Introduction:

Many Primary schools in Partnership with our university seem to be moving towards a more cross-curricular way of working, which is largely to be welcomed. This paper reports on Phase 1 of a Research Informed Teaching project in which we have attempted to discover the current state of play in a random sample of our Partnership schools, prior to moving forward into making recommendations and, perhaps later, providing active curriculum support.

The paper reports on the first phase of a research project funded through a Research Informed Teaching Grant from the authors’ institution. The nature of the funding for this project determined the research methodology, in that we were required to involve our Initial Teacher Education students in the research process and to demonstrate that the research was directly informing their learning as well as our own practice. The students had chosen Design & Technology as one of their two Foundation Subject Options in Year 2 of their B.A. (Hons) with Qualified Teacher Status course. Because the students are assigned to schools by the Education Department’s Partnership Office without reference to their curriculum course options, this assured the randomness of the selection of schools, i.e. these would represent a genuine cross-section sample of schools in our area.

As Design & Technology lecturers with a deep commitment to our field, we feel concern about the future of the core capabilities of the subject should it be subsumed under topic or project work. Specifically, knowing from Ofsted reports that Design & Technology is a subject within which many teachers have felt less secure in their own knowledge, skills and understanding than within other, more traditional areas of the curriculum, we were concerned that its essential characteristic would become lost, especially in the dimensions of design capability. We would agree with Howe et al.’s (2001) assertion that Design and Technology can provide opportunities for developing the children’s cultural awareness and understanding of their place in the world. However, neither these authors, nor ourselves, would see the subject merely in that role. Design and Technology aims to develop the ability to generate and develop ideas, to make creative design choices and to construct a quality product and evaluate its effectiveness.

Most teachers believe in hands-on learning and so practical work, per se, is unlikely to be under threat, but we are concerned for the possible loss of these essential aspects of design, innovation and future-oriented creativity in response to needs and opportunities. We are concerned about the needs of children to feel in charge of their own learning and being able to make choices about how and what they learn. We believe design activity to
be vital to children’s education, whether the context is within Design and Technology, within lessons of other subjects, or embedded within cross-curricular project working. This may be of especial concern with regard to boys’ achievements and social need to be seen to be agentic (Katz, 2003:17).

At the heart of our concerns for the future of Design and Technology within cross-curricular topic work is a view of the subject as only being concerned with practical hand skills that can easily be incorporated into generic model –making whereby any practical work can be considered as achieving these targets, even if the whole class make identical model shadoofs (ancient Egyptian water lifting devices) without investigating other means of moving water, devising their own means of doing so, evaluating which is most effective, and so on.

We share the concerns of our colleague Jonathan Barnes, who research and publication focus is creative cross-curricular learning, that: “The temptation to conflate Design and Technology with other subjects, such as science or art, and the resulting loss of its identity, is an issue with potentially serious consequences.” (Barnes, 2007:124).

That identity, for us, resides within the capabilities that constitute the nature of designing as much, if not more than, the practical skills required to realise such designs (Hope and Parkinson, 2008). Materials and tools develop over time; the need for employees with particular hand-skills has been seen in the past decades to have changed radically. The constants over time are the ability to see how things work, to exploit the creative potential of whatever situations present themselves and to find a workable solution, and then to be able to evaluate the success and perhaps seek a possible adaptation or re-working of such a solution. Without such deep skills, any amount of practical hands-on experience will, we believe, serve the children in our schools poorly for their futures in the highly complex technological society of the future. It was these concerns that prompted and drove our research agenda.

**Focus of enquiry:**

We wanted to discover:

- The extent to which Design & Technology was being integrated with other subjects through project work or whether it was being planned and delivered separately;
- How this affected teachers’ view of design activity. For instance, had Design & Technology become more akin to “craft” or to “practical science” rather than maintaining its own identity?
- If, where and how design activity was to be found beyond Design & Technology lessons: had core design skills informed creative practice in integrated project work?
On our behalf, therefore, the students interviewed the Design and Technology co-ordinator in their placement school (Appendix A) and completed a parallel questionnaire on their own opportunities to teach design and technology and submitted a reflective report, which was assessed as part of their Design and Technology course. The parts of these that have been used as data for this analysis are to be found in Appendix B. This paper focuses on the Co-ordinators’ responses. The parallel paper (to be delivered at EERA 2008) compares the responses of Co-ordinators and Students.

