The Inception and Implementation of Design and Technology in the English School Curriculum, 1988-2012:

A Design History Perspective

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Abstract

The Education Reform Act of 1988 was a pivotal piece of legislation, defining a national standard of basic education and identifying a suite of subjects that would be taught in all state-funded schools in England.

Design was formally recognised as a facet of the National Curriculum Design and Technology (D&T) syllabus. Although D&T's initial integration into mainstream education was tumultuous, subsequent policy reforms, investment, research and new classroom resources, helped to enhance the subject's status. This period of stability, however, was short-lived. By 2012, after just twenty-five years of design curriculum development, D&T's position as part of the National Curriculum appeared to be under threat, and questions were raised about the future of the subject.

Drawing on a range of primary source material and increasingly obsolete vernacular literatures, this study presents new knowledge about the educational, political and social ambitions of key protagonists who were involved in design curriculum development. The investigation shows that the inclusion of design within D&T allowed the subject to flex according to the ideological affiliation of incumbent governments, individuals, and organisations with a vested interest in the field. The different meanings associated with design helped to facilitate D&T's rapid expansion, but also contributed to its dramatic decline. Thus, further complicating design's translation into a stable category of teaching in English schools.

This study is distinctive because it considers the rationale for D&T from a design history perspective, foregrounding the social ambitions of design educators over the economic imperatives associated with training professional designers. Surprisingly, the development design-related school subjects in general education contexts rarely feature in design historical discourse. In response to this lacuna, this thesis presents a nuanced re-reading of D&T as an exemplar of the democratisation of design through general education.

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Common Abbreviations

ACGB – Arts Council of Great Britain

AC/EU – Arts Council Education Unit

AEB – Associated Examining Board

A'Level – Advanced Level of the general Certificate of Education

APU – Assessment of Performance Unit

CADA – Confederation of Art and Design Associations

CDT – Craft Design and Technology

CoDATA – Confederation of Design and Technology Associations

CoID – Council of Industrial Design

D&T – Design and Technology

DATA – Design and Technology Association

DC/DEAG – Design Council/Design Education Action Group

DC/PEWP – Design Council/Primary Education Working Party

DC/SEAC – Design Council/Secondary Education Advisory Committee,

DC/SEWG – Design Council/Secondary Education Working Group

DERG – Design Education Research Group, Department of Design and Technology, Loughborough University

DES – Department of Education and Science

DFE – Department for Education

DfEE – Department for Education and Employment

DfES – Department for Education and Skills

DfCSF – Department for Children, Schools and Families

DTI – Department of Trade and Industry

EngC- Engineering Council

EngC/GEC – Engineering Council General Education Committee

EBacc – English Baccalaureate

GCSE – General Certificate of Secondary Education

GNVQ – General National Vocational Qualification

HMI – Her Majesties Inspectors

LEA – Local Education Authority

NC/AWG – National Curriculum/Art Working Group

NC/DTWG – National Curriculum/Design and Technology Working Group

NC/MmWG – National Curriculum/Mathematics Working Group

NC/SWG – National Curriculum/Science Working Group

NCC – National Curriculum Council

NCGB – Non-Departmental Government Body

O'Level – Ordinary Certificate of the General Certificate of Education

OFSTED – Office for Standards in Education

Ofqual – Office for Qualifications and Examinations Regulations

QCA – Qualifications and Curriculum Authority/Qualifications and Curriculum Development Authority

RCA – Royal College of Art

RCA/DEU – Royal College of Art/Design Education Unit

RCA/STP – Royal College of Art/Schools Technology Project

RSA – Royal Society of Art

SCAA – School Curriculum and Assessment Authority

SEAC – School Examination and Assessment Council

STA – Standards and Testing Agency

STEM – Science, Technology, Engineering, Mathematics

STEAM – Science, Technology. Engineering, Arts, Mathematics

TEP – Technology Enhancement Programme

TERU – Technology Education Research Unit, Goldsmith College, University of London

TGAT – Task Group on Assessment and Learning

TVEI – Technical and Vocational Education Initiative

WiSE – Women in Science and Engineering

Introduction

'The present economic crisis has renewed the intensity of debate surrounding issues of creativity, innovation, and design education broadly conceived'[1]

This study is defined by a deliberate concentration on the inception and implementation of the National Curriculum subject Design and Technology (D&T) in English schools over a twenty-five-year period. It amplifies discourses of design education in the development of D&T and adds nuance to debates about the rationale for design in general education contexts from a design history perspective.[2]

Straddling complex and competing beliefs about what constitutes a design education, and by extension, what constitutes the history and legacy of design in the context of the English school curriculum, this investigation offers a close analysis of primary source materials to provide an alternative viewpoint of National Curriculum D&T. The design history perspective is unusual. Firstly, critical histories and analysis of D&T, originating from outside the D&T subject community, are a rarity. Secondly, education researchers have tended to foreground the technology component of D&T over and above the design component.[3] Thirdly, scholars

1 Excerpt from the original call for PhD proposals on the topic, 'Designing a Design Curriculum' (University of Brighton, 2012).

2 Throughout the study, when referring to the National Curriculum subject, Design and Technology, the abbreviation D&T will be used. When 'design and technology' is written out in full it is to designate reference to design *and* technology, as the two components of one subject. As will become apparent, there are complexities surrounding nomenclature in the field of design education, and further reference to choices about the use of terminology comes later in the Introduction.

3 This is with the exception of newly published literatures by academic scholars working within the D&T subject community who have responded to the current decline in D&T by re-examining design's contribution to D&T and assessing the subject as an educational construct, 'distinct from design or engineering'. See, Matt McLain and others, 'How Technology Makes Us Human: Cultural Historical Roots for Design and Technology Education', *The Curriculum Journal*, 30, 4 (2019), 464- 483, DOI: 10.1080/09585176.2019.1649163, and Alison

of design history have yet to embrace the development of D&T in schools as an example of the democratisation of design in society. I will return to this significant omission later in the introduction.

Research context

In 2012, the University of Brighton circulated a call for a research proposal that explored design curriculum development in relation to British schools since 1988.[4] The period 1988 to 2012 neatly encapsulated the rapid ascent and steady decline of National Curriculum D&T over a twenty-five-year period,[5] and provided opportunity for introspection using recently released and newly available archival materials pertaining to subject development.

In 1988, a landmark bill was passed in the UK parliament that fundamentally changed the relationship between central government and state-run schools.[6] Initiated by Kenneth Baker,[7] the Conservative politician and incumbent Secretary of State for Education and Science (1986-1989), the 1988 Education Reform Act, or Baker Act, as it became widely

Hardy, 'How Did We Get To This Point?' in *Redesigning D&T.. Talking …Thinking …About Design and/or Technology,* ed. by Alison Hardy and Eddie Norman (Oxford, Loughborough Design Press, 2021) pp. 27–39.

4 The original PhD call was entitled 'Designing a Design Curriculum' and offered a studentship with supervisors from the University of Brighton Design Archives and the School of Education, University of Brighton.

5 A timeline, detailing activities between 1988-2012 is provided in Appendix B.

6 Following decades of debate about the content and delivery of education for children, the Conservative government (1979-1997) introduced ground breaking new legislation on educational provision in 1988. Stephan J. Ball describes these reforms as one of the 'grand flourishes' in the history of government policy intervention in state schools. Stephan, J.Ball, *The Education Debate*, (Bristol: Polity Press, 2013), p. 101.

7 Lord Baker had a background in business, making his way into politics in 1968 as a Conservative Party MP. He was Minister for Information Technology (IT) from 1981-1985, leading a pioneering programme to introduce computers into every school. Between 1986-1989 he was Secretary of State for Education and went on to hold posts as Party Chairman and Home Secretary before his departure from government in 1992. Baker retained his longstanding interest in educational reform and advocate for technology, launching University Technical Colleges (UTCs) in the late 2000s and publishing a manifesto for education in 2013, see, Kenneth Baker, *14-18 – A New Vision for Secondary Education* (London: Bloomsbury, 2013) and Richard Sharpe, 'Interview with Lord Kenneth Baker', IT Archives (AIT), 12 July 2018, <https://archivesit.org.uk/interviews/lord-kenneth-baker/> [accessed 31 October 2021].

known, significantly increased government's power over the administration and organisation of primary and secondary schools in England and Wales.[8] New legislation also provided a mandate for a new curriculum framework, including a suite of subjects that would be taught to all pupils attending state sector schools.[9]

In the early stages of education policy development, government advisors signalled their intention to include a cross-curricula design-component within the National Curriculum framework.[10] The remit for developing an approach to design was assigned to the 'National Curriculum Design and Technology Working Group (NC/DTWG) in 1988, who considered "design" and "technology" to be intimately connected and defined 'design and technology' as a unitary concept.[11] Following a period of consultation and revisions overseen by the National Curriculum Council (NCC) in 1989, the NC/DTWG's recommendations formed part of the Statutory Orders for National Curriculum Technology, and became a compulsory part of the school curriculum from September 1990.[12] Technology was latterly revised, renamed and relaunched as Design and Technology, in 1995. Design also featured as part of the art curriculum, and the subject was formally renamed Art and Design when new provisions for the National Curriculum were issued in the Labour government's 2000 Education Order.[13]

8 See, *Education Reform Act 1988*, (London: HMSO) [online] <http://www.legislation.gov.uk/ukpga/1988/40/contents/enacted> [accessed 31 October 2021].
9 The phrase 'curriculum framework' refers to a 'group of related subjects or themes which fit together according to a predetermined set of criteria appropriate to an area of study', see, Ivor Goodson and Colin J. Marsh, *Studying School Subjects: A Guide* (London: Falmer Press, 1996), p. 36.
10 See, London, The National Archives (TNA), National School Curriculum (NSC), Department of Education and Science Papers relating to the proposals for the establishment of the NSC, 1986 – 1987, ED183/81, 'Draft speech, 23/1/87'.
11 See, DES/WO, *National Curriculum Design and Technology Working Group Interim Report* (London: HMSO, 1988), p. 2, 74.
12 NCC, *Technology in the National Curriculum* (London: HMSO, 1990).
13 See, *The Education (National Curriculum) (Attainment Targets and Programmes of Study in Art and Design) (England) Order 2000* (2000/1602) Article 2, [online] <https://www.legislation.gov.uk/uksi/2000/1602/article/2/made> [accessed 5 May 2022].

Putting nomenclature to one side for the time being, what this meant was that for the first time in the history of state-funded education in England, design formed part of the mainstream school curriculum, creating an unprecedented opportunity to disseminate ideas and knowledge about design to generations of young people.

Debates about design education in schools became dominated by D&T subject development. The National Curriculum framework, however, was uncharted territory. The more heterogenous ideology of design education, manifest in the NC/DTWG's early conceptualisations of D&T appeared to be incompatible with the existing administrative structure of secondary schools in particular.[14] Added to this, ongoing educational reform activities undertaken by successive governments from the 1990s onwards, combined with regular revisions to the National Curriculum guidelines, impacted on provision in schools. The unprecedented challenges that D&T faced were documented in two papers commissioned by the Royal Society of Art (RSA) Design and Society series in 2010 that laid out the apparent failure of the subject to take root as part of the standard school curriculum.[15]

D&T's decline intensified in 2011 when the UK government's Department for Education (DFE), headed by the then Secretary of State for Education, Michael Gove, launched a major review of the English National Curriculum. Up until this point, the standard school curriculum for students aged 5–14 had included the two design-related subjects: D&T and

14 As discussed by Carrie Paechter, *Changing School Subjects: Power, Gender and Curriculum* (Bury St Edmonds: Open University Press, 2000), p. 63-65.
15 John Miller, 'What's Wrong with DT?' (RSA: Design and Society, 2011), <www.thersa.org/__data/assets/.../RSA_Whats-Wrong-With-DT.pdf> [accessed 31 October 2021].

art and design. By 2012, the proposed introduction of the English Bacculaureate (EBacc), a performance measure set to monitor achievements in five core subjects (English, mathematics, sciences, a language and history or geography) that was championed by Gove, had led to a reduction in timetabling for non-Ebacc subjects, including D&T, music, art and design, performing arts, and media studies.[16]

The E-bacc's impact on the delivery of creative subjects in schools was heavily criticised by mainstream news media between 2011/12.[17] However, D&T continued to face cuts and a more academically-orientated National Curriculum now dominates educational provision in England.[18] Writing in 2021, D&T's future in the context of the school curriculum looks increasingly bleak, with Britain's official departure from the European Union on 31 December 2020 and the Covid-19 pandemic prompting a new wave of introspection regarding the content and delivery of compulsory education.[19]

16 Between 2010-2019, there has been a steady decline in the number of pupils taking non-Ebacc subjects at GCSE, with D&T subjects in particular experiencing a significant reduction, as follows: art and design (-6%), dance (−46%),drama (−29%), media, film and TV studies (−24%), 6xD&T subjects (-65%). See, Tom Richmond, *A Step Baccward: Analysing the Impact of the 'English Baccalaureate' Performance Measure* (2019), p. 1, <https://www.edsk.org/wp-content/uploads/2019/07/A-step-Baccward.pdf> [accessed 31 October 2021].
17 Further evidence of debate generated by the government's proposal was variously reported in the mainstream press, including articles by, Jessica Shepherd, '"EBacc" Blamed for Cuts in Arts Subjects', *Guardian*, 7 February 2011, p. 8; Louise Jury, 'Put Arts in Ebacc say West End Chiefs', *Evening Standard*, 17 December 2012, p. 25; Tom Lawrence, 'No Arts in the English Baccalaureate Could Kill Britain's Creative Economy, Say Top Arts Figures', *Independent*, 3 November 2012, <https://www.independent.co.uk/news/education/education-news/no-arts-in-the-english-baccalaureate-could-kill-britain-s-creative-economy-say-top-arts-figures-8280114.html> [accessed 1 November 2021]
18 Concern about the reduction in uptake was such that political advocates such as the Earl of Clancarty asked how the government would encourage the study of design subjects in schools in 2017. See UK Parliament/ House of Lords, *Hansard's Parliamentary Debates: Education: Design Subjects*, (26 April 2017, vol. 782, cols. 1382-1381) [online] <https://hansard.parliament.uk/Lords/2017-04-26/debates/D7F90523-6A9B-4886-8A41-5F3B4BBA22F0/EducationDesignSubjects> [accessed 31 October 2021].
19 For example, in 2021 BBC Radio 4 broadcast a topical new series called *Rethink* to discuss what the 'new normal' might look like in the wake of the Covid 19 crisis. Daily episodes around a weekly topic explored a range of themes, including the future of education, see, 'Rethink Education', *Rethink*, BBC Radio 4, 5 July – 9 July 2021. <https://www.bbc.co.uk/programmes/m000xky4/episodes/player> [accessed 31 October 2021].

The downward trajectory of D&T provision in schools in England serves to highlight the topicality of this historically-anchored study and the significance of the twenty-five-year period just prior to the decline of D&T. It was in this context that the University of Brighton's call for research into design curriculum development in schools since 1988 was so timely, and although this historical investigation does not set out to explain D&T's downward trend post-2012, reflections that draw on the findings of this study are presented in the conclusion.

Research aims and objectives

This qualitative study focuses on the inception and implementation of D&T in the decades that straddled the turn of the twenty-first century and aims to establish a more nuanced understanding of the factors that determined design's position in the state school sector and the ambitions of those involved in design curriculum development.

The University of Brighton's original call for a research proposal referenced a hitherto unexplored collection of materials held at the University of Brighton Design Archives on the Design Council's involvement in design curriculum development from 1988.[20] As I discuss later in the introduction, this remit guided the direction of the study from the outset, and the investigation set out to:

- Identify archival collections and source materials, including papers, minutes of meetings, memos and internal reports; as well as published reports, dedicated

20 The Design Council are the government body for design promotion in the UK involved in research, reporting, advice, advocacy, policy influencing and development, information sharing and best practice. The University of Brighton Design Archives was founded in the 1990s and contains an internationally significant body of materials relating to post-war design organisations and twentieth century design history. See, University of Brighton, 'University of Brighton Design Archives'. <https://blogs.brighton.ac.uk/brightondesignarchives/> [accessed 31 October 2021].

classroom resources and newspaper articles that speak to the development of design and technology as part of the National Curriculum and scrutinise their content in relation to existing literature on subject development.

- Interpret historical discourses of design education through literature about the development of D&T in the UK including, classroom resources; reports and policy documents specifically covering the period 1988–2012.
- Develop a better understanding of the relationship between historical conceptualisations of design education and the implementation of National Curriculum D&T in schools, looking to encapsulate as many of these discourses as possible, as well as their originators.
- Contribute to design historical scholarship on the broader implementation of design education outside of the professional training of designers.

The investigation focuses on the role of D&T as part of the English National Curriculum framework. This is because, in Britain, educational policy is devolved and divided out between each of the four nations – England, Wales, Scotland and Northern Ireland. Each nation is responsible for organising its own education system, including the school curriculum and the subjects taught within it. As a result, variants of D&T, including subjects design and/or technology is organised, delivered and taught differently in each of the four countries, and the subject's remit, content and structure is distinctive in each nation. For this reason, at the outset, a decision was made to focus on implementation in England, where a distinctive blend of design *and* technology, or D&T, first originated and, for a short time at least, was a compulsory part of a student's basic education.

The investigation sets out a response to the two main research questions:

1) How can the historical discourses of design education be characterised?

2) How was this reflected in the initiation and implementation of National Curriculum D&T developed for schools, 1988-2012?

A series of sub-questions help to answer the main research questions, including: What is the historical legacy of design education in the UK? Who was involved in design curriculum development and what was their ambition for D&T? What challenges did advocates of design education face in adopting D&T as a vehicle for their educational ambition?

In addressing these questions and investigating discourses of design education from a design historical perspective, the study finds that ideas about design's educational value are remarkably stable, but that the emphasis placed on D&T's economic and social value in the context of the basic school curriculum, and on the role of design education as a career pipeline into the design profession, verses part of a general toolkit for mediating everyday life, fluctuated considerably in the period 1988-2012. This tension, and specifically the lack of clarity surrounding the core rationale for design in general education, has complicated design's consistent translation into a stable category of teaching at school level.

Contribution of a design historical perspective

Existing literatures about the history and development of D&T tend to be written by the subject community for the subject community.[21] A literature review, conducted as part of

21 See, for example, a spate of texts that were published in the lead up to the introduction of the National Curriculum framework in the UK, notably Tom Dodd, *Design and Technology in the School Curriculum* (London: Hodder and Stoughton, 1978); John Penfold, *Craft Design and Technology: Past, Present and Future* (Stoke-on-Trent: Trentham Hanley, 1988); Stephanie Atkinson, 'Design and Technology in the United Kingdom', *Journal of Technology Education*, 2, 1 (1990), 1-12, <https://scholar.lib.vt.edu/ejournals/JTE/v2n1/html/atkinson.html> [accessed 31 October 2021]. Also, seminal D&T texts published post-1988, including *Debates in Design and*

this study, indicated that arts and humanities research on the development of design education programmes delivered through the state school system was surprisingly sparse, and that this was especially the case in design historical literature. For example, a review of articles in the *Journal of Design History*, one of the domain's main research forums, showed that studies of design education tend to foreground the training of designers in further and higher education settings. This trend holds true for wider design historical literatures, which focuses on training courses for would-be designers, the culture of iconic design schools and emerging aesthetic styles, the approaches of eminent individual and influential artist-designer-educators and the development of prestigious or experimental courses.[22]

One of the reasons for this, as Kjetil Fallan observes, is that design historians often find themselves located on the edge of two very different disciplines: history and design studies. In terms of their research, and in their methodological approach and training, design historians affiliate themselves with the humanities. In terms of employment in academia, however, researchers are often appointed to teach historical and critical modules within the design departments of university-based art schools.[23] Added to this, and depending on their training, background and institutional departmental affiliation, many researchers who write about design history might identify themselves as social, economic or cultural historians, rather than design historians.

Technology Education, ed. by, Gwyneth Owen-Jackson, (Great Britain: Routledge, 2013); *Aspects of Teaching Secondary Design and Technology: Perspectives on Practice*, ed. by Gwyneth Owen-Jackson, (Glasgow: Routledge, 2002); *Issues in Design and Technology Teaching,* ed, by Su Sayers, Jim Morley, and Bob Barnes, (Perth: Routledge, 2007), Richard Kimbell and Kay Stables, *Researching Design and Learning: Issues and Findings from Two Decades of Research and Development* ([n.p.]: Springer, 2007).

22 See, for example, Gillian Naylor, *The Bauhaus* (London, Studio Vista, 1968); Christopher Frayling, *The Royal College of Art: One Hundred and Fifty Years of Art and Design* (Netherlands: Barrie Jenkins, 1987); Steven Heller, *The Education of a Graphic Designer* (New York: Allworth Press, 1998).

23 Kjetil Fallan, 'De-Tooling Design History: To What Purpose and for Whom Do We Write?' *Design and Culture*, i, 5 (2013), 13–20, (p. 14).

