Fountaineers: Exploring the impact of a whole-school co-design project

Emerging issues and implications for pedagogy, curriculum and learning space design

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Ideas Incubator

Fountaineers was developed as part of Futurelab’s Ideas Incubator, open for anyone to submit a proposal for innovative ways of teaching or learning with technology. Successful proposals receive funding and support in the form of creative input, learning research, user-centred design, and technological expertise to develop them into working prototypes, which are then trialled and evaluated with learners.

Sean McDougall of Stakeholder Design was the originator of the idea and worked alongside Futurelab and other experts to develop and research the Fountaineers project in partnership with pupils and staff at Luckwell Primary School.

Project partners

Luckwell School is a state primary school located in Bedminster, South Bristol, UK which has seven classes (reception through to Year 6) with a total of 14 staff (teachers, learning support assistants and admin) and approximately 200 pupils.

Sean McDougall is the director of Stakeholder Design, an innovation agency focused on education and the public services, and is a specialist in facilitating participatory and community design projects.

Additional expertise

Mike Hoddle of Springboard Design Partnership (engineering and construction), Mark Hildred of Apollo Creative (interactive fountain consultant), Steve Stean (electrical engineering), Caswell Thompson (steel construction), Brett Coulton (product design/visualisation), Lee Carrotte (design and build of fountain simulation software) and Water Sculptures (water engineering).

This report was written by and based on research by Peter Humphreys, Centre for Personalised Education (consultant educationalist and researcher), with contributions from Laura Shore (Acting Deputy, Luckwell School), Sue Roberts (Headteacher, Luckwell School), and support from Carlo Perrotta, Tash Lee, Graham Hopkins and Tim Rudd, Futurelab.

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Introduction

Fountaineers is a partnership project between Futurelab, Stakeholder Design and Luckwell Primary School. The aim of the project is to use the design and construction of an interactive, programmable, 'intelligent' water fountain as a vehicle to explore issues around participation, learner voice and alternative approaches to teaching and learning, and to develop a powerful, flexible and unique learning resource that will become a valuable and integral part of everyday school life and learning.

Project goals
The project was originally shaped around three key aspects that helped define its goals. These were:

- **The design process** – to involve the whole school and explore new ways to communicate, combine ideas and make decisions, and to promote learner voice.

- **The fountain design and build** – to design and construct a water fountain with MIMO (Multi Input, Multi Output) characteristics which is reconfigurable in multiple ways and programmable by children.

- **Ownership by the school** – the students and staff to take ownership of the design process, and of the fountain itself, integrating it into their teaching and learning practices.

During the project we have sought to investigate and learn from a number of aspects:

- **The co-design and decision-making processes.**

- **The changing relationships between pupils and staff.**

- **The subsequent changes in pedagogy and curriculum design and the implications that this may have in relation to broader initiatives around the redesign of learning spaces.**

**Learning research objectives**

Futurelab’s aims in developing both the co-design process and the construction of a multi-input, multi-output (MIMO) interactive fountain were:

- To investigate different ways of working in partnership with a whole school and establish methods and processes for combining design ideas.

- To provide a focus for teachers and pupils to learn together, establish new relationships and provide opportunities for team working, authentic problem-solving experiences, and mixed-age collaboration and negotiation.

- To learn and share lessons (that may have policy ramifications) about the use of outdoor spaces as effective and learner-directed learning environments.

- To build on research into children’s programming of virtual worlds and robots (constructionism) with a specific focus on the merging of technology and the natural world.

As part of a whole-school project, Luckwell learners are seen as co-researchers, co-designers, owners and engineers of an interactive and programmable, intelligent water fountain. Ultimately the goal is to make the fountain a vehicle to trial and to develop new approaches to learning and teaching, to challenge some traditional school structures, relationships and practices, and to offer a route towards personalising learning and embedding learner voice in practice.

The intention is for the learners to own the fountain – deciding how it is used, programming it to behave in particular ways for specific purposes, and organising its use, management and maintenance. In time, the fountain will become part of everyday school life and a powerful resource. Children will increasingly direct their own learning and continue to invent ever more creative ways of using it.
The collaborative design process was integral to the project, with pupils, teachers, Stakeholder Design and the Futurelab team researching different aspects of fountain design, combining findings and developing agreed outcomes. Futurelab and Stakeholder Design worked with the teaching staff to develop the ‘Fountaineering Curriculum’, which engaged the children in investigative tasks and creative activities that supported the whole school towards a brief for the design of the fountain.

Children will increasingly direct their own learning and continue to invent ever more creative ways of using it. With current debates about what education should look like in the 21st century, and with £45 billion earmarked for Building Schools for the Future and the beginning of the Primary Capital Programme, findings from the Fountaineers project offer insights into the interrelationships between learning space as a true learning opportunity, the co-design process and curriculum transformation. Fountaineers aims to demonstrate that children and teachers have enormous scope to influence the reconfiguration of their buildings and outdoor spaces – and in particular to use the environment to model new learning habits and more adventurous, participatory and curious mindsets.

The first two project goals have been charted in the Futurelab report ‘Exploring the impact of whole-school design projects. A case study of Fountaineering: designing an interactive, programmable water fountain’ by Tash Lee and Tim Rudd (Futurelab 2008).

This second report continues with the post-design and installation journey, considering how the fountain begins to be integrated into the life and work of the school and its impact on learning, teaching, roles and relationships.

In terms of the project timeline, this second phase of research focused on documenting use, application and impacts of the fountain in the first six months after installation. However, unforeseen construction and installation delays meant the research period was affected and more emphasis was placed on planning for change, with the post-installation research period limited to around two months.

This means that the ‘impact’ findings contained within this report are tentative. However, they chart the thinking arising from the project practices and signpost future directions that may evolve and develop over the coming terms and years.
Overview
The period following the fountain’s installation up until the end of the summer term 2008, offered a short window to document the impact and implications of Fountaineers. In practical terms most activities led towards the official launch and celebration in July and in establishing maintenance and training teams. In time, the fountain will become part of everyday school life and a powerful resource. Children will increasingly direct their own learning and continue to invent ever more creative ways of using it. The children are at the beginning of this learning journey, deciding how it might be used, programming it to behave in particular ways for specific purposes, and organising its use, management and maintenance.

At the same time, members of staff are exploring new pedagogical and curricular approaches. A review of curriculum and professional practice is reshaping the vision of learning at the school, and insights and signposts to the future are emerging.

Key findings
Learners and learning
The project is beginning to uncover a reservoir of untapped potential. Both staff and children have shown they have a great deal to contribute as co-learners and co-researchers. In the process, learning tools, approaches and strategies are expanding and learning itself appears to be more authentic, deep and relevant. Children have shown they are capable of stepping up to the challenge of greater participation, problem solving and leadership around their own learning. They are both willing and able to explore possibilities for more responsibility and self-management. It appears this is resulting in increased engagement and motivation and improvements in learning.

Changing behaviours and roles
Promoting more learner voice, participation and control amongst learners requires staff to adopt a different perspective about children, their capabilities and their own relationships with them. ‘Traditional’ relationships and transmission models of teaching are replaced with more co-created, facilitatory and supportive modes. This represents a challenging and difficult transition period in professional practice, with staff having to develop a secure, shared and realistic vision of pedagogy and curriculum. Members of staff have already started to explore and transform their wider practice and the project has been a significant catalyst in this process.

Curriculum innovation
These emerging shifts in behaviours and roles are being considered alongside and within a wholesale re-examination of curriculum. The attempt is being made to develop a much more holistic vision of education. The learning and practice from previous projects and Fountaineers are being synthesised into a new pedagogical and curricular approach. Luckwell has a history of creativity and innovation and this project has acted as a key stimulus to look at the curriculum from a different perspective. The new curricular vision is starting to take shape and is moving away from subject-based content towards loosely-framed integrated topics emphasising skills and competencies. The fountain will remain central to the emerging curriculum as a source for integration and as a particular innovation space or testbed for thinking and practice. The curriculum will involve considerable choice, ownership and flexibility for the learner. Learning will take place with and within the community to a much greater extent than has hitherto occurred.

Learning spaces and landscapes
The project has championed new locations for learning beyond the classroom and the indoor institutional space. It has raised many issues relating to learning spaces and associations with traditional relationships, roles and behaviours. The location of the fountain has also begged some questions about the nature of different types of curricula, and about how and when learning occurs, contributing to the new thinking within the school. It has been helpful in extending the horizons beyond the classroom into the community and the wider world; as a result the school is now looking towards a broader educational landscape which it can draw upon.
Primary Capital Programme and the big picture
The project has undoubtedly empowered and skilled the school in preparation and readiness for initiatives such as the Primary Capital Programme (PCP) and a range of curriculum and practice policies. The school community is stronger and much more capable of dealing with the processes of design and working with partners and stakeholders. The school is aware of the powerful learning that takes place and will be able to use tools and strategies towards this end effectively through processes of co-design and change. The school is also aware that it will be the pedagogical and curricular vision they are beginning to articulate that will lay the critical foundations for any PCP developments. It recognises that without that vision and clarity PCP is likely to default to current notions of institutional learning spaces and relationships. The most significant recommendation, therefore, relates a full and proper appraisal about how learning space design links to the wider educational change agendas. Some core principles are required to help align design with agendas and issues such as personalisation, curriculum reform, Every Child Matters, extended schools and sustainability, to name but a few. Currently there are few examples or resources that can support schools in the ‘transformational visioning’ required, and this begs the question: where do school leaders and teachers (and children) go for inspiration? As yet, there is little evidence that documents the processes and practices that help move schools towards a broader educational vision of learning and teaching in the future, yet these are the lessons and insights that need to be built upon so the unique opportunity to improve education through this once-in-a-generation opportunity is not missed.

Efficient and effective learning
The findings from the project, although tentative, are beginning to suggest that it promotes learning that is deeper, more motivated, engaged, real and relevant. It promotes learner voice, participation, extends learning tools and strategies, and is inclusive. These implications are informing an approach to learning that is efficient and effective and draws upon what is known in the field about powerful learning episodes and experiences.

Recommendations executive overview
Despite being a relatively small project, Fountaineers has effectively cut to the core of many of the questions recurring in current debates about change and transformation. Although the project remains very much ‘ongoing’, these emerging recommendations should be considered:

1. There is a need to develop transformational visioning tools and resources to assist schools facing the Primary Capital Programme.

2. Co-design as a pedagogy is recommended as a significant learning approach and a vehicle for exploring new relationships within schools.

3. Outdoor spaces need further revaluing as locations for powerful learning and play opportunities.

4. Curriculum perspectives need to be widened further.

5. There is a need to extend and develop new learning relationships.

6. Understandings about efficient and effective learning should drive system transformation.

7. More focus needs to be given to developing learning communities within and beyond organisations.

8. More attention needs to be given to staff dispositions and skills.

Please note:
This report follows on from the first Fountaineers report: Tash Lee and Tim Rudd (Futurelab, 2008) ‘Exploring the impact of whole-school design projects. A case study of Fountaineers: designing an interactive, programmable water fountain’ - www.futurelab.org.uk/openingeducation. Full findings and resources and links can be found in this initial report.
The first report outlined how children need “flexible skills for changing times”, citing creativity, resilience, collaboration, problem solving and thinking critically as core to young people’s future challenges. This was contextualised in terms of current changes in the educational system around curriculum design, pedagogy and personalisation.

The account flagged the importance of “rethinking learning spaces” - in particular the Building Schools for the Future (BSF) programme, Primary Capital Programme (PCP) and other initiatives seeking to develop learning spaces both within and beyond the classroom. Within this context learners and teachers need time, space and support to envision new educational futures and the appropriate pedagogies. This includes thinking about how non-classroom space might be used to support learning, the possibilities that digital technologies may bring, and the organisation of time and people. The Fountaineers project is an opportunity to see how learners can be involved in a valuable and authentic learning experience with significant and real outcomes.

