# Research in the Primary Phase

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When the National Curriculum was introduced in 1990 into the primary curriculum, it contained one 'new' subject. Whilst aspects of design and technology had been part of the work of primary schools for a few years, it was the first time that the subject had been named and content outlined. From the outset, there were many aspects of the curriculum that confused teachers, but there was much that teachers felt was valuable for children to experience. Between 1990 and 1995, the continuing development of design and technology was very varied throughout England and Wales. Teachers had little if any continuing professional development (CPD); very few had the confidence to deliver an appropriate experience; and there were very few resources available to help teachers understand the nature of the subject and how it could be delivered. Examples of excellent practice could be found, but these were not the norm. In 1995, the revised curriculum was more focused and contained guidance about the types of the activities that children could undertake (Investigate, Disassemble, Evaluate Activities, Focused Practical Tasks and Design and Make Assignments). This coupled with more appropriate CPD and resources led to a rise in standards in the delivery of design and technology. This was reflected in national inspection reports and the increase in publications and disseminations of quality case studies in the Design and Technology Association (DATA) publications and at conferences. Until this time there was almost no research relating to primary design and technology; obviously until there was practice in schools, there was little to research. The IDATER (Loughborough) conference proceedings from 1990-1995 show in some way the beginnings of research into primary design and technology. Few clear themes emerged; rather there were disparate areas covered, relating to the personal interests of individual contributors. However, design was beginning to be a theme that was being explored and this has continued, not only in this country but overseas.

The development of the subject continued despite the introduction of the Literacy and Numeracy hour in 1998, into all English primary schools. The publication of the Qualification and Curriculum Authority (QCA) scheme of work in 1998 went some way to restore the balance in the curriculum, and schools used this to help provide a balanced and progressive scheme in their schools. It can certainly be argued that the scheme, if used without thought and adaptation, is limiting; if it is used as it was intended – as a guide - then it is a valuable tool in supporting the delivery of quality design and technology in the primary school. As the subject became increasingly embedded in the primary curriculum, there were more opportunities for research to be undertaken in a growing number of schools, and in Initial Teacher Education (ITE) throughout the country. Whilst there were opportunities to present and disseminate findings, both from research in this country and overseas, it was felt by a number of primary colleagues that primary matters often were swamped by those from other areas of design and technology. It was also apparent that during the 1990s the growth of primary design and technology or technology education was gathering momentum across the world. France, Australia, New Zealand, USA and S. Africa were all including it in their curricula. Interest was shown elsewhere including the Netherlands, Sweden, Poland, Canada, Botswana, and Taiwan. More recently countries including Bahrain and Chile have included it in their national curricula and countries such as Brazil, El Salvador, Peru and Singapore are investigating the value of the subject.

Therefore, to promote this growth and interest in the subject, in 1997, the Centre for Research in Primary Technology (CRIPT) at UCE Birmingham held discussions with a variety of interested parties and it was decided that a primary research conference would be hosted by CRIPT biennially. The intention was to provide a forum for all those working with children aged 3-13 years (primary is up to age of 13 years in some countries) to network and to share both theory and practice. Curriculum

development papers were placed alongside research; practical workshops and schools visits enabled participants to see design and technology in action. The conference proceedings have always been an important part of the conference. The high quality finish is used to indicate the importance and value of the publication; publication ahead of the conference supports the notion that informed choices can be made regarding participation; and questions relating to all the papers can be asked before delegates disperse worldwide. Reviewing the Proceedings since 1997, there are various strands that emerge based around both countries and themes. Countries including Australia, Brazil, Canada, England, France, Japan, New Zealand, Scotland, S. Africa, and Taiwan are represented in most Proceedings. Readers can follow through the development of, and changes to, the nature of the subject, its policy and implementation. Common themes that occur relate to designing, issues with regard to ITE, Early Years, ICT, and science and technology links.