By focusing on design as part of general education and hence part of the state school National Curriculum, the study shifts away from histories of design tailored solely toward designers' education that seek to explore 'what constitutes an adequate training for designers, destined for careers in industry and mass production.'[24] It might be supposed that the tendency to chronicle training courses for would-be designers is indicative of a domain committed to venerating the design profession. By the late 1970s, however, design historians in the UK had started to lead the field in a different direction. Where the history of design, as a branch of the history of art, had been told through an assessment of the quality of individually designed objects, the work of individual designers, design partnerships, major design schools, aesthetic styles or movements, design historians began to shift their focus toward the social, cultural and historical context in which objects were produced.[25]

Indicative of the discipline's shift toward the role of design *in* history, the publication of Adrian Forty's seminal book *Objects of Desire* in 1986 emphasised how design helps to turn 'ideas about the world and social relations into the form of physical objects'.[26] In 1987, the following year, Hazel Conway declared that the dominant design history of the iconic designer and product, although still a feature of the domain, was no longer its central

24 See, for example, Penny Sparke's focus on 'Educating Designers' in Penny Sparke, *An Introduction to Design and Culture in the Twentieth Century*, 3rd edn (London: Allen & Unwin, 1986), p. 158.
25 A development discussed in greater depth by Clive Dilnot, 'The State of Design History, Part 1: Mapping the Field', in *Design Discourse: History, Theory, Criticism,* ed. by Victor Margolin, (London: University of Chicago Press, 1989), pp. 213-232.
26 Adrian Forty, *Objects of Desire*, (London: Thames and Hudson, 1986), p. 245.

concern.[27] By 1999, Judy Attfield's perception was that design history had transitioned to embrace material culture approaches, drawing on anthropological and ethnographical methodologies to explore the social, cultural, economic, political and technological context in which objects are produced and consumed.[28]

Although subsequent literatures would suggest that scholars are still exploring the spectrum of the domain, the absorption of interdisciplinary approaches reflects a keen interest in pluralist perspectives to deliver histories of design.[29] Resisting the tendency to focus on great designers and designs has become an important feature of design history writing that seeks to recognise 'design as the material embodiment of social and economic values' that extend beyond design practice and the design profession.[30] As a case in point, Fallan warns against research that only seeks to service the design community by improving designers knowledge of the past.[31] However, in primarily focusing on the history of design education as it relates to designer training, it is apparent that this is precisely what has happened.

Design historical critiques, it is suggested, have yet to embrace the social and cultural spectrum of general educational initiatives intended to break down professional barriers between designers and the public. Paul Atkinson notes a tendency to overlook non-professional, or so-called amateur design activity, observing that 'design methodology has

27 Hazel Conway, 'Design History Basics', in *Design History: A Students' Handbook*, ed. by Hazel Conway (London: Allen and Unwin, 1987), pp. 3-14 (p. 4).
28 Judy Attfield, 'Beyond the Pale: Reviewing the Relationship between Material Culture and Design History', *Journal of Design History*, 12 (1999), 373–79, (p. 373).
29 See, for example, Annebella Pollen, 'My Position in the Design World: Locating Subjectivity in the Design Curriculum', *Design and Culture*, 7 (2015), 85–105, DOI: 10.2752/175470715x14153615623727
30 Victor Margolin, 'Introduction' in *Design Discourse: History, Theory, Criticism*, ed. by Victor Margolin (USA: University of Chicago Press, 1989), pp. 3-28, (p. 27-28).
31 Fallan, pp. 17-18.

stressed the importance of taking a user-centred approach, but has not envisioned a position where designer and user are essentially one and the same.'[32] In speaking to formal curriculum frameworks that include design as part of a general education entitlement, as opposed to a pathway into the design profession, this study breaks with convention and establishes a position for design historical critiques of design education in schools-based contexts.

Maya Oppenheimer called for design historical research that reconsiders design education narratives 'outside the dominant historical perspective' in a special edition of the *Journal of Design History*, called 'Histories of Design Pedagogy' in 2015.[33] Containing twelve articles on design education previously published in the journal, and characteristic of the lacuna, only one paper speaks to design in a schools context and even then it focuses on the implications of the technological, as opposed to the design, aspect of National Curriculum D&T education.[34] In categorising the existing literature and outlining an agenda for future research, Oppenheimer identifies three themes that encapsulate design historical research on design education: 'Design Systems and Projects', 'Ethics and Methods' and 'Critical Histories and Theories'. The first two categories focus on the structure, theory, pedagogy

32 Paul Atkinson, 'Boundaries, What Boundaries', *The Design Journal*, 13, 2 (2010) 137-155 (p.137) DOI: 10.2752/175470710X12735884220817

33 Maya Oppenheimer, 'Introduction; Histories of Design Pedagogy', in Histories of Design Pedagogy, ed. by Maya Oppenheimer, *Journal of Design History*, 14 (2016), 2-24, (p.e 19), <https://doi.org/10.1093/jdh/epw014>

34 See, David Mulberg, "Just Don't Ask Me to Define It": Perceptions of Technology in the National Curriculum', *Journal of Design History,* 6, 4 (1993), 301–305.

and experience of design education in higher education contexts and the third with changes in design history to inform interdisciplinary approaches.[35]

In agreeing with Oppenheimer that there are issues surrounding the short-termism of educational research that is all too often 'cantilevered around reform', this study is firmly positioned as a work of critical history.[36] An example of the type of study attempted here resides in an edited collection of essays that might be considered a work of social history, object history, design history and school subject history. In seeking to contextualise the development of design in an educational context, *The Camberwell Collection: Object Lesson* is ostensibly about a touring exhibition for schools, originally curated and distributed by the Council of Industrial Design (CoID) and the Inner London Education Authority (ILEA) between 1951 and 1976.[37] Four of the six essays in the book contextualise the collection in terms of vernacular approaches to design education in Britain and the evolving education strategy of various bodies involved in developing schools-based design education programmes. Jonathan Woodham's chapter 'The Consumers of the Future', for example, draws on his longstanding research interest in the role of the Design Council, formerly Council of Industrial Design (CoID), in promoting design and upholding the interests of the design community through design education initiatives aimed at the mass population.[38] Two further chapters by John Penfold position design education in the context of state school

35 Oppenheimer adopts Alain Findeli's 'Urmodell' through which to refers to elements of a design pedagogy master plan, see Alain Findeli, 'Rethinking Design Education for the 21st Century: Theoretical, Methodological, and Ethical Discussion', *Design Issues*, i, 17 (2001), 5–17, <http://projekt.unimes.fr/files/2014/04/Findeli.2001.Rethinking-Design-Education.pdf> [accessed 31 October 2021] and quoted in Oppenheimer, p.e 2.
36 Ibid.
37 *The Camberwell Collection: Object Lesson*, ed. by, Jane Pavitt, ([n.p.]: Camberwell College of Arts, 1996).
38 Jonathan Woodham, 'The Consumers of the Future: The Council of Industrial Design and Educational Strategies for Schools, 1944 to the late 1950s', *The Camberwell Collection*, pp. 16–24,

curriculum developments and the lead-up to the introduction of the National Curriculum framework.[39]

Their approach is unlike design historical accounts of design education that focus on the training of designers, or education histories that focus on policy or pedagogy. Rather than seeking to critique specific cycles of subject development, educational policy, the relative efficacy of different pedagogical approaches, or the professional concerns of the teaching community at a particular moment in time, the volume positions the historical trajectory of design education in relation to the existence of a collection of objects. In spirit, this thesis attempts to position itself as an extension of this collection of essays, using a collection of hitherto under-investigated documents in the University of Brighton Design Archives as an entry point into the development of National Curriculum D&T as a neglected territory of design history.

Research approach

The original PhD call invited proposals that made use of Design Council materials currently held in the University of Brighton Design Archives. Woodham describes the transfer of the Design Council's files to the University of Brighton in 1994, noting that, among other things, the records presented an opportunity 'to examine – in depth – the place of design in educational change from the primary to tertiary sectors from the 1940s through the 1990s.'[40]

39 John Penfold, 'Techniques and Traditions: Design and Craft Educational Practices in the Post War Period', in *The Camberwell Collection*, pp. 27–33.
40 Jonathan Woodham, 'Redesigning a Chapter in the History of British Design: The Design Council Archive at the University of Brighton', *Journal of Design History*, 8 (1995), 225–229 (pp. 228-229).

The section of the University of Brighton Design Archives' holdings relating to the Design Council's educational initiatives in the late 1980s and early 1990s was uncatalogued when this investigation commenced in autumn 2012. The potential value in reviewing these documents for the first time was to develop understanding of the Design Council's activity and engagement in curriculum planning during this important period of educational reform. In particular, as discussed in Chapter Four, it was an opportunity to test assertions by critics of National Curriculum technology education that the Design Council had been responsible for the insertion of design into the remit of the subject.[41]

An initial review of the material indicated that the files originally belonged to former members of the Design Council's Education Committee, including Benedict Austen, Industrial Design Education Liaison Officer; Colin Ledsome, Senior Engineering Design Education Officer; Richard Shearman, Director of Education and Primary Education Working Party Secretary; and Victoria Felton, Education Resources Manager, prior to a significant restructuring process in 1995. As it was, the files represented the minutiae of these individual's day-to-day work, including projects at different stages of completion; records of activities that had taken place; and resources that were being developed [**Appendix C**]. While the materials offered a glimpse into the activities of successive Design Council departments, further information was needed about the overarching situation before this material could begin to contribute to a historical and critical narrative. Without recourse to a stronger framework for understanding the Design Council's specific educational objectives at

41 See, for example, critique by Robert McCormick, 'Technology and the National Curriculum: The Creation of a "Subject" by Committee?', *The Curriculum Journal*, 1 (1990), 39–45, (p. 45).

this time, and as Deputy Curator of the University of Brighton Design Archives, Lesley Whitworth, anticipated in another context, the Design Council collections offer 'innovative starting points, many of which can be brought to fruition by the location of sympathetic supplementary material.'[42]

Digging deeper into the history and development of D&T, additional archival material was located through the identification of groups, organisations and public sector bodies with a vested interest in the field, who were operating in and around this time, including but not limited to:

- **The National Curriculum Design and Technology Working Group**, advisory group to Department of Education and Science (DES) 1988–1990, involved in providing the UK government with recommendations for the first iteration of National Curriculum D&T.
- **The Design and Technology Association**, professional subject association involved in supporting the education community, including developing networking, resources, training, events, curriculum development, policy advice, stakeholder engagement.[43]
- **The Engineering Council,** UK regulatory body for professional engineers involved in lobbying, support for government research bodies in design and technology, resources and reports.
- **The Arts Council**, UK public advisory body for performing, visual and literary arts was formerly known as the Arts Council of Great Britain (ACGB) until organisational responsibilities were devolved between England, Scotland, Wales and Northern Ireland in 1994. Responsible for advocating for the arts.[44]
- **The Crafts Council,** UK national development agency representing contemporary craft, receives funding from Arts Council.

42 Lesley Whitworth, 'Selling the University of Brighton Design Archives to Retail Historians', *Business Archives: Sources and History,* 106 (2013), 31–48, (p. 46).

43 The Design and Technology Association is often abbreviated to DATA. However, in recent years the organisation has reverted to using its full name in public communications. Due the frequency in which the Design and Technology Association are referenced, and the potential for confusion between the names of various groups supporting D&T curriculum development, the organisation's full name is used throughout the study.

44 Originally called the Arts Council of Great Britain (ACGB), in 1994 the organisation was divided to form the Arts Council of England, which later became Arts Council England. For the purposes of continuity and clarity – their name will be abbreviated to the Arts Council as a standard term of reference throughout the study.

- **National Society for Education in Art and Design (NSEAD)**, professional subject association for art, design and craft, involved in best practice and resource production, consultancy, networking, trade union, lobbying.

The search for archival materials about these groups and their activities revealed that in 2010 a number of national repositories, including The National Archives (TNA) and the National STEM Learning Centre, had made materials relating to developments in D&T accessible to the public. This meant that for the first time since 1988, there was a significant body of archival material in repositories across England, that covered the inception of D&T as part of the National Curriculum framework. The main collections consulted include:

- **Archive of Art & Design (AAD),** at the Victoria and Albert Museum holds the public records of the Arts Council of Great Britain (ACGB) 1928-1997 and the Crafts Council, 1960-1998.
- **Design Council Archive,** University of Brighton Design Archives, transferred in 1994.
- **Design and Technology Association (DATA) headquarters**, holds some records relating to their origins in their offices in Warwickshire (with the rest having been transferred to the National STEM Learning Centre Library).
- **L. Bruce Archer Archive,** Royal College of Art (RCA) Special Collections in London includes records relating to the RCA research project, Design in General Education (1974–76), and the activities of the Design Education Unit (DEU).
- **The National Archives (TNA)** made a series of DES records available for public scrutiny early in 2010, including the files of the National Curriculum Working Groups; and the Design and Technology Working Group (NC/DTWG), 1988-1989.
- The **National Arts Education (NAEA) Archive** in Yorkshire Sculpture Park, West Bretton includes almost 200 individual collections covering the history and development of art education. It is a repository for NSEAD materials.
- **Newsam Library,** Institute of Education, University College London (UCL), home to archives and special collections that include a small body of biographical writings by HMI Inspectors, syllabi and examination papers for D&T and for GCSE and O level courses, curriculum planning papers and the Historical Textbooks Collection, a holding of school resources and textbooks for a wide range of ages and levels.
- **National STEM Learning Centre,** based at the University of York, promotes itself as 'the UK's largest collection of physical and online resources' to support STEM teaching. In addition to the physical collection, their online archive, part of a major digitalisation

programme launched in 2010, includes circa 5,000 official policy documents and reports relating to the development of D&T as part of the National Curriculum .

Throughout the investigation, and in analysing source material from these archives, careful consideration was given to:

1) What source material was retained (and what was not)?
2) Why these records were retained (and why other items were not)?
3) What this means, in the context of the individual collections, in comparison to other archival repositories and in relation to the past to which they once belonged and about which they now speak?

Ultimately, a historian's job is to derive meaning from the source materials that they locate and to create historical analyses by contextualising the flow of data and interpreting it to help explain past events in relation to the present. The investigative process creates an opportunity to piece together what the education historian Donald Warren calls 'a different whole.'[45] Reflecting on the process of historical scholarship, Warren observes that history writing is 'a science of perspective' and that the survival of a particular source does not make its content 'fact'. Instead, a historical narrative is achieved through the knowledge that 'sufficient reliable sources have been consulted, that the context is clearly retained, that the mode of analysis can explain the data, and that the historian's perspective has not imposed alien forms on the past.'[46]

Dealing with the more recent past created a set of issues in terms of access and availability of archival source materials. In many cases, due to the relative 'newness' of the topic, access to source materials was comparatively straightforward. In the NAEA, for example, I was

45 Donald R. Warren 'A Past for the Present: History, Education and Public Policy' *Educational Theory,* 28,4 (1978), 253-265, (p. 254).
46 Ibid.

given free rein to select what I wanted to look at in the storeroom. However, over the lifetime of the investigation national policy changes impacted on the availability of some sources. D&T textbooks and resources, for example, that had been widely available in 2012 because they still spoke to the requirements of the National Curriculum framework, were increasingly hard to track down by 2015. Library stock gradually diminished due to a combination of curriculum reform activity, the increasing availability of e-publications made available through repositories like the National STEM Learning Centre online library, the changing priorities and budgets of university libraries and the physical age of the materials. Resources that were originally easily and locally available at the University of Brighton's library on the Falmer campus in 2012, for example, became accessible only via electronic download, through online digital repositories or by visiting special collections.[47] The texts had not become entirely irretrievable, but access to them had to be mediated differently. Latterly, this began to change again, as digital repositories like the National STEM Learning Centre's online library, which was a central source of official reports on D&T and related subjects, retracted content because it was no longer relevant to the teaching community.

These access issues suggest that while there is a wealth of previously untapped source materials that enables reappraisal of prominent debates in the field of D&T, there may be a finite opportunity to do so. Furthermore, that the availability of new source material is not a panacea to the methodological issues associated with history writing. This observation speaks to E.H. Carr's description of history writing as 'a continuous process of interaction

47 The University of Brighton has a long history in delivering teacher training. The Brighton College of Education first opened in 1909, moved to a dedicated campus at Falmer in 1965 and became part of Brighton Polytechnic in 1976, which was granted university status in 1992. D&T was taught as part of the suite of undergraduate and postgraduate teacher training courses throughout the 1990s and 2000s, however the course was discontinued around 2015/16.

between the historian and his facts, an unending dialogue between the present and the past'. Historical narratives, Carr claims, are not based on scientific rationale, but are knowingly limited by the information available at a given point in time, the way in which that information is presented to the researcher and the subsequent interpretation of their sources.[48] It is prudent to acknowledge that this study offers a critical analysis of the materials that were available during a given period of time and that there is not a singular truth of the situation, only interpretation.

Outsider perspectives

By framing the discourses of design education in a design historical context, as distinct from an education context, the study seeks to contribute to revisionist approaches to history writing that challenge the status quo. In his critique of research on the history of music, Kevin Korsyn observes that when a subject becomes the object of an academic discipline, its discourse can create tension between different interest groups. Artificial barriers are built up through the theorisation and compartmentalisation of academic disciplines, who invent 'expert critical and technical languages' to create 'a social bond amongst those who share them'.[49] While these languages unite groups of researchers, they can also alienate and exclude outsiders, a situation often exacerbated through physical boundaries as different disciplines are housed in different schools, colleges and administrative centres that might be

48 E H Carr, *What Is History?,* (London: Penguin, 1967), p. 29, 30.
49 Kevin Korsyn, *Decentering Music: A Critique of Contemporary Musical Research,* (Oxford: Oxford University Press, 2003), p. 6.

located in different parts of a building, in different buildings, or on different campuses altogether.

In the context of higher education, design-related subjects are often at a remove from one another. Design practice courses for instance are housed within art and design or architecture departments; design education or D&T teacher training courses within education departments and design history within humanities departments. Each design-related practice approaches the field from a different angle, using design method theory, social sciences, or historical investigation methodologies.

In the case of art and design education histories, meanwhile, new disciplinary outlooks and revisionist interpretations provide an important addendum to established discourse. Mervyn Romans' research on the introduction of the first government-funded national design schools in 1836 is an example of how historical re-evaluations can break with the status quo and present novel and alternative interpretations of the past. Romans demonstrates that juxtaposing 'research already familiar in one sub-discipline with another' creates pluralist viewpoints and new histories, which are to be welcomed for their differences.[50]

In educational studies, research is often conducted by a practice community with direct experience of teaching in either schools or at universities using a form of autoethnography or narrative inquiry to understand experiences of the researcher and their relationship to

50 Mervyn Romans, 'Political, Economic, Social and Cultural Determinants in the History of Early to Mid-Nineteenth Century Art and Design Education in Britain' (unpublished doctoral thesis, University of Central England, 1998), pp. 209-210.

the research topic.[51] Education historians Elisabeth Hansot and David Tyack however, advocate looking at the past through a different disciplinary lens to help prompt different or novel interpretations of the source material. This approach, they suggest, has value because historians are often uniquely positioned 'to raise issues that are "too hot to handle" or are glossed over for political reasons in the present'.[52] Coming to a similar conclusion, Jenny Ozga and Sharon Gewirtz note that education researchers working in and writing about the field often focus their analysis on periods of 'living memory' and the proximity between 'the researcher and the researched' has implications for educational policy research in terms of their objectivity.[53] In order to influence policy development and demonstrate the attributes of a given subject, educational researchers have to demonstrate the incremental benefits of a given approach or change in practice. Partly as a result of this, and referring back to Hansot and Tyack, educational histories often provide a narrative of continual progress in which the past is interpreted as a linear trail of successive improvements that always advance the field.[54]

Investigating design education in the context of higher education and museum learning environments, Philippa Lyon demonstrates how outsider perspectives can provide a refreshing alternative to discipline-specific discourse. Drawing on her position as an outsider to inform her interpretation – in the sense of not having been educated through or

51 For insight into this methodological approach in action, see, D. Jean Clandinin and F. Michael Connelly, *Narrative Inquiry, Experience and Story in Qualitative Research* (San Francisco, John Wiley & Sons, 2000).
52 Elisabeth Hansot and David Tyack, 'A Usable Past: Using History in Educational Policy' in *Policy Making in Education*, ed. by A. Lieberman and M.W.McLaughlin (Chicago: National Society for Study of Education, 1982) pp. 1-21, (p. 16).
53 Jenny Ozga and Sharon Gewirtz, 'Sex, Lies and Audiotape: Interviewing the Educational Elite', in *Researching Educational Policy: Ethical and Methodological Issues,* ed. by David Halpin and Barry Troyna (Lewes: Falmer Press, 2004), pp. 121-136, (p. 123).
54 Hansot and Tyack, p. 15.

practised design and not having a background in pedagogical theory –affords Lyon certain advantages: 'I felt as if I was acting as a kind of specialist novice, licensed to be curious and intrigued, to gather information, investigate and to find meaningful ways of shaping and presenting what I found.'[55] This positioning, however, also prompts Lyon to question what constitutes an outsider and the complexities involved in recognising how far 'your own views, values and experiences affect not just your interpretations but the way you set up the research; the way you behave while carrying the research out?'[56]

While this study does not propose a narrative enquiry methodology per se, any attempt to valorise the study as presenting an outsider perspective must include some interrogation of the researcher's positionality in relation to the subject matter; to speak to this, the following section now switches to a first-person narrative.

Researcher's positionality

I am not part of the subject community and I have not had any direct professional involvement with the events that took place between 1988 and 2012, with policymaking or with teaching. This separates me, as the researcher, from the vast majority of literature on the topic of design and technology. My position, however, is not quite so straightforward, and I cannot claim to be a complete outsider because my own experience and familial connections implicitly position me within the history that I seek to construct. By identifying my connection to the topic of study and describing my memory of the events discussed

55 Philippa Lyon, *Design Education; Learning, Teaching, Researching through Design* (Farnham: Gower. 2011) p. 11.
56 Ibid.

herein, it is my intention to acknowledge how my identity may have shaped my position. It also provides something of a flavour of the experience of design and technology from a pupil's perspective.

I was familiar with debates surrounding National Curriculum D&T during part of the period of study because I attended a state school in England between 1988 and 1995. Not only did I enter secondary school in 1990 into the first year of one of Baker's newly rebranded grant-maintained 'technology' schools,[57] I was also part of the first cohort of secondary students to embark on the National Curriculum and the first cohort that was expected to undertake technology all the way through to GCSE. My awareness of the political situation was heightened due to my father's job as a design and technology teacher and his particular interest in design education. An engaged member of the Design and Technology Association from its inception, as well as of the NSEAD, he would go on to author and collaborate on a series of design and technology classroom resources, work with Goldsmiths' Technology Education Research Unit and as an Ofsted inspector.[58] With a career as a design and technology educator that spanned five decades, he was well-connected in the subject community. While this background contributed to my interest in the topic, it has not otherwise played a part in the research, in access to or interpretation of source materials and related data collected as part of the study.