Charts 1 and 2 show the demographics of the schools involved in the study: the majority being rural schools, with roughly even numbers of urban, sub-urban and mixed. That 4 of the schools have less than one class per year group reflects the falling rolls within schools in the area that has been occurring for some years and in response the Local Education Authority has been combining and closing down small rural schools.

One co-ordinator was sufficiently enthused and supportive to devise her own shorted version to distribute to other staff “Dear All, L, S’s student has to complete a questionnaire as part of her course. I hope you wouldn’t mind answering just a few questions…” and encouraged the student to devise a questionnaire to ascertain the pupils’ viewpoints. Another thanked us for such a well structured and though provoking questionnaire and gave us a “smiley”. Others, naturally showed less enthusiasm, both for completing the
questionnaire and for the subject they co-ordinated. The questions that co-ordinators did not wish to answer were those at the end of the questionnaire concerning developmental issues and personal viewpoints, which they may have felt unhappy to discuss with the student. Some schools did not have a designated Design and Technology co-ordinator, or our students were in separate Nursery or Early Years settings without specific subject co-ordinators. These factors left us with 24 sets of raw data that was in sufficient depth and completeness for analysis.

Curriculum Organisation and Development

As can be seen from Charts 3 and 4, the majority of schools delivered a mixture of single subject and cross-curricular lessons in relation to Design and Technology. Many of the Co-ordinators made comments such as “depends on the subject”, which indicates a high level of reflectiveness, analysis and fine-tuning in relation to the children’s learning experience. They are not doggedly following one model of delivery but are looking to see how well each subject can be connected to other areas of the curriculum and making those links where these are appropriate and, they feel, will enhance children’s learning and, probably, also make planning, delivery and assessment more time efficient and effective.

![Chart 3: Curriculum Planning](chart3.png)
The teachers’ wish lists (“What they would change if they could”) varied and some did not really appreciate the questions E3, E5 and E6 as being about planning, delivery and assessment respectively. 7 teachers did not answer E3 (planning), 10 did not answer E5 (delivery) and 7 did not answer E6 (assessment). Either these teachers are completely happy with these areas or they saw this as a repeat question.

With regard to planning, some teachers focussed on management issues (collaboration, whole staff discussion), others on the coverage of skills, and some on the desire for greater flexibility. Only 4 of the teachers felt that the changes they wished for would come about (“because individuals can adapt planning”, Respondent 13) whereas 8 teachers felt that no changes were possible, frequently citing time and timetable constraints. The more positive respondents were either those working in schools where cross-curricular working was being developed or worked in Early Years Foundation Stage and so felt a greater measure of autonomy in organising their curriculum.

As far as delivery was concerned, time and money for resources were seen as problematic. Respondent 24 was the only one to make a comment related to creativity but thought that the time needed for this would not be possible due to timetable restrictions.

Concerns about assessment most frequently focused on evidence of achievement. Respondent 18 perhaps expressed an extreme view in wanting a Teaching Assistant present all the time because the children picked up ideas from each other so it was impossible to know which idea originated with which child. Respondent 12, however, wanted more time to test the product with the child and Respondent 21 wanted opportunities for self-assessment to be written into planning. Chart 5 shows that in the majority of schools learning objectives are linked to assessment within key lessons across the whole project and most schools appear to be taking a holistic approach to planning and assessment; only 5 teachers stated that Learning Objectives and Assessment is explicitly linked in every lesson.
This has impact on the teachers’ answers to whether or not children’s ideas were incorporated into planning. Overwhelmingly, the answer was yes, at short term planning level. In other words, the teachers framed the overall planning but were flexibly responsive to the children’s interests, needs and ideas at lesson delivery stage, yet they were also keeping a firm eye on the overall learning targets for the topic or unit being taught. This was equally so regardless of whether they classified themselves as tightly following a given / bought single subject scheme or whether the school devised their own cross-curricular themes.

