



NFER Teacher Voice Omnibus February 2009 Survey

Using computer games in the classroom
Futurelab

March 2009

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Introduction

Six questions were submitted by Futurelab to the NFER's Teacher Voice Omnibus Survey in February 2009. The questions covered the following topics relating to the use of computer games in the classroom:

- teachers' use of computer games for entertainment and leisure
- teachers' use of computer games in the classroom and the hardware
- teachers' possible use of computer games in the classroom in the future, and the reasons for this
- the consequences of playing computer games, both positive and negative
- perceived barriers to the use of computer games in the classroom

This report provides an analysis of the responses to the questions, along with supporting information about the survey. The results are presented by school phase (primary and secondary), seniority of teachers (classroom teachers and senior leaders), and age and gender, where appropriate. This report forms one part of the output from the Omnibus survey. The analysis is also presented and given in more detail on a set of interactive web-based tables produced separately (in Pulsar Web).

Context

Computer games are playing an increasingly important role in the lives of the majority of children. There has been considerable debate for a number of years over the possibility of using computer games in the classroom to facilitate formal learning. On the one hand critics are voicing concerns over computers games, such as the potential for excessive use or addiction, leading to a neglect of other, more worthy activities and to the possibilities of an increase in aggressive behavior following the use of violent games. On the other, there are a number of pieces of research which make claims about the positive effect of games, many of which were considered in the Byron review (2008)¹ which has pointed out some of the *'unprecedented opportunities to learn, develop and have fun'* that games and online worlds offer. In particular an increasing number of educators now argue that computer games may be an untapped educational resource, for example Schaffer *et al*

¹ Department for Children, Schools and families (2008) Safer Children in a Digital World- The Report of the Byron Review. Nottingham: DCSF [online]. Available: <http://www.dcsf.gov.uk/byronreview/> [20 March 2009]

(2004)² argue that video games ‘give a glimpse of how we might create new and more powerful ways to learn in schools, communities, and workplaces’, and Johnson has even referred to them as a ‘cognitive workout’³. Benefits such as increasing motivation, improving technological abilities and even improving social skills through playing games in groups have also been proposed.

Futurelab has a particular interest in these debates given that its main objective is to use digital and other technologies to ‘develop innovative resources and practices that support new approaches to learning for the 21st century’⁴. In March 2004 Futurelab, a not-for-profit organisation, undertook a year-long research project *Teaching with Games*⁵ on commercial off-the shelf computer games in formal education. Through surveys and case studies they sought to ‘identify the factors that would impact the use of these entertainment games in school and describe the processes by which teachers plan and implement games-based learning in existing curricular contexts’⁶. Findings were largely encouraging, for example the majority of teachers and students surveyed thought that games would motivate students to engage with learning. Interestingly, it was found that the individual teacher’s personal experience of games play, and their personal and professional identities as teachers, were factors that could influence the extent to which games were deemed appropriate in the school.

A programme of research, *Games and Learning*, is currently being conducted as part of the Harnessing Technology project⁷ supported by the British Educational Communications and Technologies Agency (Becta) to build on the previous project and to identify emerging challenges and opportunities in order to present practical actions and interventions for the future.

In this context it was useful, in this round of the Teacher Voice survey, to seek information about teachers’ uses of computer games, both for leisure and in the classroom, and to consider the attitudes of teachers towards games and the barriers they perceived to prevent the use of games in the classroom.

² Shaffer, D. W., Squire, K. D., Halverson, R., & Gee, J. P. (2005). Video Games and the Future of Learning. *Phi Delta Kappan*, 87(2), 104-111.

³ Cited in: McClellan, J. (2005) Playtime in the classroom *The Guardian*, Thursday 2 June 2005. Available: <http://www.guardian.co.uk/technology/2005/jun/02/games.elearning> [23 March 2009]

⁴ <http://www.futurelab.org.uk/about-us>

⁵ Sandford, R, Ulicsak, M, Facer, K and Rudd, T. (2006) Teaching with Games- Using commercial off-the shelf computer games in formal learning: FutureLab. Available http://www.futurelab.org.uk/resources/documents/project_reports/teaching_with_games/TWG_report.pdf [23 March 2009]

⁶ <http://www.futurelab.org.uk/projects/teaching-with-games/research/final-report>

⁷ <http://www.futurelab.org.uk/projects/harnessing-technology>

Analysis of findings

The sample

The survey was completed by a sample of over 1600 teachers and the sample was weighted to ensure representativeness. The sample included teachers from a wide range of school governance types and subject areas. Sample numbers were sufficient to allow for comparisons between the primary and secondary sections. Detailed information about the sample is given in the supplementary section of this report.

