The Open University

The schome-NAGTY Teen Second Life Pilot Final Report

A SUMMARY OF KEY FINDINGS & LESSONS LEARNT

The schome community

May 2007

schome the education system for the information age

Contents

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Executive summary

This report provides a brief overview of key 'findings' emerging from the schome-NAGTY Teen Second Life Pilot. There is extensive additional information about the Pilot on the schome community website (http://www.schome.ac.uk/).

The Pilot set out to **explore the educational potential and pitfalls of Teen Second Life**, a secure 3D virtual world for 13 to 17 year olds. 149 students from NAGTY (The National Association of Gifted and Talented Youth) were provided with access to Schome Park (an island in Teen Second Life) which was intended to be used as an integral part of the the schome community website (wiki and forum). These students were referred to as SParkers.

The **level of engagement** with Schome Park was comparable in many ways to that found with other media such as text based forums. 68% of the SParkers visited Schome Park, though only 41% spent more than 1 hour on the island. 26% of the SParkers accounting for over 90% of the student activity in Schome Park. Issues about access from school were apparent both in terms of technological barriers (some LAs not allowing Second Life through their firewalls) and available time during the school day. Access was, as anticipated, particularly problematic for those SParkers from the GOAL cohort (members of NAGTY from socially disadvantaged or ethnic minority backgrounds who are currently under-represented in higher education). Substantially lower proportions of SParkers fully engaged with the wiki and forum. It seemed clear that those SParkers who benefitted most from the Pilot were the ones who engaged with Schome Park and the wiki and the forum. We have commissioned a separate study to explore the reasons for variations in the levels of engagement with the Pilot.

There was strong evidence that those SParkers who engaged with Schome Park developed a wide range of ***Second Life skills*** (from walking through to building, scripting and making videos in-world). Many of these skills have real-world relevance (e.g. building involves manipulation of measures, 3D coordinates and complex 3D shapes) and thus it would seem likely that they will impact on real world competences. Further work is needed to investigate the extent to which the development of *Second Life skills* has a significant impact on real world competences.

There was strong evidence that those SParkers who engaged fully with Schome Park and the rest of the schome community website enhanced their ***knowledge age skills*** (e.g. communication, teamwork, leadership, creativity). Those who engaged with Schome Park but not with the wiki or forum tended to showed less evidence of performance at the higher levels of the *knowledge age skills* framework. SParkers reported that their experiences within the Pilot were impacting on their confidence when it came to real world performance. Indeed, one of the most important aspects of the Pilot appeared to be the extent to which Schome Park (as an integral part of the schome community website) was providing a safe environment for SParkers, many of whom experienced the social aspects of school life as problematic. The Pilot appeared to enable SParkers to enhance their social skills. Perhaps even more importantly, it seemed to enable them to develop greater confidence in dealing with social situations.

During the Pilot a great deal was learnt about the pragmatics of using Second Life to enhance learning. It seems clear that **Second Life does offer affordances that other media lack and that it has the potential to offer powerful new forms of support for learning**, particularly in relation to *knowledge age skills*. However, as is the case with any new technology, there is a substantial initial learning curve that has to be overcome before its full educational potential can be realised. These start-up costs should not be underestimated. At the time when the Pilot took place it was the only project in Europe that was using Teen Second Life, and one of only five or six projects internationally. A great deal **more work is needed** in order to fully understand the optimum ways using Second Life (or other future 3D virtual reality worlds that may superceed it) as a vehicle for enhancing learning.

Project overview

Pilot's aims

The schome-NAGTY Teen Second Life Pilot aimed to provide a cohort of students from NAGTY with a valueable learning experience as an extension to their formal school activities. The pilot specifically set out to examine four key questions:

1. To what extent do the SParkers engage with Teen Second Life?
2. To what extent do the SParkers develop *Second Life skills*?
3. To what extent do the SParkers develop *knowledge age skills*?
4. What lessons did we learn about using Teen Second Life?

There is one section of this report related to each of these key questions.

What is Second Life?

Second Life is a 3D virtual reality world. You, or more accurately a representation of you called an avatar, can move around this virtual world, interacting with people and objects. You can build objects (prims) and program them to behave in specific ways (using a language called Linden Script).

Second Life is divided into two sections as illustrated in Figure 1. The Main Grid is for adults, whilst the Teen Grid is for 13 to 17 year olds.