The reasons given for flexibility in delivery were mainly centred on children’s enjoyment, motivation, capturing their interest and personalised learning / differentiation. One teacher cited TASC, a problem-solving system currently being actively promoted and sold to schools in the area. These viewpoints were expressed by teachers who identified themselves as “Key Stage 2” as equally as by those who taught younger children. Therefore, this is not just a belief about children’s learning in the early years but one that is shared by many who agree to co-ordinate Design and Technology.

Equally insightful are reasons given for not incorporating children’s ideas into planning, for instance:

“Slightly limiting with KS1 – yes they have ideas but are not always workable, practical or thought through.” (Respondent 24)

This seems at odds with the EYFS promotion of child-initiated learning and indicates a sharp distinction between child-centred and curriculum-led views of learning underpinning the Early Years Foundation Stage Curriculum and the National Curriculum for Key Stages 1 and 2. In response to whether or not they followed the QCA scheme of work, this respondent said: “loosely – why change something that we know works and we cover all the objectives.”

This appears to epitomise a basic misunderstanding of the relationship between the National Curriculum and the QCA scheme of work, which seemed to underlie many of the responses about using children’s ideas. Many teachers cited fears about “coverage” and concern about not enough time as reasons for not taking a more child-initiated approach to
planning in Design & Technology. Several teachers were concerned about not covering the Learning Objectives or not teaching “all the skills”. These tensions between accountability and integrating children’s ideas is encapsulated by the comments such as:
Respondent 10: “Children feel involved > enthusiastic but not always following LOs”
Respondent 11: “As long as the skills are covered the children should input their ideas….justification needed if long term plans moved away from”
Respondent 3: “D&T is taught as skills but investigative work should not be too directed but facilitated.”

It would have been interesting to have been able to unpick this further to find out whether these Learning Objectives come from the National Curriculum or from the scheme that the school is using to structure lessons. The National Curriculum provides a clearly process-based, rather than a skills-based, approach that is sufficiently open-ended to enable schools to develop a variety of ways of planning and delivery. Subject management in schools seems more concerned with accountability and meeting practical skills targets, which may be seriously inhibiting the children’s chances of meeting the process capabilities of the National Curriculum itself.
**Becoming Autonomous Learners**

One of the key markers for *design*, we felt, would be the amount of freedom that children were given to choose the route, materials and techniques by which they achieved their intended product, which would, we assumed, relate to design opportunities exist across the curriculum. This might conflict with the choices of the teachers, especially if following a scheme of work that indicated expected outcomes. We felt this to be an important issue, not just for the survival of Design and Technology, but also for children’s felt experience of the curriculum. (Katz, 2003). argued that boys (in particular Afro-Caribbean boys) are most at risk in an educational culture that does not respect them as agentic in their own learning. Thus a passive, “delivery model” curriculum will favour conformist pupils (which includes many girls), whereas an active constructivist model will enable more pupils to feel empowered and engaged in pursuing the goals of learning. Unfortunately, the overloaded National Curriculum (especially as interpreted through over-prescriptive strategies, frameworks and schemes of work) has been heavily predicated on a delivery model, this word being explicitly employed by politicians in describing the work of teachers as “delivering the National Curriculum.”

Barnes (2007) related this directly to well-being and emotional and mental health and makes a strong case for the anxiety level of many British school children to this over-loaded, over-pressurised and over-prescribed interpretation of the curriculum. As an introduction to this, we asked whether the delivery of the curriculum was outcome or delivery led and whether they felt under pressure to get the children to achieve certain outcomes. As can be seen from Chart 6, the level of pressure felt was low, almost certainly due to the relatively low status of practical learning within the Primary school, where league tables apply only to the Core Subjects (Literacy, Numeracy and Science).