Essentially the project was and is well placed to research:

- **Learner voice** - to experiment with and develop new ways of consulting with children and strategies for supporting learner voice in practice.
- **Participation** - to explore and develop techniques for whole-school participation.
- **New locations for learning** - to explore the notion of alternative learning spaces, challenging the notion of the classroom as the main arena for learning.
- **New learning relationships** - as a whole-school design project it also offered opportunities to promote different learning relationships between teachers and pupils and also to support learning with peers (across ages), parents and siblings, the local community, and with external experts.

The findings from the first report remained relevant for this second phase of research as the school simultaneously began to position the project at the heart of a wider curriculum review and changes in practice.

This report documents emerging findings and implications and examines whether and to what extent the Fountaineering project was a catalyst to pedagogical and curricular change. It explores how learners react, act and interact with it, and if and how members of staff respond to new relationships, roles and practices, particularly those related to participation, learner-led approaches and learner voice. It begins to examine the implications for institutions, school leaders and teachers. Those embarking upon whole or partial school or co-design projects, learning space redesigns like PCP and BSF, or schools wishing to promote learner voice and learner led/co-created curriculum approaches will find this report of relevance, resonating with a number of key challenges they will face.
3. Story of the project –
the chronology continues

This publication follows on from the first report, which focused on the initial co-design process, and reports the findings from research that led up to and beyond the installation and use of the fountain. Two main areas of ongoing development are reported on here, namely:

- the support for staff and the exploration of new approaches to learning and teaching
- the project’s impact on staff and pupils and on learning in the school.

These two aspects are described through the continuing story of the project, over the period between December 2007 and July 2008.

There were, however, delays relating to the installation and sign-off of the fountain, which limited the length of time available for the research of its use and development as a learning resource. There were also some key personnel changes at the school that undeniably had an impact on the project direction, at least in the short term. However, the school responded well and creatively to these challenges.

**Methodological approach**
The research was interventionist in its nature. The role of participant observer merged with planning and feeding into activities, verbal and written responses to developments and continuous support for staff and children. The role included probing, challenging and bringing to the fore the wider and bigger picture of potential pedagogical, curricula and organisational change.

Research data was captured principally via:

- interviews with staff and children/focus groups
- observations
- examining documentation and pupil work
- building information from insights, reflections and knowledge generated and communicated by staff and children
- working with the children as whole classes, groups and individuals
- working with staff as a whole, in groups and with individuals
- triangulating this data and cross-referencing against key events
- evidence drawn from children’s designs, design ideas, comments and feedback, which resulted in emergent and recurring themes, values and ideas.

The validity and reliability of the research rests on the internal dialogue and corroboration with the school. Throughout the process, and during report writing, findings, observations and ideas were shared verbally and with textual summaries with Luckwell staff.

**A note about Luckwell Primary School**
Part of the decision to partner with Luckwell Primary School initially was that it is a forward thinking, creative school with which Futurelab had worked previously, while the headteacher was actively looking for a project to use as an impetus to experiment and innovate. The school was already experimenting with timetabling, having termly TALK (Thinking and Applying Learning Kinaesthetically) weeks and ‘mix-up’ groups with children of different ages. Over the past few years the school has been implementing a BLP (Building Learning Power) approach across KS2 and more recently KS1, and also an ALPS (Accelerated Learning in Primary Schools) project. ‘Brain Gym’ is timetabled weekly. There is a big focus on pastoral care. There is an active student council, an eco committee and countless other extra-curricular groups. There are 14 staff [teachers, administrative and learning support assistants] and approximately 200 children ranging from reception to Year 6.
Fountaineers: the project chronology continues
This section continues where the first report left off and charts key events during the second research period.

December 2007
There were staff workshops picking up from the October TALK week, based on the assumption of a January installation. These offered a chance to reflect and to kickstart a number of ideas for a spring term and ongoing agenda.

Map of performances
Staff worked on a map of performances to go up on the hall wall for everyone to contribute to. These included simple and straightforward performances utilising the fountain as a stimulus or context, alongside more involved performances based on more radical approaches to learning and teaching.

Performance plans
Staff identified and planned a performance they could engage with and commit to in their teaching and learning. They also explored an area where the fountain could be used in subject teaching within the school curriculum.

Competencies
As a whole school the staff identified all the different competencies (team working, problem solving etc) that projects around the fountain might be able to promote and develop. A whole-school decision as to which one to focus on and then take forward - potentially creating a cross-curricula project - was one possibility.

Learner-led activity
Staff looked to identify areas where learner-led activity would be particularly appropriate. This in part enabled staff to reflect on their roles as teachers and think about how they would support the children to lead learning.
January 2008
During a teacher day there was a Fountaineers project meeting and updates on construction and installation progress, LEGO Mindstorms training and fountain software development. Unfortunately, construction delays meant installation was still sometime off.

Children from Years 4 and 5 were invited to apply for the role of software trainers. A team of children would become responsible for training and cascading all the children and staff on Mindstorms and then the fountain simulation software.

A training team was selected and a series of LEGO Mindstorms half-day training sessions initiated the team’s preparations. Pupil members took pride in being successful with their applications and the Mindstorms team expert status. It was noted that more creative team members pushed their learning on rapidly and were desperate to move forward and try out ideas.

They were overwhelmingly excited about the training and cascading ahead.

Application process for student training team
During the application process the children produced written or visual CVs detailing their experience and attributes.

This generated a lot of interest and enthusiasm. A number of children who didn’t feature in normal definitions of success within the school, or who rarely engaged with learning, were particularly motivated. Both year group classteachers remarked on this impact and how some children produced their best writing in their CVs. The children were given free range to make their applications in whatever format they thought best conveyed their strengths.

Others who did not normally participate came alive and contributed well within the Mindstorms activities.
**February 2008**

Hour-long individual interviews were conducted with all staff (teaching and support). These interviews sought to build up a good picture of the perceived characteristics of the school, its teaching and learning, ethos and so on.

The interviews additionally probed the staff’s individual educational beliefs and their own personal and professional alignments with the current system, school practice and the Fountaineers project itself. They enabled triangulation within and between staff and comparison with what was actually seen and researched onsite. The interviews established a range of potential research threads within the overall goals of the second stage.

Research in all classes during the February TALK week focused agendas towards the pupil perspective and triangulated findings with staff perceptions and observations. This again provided the opportunity to research the ethos and dynamics of the school, whilst identifying key ideas and research threads.

A staff teacher day was devoted to the Fountaineers project and its context. ‘Head up’ inputs and workshops looked at schooling and curriculum futures, curriculum and pedagogical perspectives and personalisation. Some developmental work was undertaken on the emerging Luckwell curriculum and the relationship with the Fountaineers project. Staff explored changes in their own and learner roles, strategies, skills and competencies, and completed a SWOT analysis on the emerging curriculum and pedagogical shifts.

**TALK week**

TALK weeks [Thinking and Learning Kinaesthetically] emphasise ‘doing stuff’, and ‘real’ activity where making things has high focus and where less formal, more open, exploratory, creative, collaborative and social approaches come to the fore.
Teacher day - agenda

‘Head Up’:
- signposting schooling and curriculum futures
- curriculum and pedagogical examples
- personalisation

Luckwell curriculum and Fountaineers project:
- activity: ‘High Points’
- emerging vision
- relationship with Fountaineers project
- capturing and sharing knowledge

Fountaineering learning exchange:
- teacher/staff and learner roles
- strategies and competencies
- identification of strengths, weaknesses, opportunities, threats
- next steps
March 2008
The Year 4 and 5 training team continued their LEGO Mindstorms training sessions and preparations.

Some staff and children visited the engineering works at Springboard Design Partnership to see the final stages of the fountain construction.

The final fountain construction was completed and installation straddled the Easter holidays.

Construction visit
Some of the youngest children went with staff to see the fountain being engineered. It was hoped they would remember the connection throughout their schooldays at Luckwell and beyond.

Fountain installation
The fountain was installed.

Training the trainers
LEGO Mindstorms training sessions covered the basics of the fountain programming processes. A total of 16 children from Years 4 and 5 made up the team.
April 2008

The fountain was installed, switched on and operational on 4 April 2008.

Brief introductory, fun experiences were undertaken with each class, with their staff illustrating the basic fountain capabilities. Children explored the various sensors and programming features and investigated how they could enjoy interacting with it in groups.

The Year 6 maintenance team and the caretaker were given their basic training in maintaining the fountain and in elementary fault rectification.

The Year 4 and 5 training team continued their LEGO Mindstorms training sessions and preparations.

Practical issues were considered about use, organisation and providing some sort of communication link between the programming functions (in the ICT suite) and the fountain in the playground.

The official fountain sign-off and handover took place.

Parents and community were able to see the fountain in action.

The children and staff developed ground rules for fountain use and organisational play allocations for break and lunchtimes.

At the beginning of the summer term the acting headteacher was successful in securing the substantive post.

‘The fountain has landed’ – introductory ‘getting to know you’ sessions

These were designed to introduce children and staff to the fountain, with a whistlestop tour of its features demonstrating what each of the sensors do and where they were located. A simple programme permitted interaction with the fountain and control of the water spouts and lights. The children learned how the command computer in the ICT suite would control fountain behaviour and how the fountain required care and maintenance.

Some classes took photographs, others made ‘Digiblue’ films. The moving images were shown to the whole school during assembly the following day. Professional photographs and film were taken of some of the introductory activities.

The children were very enthusiastic that they had their fountain after an 18-month development process. The immediate reaction was that the children wanted to know when they could have free access to play and interact with it.
Maintenance team training
Sessions were arranged so that maintenance and basic fault rectification issues could be covered. The children learned how to disassemble the relevant parts of the fountain and were given a toolkit to use.

Practicalities
The headteacher immediately asked the children and staff to think about the ground rules for using the fountain, and set about access arrangement and organisation at breaktimes.

Five Golden Fountain Rules were generated and agreed:
- Don’t drink the water
- Keep yourself and others dry
- Don’t put anything in the water
- Don’t climb on the fountain unless a teacher is with you
- Treat the fountain with respect.
May 2008
Staff were able to orientate themselves towards having the fountain onsite to work with and to identify the potential agendas for the remainder of the summer term.

A celebratory launch performance was agreed for 9 July 2008 and outline ideas for each year group’s contribution to this performance were agreed. Dance, music, nursery rhymes, demonstrations and exhibition all featured. The launch afternoon would also include parents, community, partners, dignitaries and press, beginning with a lunchtime picnic and ending with cake and tea.

Classes began to work on their inputs. Children took the lead or co-created their ideas with teachers and external support.

Further delays to the completion of the fountain simulation software meant the Year 4 and 5 training teams were unable to get experience of the software they would be cascading throughout the school.

Fountain maintenance team take the lead
The Year 6 maintenance team and the caretaker engaged in regular maintenance activity. The responsibility for care, maintenance, basic fault finding and rectifications lies with the children.

Early launch preparations
The children embarked on their contributions for the launch performances and celebrations.
June–July 2008

The fountain simulation software was completed and installed. The Year 4 and 5 training teams got their first hands-on experience of the software and considered the practicalities of how they could teach and facilitate learning in this process. Availability of software and hardware meant that training possibilities in the immediate phase would be limited. With additional software and kit the potential and ultimate capacity would be greatly improved.

There was now some time for staff and children to explore the fountain creatively and to extend fountain software training. Further thought was also given to exploring the curricula opportunities of the fountain. It drew on previous work in the project and ideas related to the new Luckwell curriculum thinking and vision.

The maintenance and training teams continued to receive their training, and in the case of maintenance established their routines. It was important to implement the child-led knowledge and routines for maintenance as the initial team was made up from Year 6 children and they needed to pass on their knowledge and experience before they left at the end of the summer term. The software trainers explored the logistics and planning of their training delivery.

Preparations were put in place by the whole school for the fountain launch celebrations, performances and exhibition on 9 July. The day before, the southwest of the UK was alerted to severe weather warnings. Hastily arranged wet weather contingencies were put in place and rehearsals went right ‘to the wire’. Dreadful rain on the 9th meant the wet weather plan was put into operation.