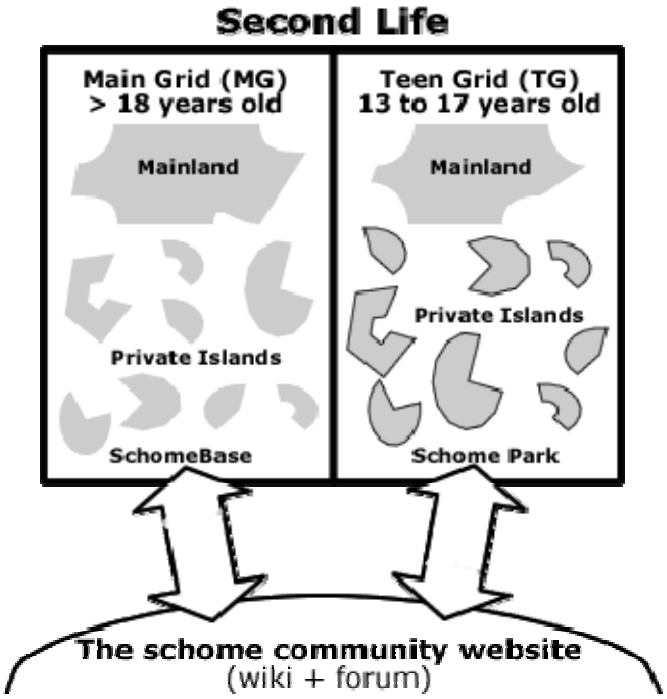
The Main Grid and Teen Grids share the same basic functionality but are run as two totally different systems, on different sets of servers.

Adults are not allowed into the Teen Grid unless they have an appropriate police clearance (e.g. an enhanced CRB discolsure) and even then they are restricted to a private island belonging to a project that the adult is involved in.

Schome Park, the island used in this Pilot, is a closed island within the Teen Grid:

- avatars from the rest of the Teen Grid cannot enter Schome Park;
- once a student or member of staff is registered on Schome Park then their avatar cannot leave the island.

Figure 1 Second Life organisation



The Schome Community Website

A critical feature of the design of the Pilot was the integration of Schome Park with the other elements of the schome community website: the wiki and forum. These three components were seen as being complementary and mutually supporting.

Summary of activities

2006

The schome community started exploring Second Life as a vehicle for helping people develop creative yet grounded visions of schome (not school – not home – schome – the education system for the information age). They established two islands in Second Life: SchomeBase in the Main Grid and Schome Park in the Teen Grid.

2007

During this period the schome team at the OU invested over 1500 hours of staff time in exploring Second Life, developing the resources for Schome Park and preparing for the Pilot. Just under half of this time was spent in-world, with the remainder being used for team meetings, designing the island infrastructure and individual builds 'on paper', planning activities, writing scripts, etc..

Mar 12th to May 7th

Students were given access to Schome Park. There were some initial delays due to problems with the batch registration system, which Linden Labs needed to resolve.

Induction sessions were run for the new students (who chose to be referred to as SParkers, Schome Parkers). However, these proved unnecessary – the SParkers preferred to dive straight in, and very rapidly mastered the basic Second Life skills, seeking help from staff when they were having particular difficulties.

Initially students focussed on customising their avatar's appearance and obtaining items from the Scho-Op (our freebies store). They started experimenting with building, rapidly filling the sky with a wide range of objects (some from the Scho-Op and others that they had constructed for themselves). This included developing social meeting spaces, a marina, an AI Emporium, and 'classrooms' containing lessons showing other SParkers about a range of Second Life skills.

A wide range of activities ensued around the three core strands (physics, archaeology, and ethics & philosophy) as well as a range of others led by staff (e.g. research methods, artificial intelligence and machinima (making films within Second Life), etc) or by SParkers (e.g. a regatta, a wedding, governance meetings, a murder mystery evening, low prim building, chess matches, etc).

We experienced one serious 'griefer attack' in which a student built boxes all over the island, which prevented other people from moving around.

A 'lesson' designed and built by SParkers

Clearing up after the griefer attack

SParkers discussing AI (on a magic carpet)

To what extent do the SParkers engage with Teen Second Life?

As Schome Park was intended to be used alongside the other components of the schome community website, and in particular the wiki and forum, this key question needed to be reframed. This resulted in four questions:

- To what extent did the SParkers engage with Schome Park?
- To what extent did the SParkers engage with the schome community wiki?
- To what extent did the SParkers engage with the schome community forum?
- Was there a relationship between the level of engagement with Schome Park and with the wiki and/or forum?

Student numbers

NAGTY wrote to 250 of its members inviting them to take part in the Pilot. 149 (60%) returned signed consent forms and were thus allocated an avatar/username. 65% of these 149 SParkers chose their own avatar name before the deadline. The other 35% were issued with an avatar name that they had not chosen themselves.

NAGTY were keen to include their GOAL students in the Pilot. These are students who come from socially disadvantaged or ethnic minority backgrounds who are currently under-represented in higher education. Table 1 provides an analysis of the 149 SParkers by group and gender.