![Chart 6: Outcomes or delivery led?](image)

Most teachers appear to be happy with the mixture of outcome and curriculum led learning that is taking place, but did they understand the question? If they asked the student interviewer for clarification, did they? This was one of the questions for which we felt
strongly that doing the interviews at a once-removed distance was not yielding the answers we were searching for, and that there would have been benefit in having our own direct discussion with the co-ordinators. The results seem to be answering a question parallel to “Are you doing a good job of teaching Design and Technology in your school?” rather than unpicking pedagogy. This is probably inevitable with any “tick box” type of questionnaire whose designer is not then able to ask the questions. There must have been some rich discussions between students and co-ordinators, as many students reported that conducting the questionnaire had given them real insights into the way Design and Technology is taught and several reported that they had now understood aspects such as resource management, classroom organisation, and so on, in a way that they had not done so from lectures.

In order to further unpick this issue and to ascertain the level of freedom of choice that the children have over the development and construction of their product, we asked subsequent questions that can be condensed into:

a) To what extent do children’s ideas feed into planning a topic?
b) Once a topic is started, how much freedom do children have to steer their own learning?

From our perspective, these two questions are at the heart of how much design capability is being encouraged, rather than simply making skills. This was an important question because if at the heart of Design and Technology, there was little opportunity for design choice, this would not be transferred to other areas of the curriculum.

We wanted to find out whether children were able to choose to make things in other subjects. The thinking behind this question was a scenario in which children might be given the option of making rather than writing, drawing or other means, or even one in which the class were asked to draw, paint or write and an individual or group approached the teacher and asked to develop their ideas through making rather than the suggested form. We imagined the latter case to be rare. Interestingly, nobody said “never” (Chart 7).

Of the 8 Co-ordinators who replied “Often”, 7 worked either with Early Years or a combination of Early Years and Key Stage 1. This would confirm our own observations in schools, that a range of ways of developing ideas across the curriculum is more common in younger age classes, where teachers believe more strongly in the importance hands-on learning, rather than feeling the need to seek opportunities to incorporate and develop literacy skills into as many subject areas as possible.
This was further confirmed by age range analysis (Chart 8), which conforms to previous anecdotal evidence that younger children have greater freedom of choice within the curriculum than older ones.

![Chart 8: Choice of Making Things by Age Range](chart.png)

This is an unfortunate side-effect of the pressure on development of literacy skills, since older children should be more capable of the self-awareness and meta-cognition that enables them to know whether making, writing or drawing would be the most effective means of developing, recording or communicating ideas. This would appear to suggest that there could be important cognitive skills that are not be sufficiently developed, or which are being developed only in limited ways, across a curriculum that provides few opportunities for making personal choice.

Chart 9 shows the range of choices that children have in designing their product. Many respondents ticked more than one box here, indicating that overall, a project will begin with children being set a challenge that is more or less open-ended, depending on the topic. Sometimes there is a clearly stated product in mind (for example: Slippers, QCA for Year 6) or the topic is presented as a challenge that the children must complete (for example: design a healthy sandwich, QCA for Year 3). Such restrictions on personal autonomy in learning appeared in response to questions about freedom of choice even within Design and Technology (as indicated in Chart 9). Overall, the findings appear to suggest a strongly teacher-led experience of learning in which children have few design choices or opportunities to develop personal interests and passions or have opportunities for developing the skills central to becoming autonomous life-long learners. The reasons mainly focused on the quality of the product outcome:

For instance, Respondent 21: Re integrating children's ideas into planning: “Children need a lot of guidance because their ideas not feasible” Re allowing children to decide how they will continue a topic: “Good in principle but needs lot of guidance.”

Respondent 17: “Careful organisation needed; challenges, LOs; differentiation”
Questions that related to the extent to which children can choose how they continued a topic presented to them by the teacher reflected similar issues. Respondent 1, whose school appeared to be moving quite swiftly towards a cross-curricular approach to learning summarised the rationale for this as: “Learning comes from what children need / want to know in order to achieve outcome & links with other areas of curriculum.” Respondent 12, also in a school where cross-curricular links are made: “allows children’s creativity to shine through; good to see the strategies & process of the work the children use.” Respondent 23 replied: “It gives pupils independence & chance to develop own thinking” but regretted that this did not occur frequently in their school. This was the only respondent who said that children’s ideas were never incorporated into planning and commented on this: “not the best thing, but school circumstances are difficult.”