The afternoon began with a picnic lunch with parents in classrooms. The Year 6 main hall Fountaineers project exhibition was available for everyone to view. Last year’s Year 6 children were invited back from their secondary school to see the product of their endeavours in the design phase. Two local Bristol City footballers toured the classes prior to cutting the launch ribbons, watched by children and guests either under a canopy or umbrellas. KS1 and Year 3 children moved to the sports hall where guests watched fountain inspired dance, song and music. Everyone braved the rain again to watch Years 4 and 5 demonstrate some of the fountain capabilities and perform ‘Singing in the Rain’. The day ended again with parents and guests touring the exhibition with the help of their Year 6 guides.

Embryonic thinking began on where the project will go in the future. One of the first issues will be in terms of developing the physical context of the fountain within the wider outdoor learning space. This could be linked with a unifying theme throughout the outdoor campus, or established as a discrete development around the fountain itself. Either way a longer-term development project could be drawn up and explored with all stakeholders.

Fountain launch exhibition
Year 6 children developed ideas for the launch exhibition.
Mindstorms and fountain software cascading
The training teams extended their own knowledge of what the fountain can do and worked on the parameters and possibilities for training children and staff. They developed an outline 30-minute training session, and in doing so created a ‘lesson plan’. They devised some challenges for trainees and also ‘Top Tips’ for learners and trainers.

Experimentation and play
The summer term was a phase of experimentation, debugging and ideas building with the fountain.

Children and staff learned to play with the functions and programming. All children accessed the fountain during breaktimes on rota basis. Until the training was complete they were not able to programme the fountain independently during these times. The playing of music through the fountain speakers brought regular and spontaneous reactions from children as they burst into song and dance on and around the fountain:

“This is what its all about – the fountain – just look at their faces – pure joy.” (Teaching assistant)
Fountain performance - launch

The celebratory fountain launch performances and exhibition were hastily re-organised on a very wet 9 July 2008. Children took the lead wherever possible across the year groups in preparing their launch inputs. Aside from the performances, the exhibition reminded people of the processes and activities that led to the fountain design. The ‘Drawbots’ drew a large amount of interest, along with the filming undertaken by the children at various stages throughout the project. There was excellent feedback from parents and guests appreciating the work and achievements of the Fountaineering project.
4. Fountaineers: project impacts

The second research phase generated a wealth of material and data. This data has provided a rich picture of the school and the nature of its learning and teaching. It emphasised a group of people who remain genuinely positive about Fountaineers and embracing wider curriculum and pedagogical reform.

**Luckwell context: some relevant aspects of learning, teaching and ethos**

Before focusing on the main research areas and findings, it’s necessary to first provide a broad contextual overview of Luckwell and changes and issues that have arisen.

Research into the learning and teaching at Luckwell has been largely related to work within the Fountaineers project, or in TALK weeks and other less highly structured and time-framed situations, but it has given clear insight into the capacities and potential of more participatory and exploratory learner-led approaches.

Like their adult counterparts, the children throughout the school are remarkably consistent in their responses and their views triangulate well with those of the staff. Luckwell children belong to an overwhelmingly supportive school and wider community. They are positively disposed to their staff and school experience. In situations where they have more ownership and participation the children show they are able to deal with these responsibilities. Generically they display an ability to reflect upon and talk about their own learning and needs. In this sense they would appear to be well positioned to continue to explore with staff the new territory afforded by Fountaineers and the proposed curriculum review.

The children are at ease during their TALK weeks, typically working on tasks and projects that are more openly learner-led. These usually involve some form of real and practical hands-on challenge developed through collaborative work and with a high degree of dialogue and social interaction. Staff state that there are generic challenges with speaking and listening, but this is not specifically or typically evident during this type of work - indeed, the children are really effective in these areas.

Enthusiasm, confidence to express ideas and an ability to reflect on learning are all features. Members of staff make good space for thinking and reflection time. Children’s learning is celebrated, elaborated and developed. Paired work and larger groups are common and strategies are deployed to elicit ideas and feelings as well exploring as the dynamics, roles and skills of working in these ways. The environment is full of ‘learning to learn’ information, eg Building Learning Power (BLP), Accelerated Learning in the Primary School (ALPs) and numerous other initiatives.

In terms of their own declared and observed needs, the children thoroughly enjoy choice and the more flexible learning patterns available in their TALK weeks, in self-directed projects and during ‘mix-up’ days and sessions (working across age groups). Fountaineers, cross-age working, working with a range of people, working in unfamiliar places and spaces, and the valuing of their interests all add to engagement and motivation. Like members of staff, children think this type of learning is successful and enjoyable and they wish they could do more.
Some aspects that arose during the research conversations with staff and children were desires to:

- respond to the dominance of boys within the school and community
- respond to the speaking and listening challenges in the community
- bring more multi-cultural dimensions to this predominantly all-white British urban school
- develop family learning
- use children to lead learning with parents and community
- map the community’s human, physical and virtual resource
- extend learning with and within the community
- extend field trips and residential and involve children in the organisation and development
- develop peer-to-peer work and peer teaching further
- develop mix-up (cross-age working) further
- bring more people into Luckwell – the community, students, placements, volunteers etc
- find ways to develop collaborative planning, coaching and team teaching
- experiment with flexible timing and organisational arrangements in the curriculum revision
- network more with local clusters of schools
- focus more on skills and competencies.

**Cohesion**

What emerges is a high degree of internal consistency of perception across all areas and amongst all teachers and support staff. The first report found that the project processes and common objectives had generated shared goals and a strong sense of cohesion. This is indeed tangible in many aspects of school life and work. It was observed on a number of occasions how seamlessly staff (and children) pulled together and responded to jobs needing to be done. They did this with little direction or cajoling. Initiative and responsibility work well and there is not a culture of ‘ducking’ or ‘dumping’.

**Embedding practice**

Historically Luckwell has engaged in a diverse range of projects and initiatives resulting in an accumulation of understandings about learning and teaching. These project legacies are important features of the school. However, the only drawback has been “project syndrome” (headteacher) and an inability to effectively embed these into professional practice as staff would have liked. Despite ‘established’ elements like TALK weeks, ‘mix-up’ sessions, partner work, ALPS, BLP etc, staff were able to point to the need to craft a coherent and embedded vision.

Fountaineers presented the same issue. The first report highlighted the challenge of working on this project alongside the existing curricula approaches and perceived external requirements. The core task articulated by staff is to ensure Fountaineers is not another “bolt-on” (acting deputy headteacher) initiative, open and vulnerable to downgrading, but rather that it becomes integral to the school’s curricular and pedagogical vision.
Time, timing and planning
The length of the project has been a real challenge (it began in October 2006), and various delays in the process contributed to highs and lows, periods of high intensity activity and quiet periods. Some children found the final concept felt somewhat abstract. For the youngest children the project has actually taken a substantial part of their lifetimes and their need for immediacy and the concrete raises challenges for such a lengthy process. Older children were very concerned that they would get to see and use the object of their endeavours before they left the school. One year group did move on to secondary school during the project.

Schools are essentially highly complex organisations with numerous competing and overlapping development cycles. Pressures are such that careful planning, prioritising and scheduling are predictable necessities. Projects are further complicated by relations with a range of partners and stakeholders and timelines can slip (for good reasons). Therefore, keeping momentum flowing and revising plans are real challenges.

It is to the credit of all involved that Fountaineers has responded at every twist and turn and the participants have maintained good faith throughout.

Leadership
Perhaps the most pertinent testament to this relates to the uncertainties created by the original headteacher moving on. The acting headteacher and acting deputy operated with one member of staff less and in a period when they could not be assured of the substantive posts. Both benefited by being very highly regarded by staff and complementing each other in their styles. They proved quick and effective learners, showing a degree of maturity and experience that might not be expected. A ‘transitional vacuum’ could have developed but this was not apparent at Luckwell. The acting head and deputy addressed real challenges and changes with the full support of their team. Nonetheless, the rest of the staff expressed natural concerns during this period about the future and who would ultimately take charge of the school. The beginning of the summer term 2008 partially alleviated those fears when the acting headteacher secured the headship. This meant that the emerging visions and agendas for change could move ahead with some certainty.

Emerging shared curricula and pedagogical vision
The big plus for Luckwell is a large degree of shared vision. The acting deputy in particular had already shown great commitment and leadership with Fountaineers, and the whole senior leadership team (SLT) gave equally strong support for the idea of wholesale curriculum and pedagogical review.

The Fountaineers project is integral to this, principally in the way it has prompted fundamental questions about pedagogy and curriculum. Alongside the big debates and reviews within the system it has been a major catalyst in the commitment to develop more child-led, holistic, integrated, skills and competency-based experiences. ‘Doing stuff’ is a phrase often heard - a reaction against the passivity and docility often found with current curricular approaches. The Fountaineers project was found to be a good ‘space’ in which to begin to modify the teacher role from “the sage on the stage to the guide on the side” (acting deputy headteacher) and to promote more learner-led, co-created and participatory approaches.

Not only did Fountaineers prompt a wider curricular and pedagogical revision, but staff agreed to position it at the heart of their new curriculum vision. It will shift from a ‘bolt on’ initiative to centre stage. It will have its own presence and links and additionally act as a specific innovation space or testbed where more radical approaches can be explored.

Softer, more permeable and fluid organisation
Four general themes surfaced in formal and informal conversations with staff and children. They were related to softening, blurring or removing the barriers between school and the wider world, or within school, of indoor and outdoor learning spaces, classes and age-stage thinking.
Aligning learning with the community and learners
The first theme suggested that the Luckwell learning experience needs to be more closely aligned with the particular needs of its community and its children. This in itself raises issues - some needs are identified by staff and some by children. Needs identified by members of staff included speaking and listening, gender and multicultural issues; they were also clear that learner agendas were important:

“...I’d love to see more learning with the children following their own interests.” [KS1 teacher]

Pupils focused more on these self-chosen choice and self-directed projects. Children wanted more opportunities to explore their own agendas, managing them with support from staff.

Mapping and using the community resource
The second theme suggested that the school needs to look out beyond the boundaries of the school more consistently for curriculum experiences:

“At present involvement with the community, learning with and in the community is all very ad hoc.” [KS1 teacher]

In part this theme is very much related to the first. Children loved any opportunity for community-based working outside the classroom. Experiences gained in the local and wider communities are not just the contexts in which needs can be explored, they are also more likely to be associated with real issues and authentic experience. Mapping and using the community resource, extending community-based learning and residential experiences all featured. This theme also included bringing people into the school and increasing the family and community engagement within Luckwell. Overall this would broaden and enrich the ‘curriculum offer’:

“These experiences change them from the inside-out. They grow in positive self-image and develop responsibility.” [upper KS2 teacher]

Softening and removing physical and organisational barriers
The third general theme shifted focus to internal organisation, the divisions into indoor/outdoor learning spaces, and between ages and classes. All these of course are part of the design of schools as we currently know them. They can be arbitrary matters of custom, practice and convenience rather than related to learning and to the needs of learners. Luckwell is fortunate to have a small campus but surprisingly well-developed outdoor recreational and learning spaces. However, with the exception of the youngest children the outdoor spaces are limited predominantly to breaktime access and use.

Mixed-age working is a feature of the school, but like peer-to-peer teaching and peer facilitation everyone feels they are very successful and would like to do more. Current conceptions of curriculum, progression and classes hinder its development:

“I love opportunities for mixed aged work – I love it, it’s brilliant.” [KS1 teacher]

“Children teaching... it’s the best way to learn, I do this when I can.” [lower KS2 teacher]

Extending professional collaboration and links
The fourth idea considered is time for more clustering and links with other schools. There was a strong belief that other schools and initiatives were beginning to investigate similar dimensions and more generally think differently. Some staff felt that other schools had in fact moved further forward with curriculum and pedagogy. They believed that there was much to be gained by actively seeking links and partners and by sharing development work and avoiding “reinventing the wheel” [KS1 teacher]. One teacher was particularly influenced by a local authority SLT conference:

“I was surprised at the thinking and direction of schools. They’ve really moved forward. We can learn with them.” [lower KS2 teacher]
Strengths and weaknesses
These discussions and themes were also evident in a strengths, weaknesses, opportunities and threats (SWOT) exercise at the February 2008 teacher day. The activity looked at how the staff perceived the curriculum and pedagogical shifts prompted by Fountaineers and the wider curriculum review. It provided a collective opportunity to share feelings and triangulated very well with other data gained from staff, children, classrooms and documentation.

