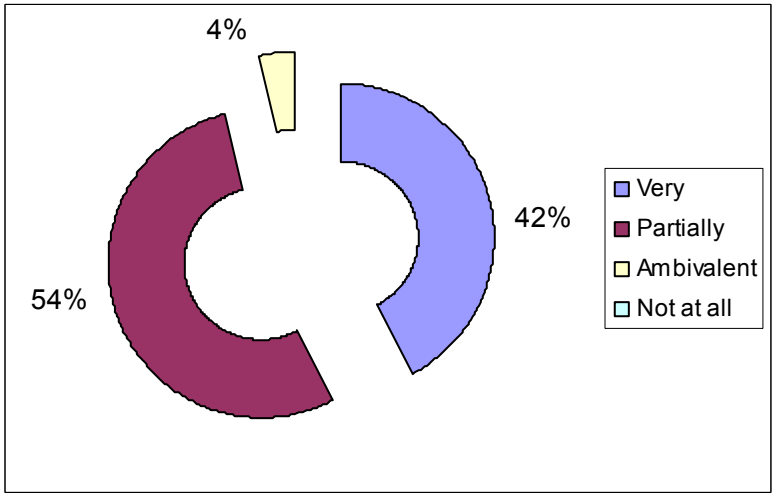
Online forums, chat or instant messaging were the most commonplace innovative technologies/formats/software (tools) currently being used in learning practice (27%, n=21). Weblogs, RSS or other web feeds and wikis were cited as the second most used tools (21%, n=16). While simulations were twice as commonplace (10%, n=8) as games software (5%, n=4), games were the least used of all the tools given as options, and games and simulations were not being used as much as mobile phones and pdas (10%, n=8) or as MP3 players and digital recorders (19%, n=15).



Graph 1: Collated responses to: Q1: Which of the following new media / interactive technologies / software / tools are you currently using?

3.2: Pedagogic benefits

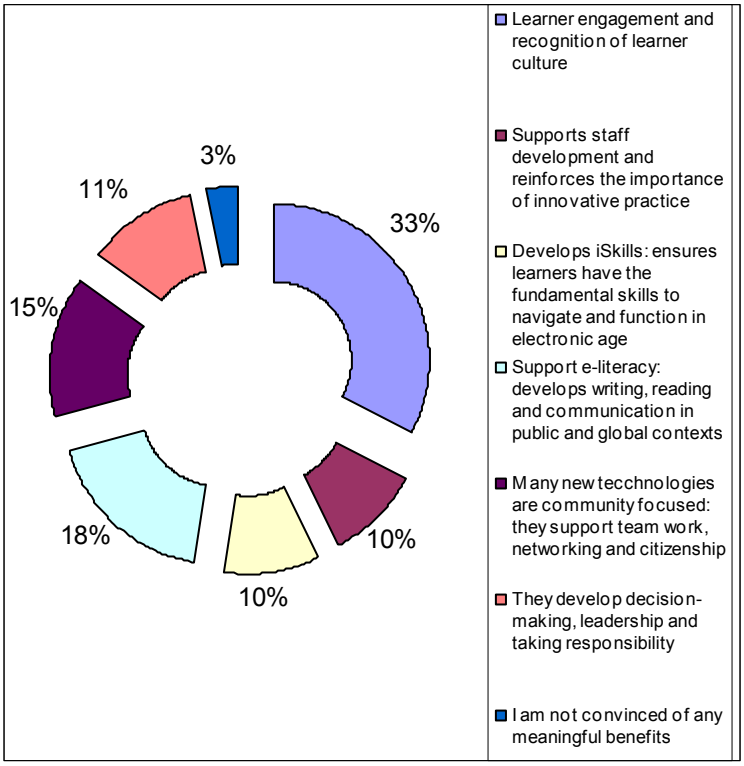
Overall, the experts polled did find pedagogic benefits with using these new tools with 96% (n=25) partially or very convinced at the value.



Graph 2: Collated responses to: Q2: How convinced are you of the educational/pedagogic benefits of these types of interactive technologies?