Demographics

Respondents were asked which age group they belonged to and, as Table 1 below shows, teachers of all age groups were represented in the survey. The three age groups with the most respondents were 25-34 years, 35-44 years and 45-54 years. Only two per cent of respondents were under 25, but this was not surprising given the training and qualification requirements that are needed before an individual can normally start their teaching career. Age group representation was very similar across the two school sectors.

| | All | Primary | Secondary |
|----------------|------------|----------------|------------------|
| 24 or below | 2% | 2% | 1% |
| 25-34 | 28% | 28% | 28% |
| 35-44 | 28% | 29% | 26% |
| 45-54 | 28% | 27% | 28% |
| 55 or above | 15% | 14% | 17% |
| Local base (N) | 1628 | 879 | 735 |

*Due to rounding, percentages may not sum to 100
 Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total
 Source: NFER Omnibus Survey February 2009*

Respondents were also asked at the beginning of the survey to indicate their gender. As might be expected with a teacher sample, the majority of the sample was female (73 per cent). The difference in gender was larger in primary schools (82 per cent female) than it was in secondary schools (62 per cent female).

Table 2. Gender

| | All | Primary | Secondary |
|----------------|------|---------|-----------|
| Male | 28% | 18% | 38% |
| Female | 73% | 82% | 62% |
| Local base (N) | 1632 | 885 | 734 |

Due to rounding, percentages may not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

Along with further questions at the beginning of the omnibus survey, these demographics enabled us to present the data by school phase, seniority, gender and age of respondents.

Teachers' use of computer games for entertainment and leisure

The first question asked teachers how often they played computer games designed primarily for entertainment in their leisure time. As Table 3 reveals, the most frequent response, given by about two-fifths (42 per cent) of respondents was that they never played computer games. Moreover, nearly a quarter (23 per cent) reported that they played computer games less than once a month. However, a fairly high proportion of teachers seem to be playing computer games quite regularly. Nearly two-fifths (17 per cent) reported they played computer games at least once a week, seven per cent played computer games at least every two weeks and a small proportion of the respondents (4 per cent) reported that they played computer games every day.

Table 3. How often do you play computer games designed primarily for entertainment in your leisure time?

| | All | Primary | Secondary |
|-------------------------------|------|---------|-----------|
| Every day | 4% | 5% | 3% |
| At least once a week | 17% | 19% | 16% |
| At least once every two weeks | 7% | 8% | 6% |
| At least once every month | 6% | 6% | 7% |
| Less than once a month | 23% | 22% | 25% |
| I never play computer games | 42% | 42% | 43% |
| Don't know | 0% | 0% | 0% |
| Local base (N) | 1631 | 884 | 734 |

Due to rounding, percentages may not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

The findings did not differ greatly according to whether teachers were from the primary or secondary sector. However, when the responses to this question were examined by seniority, a higher proportion of classroom teachers reported that they played computer games, for example 18 per cent of classroom teachers compared with 14 per cent of senior leaders, reported that they played computer games at least once a week. Similarly, more senior leaders than classroom teachers reported they never played computer games (48 per cent compared with 41 per cent).

Responses to this question were also examined by gender and, generally, speaking, a higher proportion of males reported playing computer games, for example 21 per cent of males reported playing computer games every week compared to 16 per cent of females. Moreover, 45 per cent of females had never played a computer game compared to 35 per cent of males.

As might be expected, when the sample was divided by age, a number of differences emerged:

- Respondents in the 25-34 years and 35-44 age groups more frequently reported playing computer games at least once a week (23 per cent and 21 per cent respectively) compared with their counterparts in the 24 or below, 45-54, and 55 or above age ranges (10 per cent, 11 per cent and 12 per cent respectively)
- Respondents aged 55 years or above more frequently reported that they had never played computer games compared with the other age groups (61 per cent, compared with 51 per cent in the 45-54 age range, 35 per cent in the 35-44 age range, 29 per cent in the 25-34 age range and 37 per cent in the 24 and under category.)