Table 1 Proportions of SParkers by group and gender (n=149)

	GOAL	Non-GOAL	Combined
Male	13%	39%	52%
Female	9%	38%	48%
Totals	23%	77%	100%

Engagement with Schome Park

Of the 149 SParkers 102 (68%) logged into Schome Park at some stage during the Pilot, with 61 (41%) spending more than 1 hour in Schome Park. Table 2 shows the distribution of SParkers in terms of how much time they spent in Schome Park. 26% of the SParkers accounted for 93% of the time spent in Schome Park.

The student who spent over 100 hours in Schome Park was at home due to illness for several weeks. She tended to leave Schome Park running as a background activity in much the same way that neo-millenials use the TV or MSN. When something interesting happned in-world she would then actively engage with Schome Park.

Table 2 Distribution of SParkers by time spent in Schome Park

Hours per SParker	Number of SParkers	% (n=149)
0	47	32%
0.5 to 1	41	28%
2 to 5	22	15%
6 to 10	11	7%
11 to 25	12	8%
26 to 50	8	5%
51 to 100	7	5%
>100	1	1%

Whilst gender did not seem to be a factor in terms of the level of usage of Schome Park, it was clear that use of Schome Park was less frequent by members of the GOAL cohort.

Table 3 Schome Park usage by group and gender	**Goal** (n=34)	**Non-Goal** (n=115)	**Male** (n=78)	**Female** (n=71)	**Total** (n=149)
In-world ever	41%	77%	72%	65%	68%
In-world for more than 1 hour	15%	49%	41%	41%	41%

Engagement with the wiki

Of the 149 SParkers 63 (42%) logged into the wiki at some stage during the Pilot and 58 (39%) edited the wiki at least once. Table 4 shows the distribution of SParkers in terms of how many times they edited the wiki. Whilst data is not available on the number of times that SParkers viewed pages in the wiki, these data seem to indicate that the majority of the SParkers did not use the wiki as an integral part of the Pilot – for example, they did not sign up for in-world events on the wiki.

Table 4 Distribution of SParkers by number of wiki edits

Edits per SParker	Number of SParkers	% (n=149)
0	91	61%
1 to 5	35	23%
6 to 25	11	7%
26 to 100	9	6%
101 to 250	1	1%
251 to 500	2	1%

Table 5 provides an analysis of the level of usage of the wiki by group and gender. This indicates that whilst gender does not appear to be a factor impacting on wiki usage, membership of the GOAL group corresponds with lower levels of wiki usage.

Table 5 Wiki usage by group and gender	**Goal** (n=34)	**Non-Goal** (n=115)	**Male** (n=78)	**Female** (n=71)	**Total** (n=149)
Logged in to the wiki at least once	15%	50%	41%	44%	42%
Edited the wiki at least once	15%	46%	40%	38%	39%

Engagement with the forum

Of the 149 SParkers 37 (25%) posted one or more messages in the forum. Table 6 shows the distribution of SParkers in terms of how many times they posted in the forum. Whilst data is not available on the number of times that SParkers viewed messages in the forum, these data seem to indicate that the majority of the SParkers did not use the forum as an integral part of the Pilot – for example, they did not join in the discussions related to the in-world events.

Table 6 Distribution of SParkers by number of forum posts

Posts per SParker	Number of SParkers	% (n=149)
0	112	75%
1 to 5	11	7%
6 to 25	5	3%
26 to 100	6	4%
101 to 250	8	5%
251 to 500	4	3%
>500	3	2%

Table 7 provides an analysis of the level of usage of the forum by group and gender. This indicates that whilst gender does not appear to be a factor impacting on forum usage, membership of the GOAL group corresponds with lower levels of forum usage.

Table 7 Forum usage by group and gender	**Goal** (n=34)	**Non-Goal** (n=115)	**Male** (n=78)	**Female** (n=71)	**Total** (n=149)
Logged into the forum at least once	6%	40%	31%	34%	34%
Posted at least one message in the forum	3%	31%	24%	25%	25%

Relationship between Schome Park, the wiki and the forum

There was a positive relationship between the amount of time spent in Schome Park and wiki/forum use. SParkers who used Schome Park the most also made greater use of the wiki and forum (see Table 8).

Table 8 Time in Schome Park vs wiki/forum use		**Hours spent in Schome Park**			
		0 (n=47)	0.5 to 1 (n=41)	2 to 25 (n=45)	>25 (n=16)
Used …	Neither	87%	66%	40%	0%
	Wiki only	4%	24%	31%	0%
	Forum only	6%	5%	0%	0%
	Forum + wiki	2%	5%	29%	100%

To what extent do the SParkers develop *Second Life skills*?

Evidence from the questionnaire

The SParkers were asked to fill in a web-questionnaire which asked them to rate their level of competence in relation to 44 specific *Second Life skills*, ranging from 'walking' to 'Video Machnima'. 28 SParkers completed the questionnaire. Of these, 79% reported that they had not used Second Life prior to the Pilot, whilst the remainder of the responses indicated low levels of familiarity with Second Life. The exception was one student who claimed to be able to build and write scripts prior to the Pilot starting. Overall the baseline level of competence in using Second Life was very low (close to 0 on our scale).