The strengths encapsulated experience of working together on numerous projects over a long period of time. Weaknesses also reflected this experience together with the dangers of project overload with too little time to embed and share. Opportunities gave a strong lead to looking outwards and to learning with others, whilst threats illustrated that sense of uncertainty regarding continuity of leadership.

During the SWOT exercise and another activity staff were able to discuss and generate a diverse range of strategies that they use or could use to develop learner participation, voice, choice, leadership and responsibility. This emphasised a wealth of expertise and a good basis for development but highlighted that the knowledge and skills were not grounded across all the staff.

Learning community
Underpinning many of these issues is how Luckwell sets about effectively capturing and sharing the developing wealth of curricula and pedagogical knowledge and skills. A strong learning community is a prerequisite in any organisation and further amplified in a small one-form entry school:

“Our one class per year group reduces our opportunities to share and share issues.” (KS1 teacher)

This is an essential point that runs through this report regarding impact and changes in practice.

Key research threads and impacts
Given the history of the school and the involvement in Fountaineers, it’s not entirely surprising where the school’s horizons appear to lie. These are also heavily influenced by the raft of national agendas filtering down to all schools – Every Child Matters, primary and secondary curriculum reviews, Building Schools for the Future, Primary Capital Programme, the extended schools agenda, workforce modernisation etc. There can be no illusion as to the change pressures affecting schools.

The following are emergent impacts. The findings can only be read as tentative and as signposts for the future direction of the project and change in the school.

Changes in staff and learner behaviours and roles

Staff
Participatory, co-created and learner-led approaches
Fountaineers has opened up a new window on learners and learning and the kinds of tools and strategies that can be deployed to develop more participatory approaches. The first report documented the wide-ranging inputs and the staff responses to the project activities. Although some challenges and the ebb and flow were highlighted, it was undoubtedly a phase where progress was made.

In one sense the project has both primed and fuelled thinking deriving from wider national discussions about learning and curriculum. The QCA’s ‘A Big Picture of the Curriculum’ had its own influence on the emerging Luckwell vision and the shift towards a more skills-based, investigatory perspective. The work the school was already doing with various ‘learning to learn’ strategies like BLP and ALPs is also beginning to slot into the wider picture. Staff report, quite legitimately, that they have a broader toolkit of learning and teaching approaches drawn from the various projects and programmes. Fountaineers has added to this in no small measure, offering a particular contribution. Principally, it has brought an authentic, learner-led and co-created learning experience, undertaken with a wide range of partners and stakeholders with real outcomes. The fact that Fountaineers remains within the children’s ‘zone’ is significant. The majority of their schooled lives are lived within the ‘zone’ of imposed curriculum and teacher-imposed learning patterns. This project, on the other hand, has given them opportunities for real voice and participation.
Members of staff have seen the levels of engagement, motivation and learning, and been reassured that there are gains. They have been more willing and comfortable to free up their traditional pedagogical and curriculum approaches. This has been most apparent and more frequent within Fountaineers, humanities and TALK weeks. Here staff and pupils have learned together, established new relationships and provided opportunities for team working, authentic problem-solving experiences, and mixed-age collaboration and negotiation:

“We’re doing more in free situations – learning from play.” (KS1 teacher)

The question remains whether these shifts are any more evident now than at the start of the project and whether they continue to develop in this early post-design and installation period. The frequency and confidence in the use of participatory approaches may have risen but it is difficult to establish with any degree of certainty over such a short time. The summer term was heavily squeezed by national testing, staff completing reports, a summer fair, profiling sessions with parents, and a leavers’ concert, in addition to the Fountaineers agendas. At this time of the year schools tend to move between bursts of very formal and then quite open and relaxed activities. The acid test will be seen in the school year 2008-2009 after the official end of the project. Luckwell will then have sole ownership and will need to develop its strategies within the key SDP priority given over to the curriculum and pedagogical transformation. Staff feelings and views about the prospects for 2008-2009 are overwhelmingly positive and suggest it has every chance of success.

The high degree of shared views at Luckwell has been recognised and is a major strength. Nonetheless, changes in thinking and approaches impact differentially. On the whole members of staff who remember pre-National Curriculum days are altogether more comfortable with the directions of change. They see many of the trends returning to a more integrated approach with which they are familiar:

“I was trained and grew up with the integrated topic approach. I’ve found the literacy hour alien.” (upper KS2 teacher)

They are also more at ease with the more creative approaches to planning and more comfortable with learner-led work, going with the flow of learner interests, and adopting more facilitatory behaviours.

One later entrant into teaching from a creative background felt a strong bond with participatory approaches and not hostage to the practice of recent years:

“I’m winning through the use of participatory approaches.” (KS1 teacher)

Younger staff have known little else but the National Curriculum in their training and professional practice, and for them the changes are less straightforward but nevertheless welcomed:

“I’m up for the changes in approach – it is in line with what I believe in... I’m very positive towards curriculum changes despite being trained on the National Curriculum model.” (lower KS2 teacher)

“I do try to accommodate participatory approaches and peer-to-peer work. I use them in maths, problem solver and literacy partners. We do KS2 – KS2 mix-ups. We need to build in more.” (Upper KS2 teacher)

In addition, there continue to be the competing external demands from national targets and initiatives and locally applied pressures to meet outcomes. Members of staff acknowledge the challenges and tensions inherent in what they seek to do. They appreciate the balancing act required of the new headteacher and the need to keep everyone on board.

Luckwell’s members of staff are conducting an internal conversation. They are beginning to think through how the school sees itself developing pedagogically, curriculum-wise and in the way it is organised. This is a dialogue about why, what, how and when, and a search for an effective mechanism for developing and sharing practice that will assist breaking through those perceived and real barriers to change. Horizon scanning and early adjustments to emerging change themes are part of the discourse.
The Luckwell curriculum vision
The future for learning and teaching is building a head of steam in the curriculum rethink. The appointment of the acting headteacher as headteacher was made partly on the basis of that vision. Legitimacy and authority exist and help will undoubtedly assist staff’s confidence in exploring these dimensions. The fact that the new curriculum will become the principal development priority in 2008-2009 further adds impetus and focus. Fountaineers has made a key contribution and gives us an indication of the direction of both the curricular and pedagogical journeys:

“We seek to tie Fountaineers with our curriculum vision. It’s been an important catalyst in our thinking.” [acting deputy headteacher]

“Fountaineers has been great. Children have responded to responsibility... it’s kept them engaged and it has been about authenticity.” [lower KS2 teacher]

What the school hopes to address in the new curriculum is a shift away from narrow, sharply defined subject commitment to develop more child-led, holistic, integrated, skills and competency-based experiences. The emerging visual metaphor developed by the school centres on a double-decker bus driven by the learner through a broad learning landscape under the school mission ‘Exploring together, caring for others, learning for life’. The bus is fuelled by the various ‘learning to learn’ tools, strategies and skills. The wheels highlight reflecting, planning, researching and communication. Learning is supported by a range of competencies like self-management, teamwork, enquiry, creative thinking and human resources such as members of staff, peers, parents and the wider community. A shining sun and sunbeams reflect a set of values and symbolise enjoyment, while the fountain is established in the learning landscape as a place for Fountaineering in terms of curriculum opportunities and of a creative innovation space to try out new learning and teaching experiences:

“We want the fountain to be embedded into school life and be an organic part of the new curriculum.” [acting deputy headteacher]

The demands of the National Curriculum are signposted en route but will be met within a skeleton framework of integrated topics.

Significantly, at the end of each term members of staff will work with children to identify what they would like to focus on within the framework for the following term. It will mean that although the loose framework will be adhered to, work may look very different each year because it will reflect the interests and needs of each cohort and of the groups and individuals within it. This reflects a clear shift towards the children’s agendas, albeit within some kind of outline.

The process will begin in the autumn 2008 with the SLT working on the curricular outline, ensuring that current irrelevancies are removed and replaced with learning and teaching embedded in the immediate local community of Bedminster and that of wider Bristol. The area is so rich and diverse, that members of staff do not anticipate any problem in mapping in the available physical, human and virtual resources.

Facilitatory practice
Given this context pointing towards more opportunities for learner voice, participatory approaches, self-management, co-design and co-creation, it is anticipated that there will be corresponding shifts in learning and teaching roles. The first report concluded that there were already positive changes to be seen. Traditional relationships between teacher and pupils were seen as “more equal” by older pupils. Certainly, where more opportunities for participatory approaches have occurred then de facto there have been corresponding changes in roles. Whether these are embedded into the professional orthodoxy remains to be seen over the longer term.

Encouragingly, it is an observed feature of the teaching styles in the school that there is already some measure of facilitatory practice. Members of staff try wherever possible to invite children into learning by consent and building on their own understandings. The emphasis on reflecting on learning, open-ended questioning, encouraging, valuing and supporting contributions is high, along with building up learning awareness and capacity. This is carried out in a calm, warm and affirming atmosphere.
The early experience in the project of co-designing and co-creating learning brought such supporting and facilitating roles to the fore with a whole range of new active learning strategies and tools. School leadership lesson observation schedules have put such practice centre stage and paved the way for further development:

“We do focus on this kind of practice in our lesson observations and have developed our own schedules.” (headteacher)

There is every indication that members of staff will carry on and follow this through with their new curriculum perspective. It will permit a less rigidly subject-based approach where staff will feel more secure to deploy more adventurous child-led and co-created approaches:

“We need a shift from subjects to a skills-based approach… we need more pupil voice and more children leading the learning.” (lower KS2 teacher)

“I’m positive and will go with the changes… I think children are on their way to voice, choice and responsibility.” (upper KS2 teacher)

There have been observed examples where members of staff have continued to operate as co-learners and in facilitatory roles in the wider curriculum.

A lower KS2 teacher set up a pupil choice project within a Tudor history topic. In contrast to the usual teacher-led practice the activity was based on pupil choice then self-managed and supported by anyone the children cared to draw into the work. The teacher, family and friends were typically engaged. Many children conducted much of their work at home, with high degrees of interest and motivation. The children also chose how they would record and share their work. The teacher’s role during the project period migrated to facilitatory, mentoring and support dimensions.

This example also illustrated a teacher carrying out their own research. The need for direct teaching to all the class was not required; indeed the children did the teaching by presenting to their peers at project end. In line with customary practice the teacher and class reviewed and evaluated the project. The children were advised that the teacher was going to listen, learn and adapt teaching accordingly in the future on the basis of their discussions. The joint evaluation that followed was a fascinating insight on where the school is moving and the learner perspective. At first the children spoke about their topics pejoratively, relating principally to presentation and amount of content issues (very much aligned with the superficial summative assessments made by some teachers). When the teacher introduced a schedule of learning skills and went through these the emphasis shifted to a powerful conversation about learning and improvement. Many children adjusted their shallow perspective on how well they thought they’d done as the teacher carefully facilitated the evaluation, clarifying and expanding the understandings with the wider group. The children described the evaluation as challenging but very useful. They learned from each other how to develop and improve their work and their evaluation functioned at a much deeper and productive level than they were previously able to conduct.

These kinds of behaviours are not just the response to a well planned and considered activity. On another occasion a teaching assistant was thrust into an impromptu session with a social skills group of mixed-age children. She immediately moved into active learning mode and was able to draw upon an experienced and extensive repertoire of strategies and skills and facilitated some excellent work. All the ideas, all the understandings and knowledge generated came from the group and were skilfully clarified and rehearsed by the teaching assistant:

“Children are given challenge and responsibility. Working with special needs means we naturally deviate, nip and tuck and explore what works. Like the Fountain project this often means following the children and letting them take the lead.” (KS2 teaching assistant)
The summer 2008 activities saw examples confirming staff abilities to make shifts in behaviours and roles. The preparations for and the completion of the fountain launch celebrations were full of activities where staff took on more facilitatory roles and behaviours. Reception, Year 1 and Year 2 explored and co-created their dance movements with staff. Year 2 children led the ideas and vocabulary development to their song based on the ‘Grand of Duke of York’. This was pieced together by staff. Year 3 children had listened to water-themed music and then constructed their own composition. Along the way staff facilitated the children developing simple notation and conducting. Years 4 and 5 came up with the ideas about how to demonstrate the function and capacity of the fountain. The sixteen-strong training teams from these year groups developed their own lesson plans for cascading. Year 6 brainstormed how they could create an exhibition for the launch. They then decided what would be included and acted as ‘ushers’ and guides on the day. Others in Year 6 continued to record the fountain project with filming on the day. In all these examples staff did their very best to act as the facilitators and coordinators and not to dominate the learning. As is often the case, their knowledge, skills and experience of orchestrating the work of groups, classes and the school as a whole were required to pull the event together.

