Teaching with Games

Guidance for educators

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futurelab

Between 2005-2006 the software games firm Electronic Arts (EA), Microsoft, Take-Two Interactive Software and the Interactive Software Federation of Europe (ISFE) funded Futurelab to conduct the Teaching with Games research project. The project was a year-long investigation into the use of commercial 'off-the-shelf' computer games in classrooms. The study did not look specifically at learning outcomes but rather focused on the issues that arise when using such games in the classroom, with the intention of providing practical evidence and advice that might inform further use of such games in the school context.

As well as conducting national surveys to find out students' and teachers' attitudes towards computer games in formal education, a series of case studies were also undertaken. These took place in four secondary schools and explored the experiences of teachers trying to incorporate these games into their day-to-day lessons and classroom practice. Data was gathered from interviews, lesson plans and observations, teacher reports and e-mail correspondence, as well as feedback from students.

The schools taking part in the study were drawn from both the state and private sectors and had a variety of student intakes. Schools were selected in both rural and urban settings, with some following a standard knowledge-based curricula, and others a competency-based model.

The games used in the study were The Sims 2, RollerCoaster Tycoon 3 and Knights of Honor, and these were used in a number of classes to teach a range of subjects, such as physics, design, English, French, mathematics, as well as aspects of a competency curriculum.

This booklet is designed to highlight some key findings, the views and thoughts of participating teachers, and to raise some important questions that might help others to successfully use such games in the classroom setting.

For further information see:

- Teaching with Games project overview on the Futurelab website www.futurelab.org.uk/research/teachingwithgames
- Teaching with Games final report describing the research and findings www.futurelab.org.uk/research/teachingwithgames/findings.htm
- Teaching with Games case studies which contain an overview and the lesson plans for five of the teachers' game use www.futurelab.org.uk/research/teachingwithgames/case_studies.htm
- Games Handbook for a general overview of games in formal education www.futurelab.org.uk/research/handbooks/03_01.htm

1 Why use games?

Recent statistics found 62% of students said they would find games motivating (Ipsos MORI survey, Feb-May 2006), and 59% of teachers would consider using games in the classroom (Ipsos MORI survey, Nov 2005).

"The pupils enjoyed the project as much as I did, because it gave me time to take care of each student, which is sometimes not easy in normal lessons."

"The improvement of their skills in working as a team was enormous."

"I really enjoyed doing this project, it allowed me to do something a bit different."

"A bonus of the game is that you can do many virtual experiments in a very short time with results that are much better than physically doing the experiments... On the other hand you have to keep in mind that these are only virtual experiments and that of course can not entirely replace hands-on experiments."

"Ultimately we were heading for the situation where we had 30 people in a room focused on a screen. And that's a fairly safe place to be. Whereas 30 people in a room fiddling around with boards and counters and god knows what, or something else, could have been much more difficult to keep tabs on and to keep focused on I think."

In the UK, educational policy makers have recently funded the development of commercial games for use in educational settings, and a publication from European Leisure Software Publishers Association (ELSPA), supported by the DfES, on games and education is due autumn 2006.

Or not...

"You'd get more sense of history by a trip to a museum!"

22% of students think that computer games should not be used in the classroom (Ipsos MORI survey, Feb-May 2006).

1. Why do you want to use a game - to motivate your students, teach something complex, because you like playing games, you think the visual aspect would be fun etc?

2. What aspects of a game would engage or motivate your students?

3. What learning goals might be achieved and how might the use of computer games address these better than other methods?

4. Do you have the desire for the challenge of learning a game and identifying how it can fit into your lessons?

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2 Selecting a game

"Maybe a simpler game to play would have been better. If you're working with a group of Year 9s and 10s they probably wouldn't have found it so challenging to get into it, Year 7's quite a young age group to get into playing such a technical game."

"Don't feel that you need to use the whole game - just use the bit that you think is appropriate to what you're doing."

"The fact that it was modelling and had consequences linked to life skills, meant it wasn't just an abstract environment, it was a simulation of a real environment."

BUT

"Say you've got a topic for a marginal subject, like RE, say designing a mosque – then I'd rather do something more interesting, like take them to places say – it's far more relevant, and show them."