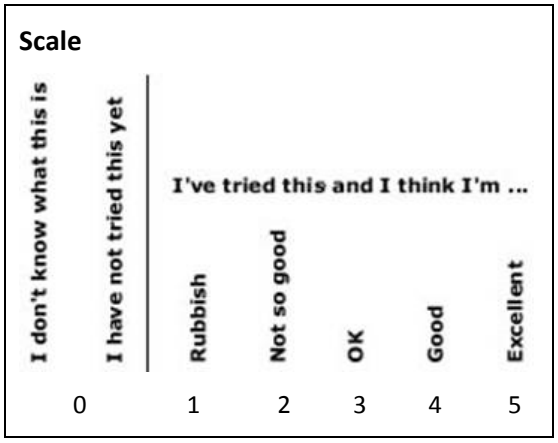
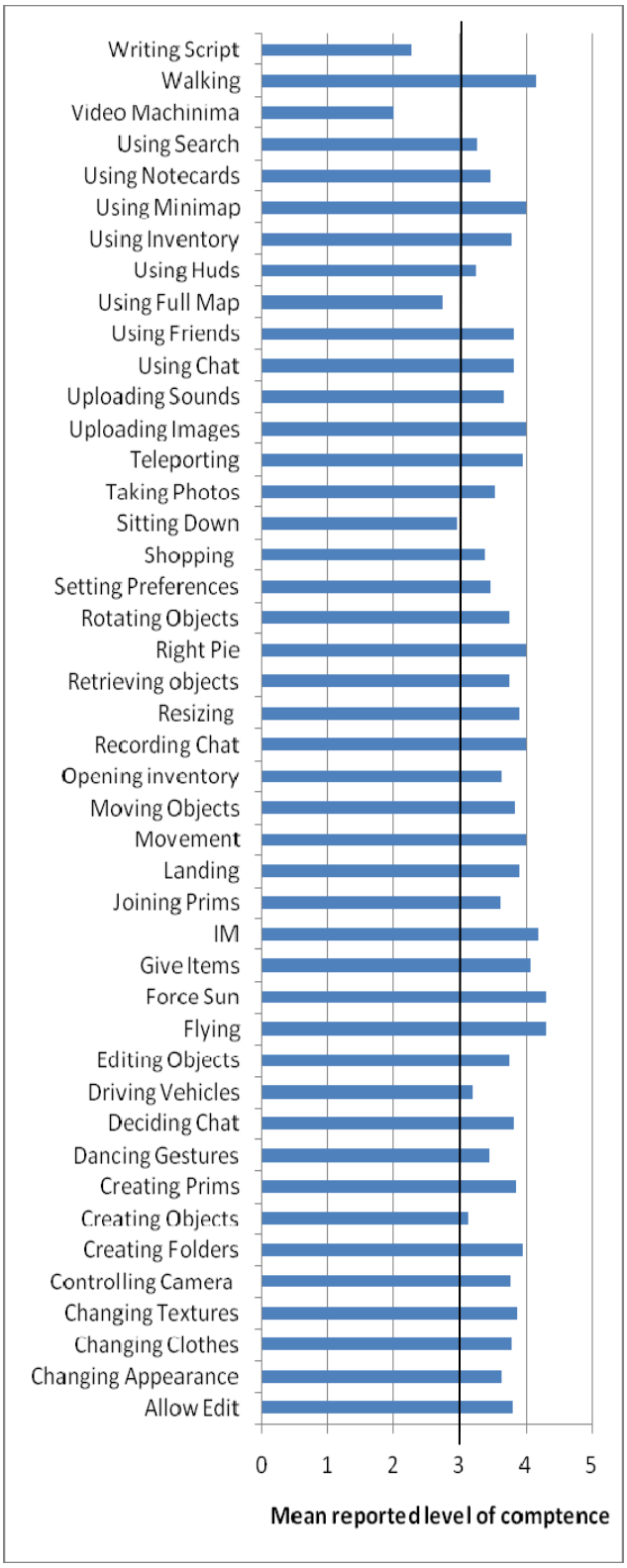


Figure 2 shows the mean reported levels of competence in relation to each of the 44 identified *Second Life skills* for those respondents who had tried that skill. It provides clear evidence that the respondents viewed themselves as having developed a reasonable level of competence in using a wide range of *Second Life skills*.

The respondents also identified a range of additional skills which had not been included on the questionnaire, including: setting landmarks; making items with light; making flexible items; building complex objects; adjusting and altering objects; resetting to nearly the same spot all the time; precision positioning; creating complex designs; and making clothes.