There is reason to believe that there is already a foundation for the shift from ‘sage’ to ‘guide’. Whether members of staff consistently see and describe themselves in terms of co-learners, co-designers, co-researchers or facilitators, it’s probably a little early to tell. It is undeniably true that they can and do operate in these ways as the examples suggest, but consolidated shifts in the balance of practice are some way off. Some kinds of learning experiences offered at Luckwell have encouraged the shift; others have remained more doggedly within the traditional didactic model, while others sit astride the two. Furthermore, the choices here are not necessarily self-evident or clearcut. They reflect factors like curriculum demands, available time, staff’s confidence and perfectly appropriate judgements about fitness for purpose. These are additionally influenced by the organisational structures operating within the school around curriculum scheduling, timetabling, structure of the day and core values. There is a debate here about efficiency and effectiveness in learning. In the end the discussion returns to beliefs about how youngsters learn best and the place of voice and choice. Until the school has worked through its curricular and pedagogical vision in detail over the coming terms, it’s unlikely that staff will have more consistent practice in this regard.

Children’s views on changes to staff roles and practice are not conclusive. Interviews with Year 4, Year 5 and Year 6 children cite different roles and behaviours with reference primarily to Fountaineers, TALK weeks, residentially, ‘mix-up’ sessions and art. Children do note increases in staff enthusiasm and some are able to identify staff as learners and co-learners:

“\textquote{They have had to help us more during the ‘mix-up groups.’}” (Year 6 learner)

“\textquote{They have been more enthusiastic.”} (Year 5 learner)

“\textquote{They have had to learn lots of new and different ways so they can teach us.”} (Year 5 learner)

“\textquote{[The teacher] was learning as well as helping us all}.” (Year 4 learner)

“\textquote{With Fountaineers it’s better, because they participate more.”} (Year 6 learner)

However, as to the identification of more general and progressive changes, they do not know, cannot be sure or are unable to define as yet.

Conversations with Luckwell staff suggest they are now beginning to feel part of a wider and more general movement for curricula and pedagogical change. They detect moving away from the position of ‘the mavericks’ involved in all sorts of projects to being more concerned with a more measured, holistic and integrated view of change. Their learning journey is becoming more focused and they believe there are others who are on that same journey and some perhaps further ahead. They state the desire to collaborate and learn with other schools and projects at the cutting edge of practice innovation. One teacher expressed these types of views in terms of “less literacy books and more integrated topic work”, “more children leading learning”, and happiness that the school was working “at the edge with others” (lower KS2 teacher).
At this stage the staff’s outlook on learning and teaching at Luckwell in five years’ time is heavily shaped by the early thinking on the curriculum. The shifts described in that regard are fairly well grounded. What is less clear and less well considered are the structural and organisational frameworks within the school that will be needed to support it to best effect. The wider impact on staff’s behaviour and roles in terms of staffing structures, responsibilities, organisation of timetables, times of the school day, mapping of learning, and design of learning spaces within the totality of the Luckwell experience is still to be developed.

Pupils

Empowered learners

Pupils have enjoyed modifications in the way they learn. In recent years they have experienced more freedom and exploratory work in TALK weeks and ‘mix-up’ sessions. Fountaineers has added much to the feeling of empowerment, control and participation in learning. It has also added the unique dimension of authenticity and reality – a real project with real outcomes:

“When Fountaineers is more fun because it is fascinating. The fountain is the best!” [Year 4 learner]

“The Fountaineering has been great because you learn different things.” [Year 5 learner]

The initial report documented the obvious excitement and the ability to take on leadership and co-design and work with the various partners. This process often had two facets. One related to the children stepping forward into learner–researcher roles, and the other related to staff stepping back from teaching into learner–researcher roles themselves and supporting the partners with facilitation.

The post-design and installation period has seen them continue to accept these new roles. The benefit of Fountaineers, as already suggested, is that it has never been the same as other areas of learning dominated by the National Curriculum:

“When we talk about the fountain everyone listens.” [Year 6 learner]

“In Fountaineers you have more of a say.” [Year 6 learner]

More ownership and responsibility have been offered to and accepted by the children. The launch preparations epitomised this. Wherever possible the considerable stamp of ownership and co-creation by the children was maintained. Soon after installation children made ‘Digiblue’ films of usage with their class and these were shared and used as teaching tools during assemblies. The practice of film-making and sharing with peers was observed on numerous occasions with the children retaining responsibilities for directorial and editorial control.

Further, the children remain at the heart of the sustainability of Fountaineers with their creativity in programming and integration with aspects of the curriculum. The training teams hold the key to wider and fuller participation of all children and staff and their basic interactions with the fountain. The maintenance team is truly responsible for the upkeep and care of the fountain.

There is no conclusive proof at this early stage as to the longer term and embedded impact of this project on learner roles, but as with the staff early conversations with pupils are positive. Focus groups in KS2 feel that they do get plentiful opportunities to act as researchers, make decisions and choices, solve problems, generate their own ideas and use their imagination freely. They like working with different age groups, collaborating with others and teaching peers when the chances arise.

When asked whether they felt they had more opportunities to learn like this since the Fountaineers project, one Year 6 learner responded:

“Yes, because different people have influenced the teachers to try new ideas.” [Year 6 learner]
There are evidently some limits however. The children are not so convinced that they get a great deal of free choice in their learning. The ‘natural curriculum’ (that which interests and inspires them) is largely absent except when it is contained within the bounds of heavily directed teacher topics. Opportunities to work on authentic or action-based projects such as Fountaineers were also less obvious to their understandings.

Learning about learning
Perhaps as significant, or more so, are children’s views about their own roles and capacities in learning. They appear to have quite a solid conceptual basis and vocabulary on which to talk about learning. This leads to definite views about their own competencies. The vast majority confidently assert they are resilient (‘stickability’ in BLP), comfortable making mistakes, good at working in all sorts of groups, at sharing, participating, making decisions and solving problems. Fountaineers has undoubtedly played its part with the opportunities and activities undertaken and the range of external partners who have worked with, encouraged and praised the children (“They are friendly and listen to you”; “They try to make it fun”; “They’re funny”; “It’s fun” – typical comments from Year 4, 5 and 6 pupils). There is a general and strong desire to accept responsibility within the school as evidenced by the training and maintenance teams from the Fountaineers project but also within the School Council and other roles:

“The Fountaineers Mindstorms training has given huge responsibilities. Responsibility particularly impacts the previous reluctance of some boys.” [lower KS2 teacher]

Self-esteem and confidence is not in short supply, as a KS1 pupil revealed at the launch:

“I’m not nervous – I’m an actor!”

The fountain software training teams were completely able to think through the issues of cascading to the rest of the school, teaching all ages including the teachers. They were both excited and a little nervous, but completely up for and up to the task. They proved to be conscious of all the considerations that any teacher would bring to designing a learning experience (and without three years’ training!). By reflecting on how they learned, preferred to learn, their own experience of peer-to-peer work within the project and ‘mix-up’ opportunities, they were able to construct an effective lesson plan and identify top tips for learners and trainers. They thought through how they might modify what they did and differentiate for the younger children.

It’s absolutely clear that children enjoy their time and learning at Luckwell. Apart from the odd child, the vast majority resoundingly account their love of learning at the school. This appears to be a well ingrained belief that is as solid and manifest for their past experience as it is now. Although it was impossible to detect whether they thought learning was more enjoyable now than in the past, the Fountaineers project was an undoubted highlight. Interestingly, the good turnout of Year 7 pupils who had left Luckwell in the summer of 2007 gave some indication of a lasting regard and fondness for the school. They were also impressed by the project, which stood out in their learning memories:

“I really loved the designing and working with lots of different people... I learned a lot.” [Year 7 pupil]

“It was great and I’ve never done anything like it since.” [Year 7 pupil]
Expanding learning tools and strategies

An important facet of shifting roles and practices is the extension of the children’s own learning and teaching tools and strategies. Just as teachers are expanding their toolkit, learners are unquestionably increasing their own repertoire. BLP, ALPs, Fountaineering tools and strategies have all contributed. When focus groups discussed what kinds of strategies and tools had left their mark and helped them to learn, Year 5 and Year 6 children rated ‘Six Thinking Hats’ (De Bono). They had used this in the Fountaineers process and afterwards. They also pointed to paired work, ‘mix-up’ groups, ‘freeze-frame’, ‘peer mediation’ and in general working with teachers and adults from “other places”. Logically, it would be expected that the children’s capacities and capabilities would be extended alongside shifts in roles and practices. Staff perceptions confirmed this view. Several remarked how well the children work with peers in circle times. Paired work came over strongly - ‘Consultant Teachers’, ‘Problem Solver’ and ‘Maths Partners’.

Increased responsibility

There are examples of shifting roles in other contexts. Some children showed high degrees of maturity and a willingness to co-create and take co-responsibility with staff. An observed feature of the change of plans with the launch, due to wet weather, was the way in which a significant number of the oldest children assumed with ease a joint accountability with staff for adapting, preparing and making new arrangements work. They used initiative and creativity and just got on with it like the adults around them. They set up extra ICT equipment, collected and loaded media, arranged additional displays and exhibits and generally made themselves useful and part of its success. They may well act like this in a range of circumstances but the close affiliation the children have with Fountaineers, their own sense of ownership and responsibility suggests this was a more natural response. There is an opportunity here to develop this culture more by widening participation in learning and by bringing the children more obviously and consciously into the running of the school. They proved time and again that they are capable of stepping up to the challenge.

Tools and strategies

The ‘Luckwell Toolkit’ has developed and expanded over recent time. What became apparent, however, was that the term itself would not resonate with every member of staff. It is more an expression used by the leadership to describe and pull together learning tools and strategies arising from many of the disparate projects and initiatives undertaken by Luckwell. The toolkit primarily reflects the kinds of activities that support widening learner participation, self-management and responsibility, more adventurous and curious mindsets.

The current leadership stated that items within the toolkit were “reasonably embedded” (headteacher) but differentially throughout the year groups. These include ALPs [motivational techniques used over eight years], BLP [strongest in the upper KS2 and used by dinner supervisory staff as well], critical skills, thinking skills, ‘mix-up’ sessions [cross-age working] and Brain Gym. In its widest sense the toolkit would also include the strategies involved in peer-mediation teams, circle time, social skills groups, school council and eco-school work. Various active learning tools, strategies and techniques have been added during Fountaineers and detailed in the first report, but similarly these are not fixed in current practice. TALK weeks have been ‘engineered’ by the school and provide a termly part of the available toolkit as well as a vehicle for its use.

Expansion of the toolkit and strategies for staff and children begs a wider question as to whether the distinction should be too clearly made. In participatory scenarios the reality is that there is little difference between the learning strategies and tools used by adults or children. In fact, Fountaineers activities emphasised just how successful they were for all the school community. They are of course fundamentally effective habits and tools. Notwithstanding this, different staff, children and year groups may well develop their own toolkit preferences (comfort zones?) and there may be generic or specific favourites for older and younger learners.
The important next development is embedding this toolkit into a holistic curricula and pedagogical view with Luckwell’s philosophy and stamp on it. This is a core part of the curriculum revision process. Some things like the annual start of year ‘New Beginnings TALK Week’ are more established and aligned with current beliefs about the importance of relationships, sense of team and class at the beginning of a school year. Other strategies and tools need to become part of the regularised choices and options for staff and learners rather than ‘special treat’ or ‘bolt-on’ status. Indeed, what the staff do appreciate is that the toolkit needs explicit professional clarification and development. Only then will it reflect the whole range of strategies, tools and activities available at the school.