Such responses indicate the tensions between educational rhetoric and the realities of classroom management. It is also the fundamental conflict between a child-centred and curriculum-led approach to teaching and learning. These issues have remained unresolved in the UK since the introduction of the National Curriculum, when the government decided on curriculum-led model to supersede the unstructured mixed bag that preceded it. Since the “Excellence and Enjoyment” document, many schools feel free to embrace a more integrated curriculum, but it would seem that our participants are aware of the difficulties that underlie ensuring progression in learning and coverage of skills that bedevil a fully child-centred approach.

In some cases, there appeared to be a tension between what the co-ordinators believed was inherently good for the children and what they felt constrained to deliver within an accountability culture dominated by quite short-term goals: children needed to achieve specific skills within specific topics in order to ensure “coverage” of too many Learning Objectives. Only those teachers whose schools had made the decision to look again at the whole curriculum and take a new cross-curricular approach seemed to be positive and confident about allowing children’s input into planning and development of the curriculum.
There was also a concern about children’s ideas not working, which suggested a product-based view of outcomes, rather than a process-based one, which is also related to the concerns over skills coverage, that if the skills are not taught, the product will not be of an acceptable standard to have achieved the Learning Objectives. This might suggest that creativity, playing with ideas, fantasy and imagination are not treated as Learning Objectives in their own right. Thus children “may choose how to present work / what form it will take” (Respondent 8) but do not choose what they are going to make.

A further aspect of design choice, which would indicate the level of freedom that children had in relation to making their own decisions, is the level of opportunity they have to choose the materials from which their products would be made. Chart 10 shows that the choice of materials is more frequently made by the teachers than by the children. Extrapolating from this, it could be concluded that techniques would be similarly constrained. For instance, if the class were following the QCA unit Money Holders (Year 4), it would be more likely that all the children would be designing a purse that would be sewn than that some children would be making safes, others purses and others something to hang around their necks whilst swimming. The impact of such constraints on children’s diversity of response means that children’s creativity within these design opportunities could become limited to variations of styling such as colour, size, shape and so on. The opportunities for radical thought and to pursue imaginative flights of fancy are rare within the culture of assessable skills coverage that may permeate many schools.

Designing across the curriculum?

A key theme of our research was to ascertain whether these co-ordinators saw opportunities for designing beyond Design and Technology via generic capabilities that could transfer across subject boundaries (Chart 11). Most teachers identified Art as having this potential. The identification of Science may be due to perceptions of overlap of subject matter such as mechanisms, electricity, and so on, or of the need to use scientific principles for some aspects of design. However, Respondent 13 explicitly identified
generic capabilities shared between Science and Design and Technology: “planning, evaluation & carrying out processes are linked”. Links with humanities were to cross-curricular topics with a strong humanities focus. The citing of child-initiated activity and “golden time” perhaps shows an understanding that design is concerned with choice and a measure of autonomy. However, one of these is Respondent 24: ‘V. few. We would use early morning activity / golden time for construction activities.

Thus, the answers to such questions as whether Design and Technology was taught as a separate subject or linked to science or to art, produced a mix of answers, which suggests a wide range of practice, as frequently dependent on the topic as on the curriculum organisation or ethos of the school. 12 of the respondents gave positive reasons for integration or linking of subjects. The schools where Respondents 14 and 15 work are just beginning to develop cross-curricular working and both reported feeling their way at the moment: “in process of finding ways to integrate & implement cross-curricular work” (Respondent 14 on Key Stage 2 developments).