Figure 2 The mean reported level of comptence for the 44 identified *Second Life skills*



Other evidence

There was a substantial amount of evidence to suggest that those SParkers who engaged with Schome Park did indeed develop their *Second Life skills*.

The objects that they created in Schome Park were in themselves a testament to the SParkers' building and scripting skills. Towards the end of the Pilot there were over 14,000 prims on Schome Park, which gives an indication of the scale of activity within the island.

The SParkers themselves documented their activities within the wiki, and nearly 300 images were uploaded by them which demonstrate that they can: play chess, change head shapes, sit in different places, take self-portrait photographs, make objects, change their appearance, debate through instant messaging and chat, upload signs, create buildings and spaces (on the ground, in the air and under the sea), dance, build a chess set, make clothes, design and sail around a regatta course, cope with random in-world objects, engage in lessons, use teleports, and provide advice and support to each other, including guidance about in-world skills.

This extract from a userpage in the wiki gives more specific evidence of the sorts of things the SParkers were doing (and skills they were developing):

What have I been up to in Second Life? [edit]

I was a bit late off the mark due to other commitments. However the SNP sounds really interesting and I want to get involved more, fortunately for me the project has been extended!

- Attended some physics sessions
- Attended an AI session, got a chatbot
- Started making by own (basic) chatbot
- Made myself a voice-activated bubble suit...very productive!
- Made myself a voice-activated hat...and alternative head...and arrow
- Participated in the regatta
- Researched video codecs in Schome Park, made a machinima page
  Really useful page. Thanks for doing this. Fox
- Joined the research group, intervied various people
- Helped build the old AI emporium
- Joined the Scripting department

A suit texture created by a Sparker

A teleport to SkyHigh@250

A SParker creating a chess board

Equipment to test the physics of SP

Real world relevance?

Many of the *Second Life skills* that the students were developing have relevance to 'real life'. For example, building involves complex manipulation of measures and shapes in three dimensions, whilst scripting in Linden Script is similar to programming in a language such as C. However, we did not collect evidence about the students' real world competences and so cannot make any claims about the impact of their developing *Second Life skills* on their real world competences.

To what extent do the SParkers develop *knowledge age skills*?

> I've learned stuff just from chatting to people, and hearing what they have to say. I've also learned that when people rely on you to do something, you have to make sure you do it to the best of your ability, and more often than not it come out really well.
>
> *SParker (interview chatlog)*

Staff at NAGTY started to develop a *knowledge age skills* framework for use within the Pilot, which was further developed by the project team (see Table 8). As can be seen from Table 8 the framework is concerned with the development of metacognitive skills with an emphasis on personal actions informed by reflection. The rationale underpinning this is that whist hardware and software are changing rapidly the metacognitive skills required to function in an information age environment will remain the same. An important point within this work is that high order cognitive skills are developed within specific environments and may only later become disembedded from a specific environment, and applicable across different contexts. Therefore for the Schome-NAGTY pilot we focussed only on the skills demonstrated within the schome community website (Schome Park, wiki and forum).

Table 8 The *knowledge age skills* framework

Skill	Level 1	Level 2	Level 3	Level 4
Communication from QCA level descriptors	Selects and uses structures, styles and registers appropriately in a range of contexts. 'Listens' with concentration and understanding.	Adapts communication for a range of settings and audiences	Makes a range of contributions, demonstrating perceptive listening	Takes a leading role, initiating and sustaining conversation, and reflecting understanding
Teamwork	Projects personal characteristics	Receives messages from others, shares goals Develops processes	Values others, understands roles and changes in roles	Joint problem-solves Manages relationships
Leadership	Understands and sets greater goals and purposes	Sets examples, explains	Recognises skills of peers	Applies own and others' skills productively
Creativity www.ncaction.org.uk/creativity/spot.htm	Questions and challenges	Makes connections, sees relationships	Envisages what things might be	Reflects critically on ideas and practice

Communication

The Pilot offered several media environments within which the SParkers might develop their communications skills. There was clear evidence that those SParkers who engaged in the Pilot all achieved at least Level 1. Evidence for higher levels of communication skills were most apparent where SParkers were contributing to Schome Park and the wiki and/or the forum, not least because this in itself required adapting communication for a range of settings and audiences. However, it was clear that even with Schome Park SParkers were adapting their communication to suit the context, for example in moving between informal 'chat' to more formal discussion in the Ethics and Philosophy discussions and/or the meetings about governance of the island. The SParkers tended to be quite individualistic towards the start of the project and often failed to 'demonstrate perceptive listening', for example in

> you always get a feeling that you can apply the skills and experience here to RL. just talking to new people too, it builds up confidence ... I learn about rl things here too... you can chat in simulated environments which is much easier then forums i believe *[or example]* such as the classes ... The avatars kind of give you a face... what i mean is avatars kind of give you a sense of you actually speaking to a real person.. the avatars are just projections of a person.
>
> *SParker (Interview chatlog)*

some of the early meetings students ignored other student's comments. However, there was clear evidence in a shift towards more collaborative perpectives at the end of the Pilot, particularly amongst the active participants in the forum discussions. These SParkers (approx 25% of the SParkers) clearly achieved Level 3. A smaller number (just over 10% of the SParkers), many of whom took an active role in the governance discussions, achieved Level 4. These SParkers initiated discussions, for example starting new topics in the forum and helped to moderate the discussions. Organisation of activities, such as the Murder Mystery evening and the Wedding also provided evidence of their organisers operating at Communication Level 4.

> One thing that I'm really grateful to Schome Park for doing is making me feel more confident about trying new things, and also about helping others if I know something they don't, through communication. Learning certainly doesn't have to be a pen and paper - I much prefer learning through the Schome way, because it has much more bearing on RL than a load of stuff I will have forgotten in a year's time.
>
> *SParker (interview chatlog)*

Teamwork

At Level 1 this is described by 'Projects personal characteristics'. The Pilot created a situation in which the young people were anonymous. Staff and peers did not know the real names, ages or background details of the SParkers. However, very quickly SParkers began to play with and create their own Schome Park personal characteristics. The most obvious demonstration of this was through the appearances and actions of their avatars. All of the SParkers who entered Schome Park edited their avatar's appearance. Commenting on and receiving comments on avatars' appearance was a frequent occurrence in early Schome Park interactions. Within the forum Sparkers chose identity images and sayings to accompany and frame their contributions.

For Level 2 and above the descriptors are focussing on the nature of social interactions. A comparison of the language used in Schome Park by the SParkers with an adult reference language corpus provided strong indications of positive relationship building and collaborative activities. There were significant differences in the frequency of use of the following words by the SParkers compared with the adult reference language corpus: astonishingly high frequencies of 'yes' and a total abscence of 'no'; 'haha' and 'LOL' were common and indicated shared humour; 'help' and 'thanks' were frequently used, indicative of a situation where assistance was asked for and given; whilst the prevalence of 'thanks' and 'please' indicated politeness as well as mutual support.

> I think that without the help of some of my schomies i could not have built some of the buldings. i have also had quite alot of help from people around the place about things like joining groups and also teamwork is ealso essential in creating good quality group session.
> i mean there was this one time when the governors group was going to shambles but i think it was SparkerA who brought it back together. then we all started giving useful info. a bit chaotic at first but nonetheless we managed to get somewhrere later.
>
> *SParker (Interview chatlog)*

Initially the SParkers tended to work on individual projects. This gradually changed, with greater emphasis on cooperation and collaboration amongst the more active members of the community. This involved the negotiation of roles (Level 3) and there was evidence of some SParkers taking on different roles within different projects. Tensions and power struggles could be read into several of the early in-world projects, and some SParkers continued to work essentially alone or gradually obtaining help from others without explicit roles being noted between them. The 19 SParkers (13%) who were nominated as coordinators of the seven governance groups within the community clearly demonstrated their ability to operate at Level 4. They were all actively involved in problem solving as evidenced by the governance discussions within the forum. The posts in the forum also provide ample evidence of members of this group actively managing relationships.

Leadership

As one might expect, there was considerable overlap between the performance of SParkers on the Teamwork and Leadership dimensions of the *knowledge age skills* framework. As the SParkers started to move from individual to group projects leaders started to emerge. In many cases these individuals initially adopted very heirachical and managerial appraoaches, which failed to take into account the interests and expertise of members of their team. With support they started to move towards less 'leader centred' models. Ultimately this was reflected in the form of organisation that the SParkers decided to adopt for the governance of the island. This involved the formation of seven governance groups, each of which had three 'Department Officers' (DOs), one of whom was identified as the group's coordinator. The SParkers were very clear that the role of the DOs and the group coordinators was to seek out and represent the views of the whole community, whilst ensuring that progress was made in making decisions.

> I say that each department has a co-ordinator (as opposed to a leader which sort of implies supremacy over the other members of the group).
> Then we have three overall governmental co-ordinators who don't so much run the place as keep it going smoothly. SP doesn't need a Prime Minister, but it needs a functioning council. Everyone from all the departments can attend governmental meetings, or just send an emissary along to say what the department as a whole thinks.
> *SParker (forum)*

Whilst many of the SParkers who were more active within the Pilot were providing leadership at Level 1, the numbers who provided clear evidence of working at the higher leadership levels was much lower. Only one or two SParkers achieved Level 4. The SParker who led the development of the governance arrangements was clearly operating at Level 4.

Creativity

Encouraging creative (yet grounded) thinking about schome (the education system for the information age) is central to the schome community's activities, as evidenced by the Aspire Pilot (http://aspire-pilot.open.ac.uk/). The proposed levels in the *knowledge age skills* framework were derived from The National Curriculum in Action (http://www.ncaction.org.uk/creativity/spot.htm).

> I'm having a lot of fun doing this - you get to meet new people and become a new person. I've learnt so much that I didn't know before, it's amazing what a really close community can do. I've particularly noticed that no matter what the problem, there's always some bright SPark*er* that will be able to help. I love the way we are now being creative in more than one way.
> *SParker (wiki)*

Level 1 is described as 'questions and challenges' and within this level it is expected that young people will: "ask 'why?' 'how?' 'what if?'; ask unusual questions; respond to ideas, questions, tasks or problems in a surprising way; challenge conventions and their own and others' assumptions" (ncaction 2007).

There is evidence that Sparkers were often engaged in this type of creative activity. The frequency analysis of SParkers' in-world communications provided indications of an atmosphere of interrogation and enquiry; as evidenced by the high frequecy words such as 'how' and 'what'.

One of the strengths of the Pilot appeared to be the ethos that was created within the community, which encouraged the asking of questions, challenging assumptions and making mistakes. The SParkers explicitly commented on the difference between the ethos within the schome community and in their own schools. They noted that within the Pilot they were treated as equals, irrespective of age; intelligent discussions were valued; and trying out ideas was encouraged.

Level 2 is concerned with making connections between events and information, which might not commonly be made and to communicate their ideas in novel or unexpected ways. One area where this idea of connections and reinterpretation is evident has been in Forum Games. These

text based games, used by a minority of the SParkers, often demonstrate a playful way of reframing the use of language and ideas.

A considerable strength of the pilot has been the space that it affords for Creativity at Level 3. Forum discussion allows user to share and discuss alternative visions of education. Those SParkers who used the forum discussed how the Schome Park environment might be different in physical sense, how the rules of the environment could be changed and how the social structures, such as governance of the island, could be improved. Schome Park gives young people not only the opportunity for discussion of such ideas but the possibility of implementing them in-world.

Looks like [SParker A] is practicing building tornados in Schome Park - hold on to your hats everyone! So far it just looks pretty, and moves really well with a script provided by [SParker B] ... but will our weather wizards cause havoc as they work out how to pick up people?! Yet more mad science being tested in the ever-active Physics area ...

Extract from the wiki

Based on the sample of SParkers using the discussion forums the achievement of critical reflection on ideas and practice was relatively rare within the Pilot. There are examples of staff using the forum to support SParkers in challenging their assumptions, for example about how the island should be designed and considering the function of buildings and doors in a virtual world meeting space. These interventions did appear to change the ways in which some of the Sparkers perceived these issues. One or two of the SParkers subsequently adopted similar approaches to challenging their peers' thinking within the forums, thus demonstrating their ability to operate at Level 4.

In terms of making new and novel creations an examination of the wiki shows a range of original designs and structures from SchomePark (i.e a move away from pre-built design) and a variety in avatar appearances. However, overall, the designs and practices tend to reflect the SchomePark culture as modelled on the SParkers arrival (e.g. human avatars and conventionally recognisable buildings and activity spaces - albeit often transposed several hundred metres into the air or under the sea). Whilst the environment can support novel use of space and appearance this has not happened to a significant degree.

In order to develop Level 4 creativity the SParkers are being encouraged to reconceptualise Schome Park. Schome Park II (SPii or spee as the SParkers are calling it) will be rebuilt from the ground up. The island was closed temporarily to allow the old island to be cleared and the land to be reshaped. During this time the SParkers have been engaging in focussed discussions using the forum and wiki, and with support from the staff team, about what SPii should be like. They have been encouraged to go back to first principles – focussing on what worked well within the Pilot and what did not work so well. In thinking about the design of the island they are asking questions about the nature of the community that SPii should be, what activities and social process need to be supported and thus what the physical environment should be like. They are being supported in being critical and reflective and we are confident that this will enable many more of them to achive higher levels within the creativity dimension of the *knowledge age skills* framework.

What lessons did we learn about using Teen Second Life?

Plan for startup costs

Setting up and using Schome Park was a new experience for the schome team. It rapidly became clear that Linden Labs (who run Second Life) also had little experience of setting up or supporting a project of this kind or on this scale. Thus there was a substantial learning curve for all involved. This Pilot has helped to identify many pragmatic and pedagogical issues related to the use of Teen Second Life, which should help future projects. It has also helped Linden Labs to improvement their procedures and policies in relation to Teen Second Life. However, it should be anticipated that anyone setting up a similar project in the future will still have to invest a substantial amount of resource in initial set up costs and overcoming the learning curve that one experiences with the introduction of any new technology into education.

> I think I have made some great friends that hopefully I will be able to keep in touch with for a long time. The big thing for me personally, I think, is to improve my confidence in social situations. I'm not the shyest person in the world (in RL), but I don't like public speaking and the meetings, for example, have been great situations where I've done things that I certainly would not do in RL. And yes, it has improved my confidence already; I may not be willing to host a meeting in RL, but I'm happier to give my point of view and to convince people about it.
>
> *SParker (wiki)*

Establish effective channels of communication

It is vital to have effective means of communicating with participants in a project such as this Pilot. We had assumed that asking SParkers to provide us with an email address that we could use to communicate with them would be sufficient. However, it soon became clear that some students were not recieving our emails. This appeared to be because their email service was treating our messages as Junk and either removing them to a Junk folder or simply deleting them entirely. In addition many of the SParkers did not engage with the wiki and/or forum. This meant that we were effectively unable to communicate with them in a timely (or cost effective) manner.

Be prepared for access issues

Second Life requires a high spec computer with a broadband internet connection. Many universities and suppliers of broadband to schools have firewalls in place which are configured to block Second Life. We found that some LAs were not willing to adjust their firewall settings, effectively blocking students in their schools from taking part in the Pilot.

> Problem solving is something else that I think has been quite a good experience for me - if there is an in-world problem, whether it's to do with a build, a 'bought' object or a personal problem, being able to sort them out is a good skill, and thinking outside the box as to how to go around doing that.
>
> *SParker (forum)*

Second Life is very demanding on bandwidth and both staff and students experienced difficulties as a result. For example, project staff from the National Physics Laboratory were unable to access Schome Park during the lunchtimes due to the amount of traffic on their network until they installed a dedicated ADSL connection for the Pilot.

The Second Life environment is closed by Linden Labs for both scheduled and unscheduled maintenance and technical issues. This occurs approximately once a week and little or no notice may be provided. This led to scheduled in-world sessions being cancelled or postponed at short notice.

The Second Life web client software is updated every few weeks. Users are required to download and install the new version before they can continue to participate. The new downloads are large (over 25Mb). An administrator's password is required to install new software on many computers, which may prevent students from being able to access Second Life for some time. Over the duration of the pilot there have been at least four new versions of the client, each of which produced log-in problems for one or more students or staff. Some of the

changes to the client require higher machine specs to run – so for example, one member of staff found that his laptop was no longer supported following one of the client updates.

> This project is very liberating. You can speak to other people without the hang-ups of real life, like appearance. You can be the real you without the judgement that is considered normal in the real world and can pursue your interests with the help and support of other 'like minded individuals'.
>
> *SParker (wiki)*

Think carefully about your community's ethos

Second Life has been designed to support a virtual economy and to generate revenue for Linden Labs. There is an in-world currency (the Linden dollar or L$) and one can buy and sell L$s for US dollars. Some key actions within Second Life require you to pay L$. For example to load an image into Schome Park, which is essential if one wants to create posters or build anything other than the most basic objects, one has to pay L$10 per image.

We were keen to develop a collaborative and supportive community on Schome Park and felt that a commercial influence would undermine this. We were also concerned about the prospect of SParkers using their parents' credit cards to buy L$s. We decided therefore to allocate in-world money to students and accept this as a cost of the Pilot.

Think carefully about what information about participants you will share

We made an active decision that neither staff nor students within the Pilot would know anything about each other prior to meeting in-world. This meant that participants in the Pilot were treated according to how they presented themselves rather than any pre-conceptions that people might have had about them. This helped in developing an ethos in which SParkers felt was non-judgemental and where they felt safe and that they were all equal.

Put adequate support mechanisms are in place (for students and staff)

In-world support for the SParkers was critical. We developed a number of mechanisms to enhance the effectiveness use of staff time. For example:

- we created noticeboards in-world which provided the SParkers with information on sources of help (on the wiki, forum and in-world).
- we set a network of sensors on Schome Park that provided us with information about who was on the island once every minute. This was invaluable in working out when support needed to be provided in-world and about which parts of the island were being underutilised and thus needed to be rethought.
- We also provided a 'panic button' for emergency use. This sent a message to a member of staff in-world, or if there were not staff in-world sent an email to all the staff so that someone could go in-world straight away.

> I think that what Schome is doing through breaking down the barriers between 'teachers' and 'students', making it hard to see where one stops and the other begins, is fantastic, because when everyone is on a learning curve together, it brings about less of a feeling of segregation and a greater feeling of equality, and this leads to people trusting more..
>
> *SParker (wiki)*

Supporting the SParkers in-world could be very demanding and complex situations sometimes arose where staff felt the need to get advice from colleagues.

Second Life offers real educational potential, but expect real world problems

All of the sorts of issues that one might expect to encounter in any real world educational context were evident within Schome Park. Policies on things such as Acceptable Use and Child Protection need to be in place (and implemented by all concerned).

However, it is clear, even on the basis of this small scale pilot study, that Teen Second Life does have educational potential. Clearly further work is needed to explore this more fully.

The story so far ...