**Improvements to learning and design of learning spaces**

We can begin to make some cautious interpretations regarding whether such projects and their pedagogic and curricular changes appear to improve learning and the design of learning spaces. They remain provisional indications until further research can establish that they reflect more than just the usual ‘project glow’.

**Motivation and engagement**

The most obvious sense in which there is improvement lies in the motivation and engagement of the learners. They appear to be able to identify this aspect themselves - the increased fun, the emotional attachment and the depth and dimensions of the ‘project and learning memory’ are all indicative. The high and low points of the project, the key learning and activities have left deep impressions on the children. It’s reasonable to link such characteristics with improved learning outcomes and longer term registering in the learner’s memory, dispositions, actions and skills.

**Inclusivity**

For specific pupils who may conventionally not register as successful within the National Curriculum offerings and assessments, the project and its shifts in roles and practice may have significant impacts. The first report identified “new opportunities to shine” and there continues to be some evidence that some children have felt more included and effective in these scenarios. Levels of interest, interaction and achievement have risen for a number of those previously disinterested or unsuccessful.

One teacher reported that a particular socially challenged pupil had improved and developed relationships as a result of the Mindstorms training.

Equally, as the previous report logged, those children at the other end of the spectrum who might be regarded as gifted and talented have continued to enjoy the more open-ended challenges and opportunities to be creative and direct their own learning.

**Learner voice and participation**

The impetus given to learner voice and participation has in no small measure added to engagement and motivation and gone further into empowering the children as learners. The Fountaineers project is an example of ‘authentic’, real, active and action-orientated learning. It is a rational assumption to imply that this has made the learning more compelling and meaningful. Ultimately, its authenticity has also made the learning more useful. Working with a range of stakeholders and partners has introduced the real world where the black and white certainties of school learning are shaded with grey and with the excitement and challenges of working directly with experts in their fields.
It is interesting to reflect that learner involvement in Fountaineers has been at its heart and gone beyond much of the tokenistic participation of some design projects. The children’s impact has been substantial and they remain at the centre of Fountaineers’ development and sustainability. The fountain is the children’s invention, sitting within the context defined by choices that had to be made. Those choices still mean that some children love everything about the fountain design while others wish for it to include elements they had thought of. However, the children do appreciate that their voice has been heard and that the boundaries of co-design make this a necessary and acceptable outcome:

“I think the teachers listen to us all more and especially the younger ones than they did.” [Year 6 learner]

**Deep learning**
All these factors and the children’s abilities to talk about their own learning do suggest that learning can and does function at a deeper level, at least at times. The amount of superficial, ‘secretarial’ and low order learning in some settings can be depressingly high. There is every indication that at Luckwell both learners and members of staff are making important moves away from laying thin veneers of knowledge to focusing on depth of learning.

**Design as pedagogy**
The first report identified design as a pedagogy - an extension in pedagogical practice over the normal school diet. It involves real projects, where real decisions affect real outcomes in an open-ended non-prescriptive approach, offering multiple and varied learning opportunities enabling learners to follow their interests and abilities. It would be expected that the range and depth of thinking and the analysis within such pedagogy is at least equal to, if not substantially greater than, the transmission or scenario-based activity found in most classrooms.

**Pupil responsibilities and capacities**
There has been evidence that Luckwell children are ready to take up the responsibilities of leadership, co-design and management of their own learning. In common with schools where children feel valued and enjoy life and work, they are enthusiastic to take on challenges. Fountaineers has indicated that they have extensive capabilities and capacities and can be supported to make contributions to design, real developments and learning beyond what they are normally exposed to. Whether members of staff still underestimate their abilities to do this, or whether they have not shifted practice and curriculum sufficiently to permit more opportunities to take more ownership, is unclear. There is probably a measure of both elements at play but the key barriers are more likely to rest in the constraints imposed by schools and schooling practices.

**Staff learning**
By the same indicators appertaining to children it can be argued that staff have improved their learning. They adopted a ‘more equal’ relationship with the pupils, and the project and processes were virtually as new to them. As a result, they have advanced their own learning and professional practice. The opportunity for the whole school to work on a single project has been an obvious advantage and has added to the potential for sharing learning and building a common sense of purpose and ethos. The facilitated chances for reflection and development have been important features. This is a particular assistance in a one-form of entry school where occasions for collaboration between staff are often compromised by lack of budget, cover and non-availability of year group colleagues.

**Transferability**
The concept of the design project has undoubted resonance and is transferable to other areas of learning. Fountaineers has acted as a catalyst for shifts in thinking about pedagogy and curriculum. The strategies and processes used within the project can be usefully adapted and deployed across other areas of learning. The fountain itself can be integrated into all parts of the formal and informal curricula in addition to its own unique contribution.
Better design

Worthy of note, notwithstanding the logistical challenges, is the creativity and thinking of some 200 pupils, 14 staff and a range of stakeholders and partners who were collectively focused on the design. There is no certainty that this would generate better design but the levels of consensus at the early stages were strong. The ultimate judgement of this or any other design will be made with use, as issues like fitness for purpose and usability are considered. With time, differing perspectives from learners and staff may also colour perception as to whether this is a good process. At the end of the day we cannot fully account whether any other process or constituency could have made a better job of it. Perhaps we should be comfortable with the judgement of those designing, building and experiencing the learning spaces. As the first report indicated, we unquestionably have better decision making and a greater sense of ownership – not an inconsiderable achievement in its own right.

It is certainly safe to suggest that the whole project process and the learning opportunities and developments that have followed are too great a chance to miss. They illustrate that children and staff do have enormous scope to influence the reconfiguration of their buildings and outdoor spaces. Furthermore, as this project set out to examine, they do enable the use of fresh locations in the environment to model new learning habits and more adventurous, curious mindsets. The benefits of course accumulate. Thinking of learning space design alone then the Luckwell school community is well placed to consider other projects, whether they are small additions, revisions or complete rebuilds.

Preparing for Primary Capital Programme

This view is certainly shared by members of staff and typified by the headteacher and acting deputy. They assert that they have learned a tremendous amount during the project.

They have also learned that when you invite participation and contribution you might not always like the answers, but it is important not to be tokenistic and pay lip service to responses.

The project has made them more assured in the face of initiatives like PCP. The confidence to include the views and contributions of the children is clear:

“We would include the children far more... we would not think twice.” [acting deputy headteacher]

“We've learned they have incredible ideas... children have surprised us with their ideas.” [headteacher]

That confidence is based not only on the outcomes but the procedure itself. They feel they have a range of strategies, tools and ideas to enable enhanced learning within the process.

The school has not really begun to think through how it wants to respond to the PCP. This will surface as they start to flesh out their wider curricular and pedagogical vision. The site of Luckwell is small and crowded and will have its own particular design challenges, but Fountaineers has posed a set of principles, questions and possibilities that will permit the school community to look at those challenges in interesting, creative and potentially radical ways.

In addition to predictable `current needs` like appropriate classroom storage, a dedicated library, mezzanine floor, room additions, themed outdoor learning spaces, and the integration of the fountain within these spaces, it is likely that there will be more fundamental thinking at work. This will relate to the Luckwell vision for learning and teaching, its core values, structures and organisation that impact design. Fountaineers has played a significant part in stimulating thinking about the bigger picture. A multi-level and multi-dimensional discussion and debate about the nature of learning, teaching, children’s voice, participation and school itself has been built upon what might appear to be a minor design scheme. The outcomes of PCP at Luckwell may well be all the more transformational and unconventional for the Fountaineers experience and the challenge of re-thinking learning space. In this sense it has done what it set out to achieve.
5. Recommendations

Despite being a relatively small project, Fountaineers has unlocked a broad range of issues pertinent to our educational systems as they face the challenges of this century. It has effectively cut to the core of many of the central questions involved in current change and transformation debates. Although the project remains very much ‘ongoing’, some emerging recommendations and implications can be considered.

Recommendations overview:

1. There is a need to develop transformational visioning tools and resources to assist schools facing the Primary Capital Programme.

2. Design as a pedagogy is recommended as a significant learning approach and a vehicle for exploring new relationships within schools.

3. Outdoor spaces need further revaluing as locations for powerful learning opportunities.

4. Curriculum perspectives need to be widened further.

5. There is a need to extend and develop new learning relationships.

6. Understandings about efficient and effective learning should drive system transformation.

7. More focus needs to be given to developing learning communities within and beyond organisations.

8. There is a need to pay more attention to staff dispositions and skills.

Transformational visioning tools and resources

There is a need to develop transformational visioning tools and resources to assist schools facing the Primary Capital Programme.

With reference to BSF and PCP, Fountaineers is but a minor enterprise, yet it illustrates the complexity and range of thinking that can arise. Most importantly, this project has brought to the fore bigger questions as to how design of learning spaces relates to and can influence curricular and pedagogical change, let alone the very physical and organisational structures and the nature of what we call a school.

The most significant recommendation, therefore, relates to a full and proper appraisal about how design links to the wider educational change agendas. Some core principles are required to help schools deal with how to incorporate issues like personalisation, curriculum reform, Every Child Matters, extended schools and sustainability, to name but a few, into the design of both their spaces and future practice. What tools and resources will assist schools in the ‘transformational visioning’ required, and where do school leaders and teachers (and children) go for inspiration? Currently, examples are limited and narrow in their scope.

It is time to think outside the current boxes and look at ways in which learning spaces could impact upon new conceptions of learning based around co-creation, self-management, learning journeys and pathways, exploiting digital technologies and community regeneration. Educational landscapes and networks may be potential avenues alongside or instead of more traditional singular institutional focus. These are all massive debates which require a wider dialogue about the nature of education and the kind of individuals and society we wish to develop. They also ask us to at least consider whether we actually need schools as we know them, or whether in building learning spaces of the future we need to think beyond current conceptions. That should not be a matter of grand heresy but rather a robust examination of how we approach education and learning. The design of learning spaces needs to be pedagogically informed and not hostage to the current institutional logic. Diversity is at the heart of sustainability. Transformational innovation also requires the current horizons to be broadened and a more inclusive approach taken to reflect on alternative models and approaches and lessons from other sectors and sections of society.
Diversity and inclusivity

It would be useful and enlightening to step out of the current mainstream schooling paradigm. Even within the schooling model there are alternative, free, democratic and small schools, all of which offer different perspectives on pedagogy, curriculum and learning space. There are well-grounded and proven philosophies and practice to be found within informal and alternative education, community-based work, youth work, adult and home-based education, as there are in pre-school family development. All of these can offer insights into possibilities and a ready made transformational repository and resource, as recently evidenced by links with Human Scale Education (small schools and mini-schooling) and tentative appreciation of some Steiner Waldorf practice.

It is interesting to observe that the alternative scene often operates on a shoestring and seldom has the luxury of large investment programmes. Typically it operates in make-do, ad-hoc environments, or in ordinary homes and public meeting places and institutions – a reminder that it can be all too easy to be seduced by PCP and BSF. Like technology, they are not answers in themselves. If the big educational questions have not been addressed they operate in somewhat of a vacuum and default to the familiar.

The form and design of learning spaces are indivisible from how we see social and cultural cohesion and regeneration, from our perspective on learning and a learned society, from our view of citizenship and democracy. The future is unknown. The kinds of learning spaces that can be generated with and by our technologies present a whole new world only hinted at in Futurelab’s Opening Education document ‘What if... Re-imagining Learning Spaces’. The PCP and BSF even in name are focused on the ‘traditional school’ model. It remains to be seen whether real transformation and innovation are possible, or even desired.

Lynne Ley, Headteacher of Sharrow School in Sheffield, clearly recognises this issue:

“We tend to get very tunnel-visioned. We get into our classrooms and something takes over us. It’s really hard to shift your thinking...”