Teachers' use of computer games in the classroom

Teachers were asked if they had ever used computer games (designed primarily for entertainment) in their classroom for educational purposes, and the responses are presented in Table 4. Over a third of respondents (35 per cent) reported that they had used computer games in the classroom.

Table 4. Have you ever used computer games (designed primarily for entertainment) in your classroom for educational purposes?

| | All | Primary | Secondary |
|----------------|------|---------|-----------|
| Yes | 35% | 38% | 30% |
| No | 64% | 61% | 69% |
| Don't know | 1% | 1% | 1% |
| Local base (N) | 1632 | 884 | 735 |

Due to rounding, percentages may not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

This shows that many teachers have already used computer games designed for entertainment in the classroom, and suggests that the idea of using computer games for educational purposes is already a reality for some.

When responses were analysed by sector, results showed that primary respondents more frequently reported that they had used computer games in the classroom compared to their secondary counterparts (38 per cent compared with 30 per cent). It is not possible to say why this may be so, based on the data from this question, but it may be that primary school teachers see the games as more suitable for their pupils, or perhaps have more freedom within the curriculum to use them.

Responses were also analysed by seniority and the differences between senior leader and the classroom teacher responses were small. Interestingly, when the results were analysed by gender, a slightly higher frequency of male teachers compared to female teachers reported having used computer games in the classroom for educational purposes (38 per cent compared with 34 per cent). This is consistent with the finding that on the whole, a higher frequency of males reported playing computer games fairly frequently. It may be that a greater familiarity with games in general has led to more skills and confidence to use games in the classroom. There were also some interesting differences by age group. Respondents in the 35-44 age range were most likely to have used computer games in the classroom (39 per cent), whereas those in the 55 and over category were least likely to have used them (28 per cent).

The teachers who responded positively to the question about whether having used games in the classroom were also asked about the hardware platforms they had used in the classroom.

Table 5. What hardware platforms have you used when playing these computer games in your classroom?

| | All | Primary | Secondary |
|----------------------------------|------------|----------------|------------------|
| Personal computer (PC) or laptop | 92% | 93% | 90% |
| Sony PlayStation / PS2 / PS3 | 5% | 5% | 6% |
| PlayStation Portable (PSP) | 1% | 1% | 1% |
| Microsoft Xbox / Xbox 360 | 2% | 1% | 3% |
| Nintendo DS | 8% | 10% | 3% |
| Nintendo Wii | 7% | 6% | 9% |
| Other | 4% | 4% | 4% |
| Local base (N) | 560 | 333 | 220 |

Respondents were able to make more than one selection so percentages do not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

As Table 5 demonstrates, the majority (92 per cent) of respondents had used a PC or laptop computer for playing computer games in the classroom. A number of respondents also reported using a Nintendo DS (8 per cent), a Nintendo Wii (7 per cent) and a Sony PlayStation / PS2 / PS3 (5 per cent). Four per cent of the respondents mentioned using other hardware, the most frequent types of hardware they reported were:

- Games from the internet / educational sites (21 per cent of those who identified ‘other’ hardware)
- Games loaded on to the school network / Virtual Learning Environment (VLE) (11 per cent)
- Games projected onto the interactive whiteboard (11 per cent)

Possible uses of computer games in the classroom in the future

Teachers were asked if they would consider using computer games, designed primarily for entertainment, in their classroom for educational purposes in the future. As Table 6 reveals, most teachers (60 per cent) reported that they would use computer games for this purpose, about a fifth (21 per cent) said they didn’t know and only 19 per cent of respondents reported that they would not.

Table 6. In the future, would you consider using computer games, designed primarily for entertainment, in your classroom for educational purposes?

| | All | Primary | Secondary |
|----------------|------|---------|-----------|
| Yes | 60% | 63% | 58% |
| No | 19% | 15% | 23% |
| Don't know | 21% | 23% | 19% |
| Local base (N) | 1631 | 883 | 735 |

Due to rounding, percentages may not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

Respondents who answered yes were also asked to provide the reasons as to why they would consider using these games in the future. The five most frequent categories of responses were:

- to engage or motivate or interest the children (especially boys) (46 per cent of those who provided a reason)
- if the games have educational value or link to learning objectives (18 per cent)
- pupils have fun or enjoy the games (15 per cent)
- pupils are familiar with the games and relate to them (13 per cent)
- if the games reinforce or support the concept being taught (nine per cent)

Analysis by sector revealed that primary schools teachers were slightly more likely to consider using computer games in the classroom for educational purposes than their secondary counterparts (63 per cent compared with 58 per cent). This mirrors the earlier finding that more primary schools teachers had already used computer games in the classroom.