57 Technology school status was a product of the 1988 Education Act. In a bid to reduce Local Education Authority (LEA) power, the new legislation allowed secondary schools to apply to become a grant-maintained, and receive funding directly from central government. During the 1990s they were a popular option in areas with low levels of LEA funding. The scheme peaked, and was also abolished, in 1998.
58 See, for example, Tristram Shepard, *Education by Design, A Guide to Technology Across the Curriculum* (Cheltenham: Nelson Thornes, 1990).

My memory of design and technology during the period 1990–1995 is of a general sense of confusion, the reasons for which I have come to better understand through this research. As a designated technology school, our design and technology classrooms (with the notable exception of the home economics rooms) were shiny and new. This was in marked contrast to the shabby and box-like construction of the rest of the circa-1960s-style concrete school buildings. We were allocated one double lesson and one single lesson of D&T or home economics per week, which represented just under two and a half hours of our 30-hour school week. Each term we were allocated a different D&T course, in either electronics, resistant materials (plastic, metal or wood work), which reflected the specialist fields of our three design and technology teachers, and home economics. Our time was variously spent on projects, of which the acrylic maze puzzle, using the vacuum-forming machine to make plastic kayaks, constructing a wooden letter holder and using the new state of the art sewing machines to make a blue tie-dyed tie (blue because the budget for the year had run out, so there was only one colour available) stick in my mind. All of these projects involved creating design sheets, where we would record the design specification, identify the pros and cons of similar products, create a mood-board, sketch out our own designs, select one, breakdown its construction, and eventually perform an evaluation of the project and final product. The pressure to use our time in the D&T workshop for 'making', rather than desk work, and the restrictions in materials and equipment, often meant that the 'design' aspect of this work was carried out retrospectively.

When we entered our GCSE years in 1994, the situation was complicated. Design and technology was still on the timetable, but there was always a question mark about whether or not we would sit a GCSE examination. Some of my friends' parents wrote to the school,

demanding that their children be excluded from lessons and from the exam, so they could concentrate on the nine other GCSE subjects we had to sit as part of the National Curriculum regulations. Around winter 1994/95 it was confirmed that, despite the government lifting of the mandatory assessment, we would still be required to sit for an examination in spring 1995, because of the school's technology status.

These characterisations raise two important points regarding my approach to the research and critical appraisal of D&T. Firstly, it highlights the enormous scale of the roll out of the National Curriculum and of the switch to making D&T a compulsory subject. In 1985, nearly 85,000 students had taken a GCSE in Craft, Design and Technology (CDT).[59] In comparison, by 1995, I was one of 298,000 students who sat for a D&T exam, and one of the almost 3.5 million students who took the GCSE course while it was compulsory from 1995 to 2005.[60] Given the introduction of the National Curriculum in 1990, it is the case that fewer and fewer researchers who attended a state funded school in England will have experienced statutory education before its introduction. Certainly, in terms of newly qualified D&T teachers, many will have spent the entirety of their schooling and professional life being taught, and now teaching, National Curriculum courses. The National Curriculum is all they, and indeed all I, know. This formative educational experience undoubtedly impacts upon how subject development is perceived, and the gradual decline of first-hand experience of a pre-National Curriculum educational framework underscores the importance of history

59 Penfold, *Craft Design and Technology: Past, Present and Future*, p. 63.
60 Figures extracted from Parliament datasets on GCSE entry figures in Schools in England by most popular subjects, see 'Top 12 GCSE subjects – 1995-2009' data.parliament.uk, (n.d.), <http://data.parliament.uk/DepositedPapers/Files/DEP2010-1900/DEP2010-1900.xls> [accessed 31 October 2021].

writing in ensuring that the lessons from the past can feature in debates about the present and future.

Secondly, this positioning acknowledges a pre-disposition to the research topic, as well as a heightened awareness of debates in the field over the past thirty years. Lyon recognises possible drawbacks to approaching a topic as a complete outsider including: 'the potential for misunderstanding design education issues due to insufficient context and experience; for simply skating too lightly across the surface of the subject and making brittle assumptions that would have no resonance with those involved.'[61] My family connection to someone on the 'inside' however meant that the names of key players in the subject community, and associated curriculum development projects, were already familiar to me. Although I did not always know what to expect when I searched through archival files on the development of D&T, I did have a sense of historical context in which to locate documents; knowledge of the conversations, debates and key activities that were happening in tandem, an awareness of the positions which different individuals represented and the broader networks they inhabited. This had its advantages, enabling me to move through source materials with relative speed and pull out the information that might relate to my research questions. It was also something to keep in check, to make sure that I was not overlooking data that did not fit into a pre-conceived narrative. It helped to keep in mind that the D&T subject community I was studying, was not the audience for whom I was writing, and that the design historical perspective was different to that of a design educator.

61 Lyon, p. 11.

This difference was most profound when it came to assessing the breadth of professional and personal viewpoints of those working in the D&T subject community; their beliefs about what design education should be, on what was good or bad about government policies, or on the success or failure of different approaches. Conscious of what sometimes felt like an excess of opinions and second-hand experience of working in the field, the desire to acknowledge these 'insider' perspectives was countered by the knowledge that they were just 'viewpoints'. The point of research in general, and this study in particular, is to look for evidence that might challenge, as well as confirm these opinions, and serves to reinforce the value of seeking alternative perspectives, delivered here, if not entirely from the outside, at least from the outskirts.

Chapter Structure

Chapter One explores definitions of design education and details the research approach, archival materials and supporting sources that informed the study. From there on the study is divided into two components, with each chapter exploring a different debate in the history of D&T.

The first section of the study, covered in Chapters Two and Three, deals with complexities surrounding the origins of public design education and its interpretation in the context of the state school curriculum. Chapter Two discusses the economic, holistic, humanistic and heuristic themes in public design education from the introduction of the Government Schools of Design, which commenced in 1837, through to consumer education initiatives in the post-Second World War period and the re-conceptualisation of the field in the 1970s, with a particular focus on the remit and theoretical positioning of the Design in General

Education Project at the Royal College of Art. Chapter Three, in contrast, focuses on the more porous historiography of D&T established by educators, educational researchers and educational historians in the lead-up to the introduction of the National Curriculum in schools in England and Wales. Comparing the surprisingly consistent discourses in design education in Chapter Two, with D&T's more fluid subject history in Chapter Three, highlights the difference between concept of design in educational contexts, and the delivery of education through art, design, craft, or other object-based, contexts.

The second section of the study, dealt with in Chapters Four, Five and Six, is broadly chronological and covers the core period of enquiry, 1988–2012. Chapter Four focuses on the development of D&T as a component of the original National Curriculum framework, including the overarching agenda for the new subject, and provides analysis of the constitution of the NC/DTWG and their recommendations. Chapter Five explores how groups and organisations attempted to implement National Curriculum D&T during the 'crisis' period in the early 1990s. Chapter Six moves on to evaluate ongoing support activities and the sudden change in direction following announcements about educational reform in 2010. It draws on the social versus economic arguments for design education that came to the fore during this period and shows how the historical contingency of the case made for design education over time and across interested parties has hampered its position as a stable component of the basic curriculum.

The conclusion summarises the study's contribution to knowledge and to existing literature, paying particular attention to how the domain of design history might further address this important period of design curriculum development.

Audience

From its position outside the D&T subject community, outside the history of education and within the domain of design history, it is expected that the research presented here will primarily resonate with historians of art, design and visual cultures, including those working within or alongside design history and with an interest in the culture and politics of design in society. Due to the topic of study, it is anticipated that there is also scope for the design educator, educationalist, educational historian, design theorist or the designer to engage with the debates presented herein. Any such cross-disciplinary readership is readily welcomed in the spirit of encouraging collaboration and critical debate in the field.

Terminology

In terms of discussing design in the context of the National Curriculum framework, specific subject names, typically D&T, is used wherever possible. On occasion D&T and art and design are referred to collectively as 'design-related subjects'. In Chapter Five, specific component courses within D&T, including resistant materials, textiles, electronics, home economics and graphics, are identified by name or by the term 'modules in D&T'. The phrase design curriculum is similarly used as an inclusive term to describe the broader system of design-related education practices in schools, and any associated course components.

Throughout the study the term design education is understood in its most literal sense to refer to a framework of competing ideas that underpin particular incarnations of design education at a particular point in time.[62] This decision has been made with the express purpose of circumventing debates about what does or does not constitute a design education. As a result, and unless individual identification is required, the phrase design education is used throughout the study to refer to *any and all* forms of education in which design features or forms part of a distinct educational intention. In other words, while the study recognises the multiplicity of meanings associated with the term design education, it does not advocate for a specific definition in relation to the content or approach to design in a given educational context. This approach helps to foreground the mobile and heterogeneous qualities of design as part of D&T in the context of England's national education system.

62 See Chapter One for detailed discussion about the different dimensions of design in educational contexts.

Chapter One: Research Methodology: Definitions, Sources and Literature

> '[D]esign is not an easy term to define, nor are the contours of its education, particularly at a time when the values and pathways of design training are so multifarious and under pressure.'[1]

In this statement, Maya Oppenheimer hit upon a perennial problem, namely that it is notoriously difficult to encapsulate the range of meanings associated with the phrase design education.

One reason for the variety of educational practices that come under the design umbrella relates to the range of meanings that the word design encapsulates. Design can be presented as a verb relating to the act of producing a drawing, diagram, model, system or object; or a noun, an aesthetic style or the physical characteristics of an object or building. A design could also refer to a drawing, a plan, blueprint or system, whether physical, visual or conceptual.[2] However, as Guy Julier suggests,

> Design is far too variegated in its practices, far too widely deployed and far too diverse in how it is understood and used for us to be able to express a singular definition for it. Instead, we have to take into account the different temporalities and territories it operates in. We have to understand its various and, sometimes, conflicting purposes.[3]

A similar case might be made for 'design education'. At its simplest it could refer to the state of teaching and learning design in formal education contexts, usually schools or universities, and to educate someone in the field of design would involve the delivery of training or the

1 Maya Oppenheimer, 'Introduction; Histories of Design Pedagogy', ed. by Maya Oppenheimer, *Journal of Design History*, 14 (2016), 2-24, (p.e2) <https://doi.org/10.1093/jdh/epw014>
2 Adapted from entry in the Oxford English Dictionary, *Definition of Design,* Oxford University Press (Lexico.com, 2021)
< http://www.oxforddictionaries.com/definition/english/design?q=design> [accessed 31 October 2021].
3 Guy Julier, *Economies of Design* (London: Sage, 2017), p. 2.

purposeful transfer of intellectual, moral or social knowledge, typically from teacher to student.[4] However, historical definitions of design education would suggest that this straight forward definition fails to encapsulate the range of discourses the phrase can encompass.

This issue has implications for those attempting to formulate its history, and the first section of this chapter necessarily considers the different ways in which the term 'design education' is understood. Moving on to the research methodology, the second section provides an overview of the research approach and the third and fourth sections introduce the main sources, archives and literatures that were consulted over the course of the study.

Definitions of design education

Scholars of design education often stake an affiliation with either a specific learning context, usually higher education courses and related subdisciplines, or with particular approaches to learning that have evolved around art, design or craft practice.[5] Bringing all of these together to tell a single history of design, or art and design education, can sometimes create confusion. Nicos Souleles, for example, traces the history of art and design education in the UK back to the tradition of ruralised craft training and conflates pre-twentieth-century programmes of art education delivered to trainee designers, with vocational training delivered as part of the basic school curriculum.[6] The issue with this is that the two strands

4 See, Oxford English Dictionary, *Definition of Education*, Oxford University Press (Lexico.com, 2021). <https://en.oxforddictionaries.com/definition/education> [accessed 31 October 2021]; Oxford English Dictionary, *Definition of Educate*, Oxford University Press (Lexico.com, 2021) <https://en.oxforddictionaries.com/definition/educate> [accessed 31 October 2021]

5 For examples of edited collections of case studies, see *Histories of Art and Design Education: Cole to Coldstream*, ed. by, David Thistlewood, (Harlow: Longman, 1992); *Histories of Art and Design Education: Collected Essays,* ed. by Mervyn Romans, (Trowbridge: Intellect, 2005).

6 Nicos Souleles, 'The Evolution of Art and Design Pedagogies in England: Influences of the Past, Challenges for the Future', *International Journal for Art and Design Education*, 32 (2013), 243–55.

of education had a very different purpose. Art and design education for trainee designers was intended to prepare students for entry into the design professions. The teaching of skills and vocational training in schools, in contrast, provided a general education to children and young people expected to enter into a variety of trades, industries or other employment.

The conflation between general education and designer training exists, in part, because in the past the origin of the word 'design' was synonymous with 'art'. As Clive Ashwin explains, in English use of the word design originates from 'the Italian *disengno* or the French *dessin* (drawing)', which was understood to mean graphic invention in the fine arts and architecture. According to Ashwin, the proximity of art and design education continued into the twentieth century and until design became more closely allied with industrial and commercial practices and art with creative and aesthetic approaches.[7]Adding to this, pre-twentieth-century source materials that refer to tertiary education policy and practice relating to the arts, including design and craft, rarely differentiate between approaches in schools as opposed to further education, as Ashwin explains:

> Until the end of the nineteenth century, school and post-school levels were often treated together, for example in the publications of the Science and Art Department; but with subsequent legislation a firm boundary has been established between the two with the consequence that most twentieth-century policy documents exclusively devoted to art education concern themselves with post-school level, whilst official statements about art education for children normally appear as sections, sometimes brief, of general reports about age- or ability-groups.[8]

7 The phrase 'art and design' is still commonly used as a composite term, particularly in educational contexts. Julier, p. 1.
8 Clive Ashwin, *Art Education: Documents and Policies 1768-1975* (London: Society for Research into Higher Education, 1975), p. vi.

Design historical accounts of design education tend to overcome this issue by focusing on twentieth-century training programmes intended to prepare students for a career in the design professions. Speaking to the design history community, Oppenheimer, for example, situates design pedagogy as a 'conversation about design practice.'[9] This reflects an overarching interest in the training of designers that draws on a definition of design education as an aspect of further and higher education courses developed in response to a specific training need, namely the ongoing demand for professional and qualified designers.[10] As discussed in the Introduction, this designer-centric perspective approach traces pedagogic trends, the influence of major cultural or artistic movements and schools of thought, individual iconic designer educators or examples of innovative small-scale projects, specifically in higher education contexts.[11]

Understanding what is meant by the term 'design education' in the context of higher education opens out another set of complexities. In universities, design education is frequently understood as an overarching term to collectively describe different strands of aesthetic education or different sets of practices within a specialist field, such as industrial design, fashion, textiles, interior design, graphics or product design. Architecture and engineering also come under the 'design umbrella' and, as Victor Margolin notes, further segregations exist in these courses, with architecture often understood as a 'hybrid of art and technology' and engineering 'a technologically based form of design' that are

9 Oppenheimer, p.e 2.
10 Catherine McDermott, *Design: The Key Concepts* (Padstow: Routledge, 2007), pp, 72-73.
11 Penny Sparke, *An Introduction to Design and Culture in the Twentieth Century*, 3rd edn (London: Allen & Unwin, 1986), pp. 158-173, (p. 158).

positioned at a remove from the arts.[12] These fields might be characterised as specific design education contexts, and as Philippa Lyon discusses, different disciplinary narratives about what constitutes a design education can exist within them and according to the personal and professional identity, ideology and experience of individual students, practitioners, educators, departments, or organisations.[13]

Outside of formal education contexts, design education can take on a different set of meanings. This way of thinking is evocative of literary reflections, for example essays by Georges Perec and Nicholson Baker, that discuss the mundanity of the everyday in relation to our interaction with the material culture - the objects, clothing and buildings - that make up our day-to-day experiences of the world.[14] Lyon also speaks to design education in informal learning contexts, which prompts her to question whether a design education only occurs when there is a premeditated 'educational intent':

> There are many environments where we might learn about design and many opportunities through which we might experience design. We might take particular notice of the layout of a book or magazine. We might view or dwell on designed objects in our own domestic space, in high street retail stores, in stately homes or in car boot sales. We might be intrigued enough to find out about the processes through which the objects were made or be inspired by them in our own making.[15]

This reflection offers an opportunity to acknowledge the multiplicity of ways in which people encounter design, and how they learn about it from outside of the formal construct

12 Victor Margolin, 'Introduction' in *Design Discourse: History, Theory, Criticism*, ed. by Victor Margolin (USA: University of Chicago Press, 1989), 3-28, (p. 5).
13 As described, for example, by Philippa Lyon, *Design Education: Learning, Teaching and Researching through Design* (Farnham: Gower, 2011), pp. 28-36.
14 In particular, see Perec's 1973 essay 'Approaches to What?' included in Georges Perec, *Species of Spaces and Other Pieces* (Penguin Classics, 1974, 1988) and Nicholson Baker, *The Mezzanine* (Cambridge: Granta Books in association with Penguin Books, 1986).
15 Lyon, pp. 27-28.

of schools or universities. Paul Atkinson has also broached this topic in his research on DIY (Do It Yourself) culture as an exemplar of the democratisation of design. Noting the lacuna of design historical analysis on DIY, Atkinson discusses it in terms of being 'leveller of class, overcoming the social stigma of manual labour out of sheer necessity, and permitting the working classes to engage in leisure activities from which they were previously excluded'.[16] It will be important to remember that while the remit of this study is focused on how design is interpreted in the context of a schools-specific National Curriculum model, the formal delivery of design education by no means constitutes young people's only opportunity to learn about the field.

In formal educational contexts, educators seeking to develop new approaches to technical and visual education in schools in the 1970s adopted design as the medium through which to realise social ambitions. Bernard Aylward, for example, based his definition on the educational use of the act of design to understand society better, which formed part of his broader belief in the aim of education 'to help individuals achieve a full and satisfying life'.[17] For Peter Green, writing in the mid 1970s, design education was akin to everyday experience:

> Every day we arrange things around us in ways which are really practical solutions to design problems – we arrange tools on benches, utensils in the kitchen, clothes in drawers, so that they can be used efficiently. Experience of problem solving is common to education, the design process and daily life, and is therefore central to any ideas related to design education.[18]

16 Paul Atkinson, Do It Yourself: Democracy and Design, *Journal of Design History*, 19, 1, (2006) 1-10 <https://www.jstor.org/stable/3838669> [accessed 31 October 2021].
17 Bernard Aylward, *Design Education in Schools* (Great Britain: Evans Brothers Limited, 1973), p.14.
18 Peter Green, *Design Education: Problem Solving and Visual Experience* (Essex: Batsford, 1974), p.7.

Adopting a cross-disciplinary stance and considering the integration of craft across other areas of the curriculum, particularly art, home economics and technology, John Eggleston was a proponent of the integrative qualities of design that might help children become autonomous in regard to their decision-making skills and problem-solving abilities. He placed emphasis on engaging with craft teachers, updating classroom approaches and utilising existing school resources, specifically the workshop, to create lessons that related to everyday life. Eggleston defined design in schools in terms of the educational process involved:

> At the heart of the matter is the design process. This is the process of problem solving which begins with a detailed preliminary identification of a problem and a diagnosis of the needs that have to be met with a solution, and goes through a series of stages in which various solutions are conceived, explored and evaluated until an optimum answer is found that appears to satisfy the necessary criteria as fully as possible within the limits and opportunities available.[19]

This led Eggleston to a central and guiding rationale for design education in schools, which was to:

> help students not only to make things but also to experience for themselves the thought processes and the decisions involved in making them, and to be able to relate their experience to their lives outside the school, in home, work, pleasure and community.[20]

The centrality of the 'design process' continues to inform definitions of design education. For example, in a later characterisation offered by Yi Lin Wong and Michael Kin, tasks involving problem-solving, creativity and interdisciplinary approaches enables students to 'learn different knowledge and skills and apply them to solve design problems.'[21]

19 John Eggleston, *Developments in Design Education* (London: Open Books, 1976), p. 17.
20 Ibid., p. 37.
21 Yi Lin Wong and Michael Siu Kin Wai, 'The Development and Evolution of Design Education From Secondary School to Tertiary Education.' *Handbook of Research on Positive Scholarship for Global K-20 Education*, ed. by Victor X. Wang ([n.p.]: IGI Global, 2018), pp. 230-240. DOI:10.4018/978-1-5225-5667-1.ch017.

A domain of knowledge

For some, including those belonging to a self-identified design education movement in the 1970s and 1980s, design education represents a domain that acknowledges that the experience of 'making or doing' is equal to the accumulation of abstract knowledge through the humanities and sciences (**fig. 1**).