CRIPT 2005 was the fifth such conference and was attended by delegates from 16 countries. The number of papers has grown with each conference and in 2005 they were split into two sections for publication: research and curriculum development. The CRIPT 'community' has a core of researchers who have published in most Proceedings, whilst new researchers are warmly welcomed for each conference. The abstracts from all the research papers are published in this Journal and it is apparent that there is a range of both countries and themes. It is never the intention to limit the focus of the conference on just one theme, (for example, Creativity), but to embrace all current research that is being undertaken to enable as many links as possible to be built between researchers.

Delegates from Zimbabwe, Jordan and Cyprus presented for the first time, highlighting very recent developments in their countries. Certainly, there is great interest in the introduction of the subject across the Arab region and Bahrain has now implemented it in all its primary schools. We hope that in 2007 a paper relating to the evaluation of its introduction will be presented. Current issues in primary schools in England were reflected in papers worldwide and related to creativity, children as reflective practitioners, problem solving approaches, and designing, and provided much thought provoking material. The use of lap tops was debated in papers from both Australia and France. Issues related to ITE were highlighted in papers from Australia, England, New Zealand and Zimbabwe.

Having built up a community of researchers in primary design and technology education, what future developments might be possible? From an analysis of the delegates and papers, it is apparent that most researchers are using situations and experiences from their everyday work from which to develop their current research. There are few examples of large scale, well funded research projects; most are built around small case studies. Reasons for this are varied; most delegates are based in Education Faculties, which in this country and overseas do not have research as a very high priority; some delegates are based in countries where research in such areas is relatively new and do not yet attract funding; whilst others come from countries where there is little funding available for educational research in any field. Hopefully, with the growth of the subject, and the development of understanding of its value for primary children, it will become easier to attract larger scale funding. The Designerly thinking project, funded by the DfES from England (Benson) is one such example. However there are strategies that the community can adopt and build on to strengthen and widen research. Links between Canada and England have been developed through joint funding (Barlex and Welch); Europe and S. America through an Alfa project (Chatoney, Benson, Elton); joint funding between Nuffield Foundation and a Local Educational Authority (Barlex and Balchin); and between ITE establishments (Davies, Fasciato, Howe and Rogers). Groups can get together to provide mutual support, such as those initiated by the Nuffield Foundation in England.

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Teachers as researchers are a growing pattern in many countries and these can be offered support by researchers in Higher Education. In England, funding is available for teachers to take part in extended courses at post graduate level and at present over 200 teachers are undertaking small scale action research in their schools as part of such courses in design and technology. Perry and Butterfield both reported on their work at the 2005 conference. It seems likely that the trend to link research to small scale case studies linked to daily work will continue in the near future but identifying important areas for future development is also necessary so that the agenda is there when funds are forthcoming.

I would suggest that key areas include:

- **The appropriateness of the use of ICT in the implementation of design and technology**
  The growth in the use of ICT worldwide is rapid. Used as a tool, it can offer support in many ways that other tools cannot. However, what are the areas of support that are most appropriate? What uses are less successful? How is control technology best introduced? Should CAD/CAM have a place in the primary curriculum?

- **Designing**
  How do children design? Is this different at different stages of development? What strategies are useful?

- **Early years**
  Is designerly and technological activity included in the curriculum in reality? What is its value to young children? How can designerly thinking be developed?

- **Assessment**
  How can we assess design and technology? What is the value of assessing the subject? Should we assess differently at different stages of development?

- **Appropriate learning and teaching strategies**
  Are they different in design and technology? What methods work well for different aspects of the subject?

These are just a very few of the areas that would be useful to study, particularly if we want to ensure the continuing rise in uptake and achievement in the subject.

We look forward to CRIPT 2007 in June, when we celebrate 10 years on from the first conference, and to extending the CRIPT 'community'.

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Research Abstracts from the 2005 conference are included on page 59. Conference proceedings from all conferences can be obtained by emailing clare.benson@uce.ac.uk for an order form.