There was very little difference between the responses of the senior leaders and the classroom teachers. There was some difference in responses when analysed by gender, with male teachers slightly more likely to consider using computer games in the classroom.

Fewer respondents from the 45-54 age bracket and those in the 55 or above age range (52 per cent and 45 per cent respectively) answered that they would consider using computer games in the classroom in the future, compared with their younger counterparts (64 per cent in the 24 or below age range, 72 per cent in the 25-34 range and 64 per cent in the 35-44 group).

The consequences of playing computer games

Teachers were given a list of possible positive and negative outcomes and were asked to select the items that they thought could be learnt or developed as a result of playing computer games designed primarily for entertainment in the classroom.

As Table 7 reveals, teachers were predominantly positive about what can be learnt or developed as a result of playing computer games. In particular, the majority (85 per cent) of teachers thought that children could develop better motor and cognitive skills from playing games and most (66 per cent) thought children could improve their higher-order thinking skills through playing computer games. Most teachers (74 per cent) also thought that children could improve their ICT skills from the use of computer games. Nearly half (47 per cent) of the respondents, moreover, thought that computer games could be used to increase children's knowledge in particular areas. Fewer teachers (23 per cent) selected social skills development as a consequence of playing computer games.

On the whole, fewer teachers selected the negative consequences provided; less than half (44 per cent) thought playing computer games designed primarily for entertainment could lead to antisocial behaviour and only around a quarter (27 per cent) thought that playing games could lead to a stereotypical view of others. The concern that using computer games could increase antisocial or aggressive behaviour may be due to the violent content found in some computer games. This view is often popularised by the media and is presented by critics such as Anderson and Bushman (2001)⁸ who concluded in a meta-analysis that exposure to violent games was significantly linked to increases in real life aggressive behaviour.

⁸ Anderson, C. A., & Bushman, B. J. (2001). Effects of Violent Video Games on aggressive behaviour, aggressive cognition, aggressive affect, physiological arousal, and pro-social behaviour: A Meta-Analytic Review of the Scientific Literature. *Psychological Science*, 12(5).

Table 7. Which of the following do you think can be learnt or developed as a result of playing computer games designed primarily for entertainment?

| | All | Primary | Secondary |
|--|------|---------|-----------|
| ICT skills (better able to use technology) | 74% | 80% | 66% |
| Antisocial behaviour (lack of empathy for other people, increase in aggressive behaviour, isolation) | 44% | 45% | 43% |
| Motor / cognitive skills (better hand / eye co-ordination, better reaction times) | 85% | 87% | 83% |
| A stereotypical view of other people or groups | 27% | 25% | 29% |
| Higher-order thinking skills (for example improved strategic thinking, problem solving) | 66% | 69% | 63% |
| Social skills (for example being able to give and receive criticism, collaboration, communication) | 23% | 23% | 23% |
| Knowledge in particular areas (for example history, physics, mathematics) | 47% | 48% | 46% |
| Don't know | 4% | 3% | 4% |
| Other | 4% | 4% | 5% |
| Local base (N) | 1629 | 883 | 731 |

Respondents were able to make more than one selection so percentages do not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

When the responses were analysed by sector a number of small differences emerged, and these were consistent with the pattern of primary respondents being slightly more open, compared to secondary respondents, about the use of computer games in the classroom. The largest difference was that four fifths (80 per cent) of primary school teachers selected the item that suggested that games could improve ICT skills compared to just two thirds (66 per cent) of secondary school teachers. Another difference was found in the perception that games could lead to stereotypical views of others, which was reported by

more secondary respondents than primary respondents (29 per cent compared with 25 per cent).