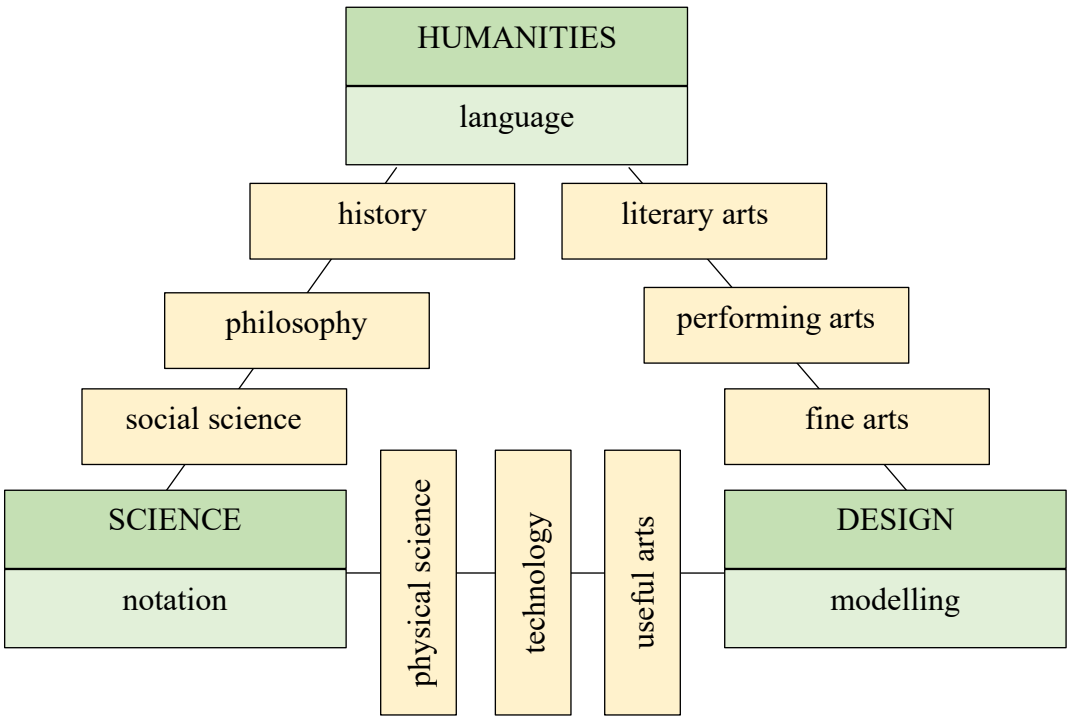

Figure 1 Design as a third area of education (RCA, 1976)

Image (redrawn by the author) from the Royal College of Art report, *Design in General Education*, 1976

Design education, in this context, is based on an ideological understanding of the core function of general education and of the role or value of design as a third area of knowledge

that is analogous to the sciences and humanities. In 1979, L. Bruce Archer encapsulated a definition of design education as follows,

> the set of formal and informal experiences effecting the transmission of the body of ideas and technique which constitutes the received state of knowledge of the material culture, and of the arts of doing and making at a given level of generality and with a given field of relevance.[22]

This has become a 'go-to' definition for advocates of Archer and of design education as a domain of knowledge that is analogous to the humanities and sciences. It appears, however, that the choice of the phrase, design education, was convenient rather than contingent. According to Archer, the phrase 'design education' was selected because of its historical pedigree and existing professional community, many of whom were open-minded to reform, as he goes on to explain:

> The term 'the Arts' would be ideal, if the expression had not been appropriated by, and used more or less as a synonym for the Humanities. The terms 'Aesthetics and Technics are considered, but ultimately discounted, the former for its distracted meaning in modern English and the latter for its general unpopularity… A term which has gained a good deal of currency especially in secondary schools in England and Wales, is 'Design' spelt with a big D and used in a sense which goes far beyond the day-to-day meaning which architects, engineers and other professional designers would assign to it.[23]

The schools context, which Archer refers to, relates to educational approaches that draw on techniques and experiences from a range of different subjects and apply them in practical project-based work that connects together skills like teamwork, problem-solving and creativity. The ideas behind design thinking are, in some ways, an extension of Archer's

22 L. Bruce Archer, 'The Three Rs', *Design Studies*, 1 (1979), 18-20, (p. 18).
23 From a revised version of the original article reproduced in, Bruce Archer, 'The Three Rs' in *A Framework for Design and Design Education: A Reader Containing Key Papers from the 1970s and 1980s*, ed. by L Bruce Archer, Ken Baynes, and Phil Roberts (Wellesbourne: Design and Technology Association, 2005), pp. 8-15, (p. 11).

approach to design education.[24] While definitions vary, Nigel Cross, an early pioneer of design thinking, describes it as method or tool to understanding how designer's think and applying that though process in everyday contexts. Based on studies of professional design activity, and seeking to demystify 'what designers do', design thinking harnesses creative and cognitive process that are an inherent part of human cognition.[25] Building on the idea of 'seeing with the mind's eye' to transform ideas into physical objects, or plans into reality, design thinking deconstructs what designers do and represents their approach as a problem solving methodology.[26]

The introduction of design as part of D&T, which itself was part of the National Curriculum framework introduced into schools in England in 1990, created a need for a less theoretical and more practical explanation of design in an educational context. Whereas art and design was associated with practical work in the fine arts – drawing, painting, photography and sculpture – D&T was understood as an extension of craft, design and technology (CDT), that stemmed from the educational tradition of lessons in 'manual instruction', typically woodwork and/or metalwork for boys and needlework and cookery, or 'handicrafts', for girls. These vocational links meant that CDT had a lower status in the school curriculum due to entrenched beliefs in some social and political sectors that intellectual work was more prestigious than manual work, and the historic association with students who did not

24 David Spendlove, 'Design and/or Technology 2.0: Is This The Way Forward? Rpt in *Redesigning D&T … Talking … Thinking … About Design and/or Technology*, ed. by Alison Hardy, Eddie Norman (Oxford, Loughborough Design Press, 2021), pp. 11-14.
25 Nigel Cross, Design *Thinking: Understanding How Designers Think and Work* (New York: Berg, 2011), p.1,3.
26 Fatima Cassim, 'Hands On, Hearts On, Minds On: Design Thinking within an Education Context', *International Journal of Art and Design Education*, 32,2 (2013) 190-202.

perform well in academic subjects, specifically the sciences, mathematics and humanities.[27] The introduction of D&T was widely heralded as an opportunity to address the stigma associated with practical subjects and entrenched gender divisions.

When the National Curriculum Design and Technology Working Group (NC/DTWG), convened in 1987, they posited that the term 'design and technology' should be henceforth understood as a 'unitary concept' that would be 'spoken of in one breath'. The approach they advocated drew on a range of different activities in schools, including art, business studies, information studies and science.[28] This cross-curricular approach was unusual, at the time and to this day, in that in secondary schools all other areas of study were contained within distinct subjects.[29] Their recommendations sought to shed the negative aspects of technical skills-based subjects that reinforced gender stereotypes about the suitability of different types of work for girls and boys, and present new ways of learning centred around applied knowledge, in which theoretical concepts from other subjects, such as art, science and mathematics, were used in practical projects. It also supported educational ideas around capability as opposed to knowledge, as a way defining the unique contribution of D&T to the suite of curriculum subjects. Design, in this context, was presented as equivalent to and an integral component of technology education that enabled the translation from concept to outcome, a skill that was deemed 'vital' for the twentieth century.

27 Stephanie Atkinson, 'Design and Technology in the United Kingdom', *Journal of Technology Education*, 2, 1 (1990) 1-12, (p. 1) <https://scholar.lib.vt.edu/ejournals/JTE/v2n1/html/atkinson.html> [accessed 31 October 2021].
28 DES/WO, *National Curriculum Design and Technology Working Group Interim Report* (London: HMSO, 1988), p. 2.
29 This was not the case in primary schools where a cross curricula approach to teaching different subjects was more common, see Rob Bowen, 'Design and Technology in the Primary School' in *Aspects of Teaching Secondary Design and Technology, Perspectives on Practice*, ed. by Gwyneth Owen-Jackson, 2nd Edn (Oxon: RoutledgeFalmer, 2002), pp. 9-26.

The NC/DTWG's approach proved controversial among advocates of both technology education and design education. Design educationalist, Phil Roberts, formally a Co-Director on the RCA Design in General Education project that had contributed to Archer's conceptual definition of design education, warned of the danger in conflating design *in* education with subjects that form part of the National Curriculum framework in schools in England, on the basis that a true design education cannot exist 'within any single school subject, nor with any well-established subject writ large'.[30] Robert McCormick meanwhile indicated that the 'design component' of the subject in particular was unwelcome and diluted the more science-based, skills-based approach that might be expected to underpin technology.[31] Somewhere between, Richard Kimbell acknowledged that while D&T does not represent design education per se, its introduction and the compulsory status of National Curriculum technology and for the design component of the course was a positive outcome.[32]

In summary, the meaning of the term design education has always depended on the meaning attributed to the design component of a given course, and this depends on who you speak to and their interest in the subject. It is for this reason, and in an attempt to reduce the partisan approach of the majority of design educational scholarship, that a broad definition of the term has been adopted in the study.

30 Phil Roberts, 'Design Education, A Select Bibliography' in *The Nature of Research into Design and Technology Education*, ed. by, Bruce Archer, Ken Baynes, Phil Roberts (Loughborough: Loughborough University, 1992), pp. 22-30, (p. 22).
31Robert McCormick, 'The Coming of Technology Education in England and Wales' in *Teaching Technology*, ed. by Frank Banks (Guildford and King's Lynn: Routledge, 1994), pp. 42–55.
32 Richard Kimbell, *Assessing Technology: International Trends in Curriculum and Assessment* (Bury St Edmunds: Open University Press, 1997), pp. xi-iv.

Groups and organisations involved in the history of design and technology

In exploring the development of D&T, the study set out to understand the activities of different groups involved in design curriculum development and provide a more nuanced account of the membership of these groups and how they operated between 1988 and 2012. The approach was prompted by Mervyn Romans' revisionist account of the rationale behind art and design education in the nineteenth-century Government Schools of Design. By cross-referencing biographical information about members of the 1835/36 Arts and Manufacture Select Committee with original documentation recording the debates and attendance at meetings, Romans was able show that, '[W]ho they were and where they came from cannot be separated from the questions they asked, and perhaps the answers they sought'. This allowed him to argue that the 1835/36 Select Committee was not necessarily driven by radical liberal aspirations, as is commonly claimed, and that the political consensus underlying the introduction of the design schools was less concerned with improving the economy and more concerned with educating the public in matters of taste.[33] Romans' reassessment of a dominant narrative is highlighted because, as will be seen throughout the study, there are distinct parallels between the origins of the public design education as introduced in the nineteenth century, and the rationale associated with D&T in the late twentieth and early twenty-first century.

Advocates of D&T

In the first instance, the research process involved identifying and mapping key individuals involved in D&T against a constellation of groups and organisations with a vested interest in

33 Mervyn Romans, 'An Analysis of the Political Complexion of the 1835/6 Select Committee on Arts and Manufactures', *The International Journal of Art and Design Education*, 26 (2007), 216–224, (p. 216).

design education who were operating at the time. Although, as might be expected, many individuals crossed over into more than one category, three main types of organisations were identified, including:

- **Public Advisory Boards:** the Design Council, Arts Council, Crafts Council and Engineering Council are UK charities and public advisory bodies that occupy spaces on the margins of government and receive some funding directly from the government. As Non-Departmental Governmental Bodies (NDGBs) they would be expected to have a vested interest in the development of National Curriculum subject D&T as it relates to their respective missions. With the advent of a new National Curriculum framework and its ramifications for improving the status of subjects that were included as part of a basic education, it can be assumed (and, as will be shown through the archival research in this study, even evidenced in some cases) that advisory boards like the Design Council, the Arts Council, the Crafts Council and the Engineering Council would be involved in the National Curriculum planning process and in turn would be involved in lobbying the government for representation of their specialist interests.[34]

- **Government Advisory Groups:** in 1988, the government presented technology as a 'new area of the school curriculum', and prioritised the development of subject guidelines, as discussed in Chapters Four and Five. The NC/DTWG, noted above, were the main group who were assigned the task of defining this new subject and they formed one of a succession of new committees created to advise on the content and structure of the ten subjects that made up the National Curriculum framework. Each group was required to provide a report to Baker, who would forward their final recommendations to a newly established National Curriculum Council (NCC), tasked with undertaking a consultation, revising the proposals and creating statutory orders that would be passed through parliament and enshrined in law.[35] While assessment practice does not feature strongly in this study, and indeed would warrant a separate project in its own right, the Schools Examination and Assessment Council (SEAC) was created at the same time to develop new GCSEs and

34 There have been substantial changes to lobbying procedures in recent years and a greater focus on transparency. While it is no longer the case, in the 1980s there was a general expectation and acceptance that NGDBs would attempt to influence government decision-making, typically through insider lobbying or specialist professional lobbyists. This activity tended to be carried out in secret, making it hard to assess its significance on political decision-making. See, John Dearlove and Peter Saunders, *Introduction to British Politics*, 3rd edn (Oxford: Polity Press, 2000), p. 238; Kavanagh, Dennis, *British Politics: Continuities and Change*, 4th edn (Oxford: Oxford University Press, 2000) p. 181, and Bill Coxall, *Pressure Groups in British Politics*, (London: Pearson Education, 2001).

35 The intended process for establishing a National Curriculum framework for schools in 1987 is outlined in, DES, *The Curriculum from 5 to 16* (London: HMSO, 1987).

oversee the extensive new testing systems.[36] Since the first incarnation of the National Curriculum, the scope and content of school subjects has been defined by working groups within the central government department with responsibility for state education, variously known as the Department of Education and Science (DES) 1964–1992, the Department for Education (DFE) 1992–1995 and 2010–current, the Department for Employment and Education (DfEE) 1995–2001, Department for Education and Skills (DfES) 2001–2007 and Department for Children, Schools and Families (DCSF) 2007–2010 **[Appendix B: Timeline]**. The membership of these advisory groups has largely been kept hidden from public scrutiny, but often includes expert advisory members or consultants drawn from research centres in higher education.

- **Subject associations:** historically, subject associations have played a central role in raising the status of subjects in schools; progressing bodies of knowledge as distinct areas of the school curriculum and allowing a subject to acquire status that is then reflected in a body of specialist teachers, departments, resource budgets and dedicated time allocation within the curriculum.[37] The Design and Technology Association was establishment in 1989, specifically to support D&T, it gradually replaced the host of subject associations that variously represented aspects or subjects, including the Confederation of Art and Design (CADA), the Confederation of Design and Technology Associations (CoDATA), the Association for Design and Technology Educators (DEStech), the National Association for Teachers of Home Economics (NAFTHE) and the National Association of Advisors and Inspectors in Design and Technology (NAAIDT). While not the focus of this study, design also featured as part of the national art curriculum. The National Society for Education in Art and Design (NSEAD) originally formed in 1983 as a merger between the Society for Education in Art (SEA) and the National Society for Art Education (NSAE). Initially supportive of new approaches to design education and recognising the relationship between art, design and technology, the NSEAD had a vested interest in promoting and safeguarding design education as per the interests of their members, typically teachers, head teachers, assessors, inspectors, academics, historians, and industry professionals working in art, craft and design education.[38] For this reason, the activities of the group are noted where relevant to debates about the nature of design education and its cross-curricula reach.

36 Since 1990, the SEAC has been variously renamed and reconstituted. From 1997-2011, following a merger with the SCAA and the National Council for Vocational Qualifications (NCVQ) it became the Qualifications and Curriculum Authority (QCA) and in 2011 became the Standards and Testing Agency (STA).
37 Ivor Goodson, *School Subjects and Curriculum Change* (Basingstoke, Falmer Press, 1993), p. 45.
38 For a background on the NSEAD, see David Thistlewood, 'The Formation of the NSEAD: A Dialectic Advance for British Art and Design Education', in *Histories of Art and Design Education: Cole to Coldstream*, ed. by David Thistlewood (Harlow: Longman in association with National Society for Education in Art and Design, 1992), pp. 180–189.

Information about these groups was garnered from a variety of source materials, including authored books, reports, obituaries, newspaper reports, journal articles, book reviews and the membership of organisations, focus groups, review panels and advisory groups, to identify affiliations through employment history and personal connections.

Source materials and interpretation

Archival materials provided a key source of data in this study and this section provides an overview of the scope and content of the repositories that were used to gain insight into the operation, concerns and activities of different groups involved in design curriculum development. Noting the potential for the methodological process involved in archival research to go unrecognised in humanities studies, this approach gives greater visibility to the act of locating sources, their content, characteristics, the opportunities and the challenges this posed.[39] Information is also given about other sources of information about these organisations, which helped with cross-referencing and contextualisation.

i) Design Council, Arts Council, Crafts Council, Engineering Council

Due to the project's origins, the Design Council Archive was the first port of call.[40] The Design Council's Royal Charter granted them a remit to advise on educational matters as they related to design and their interest in the potential of design as part of the school curriculum came to the fore in the late 1970s, when they published a report, *Design*

39 See, Barbara E. L'Eplattenier, 'An Argument for Archival Research Methods, Thinking Beyond Methodology', *College English*, 72.1 (2009) 67-89.

40 As indicated in the introduction, the original remit of the PhD project was lead a project that explored design curriculum development using materials pertaining to design education held in the collection of Design Council files stored at the University of Brighton Design Archives as a starting point.

Education at Secondary Level, discussed further in Chapter Three. Their archives demonstrate that they were involved in curriculum development activities throughout the 1980s and 1990s. Although disappointingly, and despite claims that they were closely involved in the government's decision to include design in National Curriculum planning, the Design Council's archives did not contain candid information about their involvement in this process or about their efforts to lobby government. It was therefore not possible to comment further on these activities, although where possible links were followed up via records on curriculum development held at The National Archives, discussed in Chapter Four.

At the time of writing, the section of the Design Council Archives dedicated to their educational activities in the 1980s and 1990s has yet to be catalogued. Comprising of four aisles and over 100 files, the collection includes minutes from the D&T Consultative Committee, Nuffield Foundation Consultative Committee, papers from the Design Council's Primary Education Working Party (PEWP), notes on government consultation documents, papers relating to the development of schools projects and various curriculum development resource projects as well as an assortment of memos, letters, draft documents and press releases. To begin to make sense of the materials and to make effective use of them for the purposes of the study, the collection of documents is listed in a basic inventory of holdings [**Appendix C**].

To put the Design Council's archival materials into context and to identify particular named individuals clearly involved in design education policy development, the notes made at the archives were cross-referred with the Design Council's annual reports, which at the least

included information about the departmental structures, lead individuals and educational projects. Examples of self-promotional publications consulted for research purposes include *50 Years of Design, Schools, and the Design Council* produced to celebrate the launch of the Design Council's new Educational and Training Foundation in 1995, and autobiographies by Gordon Russell and Paul Reilly, former directors of the CoID/Design Council.[41] Given the inability to verify some of the claims made, the contents have been cited where deemed relevant, but with due caution and reference to other sources wherever possible.

Providing a useful source of comparative literature, the archives of the Arts Council and Crafts Council, located in the Archive of Art and Design (AAD) and forming part of the Victoria and Albert (V&A) Museum holdings, which in 2014/15 were located in Blythe House, London were consulted related specifically to specialist education committees, active in the 1980s and 1990s.[42] Materials included minutes of meetings, memos, letters and press releases that provided particular insight into the Arts Council and Craft Council's reaction and response to the Education Reform Act, as well as their engagement with the subsequent consultation process and their attempts to lobby government. The range and presentation of the materials found in the AAD was useful in that it reflected the type of internal debates and discussions that one might imagine the Design Council was also having, given the evidence of their engagement with the Department for Industry (which became the

41 See, Design Council, *50 Years of Design, Schools and the Design Council* (London: The Design Council, 1995); Gordon Russell, *Designer's Trade: An Autobiography* (Allen & Unwin, 1968), and Paul Reilly, *An Eye on Design: An Autobiography* (London: Max Reinhardt, 1987).

42 The V&A Collections Archive of Art and Design (AAD) holds the records of the Arts Council, comprising a total of 26,500 archival files covering the period 1928-1997 and of the Crafts Council from its origins in 1960 to the last transfer in 1998. See, London, V&A Collections, Archive of Art & Design (AAD), Arts Council of Great Britain: Records, 1928-1997, <https://nal-vam.on.worldcat.org/oclc/913371195> and 'Crafts Council Records, 1960-1999. < https://nal-vam.on.worldcat.org/oclc/913265138 > [accessed 31 October 2021].

Department for Trade and Industry in 1983) and with the NC/DTWG on matters concerning design education, discussed in Chapter Four.

The items referred to at the AAD included two subdivisions of the Arts Council collection: the Arts Development Division (as they were known circa 1992), which included education and training; and the Policy Development Unit, which contained files relating to the development of successive arts education policy documents in the 1980s and 1990s. The files of the Craft Council Education Committee meanwhile predominantly spoke to pre-National Curriculum educational policy debates, including documentation relating to various incarnations of the education department from 1980, discussions surrounding National Curriculum policy and the Crafts Council's response to national consultations.[43] A complete set of annual reports for both the Arts Council and the Crafts Council is also held at Blythe House; these provided information about budget and structure as well as the membership of the education department for both organisations.

In addition to this, organisational biographies by Eric White, Andrew Sinclair and Richard Witts chronicled major activities and authoritative individuals within the organisation.[44] Mindful of the tendency for official biographies and biographers to present a complementary narrative, and indeed for unofficial biographies and biographers to present

43 The records were unpublished and less than 30 years old so data protection restrictions were in place. The AAD granted access on the majority of files requested, with the exception of a limited amount of paperwork which appeared to contain personal information (including home address and contact details) about individual committee members. This data was not relevant to the research, and thus the restrictions did not have a negative impact on the study.

44 Eric White, *The Arts Council of Great Britain* (London: David-Pounter, 1975); Andrew Sinclair, *Arts and Cultures, the History of 50 Years of the Arts Council of Great Britain* (London: Sinclair-Stevenson, 1995); Richard Witts, *Artist Unknown: An Alternative History of the Arts Council* (Great Britain: Little Brown and Company, 1998).

a more sceptical one, the content of these accounts was reviewed with caution.[45] Cross-referring to annual reports and particularly information about how much resource was allocated to projects helped to put claims made by the advisory bodies, or their biographers, into context.