The Sims 2 - EA

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1. Is the game you're considering suitable in terms of the technical difficulty and age of your students?

2. What elements of the game support your educational goals?

3. Does the game match your learning goals entirely? If not, can you extract elements relevant to your learning goal and use these productively in isolation from the game as a whole?

4. Would your students be motivated by using this game?

5. Are you confident that the underlying model within the game supports your learning objectives?

Knights Of Honor - Black Sea Games

3 Lesson planning

"I think clear objectives for you, clear objectives for the kids, and clear focused tasks within the lesson [are key things to have in mind when planning to use computer games]."

"I'd say teachers need to be really clear about what learning they want out of the game before they went down the road of using it - so that they can always bring the focus back to the learning activities."

"The game architecture dictated the lesson plan."

"The hardest part was getting into the game, you know, we're probably talking 10, 12 hours of playing the game to really, kind of, do it."

"I normally reckon for an hour in the classroom, you're looking at an hour out of the classroom doing preparation and planning and what have you. It probably, if you average it out over the three weeks, worked out at just a little bit more than I would normally do."

[In lesson planning] "I doubled the time it took me to do [an activity in the game] as I thought it's going to take them twice as long - but instead it took them four times as long."

"But because I wasn't knowledgeable and experienced with games it struck me that I had to do it completely differently. The logical thing for me seems to be to rely on pupil expertise. I was going to have to rely on pupils hopefully to lead the project and I was going to supervise it from the wings."

"The workbook they had to complete covered everything that I wanted them to do in the actual final project. So it kind of was essential for them to have completed the workbook to be able to design a project."

1. What are your learning objectives?

2. How does the game help to achieve these learning objectives?

3. How will you ensure learning goals are achieved when you are using the game in the classroom? For example, how can you ensure students asked to work in groups will actually gain teamworking skills?

4. What materials will you give the students; your own worksheets, a user manual, student roles if working in groups, the game instructions themselves etc?

5. How will you engage students that are not interested in games?

6. Have you accounted for the time it may take to become familiar with the game in your planning? Have you factored in contingency time?

7. If you decide to work with 'expert' student groups have you ensured that these experts have sufficient knowledge and are supported and confident enough to play this role in the classroom?

8. Have you built in time for reflection into your lesson plan?

4 Timing considerations in the classroom

"It took two lessons more that I actually planned but I did expect that a bit."

"You're not going to get content-specific stuff from them playing the game for half an hour, that's fairly obvious, they've got to have two to three hours of gameplay before they're going start to appreciate the things they're learning from it, content-wise."

"I did have an expectation that they'd all be really good at it. And they weren't all really good at it."

"I often skipped [the plenary] as I had to fit everything in."

"I think there was some time for them to reflect, but perhaps not as much as I would have liked them to."

"In a 50-minute lesson at least six to seven minutes per group was spent loading up the game to the playable stage."

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1. Do the students have sufficient time to master the practicalities of playing the game so they can focus on content?

2. Is there contingency time set aside for reflection at the end of the lesson?

3. Is there contingency time set aside for technical issues that may emerge during game play?

4. Is there a back-up plan in case the technology does not work properly?

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5 Ensuring learning and assessment

"It's very hard for the students to reflect on what they have done, because the game leads them to play, play, play and then they don't know what happened. The game is too quick and complex. Most of the time they only react – they are not leading proactively. This is less about the way they're playing the game and more about the game itself."

"You need to guide the students to think. I think they can guide themselves through the game, but they need guiding through the learning, unpicking the game, to learn that little bit more."

"They had difficulties writing down what they did. I was saying to them, please, write down every decision so we can see and think about what you've done, but most groups just played the game and forgot about it."

"I was assessing their teamwork and ability to listen and respond to others, I think. So I've done an assessment on them based just on observations I've done."

"The students were asked to say whatever they liked – they couldn't be wrong - on a post-game questionnaire. If they thought this was a fantastic game and they'd really like to spend the rest of their life playing it, say so. If they thought it was dreadful and thought it was a total waste of time and were really angry that we did it, they had to say that. I think that's quite a useful kind of experience for a child to discover that their opinions are totally valid whatever they are."