3.3: Other benefits

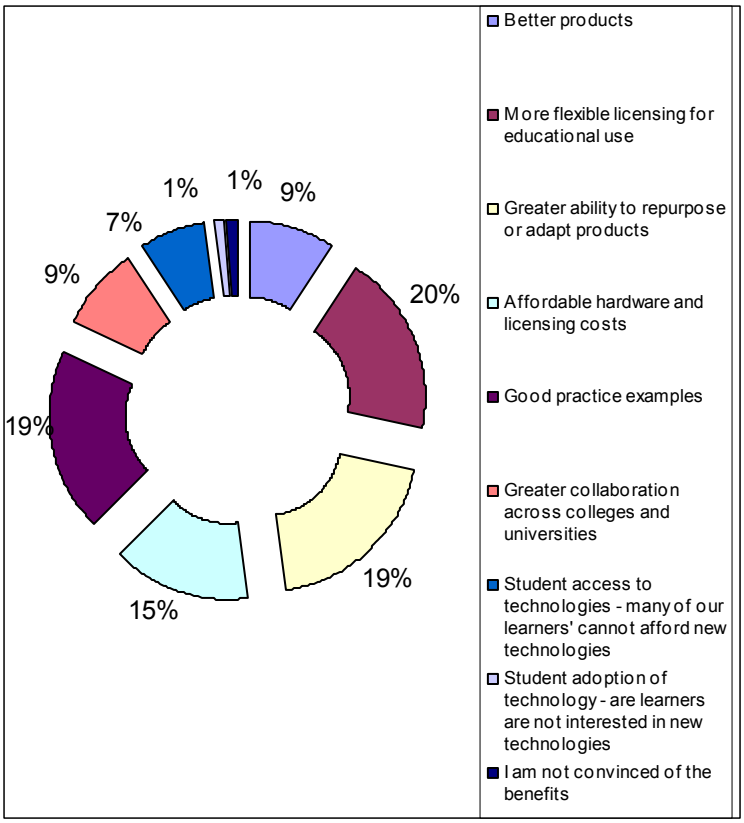
33% (n=20) found that learner engagement and recognition of learner culture was the main benefit of adopting these technologies, with 18% (n=11) believing that these technologies support e-literacy, 15% (n=9) believing that new technologies support team work, networking and citizenship, 11% (n=7) believing that these technologies developed decision-making, leadership, taking responsibility and ensuring learners have the fundamental skills to navigate and function in an electronic age. 10% (n=6) saw staff development as supported by these means and 3% (n=2) were not convinced of any benefits.



Graph 3: Collated responses to Q3: Where does the real benefit in adopting these technologies lie?

3.4: Encouraging usage of tools in practice

20% (n=17) thought more flexible licensing for educational use, greater ability to repurpose or adapt products and good practice examples would encourage wider use. 15% (n=13) thought affordable hardware and licensing costs would encourage wider adoption. Student access to technologies (7%, n=6), greater collaboration with other institutions (9%, n=8) and better products (9%, n=8) were also selected as important drivers for wider adoption.



Graph 4: Collated responses to Q4: What would encourage use of these types of technologies in the seminar room or classroom?

4: Discussion and conclusions

Overall there was a perception that games and their usage were mainly focused in research and development at present. However the breakout sessions revealed that the number of games-related practice examples were of a significantly high number and were notable from a range of institutions.

While there are clearly many issues associated with the use of game-based learning the experts overwhelmingly voted that they would consider using games in their practice in the future, echoing the Mori Poll findings conducted for Futurelab and Electronic Arts (Sandford, 2006) which found that 31% of teachers have used games for entertainment in their lessons and 59% would consider using them in the future. Clearly the numbers of teachers using games (31%) is significantly higher than our expert sample (10% using simulations and 5% using games) – but this percentage may well increase as the generations currently using games in the classroom progress into adult education.

The games noted in the breakout sessions covered a wide range of subject areas, implying that games may be used in different disciplinary contexts. Games are also being used in diverse contexts: field trips, course work and as supporting resources for often practical work as well as collaboratively and for professional development.

The experts were also using a range of other innovative technologies. The use of online forums, live chat, instant messaging, weblogs, RSS feeds, wikis, MP3 players, digital recorders, mobile phones and PDAs all were noted as being used by 20-30% of the expert group of practitioners. Clearly deeper research into how these innovative technologies are being used in practice,

including a deeper exploration of duration, context and pedagogic approaches used would be invaluable for producing a more comprehensive understanding of the role these components of e-learning are playing. In addition, the way these technologies are being used by learners would help to clarify the role that these tools may play in the future. Clearly we are moving towards a more learner-driven debate. However it is still not certain how this usage will affect curricula, assessment and accreditation.

However the experts did see partial or complete pedagogic benefits with using these tools, arguing that increased learner engagement was a major benefit of these more empowering tools. Experts also felt that these tools helped learners with e-literacy helping them to gain the skills needed for the 'electronic age', whilst giving emphasis to the importance of learning collaboratively in teams.

References:

Sandford, R. (2006). Teaching with COTS Games. Presented at the JISC Online Conference: Innovating with e-Learning 2006. 30th March.

Appendix A: e-Learning and Innovation: Games for Learning.

Games for Learning

This exercise is based upon one conducted at the AOC-NILTA Conference 2006. URL: http://www.rm.com/FE/Generic.asp?cref=GP650886&SrcURL=/FE/Default.asp.