Locating primary documentation was not as straightforward when it came to the Engineering Council. In searching for archival source materials, only the organisation's recent annual reports were found to be publicly available and there was no recourse to a publicly accessible archive of their activity.[46] A report by Colin Chapman and Jack Levy (former member of the Engineering Council) on the history of the Engineering Council offers one of the few comprehensive overviews of their activities and gives a predictably glowing account of the organisations' achievements.[47] The only archival source providing more nuance on the activities of the Engineering Council during this period was located in the Jack Blears Collection at the Museum of Science and Innovation (MOSI) in Manchester.[48] Blears' letters and files, describing his work with the Engineering Council in the late 1980s and early 1990s provide a very different story to that of Chapman and Levy revealing, for example, the organisation's overt interest in emphasising Britain's poor performance in manufacturing when compared with the country's economic competitors, and securing a

45 In his capacity as unofficial biographer of the Arts Council, Witts describes the tendency for advisory bodies to commission their own histories to celebrate significant anniversaries and notes that, all too often, the elected researchers and authors are trusted members of the organisation. Witts, p. 5.
46 Indeed, one testimonial provider confirmed that their own investigations into the activities of the Engineering Council at and before this time and in specific relation to curriculum development, had also drawn a blank.
47 Colin R. Chapman, and Jack Levy, *An Engine for Change: A Chronicle of the Engineering Council*, 2004, <https://www.engc.org.uk/engcdocuments/internet/website/The%20Engineering%20Council%201981%20%E2%80%93%202001%20(The%20Chronicle).pdf> [accessed 31 October 2021].
48 In 1988 the Engineering Council commissioned Professor Jack Blears, a specialist educational statistician at Liverpool University to research government figures on graduate engineers from 1984 to 1991.

steady stream of engineering graduates who would be compelled to pay the entry fee for the Certificate in Engineering (C-Eng, administered by the Engineering Council) to demonstrate their professional status.[49] While this finding does not have a direct bearing on the main scope of this study, the insight proved useful when questioning the Engineering Council's motives and underlining their keen interest in promoting engineering through any means available to them, as discussed in Chapter Five.

ii) The Department of Education and Science (DES), the National Curriculum Design and Technology Working Group (NC/DTWG), the National Curriculum Council (NCC) and other government education advisory committees

The National Archives (TNA) at Kew is the central repository for government records in the UK. Files are subject to data protection legislation, which stipulates that official records of public interest should be stored for 25 years before being made publicly available.[50] Sometimes, non-sensitive records are made available earlier and this fortuitously included the records of the Department of Education and Science (DES) 1987–1990, which were released in 2010 and contained the files of the National Curriculum Design and Technology Working Group (NC/DTWG), a selection of documents relating to the other National Curriculum Working Groups and the NCC. The release of these files represented an opportunity to scrutinise the original records of the DES and the NC/DTWG in regard to their thinking around design and technology and provide fresh insight into key questions

49 See, Manchester, Science Museum, Museum of Science and Industry (MOSI) Archives, Jack Blears Papers; YA2001. 129/4/3/7/1/140 (1988).

50 The 30-year rule has historically restricted access to sensitive files, however in 2010, under the Constitutional Reform and Governance Act this was lowered to 20 years, meaning that government records started to be released earlier to The National Archives, chronologically, at a rate of 2 per year, until 2022. See, *Constitutional Reform and Governance Act 2010,* Chapter 25, <http://www.legislation.gov.uk/ukpga/2010/25/pdfs/ukpga_20100025_en.pdf> [accessed 31 October 2021].

regarding the composition of the advisory group, the naming of the subject and thinking around how design would feature within and beyond technology.

The DES files at TNA comprise minutes of meetings, internal memos, research and consultation papers, letters, correspondence, draft reports, press releases and draft speeches, which were consulted in an attempt to unpack the process of policy development and the different perspectives of DES, the NC/DTWG and the NCC. In the end, not only did these files provide insight into some of the key debates undertaken by the various departments involved in curriculum planning, but they also gave an indication of the intricacies of the bureaucratic process and in particular the contribution of otherwise anonymous civil servants involved in administering and steering educational policy development. Comparison between the records of different working groups, for example the Science Working Group (NW/SWG) and Mathematics Working Group (NC/MmWG), for example, usefully exposed some of the 'gaps and absences' in the NC/DTWG records. For example, it was initially hoped that the DES files at TNA might reveal something about the naming of the NC/DTWG, decisions regarding membership and the controversial decision to change the name of the subject from technology to design and technology, and then back to technology in 1990. However, in contrast to the NC/SWG and NC/MmWG files, these were matters on which the NC/DTWG's files did not shed any light.

The nature of the omissions in the DES records at TNA was often telling. For example, there were no files at all pertaining to the meetings of the NC/DTWG group after November 1988, when they were preparing their *Final Report* and, according to secondary reports,

negotiated a variety of disagreements.[51] There were also references in the files to potentially relevant correspondence, documents and appendices that were not located in TNA files. For example, a letter from the DTI located in the NC/DTWG files implies that representatives of the department had been closely involved in defining the NC/DTWG's terms of reference, a point that has not featured in existing histories of the subject's development.[52] However, neither the DES nor corresponding DTI records make reference to this activity and requests under the Freedom of Information Act to see the specific documents were not successful.[53]

Despite the gaps, the DES archives proved to be an important point of reference for the study, particularly in Chapter Four where evidence of DES civil servants' commitment to including design as part of technology is drawn from annotations to official government papers on National Curriculum development. The ability to cross-reference back further, to earlier records of the DES and the Schools Council in the late 1960s and the 1970s, also proved fruitful, casting new light on the origins of the Royal College of Art's influential Design in General Education Project, discussed in Chapter Two and showing, for what appears to be the first time, that the project was premeditated before the involvement of the DES.

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51 According to one testimonial provider, who did not want to go on record.

52 See, London, The National Archives (TNA), Department of Education and Science Schools Branches: Committee Records, 1988, ED 282/83/1, 'Letter to Stephen Jardine (DES) from Martin Stanley, Industry/Education Unit (DTI)' 13 July 1988.

53 In 2014, the author made Freedom of Information (FoI) requests for, a) information relating to the selection of the chair/membership of the NC/DTWG and information about their minutes of their meetings and papers between November 1988-June 1999 (not stored with the rest of the NC/DTWG's open files in TNA) Ref 2014/0065599, and b) files relating to the DTI Quality design and education division and successors 1970-1995 (The NC Series, listed on TNA online catalogue under NK61, but the items could not be located by archivists who suggested FoI request), ref FO12014/22229. Both the DES and the Department of Business, Innovation and Skills (formally the DTI) reported that the files were not available because they were 'of little public interest' or because the costs involved in retrieving this information were beyond the scope of FoI legislation (exact reason not specified). Email to the author, a) Department for Education, 22 October 2014; b) Information Rights Unit (IRU) Department for Business, Innovation and Skills, 24 October 2014.

Other sources of information about National Curriculum development that helped to contextualise debates and decision-making processes included a series of oral testimony interviews with successive Secretaries of State involved in National Curriculum policy development. The interviews and transcripts, including the incumbent Secretary of State for Education and Science in 1988, Kenneth Baker, and senior civil servants involved in furthering plans for the National Curriculum framework, originally formed part of an Institute of Historical Research (IHR) project called History in Education.[54] These recordings are accessible via the British Library Sound Collection and provided additional opportunities to build a picture of the motivating factors behind curriculum development in the late 1980s.[55]

iii) Design and Technology Association and the National Society for Education in Art and Design (NSEAD)

In developing insight into the early activities of the Design and Technology Association it was discovered that documents relating to their establishment, in the early 1990s, were donated to the National STEM Learning Centre Library collection. Upon enquiry, however, it transpired that very little of these materials was retained because they did not fulfil the

54 See David Cannadine, Nichola Sheldon, and Jenny Keating, *The Right Kind of History: Teaching the Past in Twentieth Century England* (Basingstoke: Palgrave Macmillan, 2011) and, Keating, Jenny, and Nicola Sheldon, 'About the Project', *History in Education,* School of Advanced Studies, University of London, Institute of Historical Research, 2 August 2012, <https://archives.history.ac.uk/history-in-education/about.html> [accessed 1 December 2021].

55 See, British Library, *History in Education Project Interviews* (2009-2010) <http://explore.bl.uk/primo_library/libweb/action/search.do?vl(freeText0)=%20History%20+%20in%20+%20Education%20+%20Project%20+%20Interviews%20&vl(10130439UI0)=lsr31&vl(46690061UI3)=all_items&vl(1UIStartWith0)=exact&fn=search&tab=local_tab&mode=Advanced&vid=BLVU1&scp.scps=scope%3a(BLCONTENT)&ct=lateralLinking> [accessed 31 October 2021].

Centre's remit as a resource library.[56] This discovery is indicative of a tendency among broader subject communities to only retain or make available materials that are deemed to be of use to the current teaching community. It also introduces a wider methodological discussion about how, when and why materials relating to school subject development should or could be archived as opposed to being temporarily transferred to physical or digital resource libraries or the private collections of individuals involved in subject development.

Some documentation about the Design and Technology Associations' early history has been retained and is stored at their headquarters in Warwickshire. While this material is not available for public scrutiny, I requested and was granted access to the files. The material that survives largely comprises published resources, journals and various publications relating to D&T: a smattering of original files, relating to mergers between the Design and Technology Association and other subject associations, along with a collection of the Design Council's publications *The Big Paper* and *Designing*, design education newspapers for primary schools and secondary school students, respectively. The collection also contains a few boxes of books, files, newspaper cutting and notes formerly belonging to Eggleston, referred to in the section on definitions of design education, who was a founding member of the Design and Technology Association. According to a letter contained within the boxes, the material was passed on to the Design and Technology Association after Eggleston's death in 2001.

56 During a visit to the National STEM Learning Centre (York, 27 July 2015) curator Andrew Jones, verbally advised that, with the agreement of the Design and Technology Association, donated files deemed irrelevant to the collecting policy of the National STEM Learning Centre, were destroyed.

In discussing these primary sources, a brief point should be made here about the material qualities of physical documents. Taking Jacques Derrida's account of 'Archive Fever' as her starting point, Carolyn Steedman describes the feeling of anticipation in accessing archives for the first time: the thrill of lifting the files from the shelf, feeling the weight of the paper inside, lifting out and sifting through the contents one by one.[57] Finding this collection of Eggleston's papers – a box of books and newspaper cuttings and a dog-eared, yellowing and baggy copy of the NC/DTWG's *Interim Report*, heavily underlined, meticulously tabbed for reference, stained with tea rings and infused with the smell of cigarette smoke – was a poignant reminder that people are at the heart of history.

The archival records of the NSEAD are quite different to the collection of the remaining files of the Design and Technology Association. Originally referenced for any information about the NSEAD's involvement in the development of design and technology education, or with any of the stakeholder groups, this collection is held in the National Art Education Archive (NAEA), a dedicated research space in the grounds of the Yorkshire Sculpture Park. The archive, which opened in 1985 and was originally funded by the NSEAD, now acts as a broader repository for materials relating to arts education. In addition to the NSEAD records, the NAEA contains a diverse range of collections, the majority of which have been bequeathed by individual artists, art teachers and educators.[58] In the event, relevant source materials were located from across a number of the collections, including draft responses to

57 Carolyn Steedman, *Dust* (Manchester: Manchester UP, 2001), pp. 17-31.
58 See, National Art Education Archive (NAEA) catalogue, <http://www.artsedarchive.org.uk/>[accessed 31 October 2021].

the National Curriculum consultation, copies of the DEStech journal, various NSEAD newsletters, and conference reports.

While they are listed on the NAEA website, locating items of relevance in the archive involved a degree of serendipity, which was enabled by permission to access the storerooms and to browse the shelves directly. Documents found on the shelves there contributed to the development of an overall picture of design curriculum development. For example, one of the collections in the NAEA, the Burley in Wharfdale Teachers Centre: Historic Craft, Design and Technology Library, constitutes the book collection of Geoffrey Wilson, former Craft and Design Senior Advisor to West Ridings County Council, and includes a complete set of reports that to date have only been located in this archive, co-authored by David Layton just prior to his becoming a member of the NC/DTWG in 1987.[59] These documents, funded by the Engineering Council, pre-date the NC/DTWG's *Interim Report* and in many places replicate the language used. This connection has not been found referenced elsewhere, and serves to evidence a closer connection between Layton, the Engineering Council and the original proposals for National Curriculum D&T than has previously been suggested, as discussed in Chapter Four.

Other sources of information about the Design and Technology Association and NSEAD are their respective journals which have been published under the names, *Design and Technology Education: an International Journal* and *The International Journal of Art and*

59 West Bretton, National Arts Education Archive, The Burley in Wharfdale Teachers Centre: Historic Craft, Design and Technology Library, BHBWBK00785 - BHBWBK00800, Technology Education Project Paper 1 – 19.

Design (iJaDE) since 2005 and 2002 respectively.[60] These documents have been mined for information about membership, structural management of the associations and responses to public consultations on education development from 1988 to 2012, as much as for the articles they contain. As discussed in Chapter Five, serving to evidence their legitimacy as 'serious' subjects in the curriculum and the robustness of their research, in the 2000s current and back issues of *Design and Technology Education* and iJADE became open access. Predecessor publications of various subject associations that were subsumed by the Design and Technology Association were, at the time of writing, available via the University of Loughborough's Institutional Repository. Of particular interest, this online archive includes a series of papers relating to conferences and debates in the early 1990s: Loughborough's Design Education Research Group's Design Curriculum Matters series (the Orange series); the National Association for Design Education (NADE) documents (1992–2002); the International Conference on Design and Technology Educational Research and Curriculum (IDATER) archive (1988–2001); and the Design and Technology Association Conference series archive (2000 onwards).[61]

While being able to freely access these e-resources was beneficial in terms of gaining an overview of the field and the activities of interested groups, there were limitations associated with the materials that had been made open access. Specifically, similarly to the

60 Previously published under the names, *The Journal of Design and Technology Education* (1996-2004), *Design and Technology Teaching* (1989-1995); *Studies in Design, Craft and Technology* (1970-1988) and the *Journal for Art and Design Education* (JADE) (1982-2001).

61 Loughborough's Design School, established in 2010, encompasses the former Department of Design and Technology who were responsible for publishing and compiling these resources. The suite of electronic holdings have since been added Loughborough University's research repository, see Loughborough University Institutional Repository, *Design and Technology,* [online] <https://repository.lboro.ac.uk/search?q=design+and+technology> [accessed 31 October 2021].

National STEM Learning Centre physical and online library, the purpose of these digital repositories was to disseminate research in the field and not to provide the journals as a data source about the wider support structures that advocated on behalf of the sector. As a result, sections of the journal, specifically book reviews, letters and occasional editorials, had not been scanned, which meant that information about who was involved in discussions at certain points in time, and prevailing debates or trends in the literature, could not be ascertained from the digital editions.

To counter these digital access issues, and where appropriate/necessary or helpful to explore these connections, hard copies of relevant journals were tracked down at the Newsam Library and Archives, Institute of Education (IoE), University of London. It is worth briefly reflecting on this important, if tangential, point about the limitations of pre-digital journals that have subsequently been scanned and uploaded to online repositories as a historical source. The withdrawal of physical collections of back issue journals on the basis that these materials are now available online has wider implications for historians who wish to use the content as a primary source in their own right and who view a journal series as an evolving body of work, rather than a container of individual articles about different research. This issue is again the case with the National STEM Learning Centre Online Library, which when last consulted in 2021 no longer offered access to digital copies of reports relating to policy development in the 1980s and 1990s, as it had up until 2015.

Testimony

Oral testimony presented itself as an opportunity to provide a nuanced perspective on events between 1988 and 2012 and an alternative to the accounts of D&T policy

development that focus on 'elite' policymakers.[62] Four interviews were conducted in 2015 to supplement evidence generated through the archival and literature-based research. The aim of the interviews was to gather together recollections of design curriculum development between 1988 and 2012, with a particular emphasis on the individual's role and contribution to various schools-based initiatives and educational policy consultations. Ethical approval was gained from the University of Brighton,[63] and each of the participants was provided with an Oral Testimony Agreement Form, specifically developed for the project, [**Appendix D**] and a list of general questions in advance of the interviews. The semi-structured interviews comprised ten questions that took in the individual's background; how they became involved in design curriculum development; and their thoughts on its evolution as part of the mainstream school timetable.

Interviewees included a former member of the NC/DTWG, a former employee of the Design Council and Engineering Council, a leading design educationalist formerly linked to the RCA Design in Education project and the Design Council, and email correspondence with key members of NSEAD and the Design and Technology Association. Each of the face-to-face interviews took on its own unique flavour, determined by the interviewee and their experience of being interviewed on the topic. In some cases, interviewees gave candid accounts on the history of D&T, while others were more reserved. The testimonies offered helpful insight into the minutiae and working practices of various organisations, advisory

62 Jenny Ozga, and Sharon Gewirtz, 'Sex, Lies and Audiotape: Interviewing the Educational Elite', in *Researching Educational Policy: Ethical and Methodological Issues*, ed. by David Halpin and Barry Troyna (Lewes: Falmer Press, 2004), pp. 121-136, (p. 135).

63 In accordance with University of Brighton policy document, *Ethical Research Guidelines for Staff and Students and Guidance on Good Practice in Research Ethics and Governance*, a Tier 1 Research Ethics Review Checklist was completed and submitted to the Arts and Humanities Research Ethics and Governance Committee in November 2014. Ethical approval was confirmed January 2014.

bodies and interest groups operating during this period, and into the feelings of the people who had dedicated their careers to this evolving field. While not intended to provide a mainstay body of evidence, the material offered a humanising perspective on a series of events that are otherwise monopolised by official documentation and reports. They also served as a checking mechanism, to ensure that relevant materials and reports had been traced and referenced in terms of establishing a chronology of developments.

Literatures

Further information was gathered from national news media, reports, classroom resources, publications produced by the groups and bibliographies and obituaries written by or about individuals involved in the history and development of D&T. In addition to this, a variety of literature has been used to help map out the historical development of educational policy development, understand the National Curriculum subject D&T and contextualise design-related education initiatives in schools.

Newspaper reports

Some 300 newspaper articles were gathered, predominantly from the *Guardian*, *The Times*, *The Times Educational Supplement,* the *Independent*, the *Daily Mail* and the *Daily Telegraph*; these contained comment and news about the development of D&T in the period 1987–2013. The majority of news content dates from 1987–1990, when the National Curriculum was being created; 1992, when there were problems with the implementation of technology, and 2010–2012, when educational reform activity threatened the ongoing provision of D&T and other subjects associated with the creative curriculum. During the review process, particular attention was paid to news stories that commented on the

activities of main groups, in particular the NC/DTWG, the Design and Technology Association, the Design Council and the Engineering Council, or that were written by individuals associated with these groups. In some instances, for example in unpacking the origins of the Design and Technology Association, discussed in Chapter Five, the newspaper articles contained information that was not widely reported in existing literature, although would presumably have been known by those involved at the time.

Reports

Reports have been consulted in the study to gauge the history and development of D&T, and the influence of different groups on policymaking. Derek Gillard's online resource, *Education in England*, chronologically tracks the history of schooling in England via commentary on, and transcribed copies of, original education policy documents, government reports and Acts of Parliament. This has made it possible to cross reference full text reproductions of influential reports like *The Education of the Adolescent*, *(*Hadow Report, 1926), and the content of numerous education acts from the nineteenth century to the present day.[64]

In addition to this, and as noted, archival visits provided access to the reports of public advisory groups and related organisations. It is noted that in the context of this study, and in piecing together the networks and relationship between different actors, these reports often played a dual role, acting as both a commentary on the state of design education and a part of the material history of D&T. The Royal College of Art's (RCA) 1976 report *Design in*

64 See Derek Gillard, 'The Documents Archive' *Education in England: A History*, 2018, <http://www.educationengland.org.uk/documents/index.html> [accessed 1 December 2021].

General Education, for example, serves as a treatise on the conceptualisation of design education as well as a reliable source about the composition of the RCA research team, their networks, their remit, their position (which has allowed further insight into their beliefs), their reference points and the version of design education that they wanted to establish.[65] Thus, reports simultaneously act as a point of reference for the current state of thinking at a particular point in time and a source of information about those who are charged with interpreting it for others.

In another example, multiple copies of the NC/DTWG's *Interim Report*, located in university libraries, special collections, personal collections and archives across the UK, became testament to this document's importance to students, educators, and researchers. Containing annotations, scribbles, comments, questions, exclamation marks; the traces of their former owner's response to the content of the Report, some of the editions I came across were the belongings of identifiable members of the broader Design and Technology professional community operating in the late 1980s and 1990s. Others, mainly library copies, were variously annotated and notated; stamped; dog-eared (due to use), or pristine (due to its status within special collections of official documents relating to education), speaking to the document's status, its life cycle, and to the people who read the report, as well as those who wrote it (**fig. 2**).

65 L. Bruce Archer, Ken Baynes, and Richard Langdon, *Design in General Education*, ed. by (London: Royal College of Art, Department of Design Research, 1976).