Few differences emerged between senior leaders and classroom teacher responses. Interestingly, however, when responses were analysed by gender some differences emerged:

- more female than male respondents thought that computer games could improve ICT skills (77 per cent compared to 66 per cent)
- proportionally more female than male respondents thought computer games could improve motor and cognitive skills (86 per cent compared with 82 per cent)
- a greater proportion of females than males thought computer games could lead to antisocial behaviour (46 per cent compared with 39 per cent)
- proportionally more males than females thought computer games could improve social skills (26 per cent compared with 22 per cent)

Analyses of the results by age also revealed a number of differences:

- a lower proportion of respondents in the 24 or below age group thought that games could lead to a stereotypical view of others compared with the other age groups (three per cent compared with 20-32 per cent in the other age ranges)
- more respondents in the three youngest age groups compared with the two older age groups, thought that computer games could lead to an improvement in ICT skills (for example 86 per cent in the 24 or below age range, compared with 66 per cent in the 55 or above category)
- more respondents in the two youngest age ranges thought that playing computer games could increase social skills (30 per cent in the 24 or below range and 26 per cent in the 25-34 age range, compared with 20-23 per cent in the other age ranges)

Teachers identified other areas of learning and development that could result from pupils playing these types of computer games. The main benefits reported by teachers were in the areas of literacy and writing skills, team working, raising self-esteem and giving a sense of achievement, and developing knowledge and skills linked to subject areas. In contrast, some teachers identified negative effects including reducing social skills, desensitising pupils to real life situations, and impeding creative thinking.

Barriers to the use of computer games in the classroom

Teachers were asked what barriers, if any, they envisaged there being to the use of computer games in the classroom. Respondents were provided with a list of potential barriers and were asked to select which they thought applied as well as providing any other barriers that occurred to them but did not feature on the list. Responses to these statements about potential barriers are presented in Table 8 below.

Table 8. What barriers, if any, do you envisage there being to the use of computer games in the classroom?

| | All | Primary | Secondary |
|---|------------|----------------|------------------|
| I do not know / envisage any barriers | 3% | 4% | 2% |
| The amount of preparation time required | 29% | 23% | 35% |
| Licensing issues (for example, difficulty obtaining site licences) | 69% | 71% | 66% |
| Lack of IT / technical support in school | 41% | 37% | 46% |
| Inadequate classroom space | 29% | 26% | 32% |
| Problems accessing equipment | 49% | 44% | 56% |
| Expense of games (software and platform) | 74% | 76% | 72% |
| Difficulty of assessing the work produced | 34% | 34% | 34% |
| Differing abilities within a class | 15% | 16% | 15% |
| Pupils being unable to make the link between playing the game and the wider learning objectives | 50% | 43% | 59% |
| Lack of relevance to the curriculum | 40% | 39% | 40% |
| Lack of relevance to subject area | 33% | 27% | 41% |
| Negative attitude of pupils to the games(s) | 7% | 5% | 11% |
| Inappropriate nature of game content | 51% | 53% | 49% |
| Health and safety | 12% | 14% | 11% |
| Catering for special educational needs (SEN) pupils | 12% | 11% | 14% |
| Objections from parents | 46% | 48% | 45% |
| Objections from the governing body | 28% | 27% | 30% |
| Objections from colleagues | 21% | 17% | 26% |
| Teachers' lack of knowledge about the game / platform / software | 56% | 57% | 56% |
| Other | 2% | 2% | 2% |
| Local base (N) | 1630 | 883 | 733 |

Respondents were able to make more than one selection so percentages do not sum to 100

Due to the primary, secondary and all teacher categories being weighted separately, the number of primary and secondary respondents may not sum to the number of teachers in total

Source: NFER Omnibus Survey February 2009

The five most frequently-identified barriers were:

- the expense of games (74 per cent)
- licensing issues (69 per cent)
- teachers' lack of knowledge about the game platform/software (56 per cent)
- inappropriate nature of game content (51 per cent)
- pupils being unable to make the link between playing the game and the wider learning objectives (50 per cent)

The first two issues are largely practical whereas teachers' lack of knowledge about the game platform/software implies that training before games are used could be effective for some teachers.