Although only 18 of the teachers responded to the question about how they would like to see Design and Technology develop in their school, 7 of these indicated they would like to develop a more cross-curricular approach. As Chart 12 shows, they overwhelmingly believed that Design and Technology would fare well in an integrated curriculum in their school. Respondent 9 commented: “it already fares v well in the current xcurric system.” However, Respondent 11 said: “I hope it wouldn't get forgotten!” The concerns that were expressed related frequently to coverage and progression:

- Respondent 18: “coverage would be a concern. Not all aspects of D&T fit into xcurric topics”
- Respondent 19: “badly, because I think it becomes an add-on in which progression in skills can be lost”

Both these Respondents’ schools follow a published scheme of work in which progression and coverage of skills is emphasised.
Chart 13 shows the kinds of examples of integrated work that teachers cited. Whilst food, pop-up books, vehicles, puppets and homes may provide many opportunities for designing, sunglasses seem more limiting and the historical models present concerns. Grouped together here are “Ancient Egypt”, “The Greeks”, “Tudors” and “Victorians”. Although such topics provide opportunities to learn about technological solutions of the past, which the National Curriculum for Design and Technology would place within Investigating and Disassembling Existing Artefacts, and provide contexts for the learning of skills (Focused Practical Tasks), the Design and Make Assignment in which children would subsequently be engaged may not necessarily provide adequate stimulus for creative responses. “To be creative, children need support to see the further potential in the familiar.” (Davies & Howe, 2003: 82) not just to become familiar with pre-existing or previous solutions.
What are the Children Learning?

One of the concerns that led us to conduct the research was that perhaps teachers were simply seeing “design and technology” as synonymous with “making things”, in other words, that any opportunity for making something would automatically tick the “D&T box” too, and that in a cross-curricular environment, the design skills would disappear. Thus we asked the question: if Design and Technology disappeared from the curriculum, what would the children lose out on. The relative value of cognitive to practical to life skills is shown in Chart 14.

Interestingly, both teachers and students value the cognitive skills embedded in design and technology over the practical and life skills that it teaches. Despite their equal commitment to a practical hands-on subject, their view of education is remarkably similar. The practical hands-on experiences are valuable only insofar as they support cognitive learning. This is probably the biggest threat to design and technology: what Medway (1992) years ago called the “academicization of practical activities”: the doing is only allowable within the overall context of the communicating, evaluating and so on.

NOTE: charts 14-16 represent relative values, not numerical absolutes.

Chart 14: Balance of skills

<table>
<thead>
<tr>
<th>Teachers' responses</th>
<th>Students' responses</th>
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<td>life skills</td>
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<td>cognitive skills</td>
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<tr>
<td>practical skills</td>
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Charts 15 & 16 show the teachers’ and students’ answers to the question “What are most important things children learn in design and technology?” In both these pairs of charts, cognitive skills have been separated from practical skills.
The students seem to be using the words "creativity" and "problem-solving" as catch-all buzz words, whereas the teachers are more aware of the importance of the more specific skills of thinking, planning, decision-making and evaluation; the more rational faculties rather than the generalised emotive word “creativity”. Likewise “problem-solving” includes many of the cognitive skills identified by the teachers, so it may be that the students are not yet unpicking what this entails. This probably indicates that the teachers are demonstrating a maturity of analysis of which the students are not yet capable. This was an important finding for us, as it impacts quite specifically on our own teaching within university. We need to unpick with the students what such terms as “creativity” and “problem-solving” entail and not simply assume that learning the word equates to understanding its entailments. We would consider going as far as to specifically structure part of the Year 2 course around the development of student understanding based on these two questions.