Time	Description	Objectives
10 min	Overview of Games in education and key themes (SdF)	Highlight key themes around using games in practice to support the learner voice
25 mins	Breakout groups (select notetaker to feedback to the whole group)	Capture views on the learner's experiences of using games (at home and in the seminar room). Consider key issues and themes. Brainstorm other key themes and issues
10 mins	Vote and capture feedback from breakout sessions	Vote upon questions around the use of games to support learning. Capture feedback from the breakout sessions

Suggested reading for session:

de Freitas, S. (2006) Briefing paper for JISC on gaming. See attached below.

Sandford, R. & Williamson, B. (2005) Games and learning: A Handbook. Bristol. Futurelab. URL: http://www.futurelab.org.uk/download/pdfs/research/handbooks/games_and_learning.pdf.

Stead, G., Anderson, P., Sharpe, B., Cych, L. & Philpott, M. (2006). Emerging technologies for learning.. Becta ICT Research. Coventry. Becta. URL: http://www.becta.org.uk/corporate/publications/documents/Emerging_Technologies_Accessibility.pdf.

New Media Consortium / Educause Learning Initiative. The 2006 Horizon report. URL: http://www.nmc.org/pdf/2006_Horizon_Report.pdf.

Education or entertainment?

The discussion will cover key issues relating to the potential of improving learner engagement through the use of games that are becoming ubiquitous in other aspects of learner's lifestyles. Mobile phones, game platforms, software, web sites, chat rooms, alongside social software (Web 2.0) such as MySpace and Blogger have previously been considered distraction, security and personal risks rather than as opportunities for learning. However as more learning platforms begin to incorporate these tools and user communities become increasingly supplicated, should

we be harnessing these to support learning? What are the benefits to the learners? What are the barriers and driver for uptake of these tools into our colleges and universities?

The discussion will centre upon key topic areas:

Topic 1:	What is the current practice within colleges and universities? Participants are invited to share their experiences and their students' experiences of using these technologies. Which technology have you used? How have learners responded? How did you position it with your learners? For example, it is treated as a core part of the learning process or just a piece of fun? How easy was it to introduce? What are the network, training and supervision issues?
Topic 2:	What are the educational benefits? A significant amount of research and investigation has been taking place around these issues recently. How familiar are you with the debates and concerns? What are the pedagogic arguments?
Topic 3:	Which subject areas / learners are more likely to benefit? Do you think that these types of technologies are more suite dot some learners than others? If so, why? Do you think that there are some subject areas that can more easily employ these technologies? Are they more suited to work-based learning scenarios?
Topic 4:	How can we exploit investment and incorporate what is available into our own practice? A great deal of investment is made in the world of entertainment and media into these areas. How could education benefit from this? How do you think this could be achieved? Should there be a national lead, or should individual colleges and universities work with local business? What are the product development issues? How can / should colleges and universities share internal development investment / resources. Should they develop commercial arrangements within the sector / with other partners?

Appendix B: Games and education: A briefing paper by Sara de Freitas

Background

The Learning in Immersive Worlds report will aim to provide a scoping study of current usage of games for learning in the UK higher education and post-16 sectors including a review of the current literature and compiled case studies of practice. The report has been commissioned by the JISC e-Learning and Innovation Strand in order to explore the potential for the use of games to support learning and teaching in the higher education and post-16 sectors. The audience of the report will be learning and teaching practitioners (HE/FE), managers and researchers and the JISC Learning and Teaching Committee.

Overview of selected trends in educational (or serious) gaming

Widespread use of games technologies and applications.
Computer and console games are increasingly being used as part of leisure time activities. Currently 52 per cent of UK households have Internet access and there are 20.8 million consoles and handhelds in UK homes. Over the last ten years, more than 335 million leisure software titles have been sold (Office of National Statistics/Screen Digest/Chart-Track, 2006). This explosion of leisure gaming has prompted a deeper consideration of the use of games (and simulations) to support learning in pre- and post-16 education.

Different modes of gaming.
The explosion in the use of games is reflected by a range of different modes of gaming (using dedicated games consoles, using the PC for single player gaming, using PCs and consoles for Internet and online (MMORPG) gaming, mobile gaming etc).

The use of online gaming (Massively Multiplayer Online Role-Playing Games)
The use of online games for collaborative game-play (e.g. Everquest and World of Warcraft) has increased dramatically over the last five to ten years with the growth of usage of the Internet (de Freitas & Griffiths, forthcoming). The phenomenon has led to 4 million users of Everquest worldwide. Other online games with more of a training component such as the America's Army game, developed by the US Army Moves Institute, currently has over 6 million registered users. Alongside these games are large numbers of fanzine sites where users can 'chat' and share strategy and game 'cheats'.