Her bottom line is that visioning should have no limits:

“Our visioning did not include thinking about the brief – don’t let that dominate your thinking. Think about what you want, your philosophy. And then think about how you can fit that in your brief... start with a blank sheet of paper. You need to believe you have the ability to do that.” [From ‘It’s All About Vision. Building Primary Schools for the Future’. Futurelab’s VISION magazine July-Dec 2008]

It perhaps suggests that our education system and learning spaces need an organic process rather than a blueprint. We need a few key principles and values and to embrace the fact that learning settings and learning spaces will arise, develop, adapt and, where necessary, whither according to need. This is a natural process of adaptation to change. In this scenario our educational landscape and its learning spaces evolve continuously rather than renew every 50-100 years. Arguably this may be a small price to pay, and ultimately better value for money compared to the longer, real costs.

A central repository of transformational visioning tools and resources would be a significant asset to support thinking. It should be a wide-ranging, inclusive resource bank of ideas from mainstream and alternative models and perspectives on education and learning spaces. It would usefully include a source of tools and strategies to work with this debate and process.

Tokenistic participation and involvement, based on ill-informed and poorly aligned educational and pedagogical understandings, and pursued within severely limited timescales, are not the bases for transformation of our schooling system. The process needs to slow down so that appropriate visioning can take place and value for money is obtained from the massive investment undertaken.

Design as a pedagogy

Design as a pedagogy is recommended as a significant learning approach and a vehicle for exploring new relationships within schools.

The initial report highlighted a range of advantages of looking at design as a pedagogical approach. Design as pedagogy, that is a learning experience which is open-ended and not prescriptive, offers multiple and varied learning opportunities and enables young people to follow their interests and abilities. The creative and problem solving nature allows some individuals to demonstrate their abilities and skills in ways that may not normally arise. Real projects, where real decisions affect real outcomes, are potentially more engaging than a lot of the scenario-based problem solving activities common in many schools.

Fountaineers appears to confirm that there is everything to recommend it as an approach. Motivation, authenticity and relevance alone reinforce its case. In the context of PCP and BSF, design as pedagogy takes on an even greater significance in enabling a whole school community to effectively contribute to the process. Those who have experienced the design processes and collaborations with externals will be at a distinct advantage of having undertaken some fundamental educational thinking.

Learner voice

Learner voice is predicated on some powerful social, moral and political imperatives. Maintaining and developing democracy, social responsibility and equity requires the learner be enabled to find their voice, their sense of worth and place in the world. Educational systems are beginning to explore these issues in areas like citizenship, personalisation, participation and personal responsibility. Increasing learner voice and choice are not without challenges to existing professional practice in pedagogy and curriculum as well as school organisation. However, the potential benefits in improved learning, better design, sense of ownership and sustainability are certainly worth pursuing. Real design projects like Fountaineers are one vehicle to explore this avenue. Easier routes in decision-making and development without learner involvement are possible but significant and often unique learning opportunities are lost.

Participation and learning cooperatively

Enabling whole-school participation has many dimensions, as the first report concluded, but its impact on creating a sense of school, cohesion, team and shared goals is particularly evident. Virtually any whole-school project or venture has the potential for considerable benefits for the community and has much to commend it. Whole-school projects focused on authentic and real outcomes have even greater potential.

Whole-school involvement opens up a range of other opportunities and advantages. Chances naturally arise for cross-age working, more peer-to-peer work, sharing of strategies and practice between staff, creative responses within the curriculum and flexible use of curriculum time, involvement of community and externals and so on. Design enterprises like Fountaineers also provide space in which we can look again at notions of curriculum and support pedagogical and curricular change.

Allied to this is the notion of learning cooperatively. It might be an appropriate time to revisit the cooperative movement and its values. Its six organisational values are: self-help, self-responsibility, democracy, equality, equity, solidarity; its four ethical values honesty, openness, social responsibility and caring for others. Built upon this is an extensive knowledge and resource base of how to learn cooperatively, develop groups and processes and stay aligned with core values and community. Linked to learner voice, this recommendation is premised on important signals about being valued, about responsibility and action in our lives, democracy, community cohesion, personal and civic responsibilities. It heightens engagement, motivation and learning and, importantly, empowers the learner with the tools, strategies and confidence to participate.

A project like Fountaineers is particularly powerful in that all the school community are in effect learning together. This is unlike most of the formal curriculum where teachers tend to have the dominant role. This point underpins all of the recommendations made here.
The added value of such projects lies with the opportunity to reassess the value of learner voice, the characteristics and the quality of learning. The processes extend the range of strategies and tools of both learners and teachers and act as a catalyst to challenge fundamental assumptions about our approaches to curriculum, school organisation and of course design. Certainly more informed design is an outcome and arguably better design results. At a time when schools are being asked to re-orientate and build settings that meet the educational needs of the 21st century, this is extremely helpful.

**Outdoor learning spaces**

Outdoor spaces need further revaluing as locations for powerful learning opportunities.

There are countless calls and wholly justifiable recommendations for extending learning beyond the classroom. Fountaineers has illustrated again that the classroom can be limiting in comparison and that, at the very least, outdoor spaces need to be valued.

**Indoor and outdoor, learning and play, formal and informal - false divisions**

In this particular case the fountain has been located in what most children would argue is their outdoor play space (as opposed to the teacher-dominated classroom). It begs the question as to why we maintain such strongly defined and associated spaces in schools. Teachers and learners should feel much more comfortable in all the possible learning spaces, and the false division between play and learning, informal and formal, outdoor and indoor spaces removed.

Children have the distinction reinforced from the earliest ages - ‘going out to play’ ‘coming in the classroom to work’. This is neither helpful nor fitting. There are good reasons for the early years’ approaches to space to be continued throughout all of schooling’s institutional spaces. Play and informal approaches should be reintroduced to the classroom as much as the outdoors should be used for learning.

An interesting facet of many primary schools like Luckwell is the assortment of outdoor learning opportunities. There is a good variety of play equipment for different ages, a long climbing wall, playground games markings and sports equipment available. There are also small environmental areas. The play equipment is extensively used – during timetabled access in supervised breaktimes. In the early years children use the outdoor spaces within their curriculum experiences. When such equipment and space are appreciated more seriously than just playtime fillers then there is a fascinating variety of ‘informal’ and ‘invitational’ learning opportunities open to children. Considering the range of skills developed in the use of such apparatus, even with full scheduling at breaktimes overall, the facilities are underused. The array of social, physical and creative learning that takes place deserves fuller analysis and valuing. The early years pedagogical approaches give some indication as to the wealth of productive self-initiated, self-managed and cooperative learning that can take place. They also signpost what could be developed with older youngsters in mind. Indeed, the fountain is one such powerful example. It has brought the potential for extensive learning into the outdoor arenas and indicates that this can extend beyond the usual physical or creative experience. Sophisticated, technical and investigative opportunities across the formal, informal and natural curricula can be explored with such artefacts and environments. The message is straightforward - PCP and BSF should devote more attention to the potential of outdoor spaces as locations for learning.

**Community spaces**

New locations for learning also extend beyond the school campus and directly into the community and all its guises – physical, human and virtual. There are long-standing mantras about beginning learning from ‘where the children are’, but often lip service is paid to this. Mapping, valuing, exploring and using the local community resource is imperative and pre-requisite to this approach. It can add to the cache of real, active and authentic experiences available to children and impact in similar ways to Fountaineers. Looking at the wider community environments also means the dominant institutional focus is extended into a broader learning landscape.

These themes are part of a wider debate that is needed concerning how learning occurs all the time, in all places, spaces and interactions.
Curriculum perspectives

Curriculum perspectives need to be widened further.
The pre-determined and pre-packaged curriculum currently holds sway. Notions of curriculum have been somewhat narrowed and fixed in the climate of national curricula and testing. Although the emphasis on subjects and content may indeed be shifting once more towards more integration, skills and competences, the dangers of crafting detailed new prescriptions remain and there is still plenty of room for flexibility and extended thinking.

Fountaineers reminds us to extend the curricular debate and look at learning wherever it occurs - which ultimately is everywhere and all of the time. Currently our system struggles to get to grips with this and inadequately values anything beyond the official curriculum. There is clearly more to value and more opportunities and potential to engage learners.

There are a number of curricula that are worth debating and taking further:

- **The informal and 'soft' curriculum** - which the learners generate in their associations, interactions, play and activity in such places as the playground and during conversations.

- **The hidden curriculum** - which is learned consciously and unconsciously through the organisation, values and practices in the life and work in school.

- **The catalogue curriculum** - that collection of curricula and programmes available from perhaps other organisations (eg the thousands of curricula established by scouting, music and sporting associations, first aid and so on) but only occasionally valued and deployed in schooling.

- **The natural curriculum** - which represents the interests, preferences and choices of the learner. In schools this area is extremely under-represented.

- **The National Curriculum** - which is prescribed but which is also in effect part of the larger catalogue curriculum.

New learning relationships

There is a need to extend and develop new learning relationships.
The National Curriculum heralded a ‘delivery model’ of curriculum with an associated focus on teaching. The attempts to move this on to a more flexible, participatory and personalised footing face obvious challenges with the established practice.

Among the benefits of Fountaineers and potentially similar projects is that they act as a catalyst for changes. They can extend the number of learning relationships manyfold. This in itself is extremely important in broadening the learner’s capacities to learn with and from a wide range of people - some of whom are conventionally educational professionals, some external experts, some parents and community members, and some peers.

Changes can also deepen learning relationships. Typically classroom interactions do not reach the level of extended discussion and dialogue or continuity as they do over a lengthy project. There is more time for ideas to germinate and be taken forward. Allied to this, the tools and strategies deployed in extending learner voice and participation also help cultivate an emotional and social relationship between participants. So much of classroom practice can be argued to be a ‘delivery’ exercise, but these approaches humanise, invite, value and nurture. They begin to question more inflexible age-stage and generational structures and divisions. They invite more transformational thinking.

‘More equal’ relationships reflect staff and children learning together. Staff shift towards facilitation, support and guidance of learners who manage and take responsibility for their own learning. From ‘done to’ to ‘done with’, from ‘sage on the stage’ to ‘guide on the side’. Both staff and learners develop their repertoires and their learning.
Significantly, the cumulative impact of these inclusive approaches is that community ‘educational and learning capital’ is generated. Young people grow empowered and enskilled to work socially and constructively with a wide range of people, from differing backgrounds and perspectives. The gains are also cumulative in that the ‘learning capital’ is ‘reinvested’ in families and communities with each generation.

**Effective learning and system transformation**

**Understandings about efficient and effective learning should drive system transformation.**

**Deep learning**

Fountaineers has provided a context for efficient and effective learning.

It’s all too easy to become seduced by carefully ensuring the minutiae of ‘coverage’, ‘entitlements’, ‘progression’ and so on. These have their place but Fountaineers reminds us that engaged, motivated learners dispense with the superficialities. They get down to rapid, deep and where required ‘just-in-time’ learning. En route they can quickly break through the age–stage orthodoxies set out in the prescribed curricula. It can be enormously efficient – ‘learn less but more and more deeply’.

These are not new revelations. Diana Laurillard’s recent work in her professorial inaugural lecture highlighted a common thread of understandings about what it takes to learn. She drew these from an impressive line of educationalists, from Dewey through Freire to Lave. The common conceptions were based on the learner as the active agent:

- inquiry-based education
- constructivism
- mediated learning
- discovery learning
- learning as problematisation
- learning as conversation
- problem-based learning
- reflective practice
- meta cognition
- experiential learning
- learner-orientated approach
- social constructivism
- situated learning

It is impossible to conclusively draw such implications from Fountaineers but the indications are good. Taken together with the above research and other long-standing experience, these kinds of understandings appear to have impact. There is a strong belief that such projects can feature high in learner memories and can influence lifelong attitudes and dispositions. Those working in creative partnerships and with other external experts and partners claim that motivation and engagement can be excellent and learning is particularly effective and inclusive. The more flexible use of time and use of whole-school focus can often add to the effect. The different learning strategies and tools often emphasise powerful social and learning skills relatively untapped in the day-to-day curricula experience. Learners and teachers extend their toolkits and repertoires and work in real-life contexts and conditions.

There is further support from what we know from successfully re-engaging the ‘unteachable’, ‘unreachable’ and ‘excluded’ and from alternative models and practice of learning. Choice, participation, self-management and co-creation drawing on all forms of curriculum are the routes to success.