The five barriers least-frequently selected barriers were:

- Negative attitude of pupils to the game(s) (7 per cent)
- Catering for special educational needs (SEN) pupils (12 per cent)
- Health and safety issues (12 per cent)
- Differing abilities within a class (15 per cent)
- Objections from colleagues (21 per cent)

A minority of the respondents provided an additional response to the open part of the 'barriers' question. Despite the limited numbers of responses (which need to be treated with caution), a variety of barriers were identified, of which the top five were:

- Only a few / one or two can participate at any one time (6 per cent of those who suggested other barriers)
- Class size too large to allow all a turn (6 per cent)
- Would need link between game and wider learning objectives (4 per cent)
- Lack of time within the day (4 per cent)
- Crowded curriculum (4 per cent)

A number of differences emerged between the sectors. The top three barriers which were reported by more secondary than primary teachers were:

- Pupils being unable to make the link between playing the game and the wider learning objectives (59 per cent compared with 43 per cent)
- Lack of relevance to subject area (41 per cent compared with 27 per cent)
- Problems accessing equipment (56 per cent compared with 44 per cent)

The top three barriers which were reported by more primary than secondary teachers were:

- Licensing issues (71 per cent compared with 66 per cent)
- The expense of games (76 per cent with 72 per cent)
- Objections from parents (48 per cent compared with 45 per cent)

These differences are interesting as, generally, it seems that secondary school teachers seem more concerned about the educational implications of using games in the classroom, whereas primary respondents concerns seem more practical, for example worrying about costs and getting the games up and running. This would have implications in terms of persuading and enabling teachers to use the games, if they were to be introduced to education more formally.

There were more differences when the results were analysed by age than by seniority and gender. In particular the 24 or below age range differed most in comparison to the other age groups. The main barriers selected by proportionally more respondents in the 24 or below age group compared with the other age groups were: inadequate classroom space and catering for special educational needs (SEN) pupils.

When the survey results were analysed by seniority, the three main barriers selected by proportionally more classroom teachers than senior leaders were problems accessing equipment, lack of IT technical support and relevance to subject area. When the results were analysed by gender, the three main barriers selected by proportionally more female teachers were lack of IT technical support, problems accessing equipment and lack of knowledge.

Conclusions and implications for the client

The findings suggest that overall the majority of respondents are positive about the educational uses of computer games designed for entertainment in the classroom.

At present, about a third of teachers regularly play computer games at home, and a gender gap can be seen with more males playing computer games regularly compared with females. Similarly about a third of the respondents have already played computer games in the classroom, again with more males compared to females having used computer games in the classroom. This is interesting as it could be that there is a link between playing computer games at home and using computer games in the classroom. For example, familiarity with games at home could provide the skills and confidence to implement computer games in the classroom. Moreover, more primary than secondary teachers appear to have used computer games in the classroom, perhaps suggesting that

the use of computer games in the classroom is more suitable for younger pupils (with perhaps more games that double as useful learning resources at this age), or that there is perhaps more flexibility within the curriculum for teachers to use these games. The finding that for many teachers, using computer games in the classroom is already a reality has important research implications: this means that there is already a base on which to build for those who advocate greater use of games in education.

The large majority of teachers who had used computer games in the classroom had used a personal computer (PC) or laptop, whereas a small minority had used other hardware platforms. Although it is not possible to tell from the data, it is likely that the majority of teachers do not have access to these other hardware platforms in the classroom and may not be familiar with how to use them. This finding has practical implications if games are to be introduced to schools; suitable equipment must be made available alongside training in how to use it.

Encouragingly, three-fifths of respondents reported that they would consider using computer games designed for entertainment in their classroom in the future. The most popular reasons why they would were to do with motivating the children, because the games have educational value and because the pupils enjoy the games. As with earlier findings, a higher proportion of primary teachers compared to secondary teachers would consider using games in the classroom in the future. Again, this may be because primary teachers perceive the games to be a more suitable method of learning for their pupils compared with the secondary teachers.

Only slightly more males than females had used computer games in the classroom or would consider using them in the future. This is interesting in light of earlier findings which suggested more males regularly play computer games at home and more males have used computer games in the classroom already.

Generally, high proportions of teachers thought a number of positive outcomes could result from playing computer games designed primarily for education in the classroom, and this perhaps challenges negative media images of the impact of games. In particular, teachers thought playing computer games in the classroom could improve motor/cognitive skills, improve ICT skills and improve higher-order thinking. It is important to note, however, that some teachers, though usually minorities, did think that playing games could lead to negative outcomes such as antisocial behaviour and stereotypical views of others.