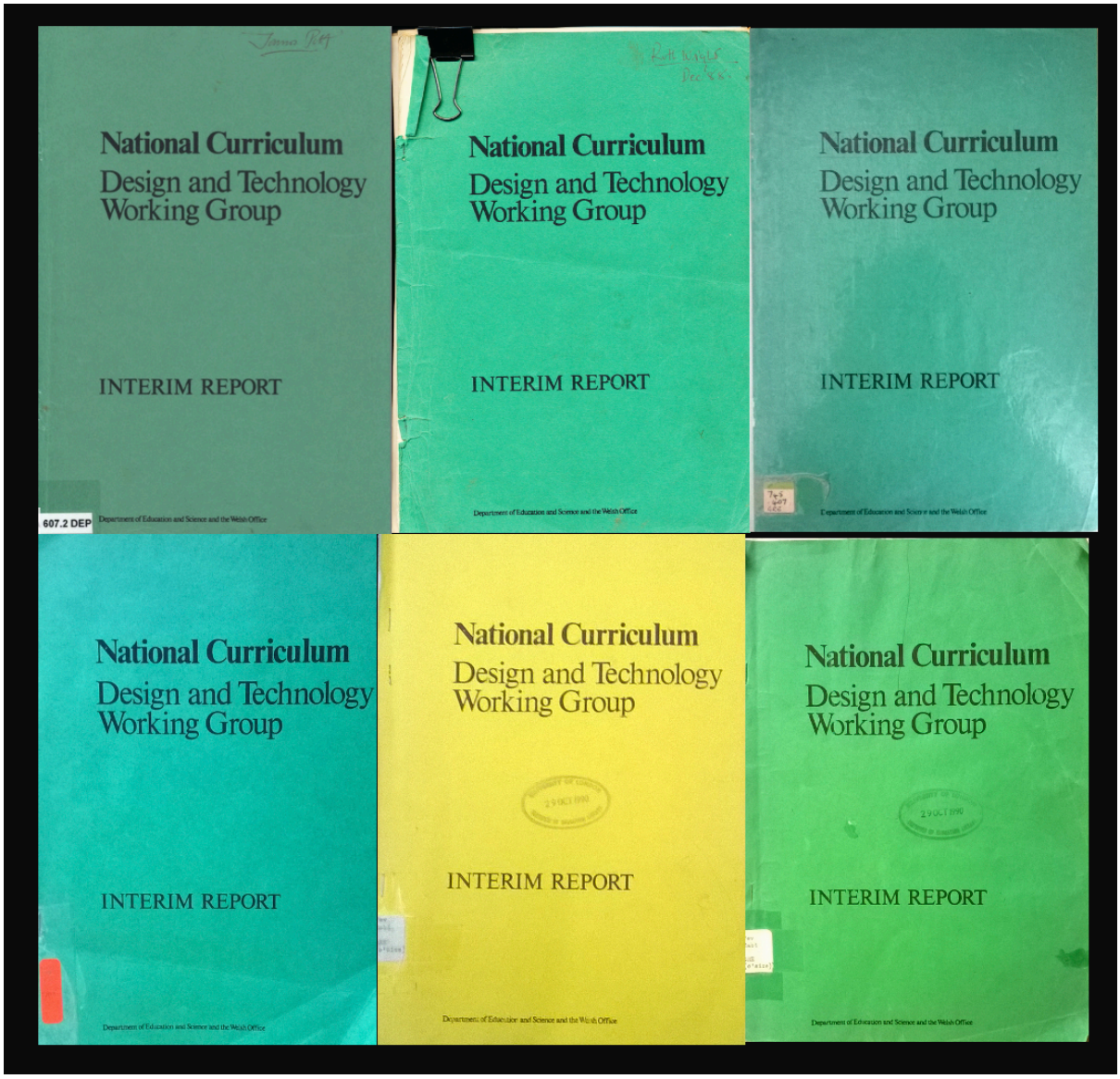

Figure 2 A selection of the front covers of the National Curriculum Design and Technology Working Group, *Interim Report* (1988)

[photograph by the author, 2018]

This story about the copies of the NC/DTWG's *Interim Report* is presented here to make a broader methodological point about the nature of reports and about their value not being restricted to its textual content. Documents are objects; their form, shape, condition, and location provide additional layers of evidence. In unpacking the development of D&T, the question has not only been how these ideas came together and why a particular text was produced, but why a particular example of a particular text is available for analysis.

Classroom resources

Three government-funded resource providers helped to progress and indeed stabilise the delivery of D&T through the production of classroom resources.[66] To better understand how these resources carry and communicate ideas about D&T, attention was paid to the textbooks themselves, which were compared and contrasted to one another and to a plethora of texts published during the 1980s, including works by David Rees, Peter Williams and David Jinks.[67] Analysis of these classroom resources included surveying who was involved, the dates of publication, and the focus of projects.

Organisational biographies, autobiographies and obituaries

These provided useful background information on government systems, as well as individual political and public protagonists. Peter Hennessey's account of Whitehall, for example, gave insight into the operation and hierarchy of the civil service and of the DES. David Young, former advisor to the DTI, Secretary of State for Employment and Secretary of State for Trade and Industry, has written about his experiences in office during the 1980s, and Duncan Graham, former chairman of the NCC, provides insider insight into the operation of this government body from 1990 to 1992.[68] Much like the autobiographical accounts of the

66 Ian Holdsworth, 'Developing Textbooks', in *Teaching and Learning in Design and Technology*, ed. by John Eggleston (London: Continuum, 2000), pp. 71–9.
67 See, David Rees, *Teaching GCSE Craft, Design and Technology* (London: Hodder and Stoughton, 1987), Peter H. M. Williams, *Teaching Craft, Design and Technology: Five to Thirteen* (London: Room Helm, 1985), and Pat Williams & David Jinks, *Design and Technology 5-12* (Lewes: The Falmer Press, 1985).
68 See, Peter Hennessy, *Whitehall*, 1989 rev. (Great Britain: Fontana, 1990); *Duncan Graham, A Lesson for Us All: The Making of the National Curriculum* (London: Routledge, 1993); David Young, *The Enterprise Years: A Businessman in the Cabinet* (London: Headline, 1990).

Arts Council, Engineering Council and Design Council, these texts are treated with a degree of caution to take into account the context in which they were produced.[69]

Obituaries also provided biographical information on key proponents of the development of D&T and reveal information about their involvement in different projects and initiatives prior to their involvement with the NC/DTWG. Examples include the obituary of Eggleston, former research lead on the influential Schools Council project, Design and Craft Education Project (1969–1974), editor of multiple journals and one of the founding members of the Design and Technology Association; Lady Margaret Parkes, chair of the NC/DTWG and David Layton, co-opted member of the NC/DTWG.[70]

History and development of D&T

As noted in the first section of this chapter, pre-1990 literature on the history and development of design education, whether referred to as craft, design and technology or CDT, design and technology or D&T, harks back to its vocational origins, connected with manual labour and domestic skills. It is important to note that this is a theme in design and technology education, rather than a discourse of design education; but it still forms a crucial and enduring characteristic of the field.

69 Graham, for instance, left the NCC due to 'personal animosities' and 'professional disagreements', see David Callaghan, *Conservative Party Education Policies, 1976-1997: The Influence of Politics and Personality* (Brighton: Sussex Academic Press, 2006), p. 129.
70 See, Reva Klein, 'John Eggleston', *Guardian*, 3 January 2002, <https://www.theguardian.com/news/2002/jan/03/guardianobituaries.highereducation> [accessed 31 October 2021]; 'Margaret Parkers: Obituary', *The Times*, 30 August 2007, p.53, and Edgar Jenkins, 'David Layton, 1925–2010', *International Journal of Technology and Design Education*, 21 (2011), 1–2, <https://doi.org/10.10007/s10798-010-9150-4>

Historical accounts of the field are thin on the ground, but are typified by Tom Dodd and John Penfold, who paid particular attention to initiatives like Project Technology, the Craft and Design Project (or Keele Project) and the Royal College of Art's report on design in general education as precursors to National Curriculum D&T.[71] During the 1990s these historical works were replaced by critiques of the National Curriculum. Meanwhile, works, including those by Peter Medway, Michael Barnett and Robert McCormick provide a vernacular critique of the D&T curriculum from the perspective of technology advocates and offer an interpretation of the original proposals for National Curriculum technology in the early 1990s, reviewed in Chapter's Four and Five.[72]

Alternative and more positive perspectives on curriculum development include literatures by David Barlex, Richard Kimbell and Kay Stables, who were involved in more innovative practices in the field throughout the 1980s and went on to develop a large body of scholarship for the teaching community about the state of the subject in the school curriculum.[73] Further collections of essays, like those by Gwyneth Owen-Jackson, played a vital role in providing a platform for the teaching community, helping them understand the origins of D&T as part of the National Curriculum as well as practical advice and examples of

71 See Tom Dodd, *Design and Technology in the School Curriculum* (London: Hodder and Stoughton, 1978) and John Penfold, *Craft Design and Technology: Past, Present and Future* (Stoke-on-Trent: Trentham Hanley, 1988), pp. 117-131.

72 See, Peter Medway, 'Constructions of Technology: Reflections on a New Subject', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (Basingstoke: Falmer Press, 1992), pp. 65–83; Michael Barnett, 'Technology, within the National Curriculum and Elsewhere', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (London: Falmer Press, 1992), 84-104, and Robert McCormick, 'Technology and the National Curriculum: The Creation of a "Subject" by Committee?', *The Curriculum Journal*, 1 (1990), 39–45.

73 See, Richard Kimbell, Kay Stables, and Peter Green, *Understanding Practice in Design and Technology* (Buckingham: Open University Press, 1996) and *Design and Technology for the Next Generation A Collection of Provocative Pieces Written by Experts in Their Field to Stimulate Reflection and Curriculum Innovation,* ed. by David Barlex, (Whitchurch: Cliffeco, 2007).

how to meet policy guidelines, new legislation and different models of teaching, learning and assessment.[74] These texts were geared towards conforming to relevant policy guidelines and it is notable that these texts usually only refer to the history of D&T since its inclusion in the National Curriculum, with scant reference to the origins of the subject.

History and development of school subjects

Insight into subject development was gleaned from Ivor Goodson's seminal works on the history of school subjects. While notably not including a case study on D&T, Goodson's work on developing subject histories gives insight into the evolution of related school subjects, including science and mathematics.[75] On the whole, and with the exception of Goodson's research, subject histories tend to be written by historians with a specialist subject interest in the field. Works by Gordon Cox, David Cannadine, Nicola Sheldon and Jenny Keating, for instance, explore subject development in order to provide insight into the shape of their discipline, as well as to understand trends in education policy development that will inform the shape of the school curriculum in the future.[76]

Origins and development of design, technology, art and craft education

In relation to D&T, subject histories about technology education, as a branch of science and art education, encompassing art, design and craft, have been consulted. Paul Black and Geoffrey Harrison provide a precis of the evolution of technology education and a thorough

74 Gwyneth Owen-Jackson, *Aspects of Teaching Secondary Design and Technology*, (Glasgow: Routledge, 2002) and *Debates in Design and Technology Education*, ed. by, Gwyneth Owen-Jackson, (Great Britain: Routledge, 2013).
75 Ivor Goodson, *Social Histories of the Secondary Curriculum: Subjects for Study*, (London: Falmer, 1984), pp. 345-65.
76 Gordon Cox, *Living Music in Schools 1923-1999: Studies in the History of Music Education in England* (Aldershot: Ashgate, 2002), and Cannadine, Sheldon, and Keating, *The Right Kind of History*.

history of the field is provided by Gary McCulloch, Edgar Jenkins and David Layton in relation to the development of the applied science curriculum and tensions between advocates of design education and technology education.[77]

According to Souleles, there is 'a curious deficiency' in educational scholarship relating specifically to the history of art and design education when compared to the expanse of literature on pedagogy and practice of art and design.[78] Historical accounts can be traced back to works by Nikolaus Pevsner and become characterised by a corpus of titles published in the 1960s and 1970s by Quentin Bell, Gordon Sutton, Richard Carline, Stuart Macdonald and Ashwin.[79] By and large these accounts are chronological, providing an overarching history that charts changes to education policy and art education in relation to broader educational activities and artistic movements.

A second wave of art education history literature evolved in the 1980s and 1990s, exploring under-researched topics on a case study basis and often focusing on individual artist educators.[80] However, these essays veer towards what Elisabeth Hansot and David Tyack describe as a tendency to venerate 'great men' and 'great ideas' and reflect notions of

77 See, Gary McCulloch, E. W. Jenkins, and David Layton, *Technological Revolution? The Politics of School Science and Technology in England and Wales since the Second World War*, (United Kingdom: Routledge Falmer, 1984), pp. 144-145.
78 Souleles, p. 243.
79 See, Nikolaus Pevsner, *Academies of Art, Past and Present,* (Cambridge, 1940); Quentin Bell, *Schools of Design* (London: Routledge and Kegan Paul, 1963); Gordon Sutton, *Artisan or Artist? A History of the Teaching of Arts and Crafts in English Schools,* ([n.p.]: Pergamon, 1967); Richard Carline, *Draw They Must: A History of the Teaching and Examining of Art,* (London: Arnold, 1968); Stuart Macdonald, *History and Philosophy of Art Education* (United Kingdom: Hodder & Stoughton, 1970); Clive Ashwin, *Art Education: Documents and Policies, 1768-197,5* (London: Society for Research into Higher Education, 1975).
80 In 1988, for example, David Thistlewood edited a collection of essays that brought together research on the history of art education in Britain and North America and covered topics like Henry Cole's involvement in the Government Schools of Design from 1853 and William Coldstream's 1960 report on reforms to further education art and design courses, see, *Histories of Art and Design Education: Cole to Coldstream*.

incremental progress in the history of education.[81] This is a trend that the study actively aims to avoid by plotting a research pathway that runs in between an overarching history and a case study.

Literatures on education policy and education history in the UK

Aiding a broader understanding of educational frameworks and theories, a variety of educational studies have been consulted on educational policy, theory and the history of state schooling. Literatures that have been referenced include sociologist Stephen J. Ball's commentary on the development of the National Curriculum framework on changes to school management, John White and A.V. Kelly's respective analyses' of National Curriculum development, and A. Sadovnik, Stephen Ball and Michael Young's work on educational policymaking and changes to school management.[82] This combined with introductory texts on key educational theorists has afforded the requisite overview of the theory of knowledge and the theoretical perspectives that underpin educational studies.

There is a growing body of scholarship that charts the history of education and questions the reliance on educational policy to narrate educational reform. Gary McCulloch, for example, calls for research on education that provides a 'usable past', using historical appraisals of

81 Elisabeth Hansot and David Tyack, 'A Usable Past: Using History in Educational Policy' in *Policy Making in Education*, ed. by A. Lieberman and M.W.McLaughlin (Chicago: National Society for Study of Education, Chicago) pp. 1-21 (p. 16).

82 See, A.V. Kelly, *The Curriculum: Theory and Practice*, 4th Ed (Gateshead: Paul Chapman Publishing, 1999); *Stephen J. Ball, Politics and Policy Making in Education: Explorations in Policy Sociology* (London: Routledge 1990); Stephen J, Ball, *The Education Debate* (Bristol: Policy, 2008); Michael Young, *Bringing Knowledge Back In; from Social Constructivism to Social Realism in the Sociology of Education* (Padstow: Routledge, 2008); *Sociology of Education: A Critical Reader*, ed. by Sadovnik, A.R (USA: Routledge, 2007); John White, *The Curriculum and the Child: The Selected Works of John White* (Bodmin: Routledge, 2005).

past events to explain present educational policy.[83] Other authors who speak to the value of education history and its ability to present an alternative perspective include Richard Aldrich, Donald Warren, Deirdre Raftery, Brian Simon, with Joyce Goodman and Ian Grosvenor arguing that these educational histories provide an antidote to the 'enormous' quantity of literature that already accounts for school systems, teachers, teaching practices and organisational structures'.[84]

Leading research into the material culture of schools, Grosvenor, Martin Lawn, Catherine Burke and Peter Cunningham provide insightful, if not directly relevant, perspective on the application of design in the classroom and the aesthetic qualities of school equipment and buildings.[85] In these instances the material culture of schools is used to speculate upon pupil's experience of education in relation to, for example, the feel of textbooks, the weight of uniforms, the layout of rooms and the construction of school buildings.[86] These texts provide an important point of reference because they speak to informal modes of design education, as well as to the experience of general education. Here, perhaps, there is an important distinction to be drawn. In the material culture of schooling, historians are not

83 Gary McCulloch, *The Struggle for the History of Education* (Padstow: Routledge, 2011) and Gary McCulloch, 'The History of Secondary Education', *History of Education: Journal of the History of Education Society*, 41,1 (2012), 25-39.
84 Richard Aldrich, *An Introduction to the History of Education* (London: Hodder and Stoughton, 1982); Richard Aldrich, Education for Survival: An Historical Perspective, *Journal of the History of Education Society*, 39, 1 (2010) 1-14; Donald R. Warren 'A Past for the Present: History, Education and Public Policy' *Educational Theory,* 28,4 (1978), 253-265; Deidre Raftery 'History of Education', in *The Routledge Companion to Education*, ed. by James Arthur, Andrew Peterson (Devon: Routledge 2012), pp. 48-57; Brian Simon, 'The History of Education: Its Importance for Understanding' in *The Routledge Education Studies Reader*, ed. by James Arthur and Ian Davies (London, Routledge 2010), pp. 63–73; Joyce Goodman and Ian Grosvenor, 'Educational Research – History of Education, a Curious Case?', *Oxford Review of Education*, 35 (2009) 601–616.
85 See for example, *The Decorated School*, ed. by Catherine Burke, Jeremy Howard, and Peter Cunningham, ([n.p.]: Black Dog, 2013).
86 See, for example, Catherine Burke, 'About Looking: Vision, Transformation, and the Education of the Eye in Discourse of School Renewal Past and Present', *British Educational Research Journal*, i, 36 (2010), 65–82.

commenting on design, or the use of design in schools, but on the role of design *in* education and how it reflects broader social and political interests, trends and changes in educational policy. Coming, as this study does, from the perspective of a design historian, the focus is reversed. The aim is not to arrive at a new interpretation of the effects of educational policy, but to develop an understanding of how design has been appropriated within formal educational contexts and in relation to broader social and cultural interests.

Conclusion

This chapter has shown that design education straddles a complex web of discourse, variously relating to its close relationship with the development of art and design pedagogy, with the tradition of craft practices and with the professionalisation of the designers. Design education is used to describe a training programme that services the design industry and is central to the various subdisciplines or design specialisms taught in higher education contexts; it has a role to play in consumer education programmes and design awareness schemes, and is ubiquitous across everyday experience and transactions. Design has been re-conceptualised as a domain within its own right, and its interpretation in the context of subjects taught in schools in England, most notably its relationship with technology and with technological capability, is another aspect of its application in education.

So, what is design education? There is no single answer, and in most cases, it can only be understood in a given context. Some of the prominent contexts are explored in the study to explain how a version of design came to be realised in the ambitions and implementation of the National Curriculum subject, D&T. As part of this process, it is necessary to explore the different reasons that different groups have for wanting D&T to feature as part of the

National Curriculum. Different agendas for D&T are reflected in the different ways that groups and organisations interpret the design component of the course, the different activities they pursue and support mechanisms they provide. The challenge therein is to use archival sources and materials produced by these groups to provide insight into the ambition of their members, before relating this back to the implementation of D&T in schools.

Chapter Two: Discourses of Public Design Education in a UK context

'There remains, however another dimension to the discussion.
And that is to make it clear that, in a historical perspective, design education is not just a desirable educational priority – it is a critical one.'[1]

Analysis of design education from a design history perspective has tended to relate to training programmes and pedagogy for professional designers. This excludes a swathe of discourse around public programmes of design education. Breaking with this design historical convention, this chapter reframes design historical discourses of design education around examples of educational initiatives that were intended to enhance the public's awareness of the relevance of design in their everyday life and positions them as precursors to the re-conceptualisation of design education in the 1970s.

Presenting public design education initiatives as part of a complex historical interplay of cultural, social, political and economic ambitions, overseen by a succession of individuals and groups who sought out educational solutions to societal problems, provides a new way of thinking about the values that are attributed to D&T. Rather than discussing the pedagogic origins of art and design education or focusing on the evolution of design education in higher education contexts, the implementation of public design education is traced via the rationale behind the Government Schools of Design in the nineteenth century and design appreciation schemes post-Second World War, with particular emphasis on the identification of schools as sites of design learning. Attention is paid to an influential project on design education, undertaken by a research team based at the Royal College of Art (RCA)

1 Ken Baynes and Phil Roberts 'Design Education: The Basic Issues' in *Design Education: The Proceedings of the Design Education Section of an International Conference on Design Policy, Royal College of Art, London 20-23 July 1982*, ed. by, Richard Langdon, Ken Baynes, Phil Roberts, (London, The Design Council, 1984) pp. 8–13, (p. 12).

and archival evidence reveals previously overlooked inconsistencies between the project's reported origins, its remit and its eventual outcomes.

In the first section, the chapter considers the rationale behind the Government Schools of Design in the nineteenth century, in the second section it focuses on the development of design education initiatives targeted at schools in the mid-twentieth century, and in the third section it discusses the re-conceptualisation of design education in the 1970s, drawing on archival materials to highlight a disparity between the official remit of the RCA Design in General Education Project and the legacy of the project as a fundamental reimagining of the field. In this way the chapter demonstrates that historically, the discourses of design education are surprisingly static. Furthermore, that they have developed around a cultural imperative to equip the public with the skills and knowledge they need to adapt to societal change.

The origins of design education in the nineteenth century

The importance of design to the economy is an enduring discourse in the UK and one that permeates debates about the educational value of design, past and present. While histories of design education often trace this economic imperative to the nineteenth-century government-funded schools of design, revisionist scholarship by Mervyn Romans suggests that the rationale was actually far more nuanced, reflecting the social ambitions of the 1835/36 Arts and Manufacturing Select Committee, who were charged with advising the government on state provision of art and design education.

Romans' research on the rationale behind the introduction and provision of design education as part of the nineteenth-century Government Schools of Design in the UK draws on primary documentation to trace the people involved in policy-making decisions. In doing so it challenges earlier historical narratives presented by Quentin Bell and later corroborated by Stuart Macdonald, Clive Ashwin, Richard Carline and Gordon Sutton who associate interest and investment in art and design education with economic benefits.[2] Romans counter argument is that the political consensus underlying the introduction of the Government Schools of Design was less focused on economic demand and more concerned with social imperatives, specifically how to raise the public's appreciation of designed products in the context of new mass manufacturing processes.[3]

By the early nineteenth century, rapid changes to manufacturing methods in England had led to a proliferation of goods for internal markets and for export. The increase in mass production gave rise to political and nationalistic concerns about the quality of British-made goods, especially in comparison to equivalent products made in France and imported to the UK. The popularity of and demand for French goods was attributed to their superior design and high standards of manufacture.[4] This, in turn, was linked with the state's investment in training 'designers for industry' and a regional educational programme that provided students with the skills required to find employment in regional manufacturing businesses.