The authoring and development of immersive worlds
Modding (modifying existing software) and the use of dedicated software development kits to create immersive and 3D-like worlds is becoming a more widespread activity amongst the games community. Currently a number of projects (e.g. DTI PACCIT Making Games project) are being undertaken to develop open-source games engines for use in educational contexts.

Ubiquitous gaming
Currently mobile phones are owned by more than 40 million Britons (BBC, 2006), the ubiquity of mobiles phones are leading to more mobile gaming applications. In particular recent research projects (e.g. EU funded Mobilearn and MLearn projects) are using this mode of delivery for supporting skills needs (e.g. literacy and numeracy). However while these studies have shown

that mobile gaming can be used to engage students, desired learning outcomes are not always effectively demonstrated.

Alternate Reality Games (ARG)
These are games that are cross-media and that blur the line between the game space (diegesis) and the real world experience. A well-know example of this is the Majestic game that used telephone calls to the player to blur the game space with the real world experience, as similar to the David Fincher directed film 'The Game'. While this format has not led to any specific training or learning projects, the potential of the approach means that it could be applied effectively within learning contexts.

Simulations
Simulations have been used to support learning for millennia, and the earliest war games were in fact simulations. With the advent of computers the genre shifted into digital spaces, and today the use of electronic simulations to support professional training and education are noteworthy (e.g. medical, business). Most recently, the convergence of games and simulations – or 'gamesims' as I have termed them – blends instructional approaches to simulations with the motivational capacity of games. Many skills-based games are a notable example of this trend. Recent research projects, e.g. the Serious Games: Engaging Training Solutions project funded through the DTI Collaborative Research and Development stream have begun to consider cross industrial-academic approaches for the development of proprietary gamesim style demonstrators.

Inhibitors and facilitators to uptake of gaming in HE/FE

- Perception of gaming as a leisure pursuit with no pedagogic value. The perception of gaming as a learning tool for post-16 education is changing and Games Design and Game theory courses are being introduced in HE/FE contexts leading to more critical approaches to game play.

- Generational perspectives to gaming. Prensky (2001) and others (e.g. Stone, 2004) argue that games and their uptake and use is often tied to conversancy with new technologies. Digital natives (or twitchspeed generation) vs. digital immigrants, where digital natives can use and switch between different technologies fluently.

- Matters of definition. Differing definitions of immersive learning abound and create problems when discussing the subject of educational or serious games. There is a need for educational games to appropriate their own terminologies (as different from those used in leisure gaming contexts), although this may create greater confusion when researchers and games developers attempt to work together.

Conclusions

Overall the diversity and diversification of games, modes of gaming and cross-over with other media has implications for how learning may take place in a more seamless and immersive way. While the area is made complex by the range of activity taking place, the need to develop more critical approaches to games study and development in the post-16 educational sphere is certain.

There is clearly a substantial potential for learning with games and simulations, and while the research to support the effectiveness of simulations is considerable, recent studies of using leisure games in learning contexts (e.g. Egeneldt-Nielsen, 2006 and Futurelab's Savannah project using mobile gaming approaches see: de Freitas & Oliver, 2006) have found difficulties particularly in terms of setting and fulfilling specified learning objectives. This may be the result of

one of two main reasons, either leisure games cannot be used effectively in learning contexts, which implies that proprietary models of development (such as the approach taken by the Serious Games: Engaging Training Solutions) may be more effective or that the way that these games are embedded is not being undertaken effectively in accordance with sound pedagogic principles.

In either case there is clearly a need for baseline studies that can quantify how much games and simulations are currently being used to support learning. In addition there is a need for guidelines, case studies and exemplars from current practice to inform and improve the quality of delivery of games-based learning across the sector and to support better future planning and resource allocation.

References:

Prensky, M. (2001). Digital Games-based Learning. New York and London. McGraw Hill.

de Freitas, S. & Griffiths, M. (forthcoming). Online gaming in education: Can massively multiplayer online role-play games be used effectively to support learning and training communities? CyberPsychology.

de Freitas, S. and Oliver, M. (2006). How can exploratory learning with games and simulations within the curriculum be most effectively evaluated? Computers and Education Special Issue. 46 (2006) 249-264

Egenfeldt-Nielsen, Simon (2005). Beyond Edutainment: Exploring the Educational Potential of Computer Games. IT-University Copenhagen. Last retrieved 2nd May 2006 from http://www.itu.dk/people/sen/egenfeldt.pdf.

Stone, R. (2004). The convergence of synthetic environments, virtual reality and computer games: the tools and the benefits. ETS News, Summer 2004. Last retrieved 2nd May 2006 from http://www.ets-news.com/third.php?id=16.