The lack of consensus from teachers and psychologists alike, in part demonstrates the need for urgent high quality research demonstrating the effects of playing computer

games. However, as a few of the teachers pointed out the outcomes of playing the game are likely to depend on the type of game and the length of time spent playing it.

Despite many teachers reporting they would consider using games in the future, a number of barriers seem to be getting in the way of teachers implementing their use. From the barriers presented, the most frequently selected were the expense of games, licensing issues and teachers' lack of knowledge about the game platform/software. These most frequent barriers seem largely practical, and could be overcome by specific funding, licensing information and teacher training. In addition, teachers selected a number of more theoretical barriers such as lack of relevance to the curriculum or subject area, and the inappropriate nature of the game content. It is likely these barriers could be overcome by the development of computer games that incorporate real potential for learning rather than just entertainment. As the Byron report (2008)⁹ points out, this would require close collaboration between educators and the games industry.

⁹ Department for Children, Schools and Families (2008) Safer Children in a Digital World- The Report of the Byron Review. Nottingham: DCSF [online]. Available: <http://www.dcsf.gov.uk/byronreview/> [20 March 2009]

Supporting information

How was the survey conducted?

This is data from the February 2009 survey. The survey was completed in February 2009 by a panel of 1,661 practising teachers from 1027 (weighted) schools in the maintained sector in England. The survey was conducted online and teachers were asked to complete the questionnaire between 20th February and 4th March 2009. At the end of the survey period all ‘open’ questions (those without a pre-identified set of responses) were coded by a team of experienced coders within the Foundation.

What was the composition of the panel?

The panel included teachers from the full range of roles in primary and secondary schools, from headteachers to newly qualified class teachers. Fifty-four per cent (891) of the respondents were teaching in primary schools and 46 per cent (770) were teaching in secondary schools¹⁰.

How representative of schools nationally were the schools corresponding to the teachers panel?

The achieved sample of teachers represented a good spread of school types and regional areas. There was, however, an under-representation of schools in the highest quintile in terms of eligibility for free school meals in both the sample of primary schools and the sample of secondary schools. The sample of secondary schools also had an over-representation of schools with low eligibility for free school meals. To address this, weights were calculated using free schools meals factors to create a more balanced sample. Due to the differences between the populations of primary schools and secondary schools, different weights were created for primary schools, secondary schools and then for the whole sample overall. The weightings have been applied to all of the analyses referred to in this commentary and contained within the tables supplied in electronic format (via Pulsar Web)¹¹.

Tables S1, S2 and S3 show the representation of the weighted achieved sample against the population. Table 4 shows the representation of the weighted teacher sample by role in school.

¹⁰ *These figures are before weighting was applied*

¹¹ *The sample was not weighted for missing free school meal data*

Table S.1 Representation of (weighted) primary schools compared to primary schools nationally

| | | National Population | NFER Sample |
|---|-----------------------------|--------------------------------|------------------------|
| | | % | % |
| Achievement Band (Overall performance) | Lowest band | 16 | 17 |
| | 2nd lowest band | 17 | 18 |
| | Middle band | 18 | 21 |
| | 2nd highest band | 20 | 21 |
| | Highest band | 21 | 24 |
| | Missing | 8 | <1 |
| % eligible FSM (5 pt scale) | Lowest 20% | 21 | 21 |
| | 2nd lowest 20% | 21 | 21 |
| | Middle 20% | 20 | 20 |
| | 2nd highest 20% | 19 | 20 |
| | Highest 20% | 18 | 18 |
| | Missing | 1 | 0 |
| Primary school type | Infant/First | 15 | 8 |
| | Primary/Combined | 76 | 73 |
| | Junior | 8 | 17 |
| | Middle/other type | <1 | 1 |
| Region | North | 31 | 24 |
| | Midlands | 32 | 28 |
| | South | 37 | 48 |
| Local Authority type | London Borough | 11 | 14 |
| | Metropolitan Authorities | 21 | 17 |
| | English Unitary Authorities | 15 | 19 |
| | Counties | 53 | 50 |
| Number of schools | | 17041 | 691 |