With regard to practical skills, (charts 15a & 15b) the teachers' viewpoints reflect their experience of managing this subject in the classroom. Safe working is important, as is teaching children the skills they need to successfully complete a task. The students want the children to have more freedom to experiment, with less regard for a successful product. They are process aware, but almost cavalier about having a quality product at the end of the process. Teachers are concerned about the children’s ability to follow instructions, understand how the components will fit together to make the product. The students want much more experimentation and exploration of the materials. They are less aware of the pressures of time and that the project has to have a final product that the children can be proud to take home. To give them their due, the students also felt there were times when the children needed more experimentation time in order to make a better product or to have more ownership of the task. They were highly critical of the almost “mass production” that was occurring in some classrooms, especially for activities such as Mother’s Day cards, yet without realising the amount of time an alternative approach might take.
There were few serious mis-matches within the schools and many students reported being able to be involved in really high quality Design and Technology lessons. One Co-ordinator seemed to have used the student as a means of firing more enthusiasm for the subject among their colleagues by arranging for her to teach the subject to several classes. The questionnaire appeared to have given the students greater status as potential Design and Technology co-ordinators than would otherwise have been the case. As learners asking serious questions, they were perceived as caring about their subject and as having a clear interest about how it was managed and delivered in their placement school. It also provided them with a focus and a need to clarify and articulate their own beliefs about the subject within a real-life context.

The Future

**Design and Technology in our schools**

The responses to our questionnaires suggested that teachers have a love-hate relationship with the subject. The Co-ordinators who responded that their teachers would be unconcerned if Design and Technology was wiped off the curriculum were frequently those who most closely followed schemes of work, suggesting either a lack of personal confidence in the subject. They were also more likely to be those teaching in Key Stage 2. Three cited “freeing up time” within an over-crowded curriculum and that “one less subject” would be a relief, especially one that required more organisation, resources, mess and space than others. Respondent 21: “great - one less subject to teach - but then annoyance. It is fun for them & the ch” Most strongly worded response was Respondent 9: “I think they would be furious!”

The proposals for the new Primary curriculum indicate a greater status for Design and Technology within a more cross-curricular model of teaching and learning. Given the ambivalence that our survey suggests, staff development should be an urgent priority. Teacher training institutes should also consider whether they are providing sufficient length and depth of courses for new entrants to the profession, not just on B.A. (QTS) courses in which students can opt for specialism across the Foundation Subjects, but also on P.G.C.E. courses in which a short general introduction to the subject is generally the rule.
Many institutions do not currently offer Design and Technology as a subject specialism at all, and this will continue to have serious implications for quality of subject subject.

**The RIT funded research**
Finally, this paper reported on the first phase of our research and it has already highlighted important issues. In this next academic year, we have a two-fold plan:

a) To open dialogue with the local subject advisory teacher to ascertain a way forward with respect of subject support, guidance and training for Co-ordinators in order to enable them to develop the subject within their schools, as well as short courses for individual teachers who need skills development / update, especially in terms of understanding the core skills of designing that can be transferred across subject areas. An approach from this perspective should enable the key skills of generating and developing ideas, creation and construction, reflection and evaluation to become more fully embedded across the curriculum so that the specific benefits of Design and Technology learning are no longer recognised or recognisable.

b) To enable the students involved in this study to use this experience as the basis for their Year 3 research assignment. In previous years, the students have chosen the topic for this assignment during Year 3, but we have asked them as part of this questionnaire to identify areas of Design and Technology teaching and learning that they would like to investigate further, so that they have already identified a relevant area for their own research. The whole data set from this project will be available to them should they wish to use it. We hope too to be able to visit some of the schools in which the student are on their Year 3 School Placement and interview the co-ordinators in depth ourselves and unpick some of the issues and questions arising from this present phase.

**Benefits to our teaching**
All research projects, if they are worthwhile, benefit one’s own teaching within one’s institution. We have identified as important,

- the unpicking with the students of the blanket terms “creativity” and “problem-solving”
- pupil autonomy and choice within learning opportunities
- the status and future of Design and Technology within a cross-curricular model of teaching and learning

All three of these areas will need to be incorporated within the Year 2 course of the future. Fortunately, we have the second year of the newly validated degree course beginning in September this year and so we have the ideal opportunity to examine its content. Unfortunately, the timetabling and assignment arrangements of this new course means that it will be difficult to repeat the research instrument as we have done this year. However, we had always considered this as a pilot study and it has delivered a satisfying amount of data to build on in the future.

**REFERENCES**

This document was added to the Education-line database on 5 February 2009