2 Mervyn Romans, 'A Question of "Taste": Re-Examining the Rationale for the Introduction of Public Art and Design Education to Britain in the Early Nineteenth Century', in *Histories of Art and Design Education: Collected Essays*, ed. by Mervyn Romans (Trowbridge: Intellect, 2005), pp. 41–54.
3 Mervyn Romans, 'An Analysis of the Political Complexion of the 1835/6 Select Committee on Arts and Manufactures', *International Journal of Art and Design Education*, 26 (2007), 216–224, (p. 216).
4 As reported in Stuart Macdonald, *History and Philosophy of Art Education* (United Kingdom: Hodder & Stoughton, 1970), p. 67-68.

In response, in 1835, the British government convened a Select Committee on Arts and Manufactures intended to assess the best way of sharing knowledge about the arts and design to the public, including those working in manufacturing.[5] In 1836 they reported that:

> Much importance has justly been attributed to the SCHOOLS OF DESIGN so generally diffused through France. These schools (in number about 80) are superintended by the Government. The free, open and popular system of instruction (prevalent in France since the days of Colbert), and the extreme accessibility of their museums, libraries and exhibitions, have greatly tended to the diffusion of a love of art, as well as of literature, among the poorer classes of the French.[6]

Using the Select Committee's report to justify their actions, and where state funding for art and design education in the UK had previously been non-existent, the government embarked on a new training programme intended to prepare students for employment in the local trade market by providing specialist training, technical knowledge and design skills. The first Government School of Design in England, called the Normal School of Design, was funded by the Board of Trade and opened in Somerset House in London in 1837 under the directorship of Henry Cole and Richard Redgrave.[7]

The Design Schools rapidly expanded out of London to other manufacturing cities like Manchester and Birmingham. The standard curriculum was not dissimilar to that of the Royal Academy (RA), the first dedicated arts institution in Britain, which had opened under royal charter in 1768. The RA encouraged the 'Arts of Design', understood in terms of

5 See, *Report of the Select Committee of Arts and Manufacturers*, 1836, qtd in Clive Ashwin, *Art Education: Documents and Policies 1768-1975* (London: Society for Research into Higher Education, 1975), pp. 8-25, (p. 8).
6 *Report of the Select Committee of Arts and Manufacturers*, 1836, p.iv, qtd in Ashwin, p. 12.
7 Henry Cole was a businessman, politician and member of the Society of the Encouragement for the Arts and Manufactures and Commerce. He had an amateur interest in practical arts and design and a reputation as an early pioneer of arts, manufactures and education that was earnt through his involvement in the first Normal School of Design (which became the Royal College of Art (RCA) in 1896) in managing the Great Exhibition in 1851 and as General Superintendent of the Department of Practical Art in the Museum of Ornamental Art (later the Victoria and Albert Museum).

composition and a pedagogy that primarily involved imitating paintings by the Old Masters and executing accurate line drawings based on the artist's close observation of figures, objects, architecture or sculpture. Similarly, the Government Schools of Design encouraged students to study and reproduce examples of ornamental arts, primarily through drawing.

In addition to the introduction of the Government Schools of Design, the 1836 Select Committee placed considerable emphasis on state investment in museums and exhibitions to showcase good-quality examples of design and manufacture with the intention of educating the public. According to Romans, during this period taste was understood as 'an all-embracing term that took in moral imperatives, civic behaviour, good judgement in consumer choices, and the promotion of economic interest'.[8] The decision to invest in design education therefore was not purely driven by economic concerns, by nationalistic competition or by a desire to support art and design practice, but by 'profoundly middle-class attitudes' that sought to shape consumer behaviour and bring about social reform through educating the public in design awareness.[9]

Apparently disappointed by the failure of the design schools to improve the standards of manufactured goods, the government convened a second Select Committee in 1849 to debate their future. Finding that students were attending the schools 'for the "wrong" reasons, motivated by an interest in fine art or simply for recreation' rather than for work in industry, the 1849 Select Committee went on to point the finger of blame at a failure to recruit and retain suitable teachers. This, they suggested, led to inadequate levels of

8 Romans, 'A Question of "Taste"', p. 52.
9 Romans, 'An Analysis of the Political Complexion of the 1835/6 Select Committee', p. 216, 221.

instruction and an over-reliance on topics like 'elementary art studies' that created little opportunity to train students in regional specialisms.[10] So it was that, after an incubation period of just 12 years, the 1849 Select Committee concluded that the schools not been able to bring about the improvements to the commercial viability of British goods that had been desired.[11]

The 1849 Select Committee's review highlighted that the Schools of Design had failed to establish a clear sense of identity and purpose during the 12 years that they were in operation. In a dramatic indictment of the Schools of Design, Bell described their downfall as a tale of 'scandal, confusion and disaster', attributing their failure to gross mis-management by school leaders who found themselves, 'distracted by feuds, encumbered by debts and confused by mutinies.'[12] For Edward Bird, the issues were understandable, perhaps even predictable, given that the country had 'no previous experience' of delivering art and design education.[13]

Where Romans doubts the validity of Bell's disaster narrative, it would appear to have become something of a trend in the history of state-funded art and design education. In Chapter Four of the study, it will become apparent that Bird's observation 'that there was no clear idea of what ought to be taught', echoed government minister's response to the

10 Nicos Souleles, 'The Evolution of Art and Design Pedagogies in England: Influences of the Past, Challenges for the Future', *International Journal for Art and Design Education*, 32 (2013), 243–55, p. 245.
11, From extracts of the *Report of the Select Committee on the Government School of Design*, (1849) chaired by Thomas Milner Gibson reprinted in Ashwin, pp. 26-38.
12 Quentin Bell, *Schools of Design* (London: Routledge and Kegan Paul, 1963), p. 1, 60.
13 Edward Bird, 'The Development of Art and Design Education in the Nineteenth Century' (unpublished doctoral thesis, Loughborough University of Technology, 1992) in British Library, EThOS <https://ethos.bl.uk/OrderDetails.do?did=1&uin=uk.bl.ethos.314480> [accessed 1 May 2022], p. 254.

proposals for D&T in 1988.[14] Other parallels that will be noted throughout the remainder of the study include a tendency to heroicise individuals in the 'fight' for public art and design education, rather than recognising the state support as a reflection of a wider appetite for reform; the over-dramatisation of the failure of design-related initiatives to fulfil their remit; the historic role of design as a panacea to anticipated social and cultural change and evidence of a strong social imperative motivating those involved in advising on design education.[15]

Development of art and design education

Despite their limited life cycle, the structural legacy of the nineteenth century Schools of Design was significant, shaping the provision, and content of art and design courses in further and higher education contexts in the UK.[16] As Bird observed, although the Schools of Design had gone 'what we have did grow out of it'.[17] In practical terms, the physical spaces that the design schools had occupied were turned over to the government's Science and Art Department, where they morphed into regional arts institutions under the directorship of local councils. It would take another 100 years before these regional arts institutions were

14 Ibid.

15 According to Romans', Bell had a tendency to characterise key policy-influencers as radical arts educators, where his own research shows that the main commonality between the political complexions of members of the 1835/36 Select Committee were their 'profoundly middle-class views' which were subsequently downplayed or overlooked because it did not fit with a radical and reformist narrative. Romans claims that Bell's characterisation of the 1835 Select Committee as 'heroic pro-art agents of change' reflects his own period of history writing 'when protest and change were fashionable positions to support' and that Bell failed to acknowledge evidence of the social imperative behind funding public design education. See, Romans, 'An Analysis of the Political Complexion of the 1835/6 Select Committee', p. 221.

16 Bruce Brown discusses this legacy in relation to the evolution of arts practice research in particular in, Bruce Brown, 'The Ecology of Artistic Research' in *Artistic Research: Is There Some Method?* ed. by Daniela Jobertova and Alice Koubova (Prague: AMU Press, 2018), pp. 84-99.

17 Bird, p. 462.

merged with technical colleges to form vocationally-oriented polytechnics, which in turn became universities in 1992.

The development of art and design pedagogy, meanwhile, became linked with the Arts and Crafts movement and to romanticised notions of pre-industrial production and lifestyle that used design to reframe the relationship between art, craft and industry. Influencing the content of the art school curriculum in particular, Arts and Crafts sought to reject industrial practices and embrace the 'handicraft aesthetic' by incorporating aesthetic and theoretical debates to locate design education in a social and moral context. The movement was pioneered by William Morris and John Ruskin in the mid-nineteenth century, and was advocated by the artist Walter Crane, architects Charles Voysey and William Lethaby and the designer Charles Ashbee, who believed that traditional craft-making, production techniques and objects should represent a combination of beauty and usefulness. Gillian Naylor suggests that although this ideological pedagogy naively attempted to 'preserve or revive traditional methods and values of workmanship', it complemented intellectual ideas regarding 'the unity and equality of all arts and crafts', which continued to feature in debates about the essential nature of art and design education and presented a social and political imperative for reform.[18]

Design education for children

18 Gillian Naylor, *The Arts and Crafts Movement: A Study of Its Sources, Ideals and Influence on Design Theory*, (London: Studio Vista, 1980), pp. 7-8.

In Britain around the turn of the twentieth century, ideas about art education as it related to children, specifically, were also evolving. Child Art, a European movement pioneered by Franz Cizek, was based on the premise that '[C]hildhood has its own way of thinking and seeing'. The success of the movement was associated with three factors: studies in psychology, growing interest in primitive art and an increasing appreciation of modern art among art teachers. In the UK, the Child Art movement was pioneered by schoolteacher, Marion Richardson, with support from art critics and design commentators Roger Fry, Sir Kenneth Clark and Margaret Bulley. The movement represented an alternative to traditional art pedagogy which had previously been reliant on duplication and accuracy in drawing without considering a child's natural desire to express themselves.[19]

Richardson had met Fry in 1917 at the first 'Exhibition of Children's Drawings', held in the Omega Workshops in London, and would go on to establish a basic philosophy for art education centred around the belief, firstly, that children work best when painting from mental images; secondly, that children needed positive stimulation; and, thirdly, that all children could produce art, not just the artistically gifted.[20] Having developed a series of training courses for art teachers, Richardson published a book in 1948 called *Art and the Child* that set out her approach to arts education. These ideas were influential and informed educational practice in schools in the UK, not just in relation to drawing and painting, but also in subjects like drama, dance and music.[21]

Introducing design in schools, 1932–1951

19 See, Macdonald, p. 320, 329.
20 Bruce Holdsworth, 'Marion Richardson (1892–1946)', in *Histories of Art and Design Education: Collected Essays*, ed. by Mervyn Romans (Bristol: Intellect, 2005), pp. 161–75.
21 Marion Richardson, *Art and the Child* (London: University of London Press, 1948).

Educational approaches to art and design in schools within the context of the Child Art Movement were intermingled, but by 1936 a more overt campaign to enhance the public's design awareness was emerging, which was more to do with observation and experience that it was to do with creating, making or drawing.

Ideas about enhancing the public's design appreciation resurfaced around 1932, when the British government's Board of Trade sought to investigate methods of raising the standards of aesthetic appreciation. The expansion of the state-funded education system in the early twentieth century meant that schools presented a new space to circulate ideas about aesthetic sensibility, discrimination and design appreciation. In 1936, the *Report of the Committee of the Production and Exhibition of Articles of Good Design and Everyday Use: 'Art and Industry'*, or the Gorrell Report, as it was more commonly known, responded with dismay to 'the recent slump in demand for British products' and set out a belief that instilling a better standard of design education relied on a combination of the designer's ability *and* the general public's design sensibility:

> As the standard of articles produced in the United Kingdom depends on the education, training and opportunity given to designers, on the general level of appreciation (or in other words of demand) of manufacturers, buyers, salesmen and of the consuming public, and on the co-operation of Industry with Art, it follows that the question of the education provided in the art and trade schools and also in public, secondary and elementary schools, both in the direction of creative artistic work and of appreciation, is of fundamental importance to artistic production in industry.[22]

The Gorrell Report clearly had resonance. In 1937, the Council for Art and Industry (CAI) held an exhibition in Birmingham entitled Design and Education, showcasing a variety of

22 See, 'Report on the Committee on the Production and Exhibition of Good Design and Everyday Use: Art and Industry', (The Gorrell Report) 1932 Excerpts reproduced in Ashwin, pp. 72–73, (p. 73).

everyday objects alongside examples of children's work. Ian Grosvenor notes that under the chairmanship of Frank Pick, who would later become director of the Design and Industries Association (DIA) and a central lobbyist for the Council of Industrial Design (CoID), the CAI wanted to use the exhibition to inculcate ideas about good design by exposing the general public to well-designed products from childhood.[23] Pick also took the opportunity to appeal to Local Education Authorities to use their budgets for infrastructure and furniture to '…buy with an appreciation of design and character even when it conflicts with strict economy; they will remember that they are educating the future consumer and may be setting a standard for industry in the next generation.'[24] It would be wrong, however, to assume that the Design and Education exhibition was simply an attempt to sway consumer behaviour. As Grosvenor explains, serious attention was paid to promoting 'the art of seeing' to children and teachers to help bridge notions of art and industry, furthermore the exhibition 'sought to empower the "public", but also championed the centrality of the expert.'[25]

The desire to shape spending behaviours led reformers to position schools as a showroom through which to present examples of good design. To a great extent this approach relied on a child's intuitive sense of good and bad design, and their first-hand experience of living and working with well-designed objects and spaces in contrast to less well-designed objects and spaces. The imperative to train young people to become analytical consumers extended to new visual materials and books that were specifically geared towards engaging children with design as it related to the production and consumption of man-made objects. The

23 Ian Grosvenor, 'Pleasing to the Eye and at the Same Time Useful in Purpose: A Historical Exploration of Educational Exhibitions' in *Materialities of Schooling: Design, Technology, Objects, Routines*, ed. by Martin Lawn & Ian Grosvenor, (UK: Symposium, 2005) pp. 163–176, (p. 170-171)
24 See, Council for Art and Industry report, *Design in Education* (1937), quoted Grosvenor, p. 171.
25 Ibid., p. 172.

Penguin series 'The Things We See' and a range of Puffin books written and illustrated by eminent artists and writers, for example, featured titles on furniture-making and styles, woodworking, pottery and fashion (**fig. 3**).[26]

The Design and Education exhibition, and the emergence of publications that explained the life-cycle of products from raw materials, manufacture, and application, had a democratising ethos. In this regard, they might be considered a precursor to developments in thinking around design education and its ability to break down barriers between professional (designing) and non-professional (consuming and making) activities.

The CoID and schools-focused design education initiatives

The idea of the classroom as a site of informal learning about everyday design was further explored by the CoID. Formed under a wartime coalition government in 1944 and initially sponsored by the Board of Trade, the CoID was established to promote 'the improvement of design in the products of British Industry'.[27] In the main, notes Jonathan Woodham, the CoID's activity centred around an 'evangelical message' about what constituted 'good design'.[28]

26 Texts in the 'Things We See' series included, for example, Alan Jarvis, The Things We See: Indoors and Out, (Middlesex: Penguin, 1947) and Christopher Barman, Public Transport, The Things We See - No 5 (Bristol: Penguin, 1949).
27 Letter from the Rt. Hon Hugh Dalton to Sir Thomas Barlow, Chairman of the CoID, 19 December 1944. Reprinted in *CoID Annual Report, 1945–46* (London, Council of Industrial Design, 1946), pp. 3–4.
28 Jonathan Woodham, 'Putting the Industrial into Design: Early Problems Facing the Council of Industrial Design', in *Design and Cultural Politics in Postwar Britain*, ed. by Patrick J. Maguire and Jonathan M. Woodham (London: Leicester University Press, 1997), pp. 123–34, (p. 133).

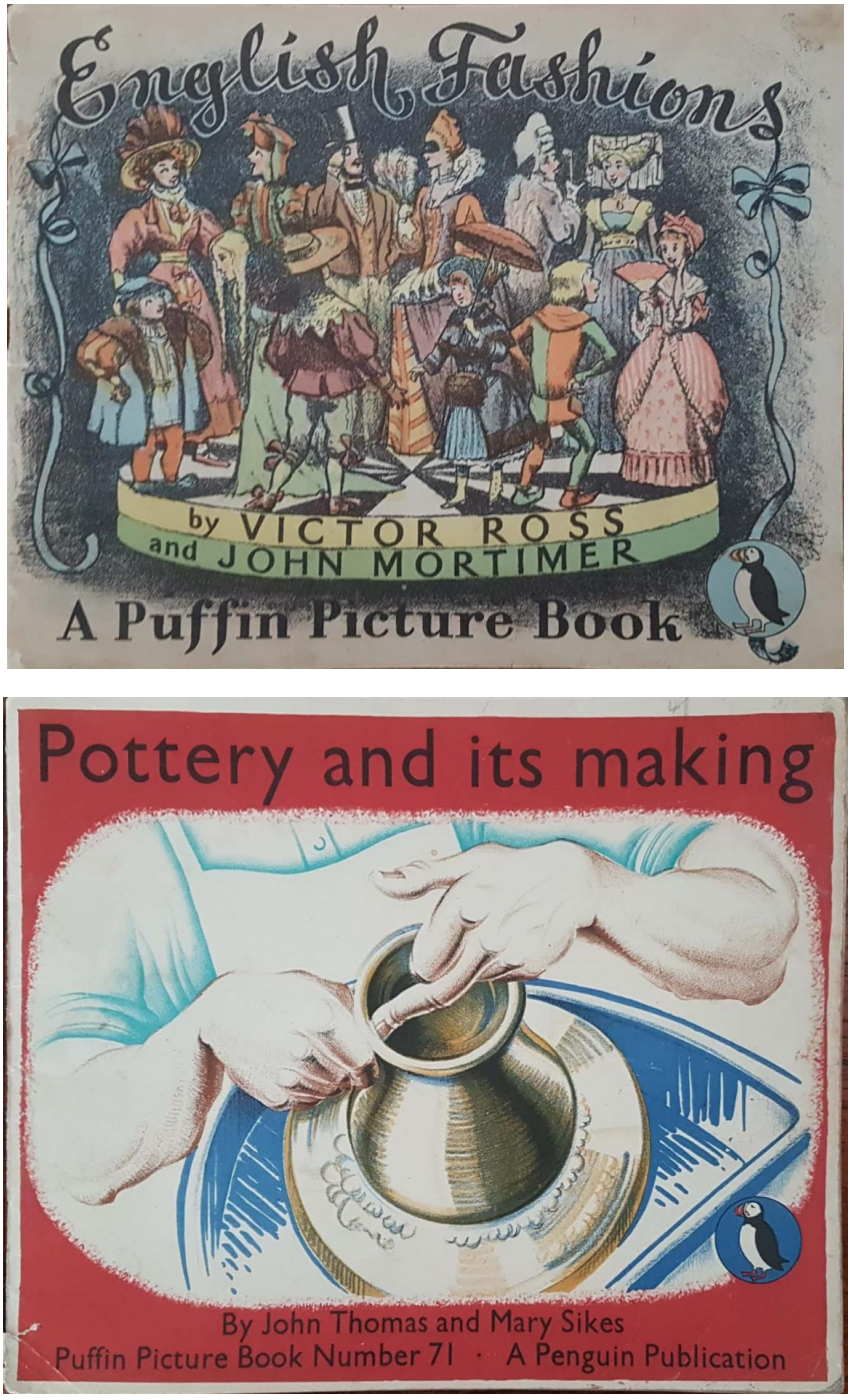

Figure 3 Sample of Puffin Picture Book covers

Image: From top to bottom, Victor Ross and John Mortimer, *English Fashions* (Harmondsworth, [1947]); John Thomas and Mary Sikes, *Pottery and its Making* (Harmondsworth, Penguin, 1950) [photograph by the author, October 2018]

Where Woodham associates the early work of the organisation with a propagandist approach to the promotion of 'good design'; Lesley Whitworth has shown that the concerns of the CoID were far more nuanced and lay with a group of individuals who held an intricate 'combination of industrial and social agendas'.[29]

Under the directorship of Gordon Russell, 1947–1959, the CoID invested resources in building relationships with industry and in educating the public about design appreciation.[30] The staging of the Britain Can Make It exhibition at the Victoria and Albert Museum in 1946 provided the CoID with an opportunity to raise awareness about the 'principles of good design' to over 160,000 children who visited on school trips. In 1951, the Festival of Britain exhibition at the Southbank in London provided another opportunity for the CoID to present school buildings and educational surroundings as a stage for promoting 'good design' to young people.[31] In furthering this work, the CoID developed various resources for use in the classroom, including a collection of portable travelling box exhibitions and a folio series with lithographic plates displaying well-designed everyday objects.[32]

With the CoID's funding waning towards the mid-1950s, Woodham reports that production costs for teaching materials became prohibitively expensive and they began to work more in

29 Lesley Whitworth, 'Inscribing Design on the Nation: The Creators of the British Council of Industrial Design', *Business and Economic History*, 3 (2006), p. 3.
30 Gordon Russell, 'What is Good Design?' *Design*, 1 (1949), 2–6, (p. 5).
31 Jonathan Woodham, *The Industrial Designer and the Public* (Wiltshire: Pembridge, 1983), p. 67, 71-74.
32 Jonathan, Woodham, 'The Consumers of the Future: The Council of Industrial Design and Educational Strategies for Schools, 1944 to the Late 1950s', in *The Camberwell Collection: Object Lesson*, ed. by Jane Pavitt, ([n.p.]: Camberwell College of Art, 1996), pp. 16–24 (p. 20).

an educational advisory capacity.[33] The CoID's work on raising awareness of design appreciation meanwhile was diverted to the Design Centre, a dedicated exhibition space and shop at the Council's London headquarters in the Haymarket, which had opened in 1956. By the 1960s, the CoID were coming around to a different conceptualisation of design education in schools altogether, as rapid technological developments and new ways of thinking about applied science had opened up new ways of understanding the role of design and/or technology as part of the nature and construction of the school system as a whole.[34]

Rethinking approaches to design education

Throughout the 1970s, the Design Council became involved in formulating advice on formal modes of designer training in further and higher education contexts and developing more robust educational policies. In 1973, for example, the Engineering Design Advisory division of the Design Council established its first education committee with a remit to study the 'methods of training engineering designers'. Their *29th Annual Report 1973/74* notes that a spur of this committee, the Design Education Action Group (DEAG), was set up with the intention of emphasising the importance 'attached to the development of design education in the future.' The DEAG had two core tasks: firstly, to 'absorb and coordinate' existing educational work carried out by the Design Council; and secondly to oversee the development of a specific educational policy. [35]

33 Ibid., p. 23.
34 Design Council, *50 Years of Design, Schools and the Design Council* (London: The Design Council, 1995), p. 5.
35 Design Council, *29th Annual Report 1973/74* (London: The Design Council, 1974), pp. 8-9.