Due to rounding, percentages may not sum to 100

Some information is not available for all schools and some schools included more than one respondent

Source: NFER Omnibus Survey February 2009

Table S.2 Representation of (weighted) secondary schools compared to secondary schools nationally

| | | National Population | NFER Sample |
|---|-----------------------------|----------------------------|--------------------|
| | | % | % |
| Achievement Band (Overall performance) | Lowest band | 19 | 14 |
| | 2nd lowest band | 19 | 23 |
| | Middle band | 19 | 24 |
| | 2nd highest band | 19 | 23 |
| | Highest band | 17 | 16 |
| | Missing | 8 | <1 |
| % eligible FSM (5 pt scale) | Lowest 20% | 13 | 13 |
| | 2nd lowest 20% | 25 | 25 |
| | Middle 20% | 25 | 26 |
| | 2nd highest 20% | 21 | 21 |
| | Highest 20% | 14 | 15 |
| | Missing | 2 | 0 |
| Secondary school type | Middle | 7 | <1 |
| | Comprehensive to 16 | 36 | 27 |
| | Comprehensive to 18 | 45 | 65 |
| | Other Secondary schools | 8 | 3 |
| | Grammar | 5 | 4 |
| Region | North | 29 | 26 |
| | Midlands | 34 | 30 |
| | South | 37 | 44 |
| Local Authority type | London Borough | 13 | 13 |
| | Metropolitan Authorities | 21 | 22 |
| | English Unitary Authorities | 16 | 20 |
| | Counties | 50 | 45 |
| Number of schools | | 3313 | 338 |

Due to rounding, percentages may not sum to 100

Some information is not available for all schools and some schools included more than one respondent
 Source: NFER Omnibus Survey February 2009

Table S.3 Representation of all schools (weighted) compared to all schools nationally

| | | National Population % | NFER Sample % |
|-----------------------------|-----------------------------|------------------------------|----------------------|
| Achievement Band | Lowest band | 17 | 16 |
| | 2nd lowest band | 18 | 19 |
| | Middle band | 18 | 22 |
| | 2nd highest band | 20 | 21 |
| | Highest band | 20 | 22 |
| | Missing | 7 | <1 |
| % eligible FSM (5 pt scale) | Lowest 20% | 20 | 20 |
| | 2nd lowest 20% | 21 | 22 |
| | Middle 20% | 21 | 21 |
| | 2nd highest 20% | 20 | 20 |
| | Highest 20% | 17 | 18 |
| | Missing | 1 | 0 |
| Region | North | 30 | 24 |
| | Midlands | 32 | 29 |
| | South | 37 | 47 |
| Local Authority type | London Borough | 11 | 13 |
| | Metropolitan Authorities | 21 | 19 |
| | English Unitary Authorities | 15 | 19 |
| | Counties | 53 | 49 |
| Number of schools | | 20354 | 1027 |

Due to rounding, percentages may not sum to 100

Some information is not available for all schools and some schools included more than one respondent
 Source: NFER Omnibus Survey February 2009

Table S.4 Comparison of the achieved (weighted) sample with the national population by grade of teacher

| Role | Primary schools | | Secondary schools | |
|---------------------------|-----------------|-----------------|-------------------|-----------------|
| | population | weighted sample | population | weighted sample |
| | % | % | % | % |
| Headteachers | 10 | 8 | 2 | 1 |
| Deputy Headteachers | 7 | 9 | 3 | 4 |
| Assistant Headteachers | 4 | 6 | 6 | 11 |
| Class teachers and others | 79 | 77 | 89 | 84 |

Due to rounding, percentages may not sum to 100

Sources: NFER Omnibus Survey February 2009, DCSF 618g survey January 2008 (Revised)

<http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000813/index.shtml> (March 2009)

How accurately do the findings represent the national position?

Precision is a measure of the extent to which the results of different samples agree with each other. If we drew a different sample of teachers would we get the same results? The more data that is available the more precise the findings. For all schools and a 50 per cent response, the precision of that response is between 46.9 per cent and 53.1 per cent. For secondary schools the same precision is + and – 5.3 percentage points and for primary schools it is + and – 3.7 percentage points.

With the weightings applied to the data, we are confident that the omnibus sample is broadly representative of teachers nationally and provides a robust analysis of teachers' views.