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Fountaineers and other authentic/action projects and experiences appear to offer the potential for including more of these understandings. They look like good contexts and models for deep learning, and for powerfully embedding learning skills and strategies.

There is every good reason to consider that the costs of such projects may well be exceptionally good value in terms of a whole range of indicators touched upon in this report. This in turn informs how we could begin to conceive of curriculum, pedagogy and the design of learning spaces.

**Learning communities**

More focus needs to be given to developing learning communities within and beyond organisations.

It has already been suggested throughout the report that an effective learning community lies at the heart of developing and embedding shifts in roles and practice. Ultimately this is the ‘engine’ that drives continuous sharing and development of practice and vision. Without it projects become isolated, detached activities that fail to have a sustainable impact.

If an effective learning community and a forward-looking continuing professional development (CPD) programme are not in place, these need to be planned and established from the outset.

One of the major advantages of whole-school projects like Fountaineers is that they do provide opportunities to develop a focused learning community, and to think about strategies like coaching to build knowledge and expertise. In small schools the challenges of finding time to collaborate, share and develop practice are even more sharply defined.

What such projects also permit is involvement of the children in that learning community. They have the capacity to reflect and inform the learning processes and are a resource not to be underestimated.

The learning communities, of course, can and should stretch beyond the institution into local clusters, national and international networks and via physical and virtual links. The whole landscape of mainstream sectors and alternative settings is available as a source of inspiration and practice.

**Staff dispositions and skills**

Need for more attention to be paid to staff dispositions and skills.

The kinds of staff who will be able to participate in envisioning and transforming education and practice need certain open and freethinking attitudes and dispositions. In recent times organisations across business, commercial, public and voluntary sectors have come to realise the significance of dispositions and attitudes of staff. These can be quite conservative and entrenched traits when faced with challenge and change. At Luckwell, despite differences the staff are overwhelmingly positive solution finders who are ready to work on change and shifts in roles and practice. They are a strong group with a good sense of team, identity and relationships. They are learners themselves and prepared to engage and relate with the children as people first. This is not the case in all schools.

There are implications here for those invited to join the profession as educators. Successful learning needs teachers, facilitators, mentors and coaches that can build effective relationships and connect with learners. More emphasis during selection and teacher education and continuous attention thereafter would be beneficial.

The flexible skills for changing times noted in the first report are just as applicable to staff as they are to children. Resilience, creativity, flexibility, collaboration, problem-solving and critical thinking are qualities common to both.

Emerging roles and practice suggest the need for a new (higher) order of teachers and staff. They require a broad skills base. They need a capacity for continuous learning and reflection and access to extensive toolkits and strategies. They should be able to facilitate, create and assemble personalised solutions. They need to be able to support ‘just-in-time’ learning as much as delivery of more ‘pre-packaged’ offerings. They need to take an active part in establishing learning communities and networks and moving their own practice on.
6. The learning journey

The lens on the future at Luckwell is in a continuous state of focus. The school is on a learning journey and one which has been much invigorated by the Fountaineers project.

Taking risks, trying new approaches
It has not been a straightforward process. “Being in the fog” was identified in the first report as an issue in terms of teaching approaches. It has been part of the territory and something Luckwell staff have lived with throughout. The fog arose as members of staff were challenged to take risks, make mistakes and try new approaches. This is not something that is always done well. The emphasis is often seen to be on targets, performance management, pressure from peers and local authorities, and traditional expectations from parents and even children are intimidating. Many find it safer to withdraw to what they perceive as accepted wisdoms and safe ground. Members of staff have increasingly become more adjusted to this state of flux.

Innovation space
They have made positive moves in establishing their own secure development space. This has been enhanced by locating Fountaineers with the curriculum revision both as a unique curriculum feature but also as an innovation space and a testbed. Here it can support the exploration of radical approaches to inform wider curriculum and pedagogical developments.

Practicalities
Practicalities have weighed heavily in this long journey. It’s school! Staff move on, there are leadership transitions, absences, challenges in funding cover, holidays, other projects and existing school development priorities, cycles and schedules. National testing, reports, summer fairs, parents profile evenings and alike all make demands on space, time and energy. Likewise working with externals over such a long period brings different timelines, working cultures, skills and expectations. Not surprisingly, even small programme delays can have huge impacts when they run up against other agendas and the competing needs of a range of year groups.

The first report touched upon some of the issues and the peaks and troughs of the process, and undoubtedly learning about these dynamics is an important part of planning and working with such projects. There is a wonderful opportunity for both schools and externals to learn about each other and to adapt their organisations to accommodate joint working.

For reasons already outlined, the School Development Plan 2008-2009 defines a new chapter in the learning journey. It heralds full responsibility and control of the project for the school and permits them total control over the times and timing of further developments.

Learning community, coaching and wider links
The strength of Luckwell as a reflective learning community lies at the heart of long-term consolidated shifts. Sharing informally and formally will keep up momentum and distribute the accumulated knowledge.

Over the next year the school will articulate its core values and vision for learning and teaching and keep this educational dialogue going. This needs to sit alongside a regularised sharing of the accumulated knowledge and skills, and a strategy for coaching, mentoring and modelling of its emerging pedagogical practice. The leadership team is keen to deploy coaching. They have been influenced by the writing of Judith Tolhurst. It is all about encouraging professional dialogue and the debates that Fountaineers and the like have stimulated. ‘Buddying’ up of staff will occur and they will work in groups of three (triads) while training. Coaching will then be used as one of the key features in sustaining, embedding and driving change.
Benefits will also be gained from establishing stronger links and collaborations with other schools and settings thinking and working in these areas – the wider learning community. Luckwell does have immediate and local possibilities, with the Bristol secondary partners involved in Futurelab’s Enquiring Minds project, and others advancing pedagogical and curricular thinking in local clusters. There are also other national examples both within and beyond mainstream provisions. This process has already started with links and visits from local schools and is picking up fresh momentum.

Continuing the research
Given the unforeseen foreshortening of the second research phase of this project, due to delays around installation, it would be helpful if research continues over the longer term to track the progress of Fountaineers and the pedagogical and curriculum shifts at Luckwell. This would undoubtedly shed more light on the realities of change and embedding change in schools. It would also add insight into the growing abilities of teachers, school leaders and communities to align their pedagogical and curricula perspectives with transformational envisioning of learning spaces.

School action research
Luckwell school has a huge agenda and the leadership and management of its continuing learning journey is worthy of investigation. It is fitting that, as ownership of the project and developments moves to the school, it takes part in its own action research, recording and charting this journey. In itself this would give added impetus to the development and success of its learning community. This could be undertaken in many ways, some of which were itemised in the initial report. Luckwell’s recent movement into blogging might suggest it follows the route of Sharrow School’s successful ‘Brix and Morta’ construction buddies blog3.

Primary Capital Programme
It will be interesting to see whether Luckwell’s experience of Fountaineers will lead to any other design-led projects, and how they responds to whatever the PCP brings. There can be no guarantees but it might be anticipated that it will be well ahead of the game, soundly grounded and on its way towards being empowered and enskilled to contribute more fully. The learning spaces have every chance of being better designed and better aligned with the learning and teaching values being articulated at the school.

3 sharrowconstructionbuddies.blogspot.com
7. Further reading

The initial report of this project is available in hard copy and pdf. It contains a list of useful resources.

www.futurelab.org.uk/resources/documents/project_reports/Fountaineers_case_study.pdf

The Fountaineers project touches on many current themes in education as well as fountain design, technology, programming, participation etc. Here is a selection of books, articles and web links that have informed thinking and development of the project.


Jean Rudduck and Julia Flutter (2004). How to Improve your School: Giving pupils a voice. Continuum


Merrell John Thackray (2007). Wouldn’t It Be Good If... Dott07. Design Council


www.creative-partnerships.com/content/gdocs/wholeschoolchange.pdf

www.creative-partnerships.com/content/gdocs/cyp.pdf


Time For Play – Encouraging greater play opportunities for children and young people. DCMS.


www.edcm.org.uk/Page.asp?originx_7351ny_5681119920126y21v_20071093512c
Other relevant Futurelab publications:


www.futurelab.org.uk/resources/documents/handbooks/designing_with_users.pdf


Personalisation and Digital Technologies (2005). Hannah Green (Demos), Keri Facer and Tim Rudd (Futurelab), Patrick Dillon (University of Exeter), Peter Humphreys (Personalised Education Now).

www.enquiringminds.org.uk/pdfs/Enquiring_Minds_guide.pdf

For more information on the Fountaineers project see:
www.futurelab.org.uk/projects/fountaineers

www.futurelab.org.uk/resources/publications_reports_articles/opening_education_reports/Opening_Education_Report121

www.futurelab.org.uk/resources/publications_reports_articles/opening_education_reports/Opening_Education_Report663

‘It’s all about vision: building primary schools for the future’ and ‘The right tools for the job (and the right co-workers)’ in VISION magazine July-Dec 2008.
www.futurelab.org.uk/vision

Web links:

Allison Druin and the Human Computer Interaction Lab at The University of Maryland: Children as Design Partners
www.cs.umd.edu/hci/kiddesign

Growing Schools – a website which has been designed to support teachers in using the ‘outdoor classroom’ as a resource across the curriculum for pupils of all ages
www.teachernet.gov.uk/growingschools

Design Share – a global forum for innovative school design sharing ideas
www.designshare.com

CABE: The Commission for Architecture and Built Environment – the Government’s Adviser on architecture, urban design and public space
www.cabe.org.uk

Lifelong Kindergarten – MIT Media Lab – new technologies that expand the range of what people can design, create, and learn
llk.media.mit.edu

Google SketchUp
sketchup.google.com

LEGO Mindstorms
mindstorms.lego.com

DrawBots
www.boingboing.net/2006/10/04/the-fi nbuilt-drawbo.html

Creative Partnerships
www.creative-partnerships.com

Learning through Landscapes
www.ltl.org.uk
Futurelab’s Flux blog - Learning Spaces archive
flx.futurelab.org.uk/category/learning-spaces

Building Schools for the Future
www.bsf.gov.uk

Primary Capital Programme
www.teachernet.gov.uk/management/resourcesfinanceandbuilding/capitalinvestment/guidanceindex/primarycapital/

Innovation Unit – Next Practice
www.innovation-unit.co.uk/education-experience/next-practice/background-to-next-practice.html

Luckwell Primary School
www.luckwell.bristol.sch.uk

Stakeholder Design
www.stakeholderdesign.com

Springboard Design Partnership
www.springboard-design.com

Apollo Creative
apollocreative.blogspot.com

Every Child Matters
www.everychildmatters.gov.uk

The Children’s Plan

QCA A Big Picture Curriculum

The Primary Review
www.primaryreview.org.uk

Professor Diana Laurillard – Inaugural Lecture [2008]. Digital technologies and their role in achieving our educational ambitions. Diana is Chair of Learning with Digital Technologies in the School of Mathematics, Science and Technology at the Institute of Education, University of London
www.lkl.ac.uk/cms/files/jce/presentations/laurillard-inaugural-20080226.ppt

Brix and Morta – Sharrow School construction buddies blog
sharrowconstructionbuddies.blogspot.com

Background

Fountaineers was developed as part of Futurelab’s Ideas Incubator, open for anyone to submit an idea for innovative ways of teaching or learning with technology.

Successful ideas receive funding and support in the form of creative input, learning research, user-centred design, and technological expertise to develop them into working prototypes, which are then trialled and evaluated with learners.

Development and research on the Fountaineers project was carried out in partnership with Luckwell Primary School and Sean McDougall of Stakeholder Design, who also submitted the original idea.

Also from Futurelab:

Literature Reviews and Research Reports
Written by leading academics, these publications provide comprehensive surveys of research and practice in a range of different fields.

Handbooks
Drawing on Futurelab’s in-house R&D programme as well as projects from around the world, these handbooks offer practical advice and guidance to support the design and development of new approaches to education.

Opening Education Series
Focusing on emergent ideas in education and technology, this series of publications opens up new areas for debate and discussion.
About Futurelab

Futurelab is passionate about transforming the way people learn. Tapping into the huge potential offered by digital and other technologies, we are developing innovative learning resources and practices that support new approaches to education for the 21st century.

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

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

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

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