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1. Have you made the learning goals and lesson objectives explicit to pupils?

2. When are you going to assess whether you've achieved your lesson objectives?

3. Have you considered different ways of assessing what has been learnt, for example through observation, getting pupils to write about their experience, or by directly exploring their understanding?

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6 Technical considerations

"Yeah equipment – the problem is with games you need a good computer to play on. Mostly they're set up for word processing, Publisher, PowerPoint, not computer games."

"Fortunately I was able to borrow a more powerful laptop from a family member, which allowed me time to play the game at home."

"I can scrounge four data projectors, four standalone machines and four screens."

"I think maybe some people felt that they were just a spectator... you know three or four people sharing a computer and maybe only one or two that are operating and really engaged in it whilst there's others who kind of get left out in some respects."

"I know I couldn't run it on a network, even at the best of times."

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1. Have you enough kit of sufficient specification?

2. Can you afford the game licences?

3. Can you install the software?

4. Can you run it over the network if necessary?

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7 School-wide considerations

"And then looking at the computer booking sheets to see when I could get into the computer room it became apparent that you couldn't get into the computer room for all of the lessons."

"Clashes with other classes meant that we did not have the preferred amount of time in the computer rooms and therefore had to cut the project time short at the end."

"The teacher's desk was in the wrong place which I need to address for next week so I can see the students."

"I had the odd bit of stick from other teachers for just playing games."

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1. Do you have access to the ICT suite when you wish to use the game?

2. Do you have the support of the technicians?

3. Do you have support of the SMT?

4. Can you or your SMT organise greater flexibility in timetabling and organisation of lessons in order to allow you to fully explore the potential of working with games over longer periods of time?

5. Would your fellow teachers support you?

6. Can the classroom be laid out appropriately for your lesson?

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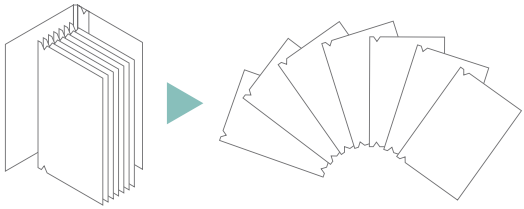
Acknowledgements

Our thanks go to all the schools and students who participated in the project. In particular, our thanks go to the teachers, whose commitment, patience and willingness to explore new approaches to teaching and learning cannot be overstated, and to the technical support staff in each school for their vital contribution to the project.

Special thanks to Electronic Arts (EA), Microsoft, Take-Two Interactive Software and the Interactive Software Federation of Europe (ISFE) who funded the schools' and teachers' participation in the project and to Atari who provided permission to use RollerCoaster Tycoon 3. Finally, our thanks to our Advisory Board and Futures Group, who acted as critical friends to the project during its development and who are currently helping us to explore possible next steps.

Partners, participants and advisors of the Teaching with Games project

Electronic Arts (EA), Microsoft, Take-Two Interactive Software, Interactive Software Federation of Europe (ISFE), Atari, Bedminster Down School, Deutsche Schule London, John Cabot City Technology College, St John's Community College, Adrian Hall (DfES), Angela McFarlane (University of Bristol), Chris Brannigan (Caspian Learning), Gavin Dykes (DfES Innovation Unit), Jon Sykes (Glasgow Caledonian University), Leigh Jackson (DTI), Nick Kind (Spark Learning), Patrick Craven (Cambridge Assessment), Paul Hollins (University of Bolton), Simon Egenfeld-Nielsen (IT University of Copenhagen), Jürgen Bänsch (ISFE) and Mike Rumble (QCA).



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Working in partnership with industry, policy and practice, Futurelab:

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- offers hard evidence and practical advice to support the design and use of innovative learning tools
- communicates the latest thinking and practice in educational ICT
- provides the space for experimentation and the exchange of ideas between the creative, technology and education sectors.

A not-for-profit organisation, Futurelab is committed to sharing the lessons learnt from our research and development in order to inform positive change to educational policy and practice.

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Registered charity 1113051

Teaching with Games supported by: