Learning from ‘Adventure Rock’

Lizzie Jackson, 15 September, 2011

Having launched the BBC’s social media services in 1998, as a longstanding member of the BBC’s production staff, I completed a doctoral study in 2009 which looked at how BBC producers were engaging with the public in message boards, live chats, chat rooms, and via interactive television. The findings showed producers were often unsure how to organise participatory services such as message boards or live chat; there was a lack of reciprocity from the BBC’s side. This pointed towards the need for more investigation into how a more creative relationship with audiences might develop.

In July 2007 the opportunity arose to undertake a year-long study of the beta (trial) version of ‘Adventure Rock’ launched in April 2008 by the BBC Children’s department. It is a public service virtual world for children, not run for commercial gain. Developed from KetNetKick an earlier version of ‘Adventure Rock’ created by Larian Studios for VRT, the Flemish public service broadcaster in Belgium, ‘Adventure Rock’ is a ‘third perspective’ world; the child’s view is above and behind his or her avatar. The world is more akin to a series of very complex 3D online landscapes with embedded games and creative studios.

The study was one of a eight undertaken by researchers on new genres of public service content jointly funded by the Arts and Humanities Research Council and the BBC from 2007-2009. It aimed to find out whether producers might involve young people in the design of such new services. Professor

David Gauntlett from the University of Westminster provided valuable advice and insights, particularly during the final data analysis, and I designed and delivered the research. The findings will be of interest to producers, researchers, educationalists, and media students.

By virtue of being an academic study the analysis of ‘Adventure Rock’ provided more sophisticated data than is normally available to producers. Typically the BBC would organise a user-test (click-through) of a service before launch over a half-day with around 15-20 participants. In this study 90 children from across the UK aged 9-11 of mixed socio-economic backgrounds were given access over two months from December 2007 to January 2008. Creative Methods (Gauntlett, 2007) drawing, creating media diaries, and some model-making encouraged the children to reflect and express ideas and opinions on ‘Adventure Rock’. The study also looks at producer intentions and offers an analysis of parental responses.

Several important studies on children’s use of online environments (Livingstone 2003, Buckingham, 2008) inform the approach. I also draw on child development theory (Ellis, 1973, Piaget, 2001, Pearce, 2007) to show how children and adults imagine and articulate possible ‘other’ worlds and futures through literature. Taking a socio-cultural approach I argue online play and exploration is an important tool for the development of multi-modal literacies. The use of environments which extend or mirror the real world offer important opportunities for learning and a site for the building of

competencies, a ‘bridge’ between the formal learning of school and the informal instruction for everyday life, at home.

The findings include ‘Thirteen tips’ for producers of virtual worlds for children and a deconstruction of orientations (player types) to ‘Adventure Rock’. These orientations may be useful for researchers looking at other virtual worlds and immersive gaming environments. The study was the first to look at how children can become involved in the production process and the first to look at an immersive 3D single player environment free of directly commercial considerations.

To a degree ‘ Adventure Rock’ fulfils the criteria used by Castronova to define a ‘synthetic world’, “any computer-generated physical space, represented graphically in three dimensions, that can be experienced by many people at once” (Castronova, 2005: 22). There are exotic landscapes but no sense of others, this is solo play, there is no way children can communicate to each other ‘in world’. Messaging and the showcasing of player content is provided on an accompanying web site. ‘Adventure Rock’ (AR) is a serial exploration of an online 3D landscape for young explorers aged 6-12 years of age. The avatar created by these intrepid pioneers searches for clues about the ‘world’, plays games, fights crocodiles, meets robots, and progresses though increasingly complex levels, gaining points and coins. The avatar (the child) is accompanied by ‘Cody’ a flying robot.

The young participants of the study were invited to take part in two creative workshops which encouraged the imagining of virtual worlds, and analysis of AR and four commercial worlds for children through drawing, mapping, and discussion. Children were recruited from middle schools in Glasgow, Cardiff, Belfast, Manchester and London. Two separate sessions were run in each location for a younger group (7-9 year olds) and an older group (aged 10-11). I also attended production meetings at the BBC Children's offices in West London to observe the producers as they worked towards the launch. Lastly I gave a questionnaire to the parents of the children to find out what they thought of virtual worlds for children.

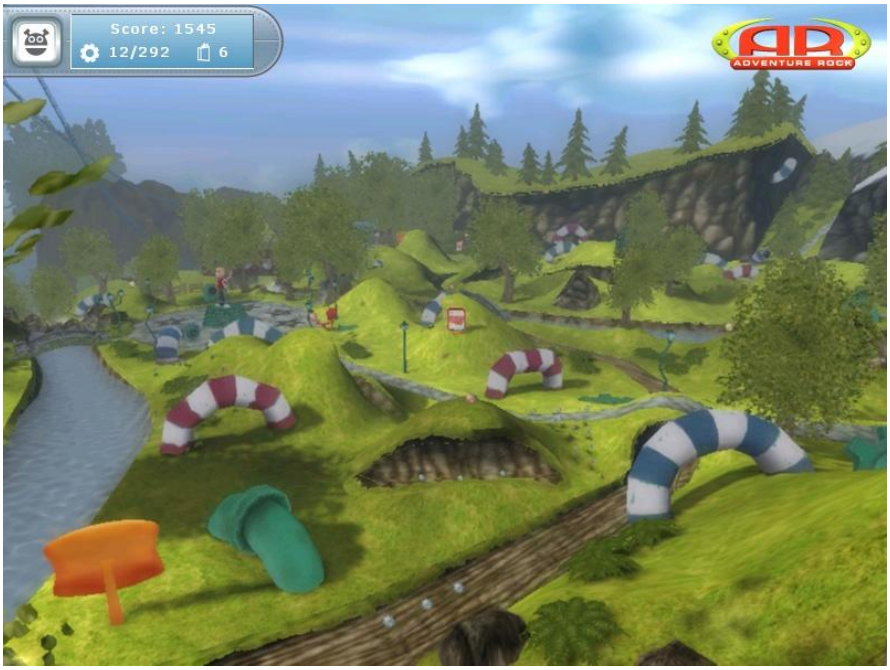

Figure 1 'Adventure Rock', an 'outside' virtual world for children

To preview the findings of particular interest from a literacy perspective, we discovered younger children have different requirements in virtual worlds from older children. We also found all children need to be sociable online, particularly more mature or confident children. Without sociability the opportunities for learning, for example risk avoidance strategies and negotiation skills, are reduced. I therefore advise producers to produce a pedagogical strategy to deliberately support the development of multi-modal literacies, furthermore that these pedagogies consider the progressive developmental and behavioural stages identified within the literature. For orientation, before describing the methods I used to obtain the subsequent findings, discussion of play theory and the value of 'creative imagining' is presented alongside the consideration of child development within an online context.

Children and play as a tool for maturation

The range of literature on the nature and function of play is vast, therefore I drew on a more limited range of psychological and psychoanalytical notions which will explain the theoretical frame that informed the project. Our growing understanding of immersive online landscapes such as 'Adventure Rock' (AR) stemmed from the insights of Piaget on the maturation of children and further developed from a range of ideas in different fields from zoology to psychotherapy. Although these intellectual positions were developed for a world in which children acted directly only with a physical environment, the insights can be translated to immersive online gaming and virtual worlds.

In 1926 Piaget found play to be an essential element of the maturation of children, later arguing 7-11 year olds accumulate conceptualising skills through their physical experience and from there they begin to solve problems (Piaget, 2007). In the 1950's and 1960's psychologists began to look at the play activities of young animals, Ellis described how scientists noticed how young animals approached new objects, echoing Piaget's work on child development.

> The procedure that commonly occurs is for the animal to first indulge in locomotor exploration. Investigating the situation by moving around the object allows the exploration of its properties by distance receptors, while preserving the options for escape (Ellis, 1973: 97-99).

This indicates the gradual accumulation of risk avoidance skills. Social interaction amplifies opportunities for learning, "as more and more interactions are experienced, more and more connections between antecedent-subsequent events are made. More cause-effect relations are established" (ibid). In this way young animals find out the probable effect of different activities, therefore assisting them to adapt and deal with unpredictable situations.

Play has also been found to have cathartic properties, facilitating a form of suppressed communication; "In pretending, children often express indirectly or symbolically pressing worries or fears and repeat these themes again and again" (Garvey, 1977: 9). There is much literature in evidence on the use of play in therapeutic contexts for this reason. Newer studies centralise identity-

formation as being of even greater significance, reflecting the growing idea of child-as-citizen, “they have to be seen and respected as subjects in their own right who develop their own and unique cultural milieus” (Fromme, 2003: 5). These studies re-define childhood as a cultural site as well as a physiological progression.

I will now turn to the idea of imaginative play located within the literary traditions, as a constructivist activity supporting learning, an idea expressed by Cook, “play, broadly defined, should exert an *influence* on learning”, not replace it (Cook, 2000:182). Goldstein also proposes “the early make-believe of children is the starting point for the development of narrative thought” (Goldstein, 1994: 26). ‘Episodes’ of imaginative play offer time for formative and preparatory physical or mental activities, but they are also useful as ‘glue’ between separate - but linked - play sessions which extend exploration and offer additional opportunities for consolidation.

In the study on ‘Adventure Rock’ the children described how they “[p]ut duvets over the kitchen table…a big monster came to get us” (girl, 8, Belfast), or “We put pillows on our trampoline” (girl, 9, Belfast). Those who described an ongoing imagined world (shared with others) felt it was important to “keep it in the same place and [have] the same things. Say if you had a place and next time it was completely different, you’d have to keep things the same” (boy, 8, London). Language, communicative acts, gift-giving and receiving, and an overall ‘grand’ narrative help to sustain ‘naturally-imagined’ worlds.

> [For a story truly to hold the child's attention, it must entertain him and arouse his curiosity. But to enrich his life, it must stimulate his imagination; help him to develop his intellect and to clarify his emotions; be attuned to his anxieties and aspirations; give full recognition to his difficulties, while at the same time suggesting solutions to the problems which perturb him (Bettelheim, 1991:5).

For Bettelheim storytelling is an important tool for the development of reflexivity, emotional intelligence, empathy, and as an agent of motivation. Becoming a reflective learner is one of the most ubiquitous 'transferable skills' in contemporary higher education, a skill for adult life.

John Carey lists five hundred worlds imagined by adults in the *Faber Book of Utopias* (1999). The earliest is Plato's *Republic* (c.360 BC) followed by *Germania,* written by the Roman historian Tacitus in AD 98, "a work of political and moral exhortation" (Carey, 1999:16). Moving forward in time, other highlights from the list are Plutarch's *Life of Lycurgus* (AD 120), Sir Thomas Moore's *Utopia* (1516), and Swift's *Gulliver's Travels* (1726) ...and on and on. For adults and children Imagining 'somewhere other' is an opportunity for critique, escapism and creative play.

We have come a long way from situating literacy solely within the context of reading and writing. David Buckingham describes how "those immersed in new digital tools and networks are engaged in an unprecedented exploration of language, games, social interaction, problem solving, and self-directed

activity that leads to diverse forms of learning" (Buckingham, 2008: vii). The 'new' media offer good opportunities for collaborative learning for example in social media, virtual worlds, and immersive games. Interaction and connectivity in online games and virtual worlds assists the development of personal expression and negotiation, a foundation for group work, Drotner (2008). The ability to build and sustain groups is a highly useful skill in the creative industries where interdisciplinary working is common and the range of 'digital' skills may be varied. Literacies around group work are increasingly considered in higher education contexts, particularly in practice-based curricula (LearnHigher, 2007).

The Young People and New Media Project undertaken by the LSE with fifteen thousand 6-16 year olds (ending in 2002) found "In gaining familiarity with new technological formats and interfaces, one key mode of engagement provides an entry point for children and young people, namely games-playing, favoured for work or play, alone or in company, as part of learning or relaxing" (Livingstone, 2003:229). In addition to validating 'digital play' Livingstone notes how

> The multimodal nature of new media contents brings together multiple forms of engagement hitherto considered distinct forms of production (writing, drawing, designing) and reception (reading, listening, viewing, learning), as well as activities commonly distinguished from the reception of mass media (playing, talking, researching, performing). (ibid: 221).

The potential value of informal learning environments online is clear, and the idea of play at a highly important tool for learning has been traced forward through developmental psychology, behaviourist theories in the maturation of animals, social skills, and the function of groups. Finally, the imagining of worlds has been shown to be a natural part of our linguistic, literary and cultural expression.

I turn now to the case study ‘Adventure Rock’ where we want to find out how children could become involved in the design of new genres of programming. The BBC, as one of the leading public service broadcasters and the largest in the UK, has a commitment to “Be at the forefront of harnessing opportunities offered by technological developments, to deliver both formal and informal learning” (DCMS, 2006:15). In 2009 the UK business magazine *The Economist* recognised a continuing rise in the use of virtual worlds for children.

> In America, nearly 10m children and teenagers visit virtual worlds regularly, estimates eMarketer, a market researcher—a number the firm expects to increase to 15m by 2013. As of January, there were 112 virtual worlds designed for under-18s with another 81 in development, according to Engage Digital Media, a market research firm” (*The Economist*, 23 July 2009).

Media outlets that create content for children were aware of this adoption. In 2007 BBC Children’s commissioned ‘Adventure Rock’ as one of a range of

new services for CBBC, a nested website aimed at children within the highly popular BBC website www.bbc.co.uk. These new services offer more immersive and personalised content and demonstrate a new strategic direction.

'Adventure Rock', an 'outside' virtual world

Concurrent with the BBC's commissioning of 'Adventure Rock' in 2007 there had been a decline in the amount of commercial television content produced for children in the UK (Steemers, 2010). One of the functions of the BBC is to counteract market failure therefore the BBC's Children's department may have felt under pressure to address this. The same year the Corporation redefined its six public purposes, one of which is "promoting education and learning" (BBC Trust, 2007). Chitra Bharucha Acting Chairman of the BBC Trust, the body which monitors how the BBC carries out its public purposes, "requested BBC management to prepare fresh proposals for how the BBC should deliver the Charter obligation to promote formal education and learning, meeting the online needs to school age children" (BBC News, 2007).

BBC Children's licensed 'Adventure Rock' from Larian Studios for £250,000. Larian Studios are a Belgian media outlet who had made 'KetnetKick' an award-winning and popular earlier version of the virtual world for VRT the Flemish language public service broadcaster in Belgium. The Belgian producers worked with BBC Children's for almost two years to change the 'look and feel', producing new areas, changing the characters, and creating

additional objects. ‘Adventure Rock’ is a single player ‘outdoor’ game aimed at children aged 6-12. Unlike many virtual worlds for children which can be played online, the child (or an adult) must download files before playing the game, something the children in the study found difficult.

The 3D world, or series of immersive landscapes, offers progressive solo exploration and gaming. Children create an avatar to run, jump, crawl, and even swim around the world. There are seven studios for the creation of music, cartoons, animation, video, dancing, and ‘inventing contraptions’. The players also find pages from a book and strange hieroglyphics which may, in time, begin to explain the mysteries of the ‘Adventure Rock’ Island. Although this is for solo play the adventurers also meet bots: robots and crocodiles (raptors) that guide them around the world and test their skill in combatative games. The children can also collect coins found along paths, these translate into points which can be used in an ‘Upgrade Centre’ to buy new clothes for their avatar or new equipment for a friendly and comic round metal robotic creature called ‘Cody’ who hovers behind the child’s avatar giving cheeky comments, tips and hints. Over the two months of the fieldwork I saw a cult develop around Cody, the children drew him repeatedly in their diaries, and later in the second workshop in response to the question “what was the most important object in ‘Adventure Rock?’”

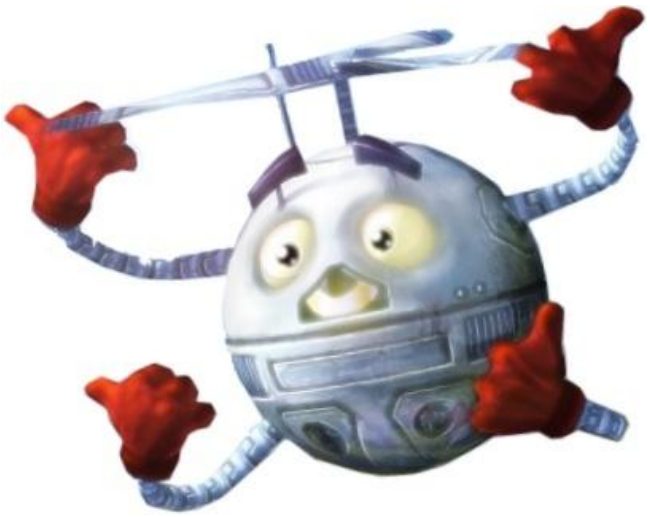

Figure 2 'Cody' a cheeky flying robot

After the fieldwork had ended new features were added before the launch (in April, 2008). A snowboarding run, ski-lift, and funfair slide were opened, and later a 'cinema' where the children could watch CBBC television programmes 'in world'. The children in the research study were highly excited by the idea of watching television within a virtual world, to the extent of *imagining* they could see video before any video was released into the world. The 'Beta' version of 'Adventure Rock' included large TV screens on stands *ready* to offer news bulletins, trailers, or announcements.

Figure 3: A child's avatar watches in-world 'television', with 'Cody'

Outside what Castronova terms the 'membrane' (Castronova, 2005: 147) of AR there's a website with a showcase area for children's' work. A moderated message board is also offered for children to leave comments for each other. The children therefore either leave the world if they want to chat to other explorers or open a second browser window.

The BBC's strategy to launch a virtual world for children was not at fault as it is highly important for public service media to keep pace with commercial developments. Significant evidence was found however that 'Adventure Rock' lacked important elements the children identified as being 'essential' in an immersive world or game. Many of the children, particularly the younger 7-9 year olds, enjoyed exploring, playing games, and creating content in the

studios in ‘Adventure Rock’, but overall it did not retain their curiosity over time as they were only able to interact with the ‘bots’ (robots and crocodiles).

BBC Children’s organised a workshop for me with CBBC producers to give the findings from the study. Adjustments were subsequently made to the registration and download of AR, and an instructional video was commissioned to help children with the initial set up. The ‘Adventure Rock’ website was given higher priority and extended. In addition the CBBC website was ‘zoned’ to aggregate content for 7-9 year olds in one area and for 9-11 year olds in another.

Using creative methods with children

This is a producer and user study looking at the development and use of an immersive online environment through the use of a range of multimodal methods we term ‘Creative Methods’ (Gauntlett, 2007). The use of creative methods is appropriate as they encourage participants to communicate what they think through making (drawing/modelling/video etc), in metaphors. The process of creating with the hands becomes part of the reflexive process. Articulating through making is highly suitable for studies involving children as the method doesn’t preference children who have higher reading and writing skills. It’s a sociable way to explore ideas through making, deepening reflexivity and extending the range of communication.

Twelve schools were approached from Glasgow, Cardiff, Manchester, Belfast, and London. One school had to drop out because they used Apple Macintosh computers and AR would only run on PCs. Two workshops took place in December 2007 and January 2008 at BBC Regional offices. 90 children aged 7-11 from mixed socio-economic groups took part, a sufficiently robust and varied sample to produce good data. The children were split into two separate age groups for two separate sessions (7-9 and 10-11 year olds) in order to test whether younger and older children had a different orientation towards AR.

In addition I observed weekly production meetings at the BBC's Television Centre and gave out questionnaires to the parents of the children. The idea to undertake a producer and user study was important in order to examine whether the producer's intentions matched the children's subsequent use of AR. The methods however preference the audience study. Each workshop was captured on video with a single camera on a tripod and gun microphone. This enabled the gathering of behavioural nuances and good quality sound. At the suggestion of David Gauntlett I cross-referenced any quantative findings with qualitative data where possible.

Overall the project aimed to find out:

- What the children thought of 'Adventure Rock' and how did it compare with other virtual worlds for children?

- If children were creating their own virtual world, what would it be like?
- Could children contribute usefully to the design process in any way?
- Did the younger and older children approach ‘Adventure Rock’ in different ways (7-9 year olds and 10-11 year olds)?

In the first workshop children were encouraged to talk about the imaginary spaces they constructed for either group or solo play. They were then asked to draw their ideal imagined world on a large sheet of paper in groups. Tissue paper, stars, glitter, and ‘stick on’ speech bubbles were also provided.

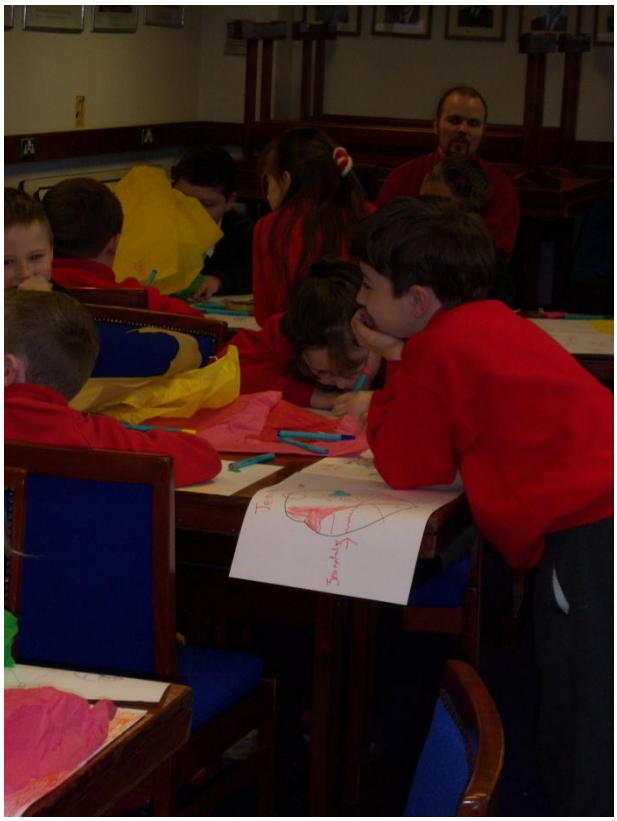

Figure 4: Children imagine and draw their ideal virtual world

Between the first and second workshops the children were given access to the Beta version of *'Adventure Rock'* over the Christmas and New Year holidays. The BBC Children's producers worked hard to ensure there was enough of the world to explore by January. It was intended to include an analysis of the accompanying message board and gallery on the accompanying website, but this was not possible as it had not been completed, the production schedule having slipped due to technical issues. The children faced considerable difficulties in accessing, downloading and moving around the world. A good enough number of areas with sufficient variety were however offered to the children. This included an initial 'get started' tutorial, Star Square (the centre of the world), the Upgrade Centre where points could be exchanged for goods, the Music Studio, Cartoon Studio, Drawing Studio, and Rainbow Canyon (a space to explore).

I asked the children to record what they did in 'Adventure Rock' in media diaries and suggested they also visit four other commercial virtual worlds (Club Penguin, Nicktropolis, Habbo Hotel and Barbie Girls). As the fieldwork progressed new areas opened and there were fewer technical problems, however one or two children in each group were not able to access *'Adventure Rock'* at all. Most of the children were able to log in and explore for enough days to produce adequate and representative data. A topic in the BBC Children's message board was opened to receive the children's technical comments.

The second workshop in January 2008 began with a discussion on what the children's felt about *'Adventure Rock'*, and any of the other commercial virtual worlds. They drew and mapped out – on a paper plate - what they felt were the significant objects, places and characters. I then asked the children what they would add, remove or change if they had been the producers. At the end of the second workshop I collected the questionnaire from the parents and the children's diaries for analysis. Over 85% of parents completed the questionnaire, a high level of response.

Creative methods are excellent for children, they all enjoyed being able to 'produce' an idea for a virtual world and took the role of being 'a CBBC consultant' very seriously. The media diaries were a more successful tool for the older children to use whilst the younger children preferred to draw. It was useful to play and replay the video however the capture and storage of personally identifiable images of children meant a password protected server had to be set up in advance, which took time. A selection of the findings now follows; those which inform our understanding of multi-modal literacies have been foregrounded.

What children want from virtual worlds

'Thirteen tips' are offered for producers of virtual worlds; the children were very clear about what they liked and disliked, and about what they would include and why. These same likes and dislikes were also true across all the commercial virtual worlds. Eight orientations to 'Adventure Rock' were found,

these augment Bartle's four types; Explorers, Socializers (sic), Achievers, and Controllers (Bartle, 2003:130). From a literacy perspective the importance of being able to interact with others was clear, and there were significant differences in usage and competencies between the 7-9 year old and 10-11 year old players.

The younger players needed more orientation and help, but they were also happier to enjoy solo play, for this reason 'Adventure Rock' fulfilled more of their needs. From the paper plate drawings and the maps of 'imagined virtual worlds' drawn in group work I found the younger children were significantly less ruled by the laws of nature, physics or social norms. Their designs for worlds were surreal, fantastic, and energetic. They often included mappings of the Universe or superheroes (the boys) or mystical or 'royal' themes (the girls).

The 10-11 year olds wanted to have more realistic places to 'live' and they often produced schemes for worlds with complex social systems and hierarchies. This may reflect a greater influence of school rules and norms or a growing allegiance to pre-teen culture; the need to conform.

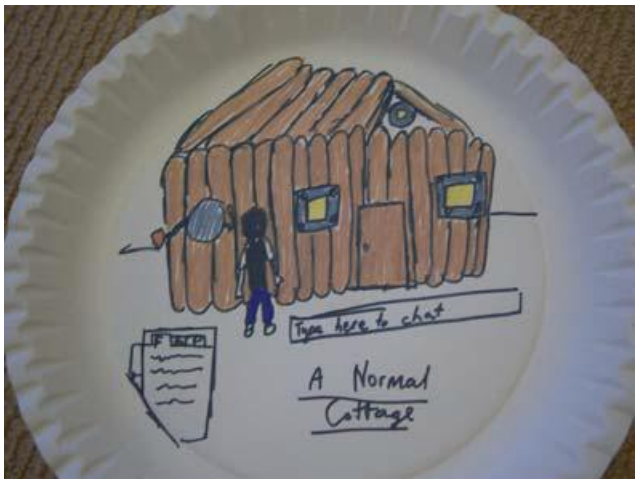

Figure 5: "A Normal Cottage" (From the London 10-11 year old Group)

All the children liked the creative studios however the older boys and girls wanted some form of commerce (shops and trading) and to be able to compete against each other. Overall the 10-11 year olds wanted more social activities, collaboration, and challenges, "It's fun creating the stuff but you can lose interest. It's not interesting enough and not something that I would do that much. There's not enough action" (Boy, 11, Cardiff).

Several players documented their scores and progress, one boy from Cardiff (aged 7) carefully noted the number of pages he had collected (24), coins (407), and score (8946); status is a driver of participation. All the children documented having peaks of motivation (finding a new area, swimming, when they first played a new game). From a literacy perspective these periods of higher engagement may offer moments of opportunity for the introduction of more complex activities. Other learning opportunities were identified, for example the older children often introduced younger children to AR, "My

brother, Thomas, who is four, really enjoyed watching this game with me. And got really excited when I was chasing Raptor (girl, 8, Belfast)".

As a single player game the 'point of view' for each player was above and behind the avatar. Being able to create a suitable online identify was therefore highly important, "I think I should know what my name is or at least make my name up" (girl, 8, Cardiff). Creating the avatar was also a significant moment, "It's good making the avatar" said one boy (aged 8), from Cardiff. This was echoed across all the groups, "I got to design a character" (girl, 7, London). The choices of skin and hair colour, and the range of clothes offered was also crucial. One boy said the hair style choices made the male avatars 'look like freaks' (boy, 11, Glagow). One girl commented 'the girls outfits could be a bit better, they're a bit yuk (girl, 11, London). The Muslim girls wanted to be offered a range of head scarves therefore producers need to accommodate cultural differences as well as current fashion trends.

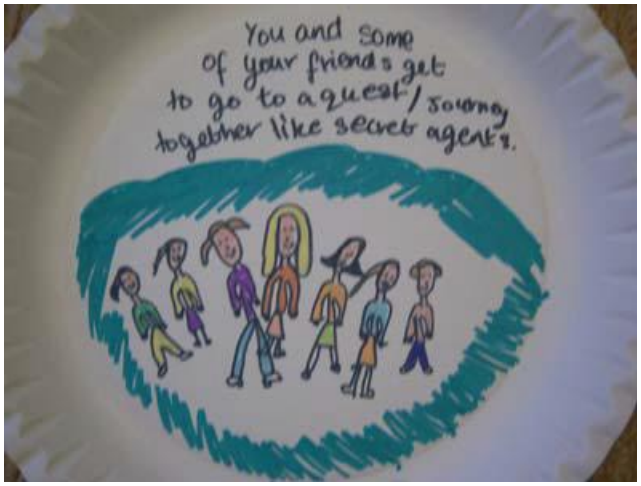

Figure 6: "You and some of your friends get to go to a quest/journey together like secret agents"

The need to have a purposeful activity was stressed by the children, furthermore to have an activity which challenged the participants and progressively increased in complexity was expected as a norm of immersive game play. Both the younger and older children felt it was important to have good transport, for example a motorbike or space shuttle. All transport would need to be super-efficient, for example being able to go to London from Scotland in 40 seconds.

Overall the children demonstrated eight ‘orientations to’ ‘Adventure Rock’ which emerged from the children’s diaries via the coding. For example there were 22 children who said they collected things (‘collectors’), 22 who felt they were experts at the game (‘power-users’), and 32 who said they were exploring AR (‘explorers’). All these eight orientations were triangulated with the video data and drawings, some of the children exhibited dual orientation.

1. Explorer-investigators – who had an imaginative engagement with exploring details of the virtual world;

2. Self-stampers – who wanted to make their mark on the world through self-expression;

3. Social climbers – who were interested in ranking, and wanted to be visibly doing better than other players;

4. Fighters – who wanted to be able to fight things in the world;

5. Collector-consumers – who wanted to accumulate anything of perceived value within the game; and who wished for an economic system, and also, interestingly, wanted to be able to give (and receive) gifts;

6. Power-users – who sought to become experts on the game, and how it worked; and to share their expertise with others;

7. Life-system builders – who wanted to create new environments, and to populate them;

8. Nurturers – who wanted to look after their avatar, and pets?

The children who exhibit these orientations are also likely to have varying degrees of sociability. For example, life-system builders are highly likely to need other players to organise into social systems, social climbers need to be able to meet others in order to both demonstrate and measure their status. Explorer-investigators and collector-consumers might be very happy undertaking solitary activities within the world or immersive environment for much of the time, however, at some point even they are likely to seek out others to show their collections or tell their stories to.

A second set of findings offer thirteen principals for producers of virtual worlds for children. The list reflects the children's 'geographical', social, economic, citizenship, motivational and emotional requirements expressed in the workshops and diaries. They wanted to be...

1. Sociable – meeting and chatting.
2. Creative – making avatar, making things.
3. Have control – owning and changing the space.
4. A big, outdoors world to explore.
5. Visible status – “how am I doing”?
6. Clear location – “where am I”? + easy transport.
7. Mission and motivation – what’s the purpose.
8. Some humour.
9. Help when they need it.
10. Video clips made by the CBBC producers, their own work, and other children’s.
11. Somewhere to live – a home, hotel or town.
12. Shops – buying stuff.
13. A space away from adult rules.

This past point needs some explanation. Several groups of children designed a virtual world which included a place where their parents could live. This space was separated from the children’s part of the virtual world by a glass or force-field wall. Parents would be able to live separately and look at the children’s world, but not interfere. Virtual worlds which have been constructed to contain these thirteen elements are likely to provide a playful, engaging, and interactive alternative to more passive media. Becoming a creator and having more control over the elements of a world reflect other genres of media where the distinction between producer and audience-participant are becoming blurred.

‘Adventure Rock’ was found to be not as sophisticated as many commercial services, largely because of the lack of any connectivity or collaboration between children ‘in world’. The ‘adventurers’ would have liked to have competed against each other, but this was not possible. AR was never the less valued by the children. They thought ‘Adventure Rock’ was unique because it offers a space ‘outside’ which they can explore; this is likely to be due to the reduction in the ‘real world’ outdoor areas in which today’s children are typically allowed to play freely.

The children were very excited by the 3D graphics. At the time of the study only one other virtual world had comparable quality of 3D experience (‘My Tiny Planets’). They also liked the fact that ‘Adventure Rock’ is free, with no need for payments or subscription. The children felt frustrated that ‘Adventure Rock’ was not available for Apple Macintosh computers or via internet-enabled games consoles. The technology was problematic, particularly for the younger children who often had to have initial help to register, download, and use the world. The children and their parents felt the world was a suitable service for a public service broadcaster to launch. They believed the strategy to include more immersive, playful, and personalisable services was correct as the BBC needs to keep pace with external commercial developments.

Learning from ‘Adventure Rock’

At the outset of the project I wanted to find out whether children could become involved in designing of their own media, in this case virtual worlds. In the case study ‘Adventure Rock’ the children articulated thirteen elements which they would include in any complex environment online. Beals and Bers (2009) identified six which producers should take into consideration when designing virtual worlds for children, “purpose, communication, participation, play, artefacts, and rules”. ‘Adventure Rock’ lacked the sociability found in the commercial virtual worlds for children and this had a detrimental effect on how long children would *remain* engaged, particularly older adventurers. Both the children and parents, however, applauded the BBC for moving towards more complex, immersive, and engaging media services; this was an appropriate and highly popular strategy for a public service media outlet.

From a literacy perspective virtual worlds such as ‘Adventure Rock’ offer opportunities for multi-modal literacy. There are opportunities to develop a range of different competencies including risk-avoidance techniques, social skills (such as negotiation), technical skills, and a space for the overall stimulation of the imagination. It would be incorrect to say this was informal learning as the progressive nature of the environment (acquiring coins and points, finding new places and so on) indicates virtual worlds offer a highly structured form of media. As they explored ‘Adventure Rock’ the children experienced ‘peaks of motivation’ which could be moments where more complex tasks are introduced, a potential area for further study.

The children were highly interested in exploring their identity, for example through building their avatar. They also demonstrated a high awareness of fashion and cultural nuances, something producers should also bear in mind. Although the children played alone they exhibited many similar orientations to 'Adventure Rock'. This produced eight player types which augment Bartle's 'Explorers', 'Socializers', 'Achievers', and 'Controllers'. Media students, researchers, producers and educationalists looking at virtual worlds or immersive gaming environments may find these orientations useful.

In 2009 the BBC Trust carried out a large review of the children's services provided by the BBC concluding "Providing content that children enjoy and learn from is one of the core public service functions of the BBC" (BBC Trust, 2009 n.p.). Significantly the review found that over time there had been a "decline in usage of the CBBC website" (ibid) which the BBC Trust recommended the BBC Executive should address going forward. This may indicate a transference to other platforms or providers; according to the data-gathering agency Comscore "The rise of social networking, availability of video content and growing mobile media consumption is changing the marketer's toolkit and creating new and unique opportunities to engage with the European consumer" (Comscore, 2010). In order to fully exploit the potential of participatory media for public service purposes and for learning and teaching it will be necessary to situate children - and all learners and teachers – at the heart of any design process.

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