A series of Design Council research papers followed that dealt mainly with the role of design education in the context of engineering and industry, but included cursory reference to schools-based practice. This included the Design Council report *Engineering Design Education*, also known as the Moulton Report (1975) after Alex Moulton, the chairman of the working group, which discussed the content of further and higher education engineering courses, noting that it was important to 'encourage schools to identify and develop children's practical creative ability, imagination and ingenuity'; and *Industrial Design Education in the United Kingdom,* known as the Carter Report (1977), after David Carter, chairman of the working group, which supported the inclusion of design courses in schools more broadly and, crucially, identified design as a useful part of general education, and not just a route to becoming a designer.[36]

Interest in the value of design education outside of professional employment training also needs to be understood in the context of increasing numbers of design students and decreasing numbers of jobs. Sir Misha Black, a prominent figure in the design industry, and a founding member of the Design Research Unit (DRU), one of the first 'design consultancy' companies in Britain latterly located in the School of Industrial Design (Engineering) at the RCA from 1961, had voiced his belief in the broader social application of a design education, claiming that '[A]n artist's insight and sensitivity to focus on problems of human relations and human environments' might help to improve society, and everyday life, as a whole. Black indicated that a design education was useful not only for those wishing to become

36 See, Design Council, *Engineering Design Education* (London: Design Council, 1975). Design Council, *Industrial Design Education in the United Kingdom* (London: Design Council, 1977).

professional artists or designers, but also for graduates 'prepared to work as managers and organisers, as entrepreneurs and civil servants'.[37]

Black's position on design's social and educational dimension was indicative of an ideological shift. Where earlier interpretations of a design education had centred on training artists and designers for employment in the design profession and informing the public's awareness of the stylistic implications of design, this new approach recognised the potential of design to challenge, reform and resist the status quo. Moreover, where popular discourse surrounding the rationale for a design education had been allied with efforts to boost a flagging economy, it was now presented as a method of empowering society and of raising the public's control over their everyday world.

Where design education campaigns had been constructed to raise wider public awareness about the use and appearance of objects and spaces, in the 1970s a new conceptualisation of design education was evolving. Like previous phases of public-facing design education outside of higher education, its architects were similarly inspired to empower the public to play a more active role in their material world, but they were focused on instilling the knowledge, skill and experience needed to do so as part of general education and in a schools-based context.

37 Misha Black, 'Design Education in Great Britain', in *The Black Papers on Design: Selected Writings of the Late Sir Misha Black*, ed. by Avril Blake (Oxford: Pergamon Press, 1983), pp. 227–246, (p.245).

Development of art and design education

During the twentieth century alternative ways of thinking about art and design education emerged that would slowly inform education practices. The Bauhaus, for example, originated in Weimar, Germany in 1919, and was recognised by Naylor as 'both a landmark and a legend in the history of design and design education.' Under the initial directorship of the architect Walter Gropius (1919 – 1925), the Bauhaus manifesto called for 'a new guild of craftsmen' and a school that might 'combine everything – architecture *and* sculpture *and* painting – in a single form'. In attempting to unify art, craft and new technologies, the school proposed a new relationship between art and industry and a curriculum that comprised courses on drawing and painting, colour theory, the science of materials and basic business studies, as well as six types of craft training: sculpture, metalwork, cabinet-making, painting and decorating, printing and weaving.[38]

A UK-based example of intellectual design theory and criticism, based on Bauhaus thinking, emerged in the form of the Basic Design Group, or Independent Group in 1952. Rather than assume the merit of art and design education, key advocates including the historian and critic Reyner Banham and British artists Victor Pasmore, Richard Hamilton, Tom Hudson and Harry Thubron, encouraged artists and designers to take up training in different disciplines, to market their products directly to consumers and to explore their creative faculties in an

38 The Bauhaus moved from Weimar to Dessau in 1925, and to Berlin in 1932, changing both directorship and direction with each move, before being closed under pressure from the Nazi Party in 1933. The advent of the Second World War forced Gropius, and subsequent Bauhaus Directors' Hans Meyer and Mies van der Rohe to emigrate from Germany, eventually helping to disseminate the School's practices and pedagogy throughout Britain and the United States. Gillian Naylor, *The Bauhaus Reassessed, Sources and Design Theory* (London: The Herbert Press, 1993), p. 14, 26, 54–56.

approach that acknowledged art as an organic and evolving concept.[39] Banham in particular questioned the belief that art was primarily a technical skill and sought a valid alternative to traditional approaches to art and design education.[40] Their ideology was complemented by vernacular texts such as de Sausmarez's *Basic Design: The Dynamics of Visual Form*, and Pye's *The Nature of Design* and *The Nature and Art of Workmanship,* which dealt more overtly with the theory and philosophy of art and design and reflected the emergence of a strand of design criticism alert to the theorisation of the design process and thus of design education as it related to training designers to work in the design profession.[41]

Design in everyday life

As debates shifted toward the role of design in everyday life, the 'design methods' approach was also gaining momentum ignited by the work of the design method theorists and in particular the publication of John Christopher Jones's seminal book, *Design Methods: Seeds of Human Change*.[42] Jones, who had originally trained as an industrial designer, echoed historical concerns about the estrangement between design and industrial manufacturing processes, suggesting that while advances in science and technology had changed the appearance and functionality of products, end users were rarely considered in the design or operation of those products. In *Design Methods*, Jones presented a series of new approaches to design that prioritised the needs of the end user rather than the aesthetic or

39 See, David Yeomans, 'Basic Design and the Pedagogy of Richard Hamilton' in *Histories of Art and Design*, ed. by, Romans, Mervyn (Bristol: Intellect, 2005), pp. 195–210.
40 Banham, in particular, produced and inspired a considerable amount of critical literature on design, architecture and popular culture, see *The Banham Lectures, Essays on Designing the Future*, ed. by Jeremy Aynsley and Harriet Atkinson (Oxford: Berg, 2009).
41 See, Maurice De Sausmarez, *Basic Design: The Dynamics of Visual Form* (London: Studio Vista, 1964) and David Pye, *The Nature of Design* (Netherlands: Studio Vista, 1964).
42 In the United Kingdom *Design Methods* was reprinted eight times between 1972–1982, a second edition was brought out in 1980, it was revised again in 1992.

function of the final product. Central to his philosophy was the importance of identifying the 'design problem' *before* looking for possible solutions. The first section of *Design Methods* was correspondingly concerned with evaluating traditional or 'obsolete' methods of a design situation, and in the second section, readers were invited to address their 'design problem' using one of 35 new methods.[43] Using the design methods approach, Jones endorsed a democratisation of design in which anyone could be a designer. This tapped into a growing interest in design as a social tool, discussed in a number of publications, including works by Victor Papanek, E.F. Schumacher, and Christopher Alexander that highlighted design solutions for global concerns.[44]

Although Jones would later become disillusioned by his design methods, the approach was highly influential in educational contexts.[45] Where design courses had primarily been developed to service the design industry and to train those wishing to work in the profession, a new approach formed within which design was presented as a way of providing *anyone* (not just trainee designers) with the interpretative tools to question or think about their everyday lived experiences. For example, in 1975 The Open University (OU) introduced a pioneering course in design research.[46] Entitled Man-Made Futures, the

43 See, Christopher J Jones, *Design Methods: Seeds of Human Futures* (Hertfordshire: John Wiley & Sons, 1970).
44 See, Victor Papanek, *Design for the Real World: Human Ecology and Social Change* (London: Paladin, 1974), E.F Schmacher, *Small is Beautiful: A Study of Economics as if People Mattered* (Reading: Abacus, 1980), and Christopher Alexander, *Notes on the Synthesis of Form* (London: Harvard University Press, 1974).
45 Margolin confirms this, referencing Jones' preface in later editions of *Design Methods* which evidence his disillusionment with 'design methods as systematic theory.' Margolin 'Postwar Design Literature' in *Design Discourse: History, Theory, Criticism*, ed. by Margolin, pp. 265–277, (p. 276).
46 The Open University was originally conceived of as 'a University of the Air', offering distance learning courses via text books, BBC radio and television broadcasts. Officially opening in 1971, it represented a new approach to higher education, offering modular courses in a range of multi-disciplinary foundation courses in the arts, social sciences, science and mathematics. The courses received state funding and offered an alternative route to an academic qualification, this proved particularly popular amongst teachers and

programme, which was conceived and convened by Jones, Nigel Cross, Robin Roy and David Elliott, aimed to provide students with a design awareness and design skills, not to inform their consumer decisions, generate wealth or improve the economy, but to help improve social conditions and create a better world in which to live.[47] In reviewing the OU texts for *Design* in 1976 Jocelyn Thompson, for example, noted that the course included a design methods component based on Jones's theory to empower students to identify real-world problems and find meaningful solutions to them, and challenged a popular image of designers working in 'arrogant isolation' from society.[48]

One question for those working in and around curriculum development was whether technology should be allied with technical and vocational education undertaken in former craft and manual instruction workshops, or form part of the sciences and specifically an applied science curriculum. By the 1960s the school workshop was increasingly being used as a space for craft, D&T courses; however, the Schools Council, the government's in-house policy development body, were concerned that teaching methods were not being updated accordingly. As the role of vocational and technical education and the relevance of crafts training as part of the school curriculum was scrutinised, the Schools Council became more alert to questions surrounding the role of technology in schools, and the positioning of design as a powerful social tool increasingly filtered into this discussion.

university lecturers, who used the points-based system to convert their Certificates in Education in to a degree-level qualification. See, 'The History of The OU', *The Open University*, 2014, <https://www.open.ac.uk/about/main/strategy-and-policies/history-ou> [accessed 31 October 2021]

47 Nigel Cross, David Elliot, and Robin Roy, *Man-Made Futures* (Essex: Hutchinson Educational & Open University Press, 1974).

48 Jocelyn Thompson, 'Book Review', *Design*, 329 (1976), p. 57.

Conscious of the low status of technical subjects and with a greater awareness of gender discrimination in school subjects, which allied with the Sex Discrimination Act of 1975, and later the Equal Opportunities Commission of 1985, the Schools Council started to look for ways of overhauling workshop spaces and updating curriculum content to align with new employment conditions and commissioned two research projects, both focused on reinvigorating the school workshop.[49]

The first Schools Council commission addressing this issue was called Project Technology (1967-1972). After obtaining considerable financial resource from the Schools Council, Geoffrey Harrison, was commissioned to investigate how the school workshop could be adapted to deliver technological, alongside technical, education as part of the applied science curriculum as part of Project Technology.[50] Harrison, note Gary McCulloch, Edgar Jenkins and David Layton, was well known for his conviction that 'the craft department was equal to the science department'; that a merger between the crafts and science might 'evolve a true image of engineering' and that 'the way to convince more children to take up careers in technology, rather than in pure science, was to demonstrate the true nature of engineering at the school level'.[51]

49 John Penfold, 'Techniques and Traditions: Design and Craft Educational Practices in the Post War Period', in *The Camberwell Collection: Object Lesson*, ed. by Jane Pavitt ([n.p.]: Camberwell College of Art, 1996), pp. 27–33, (p. 27).
50 In fact, it was one of the largest bids that the Schools Council approved during this period. John Penfold, *Craft Design and Technology: Past, Present and Future* (Stoke-on-Trent: Trentham Hanley, 1988), p. 119.
51 Gary McCulloch, E. W. Jenkins, and David Layton, *Technological Revolution? The Politics of School Science and Technology in England and Wales since the Second World War*, (United Kingdom: Routledge Falmer, 1984), pp. 144–145.

The relationship between technology and craft, as presented in Project Technology, and its position as part of the applied science curriculum would divide school science teachers and lead to fundamental disagreements within the education community.[52] The Schools Council supported an applied and engineering-orientated approach to science that involved craft departments, but the Association of Science Educators (ASE) sought to pursue technology through reforms to the school science curriculum and retain the 'traditional intellectual rigour' of science, which they felt was compromised by the involvement of craft approaches, and 'craftsmen'.[53] In attempting to raise the status of technology, Harrison and his Project Technology team explored ways of engaging science teachers in technological education initiatives and produced a series of new resources and textbooks for use in the classroom. However, according to Penfold, the task proved 'bitterly contentious'. Science teachers resisted attempts to develop an applied science curriculum or to incorporate technology in their lessons because of its association with workshop practices, and the success of Project Technology was essentially a 'highly effective public relations operation which kept the teaching of technology high on the political agenda.'[54]

In a further attempt to counter the low status of crafts training in schools, the Schools Council funded a second research initiative that centred around rebranding the workshop in 1969. Called the Design and Craft Education Project, but more commonly known as the Keele Project, efforts were made to update the craft curriculum by forming an association with 'design' and 'creativity'. John Eggleston, a former woodwork teacher, sociologist and

52 McCulloch, Jenkins and Layton provide in-depth analysis of the evolving conflict around technology and between stakeholder groups, Ibid., pp. 144–161.
53 Ibid.
54 Penfold, *Craft, Design and Technology*, pp. 121.

lecturer at Keele University, was commissioned to investigate the potential evolution of workshop practices in schools to promote vocational lessons and to reduce inherent gender divisions, which saw boys take woodwork and metalwork classes and girls, cookery and embroidery.[55] Eggleston's background in sociology, education and craft meant he was uniquely positioned to take up this project. Rather than targeting the practice of science teachers, the Keele Project aimed to speak to the social and cultural issues that were implicit within the workshop tradition and bring craft education and craft educators up to date with new ways of thinking about practical education in schools.

Adopting a cross-disciplinary stance and considering the integration of craft across other areas of the curriculum, particularly art, home economics and technology, the Keele Project emphasised engaging with craft teachers, updating their approaches and utilising existing school resources, specifically the workshop, to create lessons that related to everyday life. According to Penfold, who was clearly more sympathetic to Eggleston's approach, despite the Keele Project's comparatively small budget, the research team were able to develop a close working relationship with schoolteachers, who were supported through the production of resources, and in-service training opportunities. The integration of design processes with craft lessons, alongside a cross-curricula approach, spoke to educational practitioners who were interested in making the school curriculum more relevant to everyday life and who saw the potential of design and visual education as a way of doing this. In this way the Keele Project, and others, signalled growing momentum around both the theory and practice of an alternative approach to education in schools (**fig 5**).

55 See Eggleston's account of the Keele Project in, John Eggleston, *Developments in Design Education*, (London: Open Books, 1976). pp. 37-42.

Figure 4 Sample of front covers, influential texts relating to the development of design education in schools, 1970s

Images: Left to right, Project Technology, *Bernoulii's Principle and the Carburetter* (UK: Heinemann Education/Schools Council, 1974); Schools Council Design and Craft Education Project, *Education Through Design and Craft*, (London: Edward Arnold, 1975), [photographs by the author, October 2021]

While the Schools Council funding should not be mistaken for government support per se, it does serve to demonstrate interest in alternative approaches to education that were geared to addressing the marginalisation of so called 'non-academic' subjects and tackling social and cultural divisions. Latterly, and by the 1980s when traditional courses in crafts were waning in schools and considered unsuitable for a modern curriculum, these workshop-based initiatives helped raise awareness about how 'design' could be used to make projects more applicable to everyday life. This in turn informed the development of new, forward-looking CDT resources.[56]

The Keele Project's findings and resources would form an important strand of the emerging and evolving discourse around design education, and it had an affinity with the conceptual work of the RCA Design in General Education research team, who in 1973 embarked on a new, government-sponsored project to explore the role of design in a general education context.[57]

Design in General Education

The RCA Design in General Education Project was led by L. Bruce Archer, working with Ken Baynes (director), Richard Langdon, Cecil Burt, Phil Roberts (who later became co-director of the RCA Design Education Unit with Baynes), and a group of advisors including design education specialists, Bernard Aylward, Peter Green and John Eggleston.

56 Penfold, *Craft, Design and Technology*, pp. 121–122.
57 Eggleston, pp. 42–44.

Originally trained as an industrial engineer, Archer had previously worked on the Festival of Britain and at the Hochschule für Gestaltung (UfG) in Ulm, West Germany, which opened after the end of the Second World War.[58] Following in the footsteps of the Bauhaus, the UfG initially strove to unite art and industry through manufacture. However, by the early 1960s, and with the involvement of design theorists Tomás Maldonado and Gui Bonsiepe, it had developed a theory of design research based on scientific and technological developments. This led to a disagreement between the two faculties as to whether design training should be developed around 'principles' or through 'form and style', and the two opposing schools of thought could not agree on an approach to design teaching. Where the Bauhaus and the Basic Design Group's outlook were both arts-based, tension remained between technology, aesthetics, design theory and method, and this division became manifest in debates about the content of a basic design course at the UfG. The dispute had still not been settled when the UfG eventually closed in 1968, and continued to trickle into debates about the fundamental nature of design education in the UK and ideas about the structure and content of the school curriculum.[59]

In the mid- to late 1960s, Archer was developing theories and working practices around the concept of a systematic 'design method' that, as outlined in *A Systematic Method for Designers,* he presented as a defined design process that could be applied to solve man-made problems.[60] Identifying a series of stages to work through when approaching a design project, Archer had trialled his pioneering methodology in the acclaimed Kings Fund Bed

58 Christopher Frayling, *The Royal College of Art: One Hundred and Fifty Years of Art and Design*, (Netherlands: Barrie Jenkins, 1987).
59 Catherine McDermott, *Design: The Key Concepts*, (Padstow: Routledge, 2007), pp. 225–226
60 L. Bruce Archer, *A Systematic Method for Designers* ([n.p.]: Council of Industrial Design, 1965).

project, which was delivered through the Design Research Unit (DRU) at the RCA.[61] After Archer took over from Black as director of the Design Research Unit at the RCA, and the Design in General Education Project represented the research team's next major commission. The RCA project brought together debates about the role of design education in everyday life and about the social rationale for the delivery of general education more broadly. This led to a new definition of design education, and subsequent publications ushered in a theoretically qualified conceptual framework that justified the delivery of design education as a third area of the basic school curriculum.[62]

Origins of the project

Carrying a total award of £26,736 over a three-year period, the RCA Design in General Education project represented the DRU's largest single commission at the time.[63] Funded by the Conservative government's Department of Education and Science (DES), under the then Secretary of State for Education and Science, Margaret Thatcher, the project's remit was to investigate ways of increasing 'public awareness of design by means of encouraging design activities in secondary schools'.[64] In this regard, the original aims of the project were not

61 Led by Archer, the RCA's Kings Fund Bed project was one of the first to apply a design research methodology to hospital furniture. Funded by the Nuffield Foundation in 1962, this landmark project led to the design and production of new hospital beds (known the Kings Fund Bed) that are still used in hospitals to this day. The project drew on Archer's systematic design theory. Like Jones, however, Archer would ultimately turn his back on design methods as described in, Margolin, 'Postwar Design Literature', p. 276.
62 L. Bruce Archer, and others, *Design in General Education: The Report of an Enquiry Conducted by the Royal College of Art for the Secretary of State for Education* (London: RCA, 1979), p. 37.
63 The RCA Annual Reports show that in 1973/74 the Department of Design Research was working on around 13 projects, variously commissioned by the Department for the Environment, the Design and Industries Association, British Steel Corporation, the Home Office and other organisations. The majority of grants were between around £700–£13,000, with only two others exceeding £20,000. London, Royal College of Art Archive, *College Annual Reports 1973/73*, RCA/RCAA/1985.
64 The nature of the commission, albeit with no reference to Thatcher or the DES, is outlined in Ken Baynes, 'The RCA Study "Design in General Education"', *Studies in Design Education Craft and Technology*, 6 (1974), 46–48.

dissimilar to the objectives of the CoID's earlier campaign and were a far cry from the more progressive debates about the fundamental nature and role of design in society that it eventually prompted.

The Design in General Education Project was unusual, firstly because the RCA's design research department was known primarily for design research rather than educational expertise, and secondly because it attracted direct funding from the DES. The DES rarely offered direct sponsorship of educational research pertaining to curriculum development, and the vast majority of research commissions was funded through the Schools Council, who were responsible for overseeing curriculum development and best practice. The archived records of the Schools Council, held in the National Archives, indicate that members of the RCA design research department had in fact been trying, and failing, to solicit funding from the Schools Council for their research since 1971. However, according to the Schools Council records, their proposal was repeatedly rejected because of insufficient evidence of demand and because the Schools Council were already committed to Project Technology and the Keele Project, discussed above.[65]

This new perspective on the origins of the Design in General Education project is significant because it contrasts with existing accounts. In, *An Eye on Design*, Paul Reilly, director of the CoID (1960–1977), which formally became the Design Council in 1972, aligns funding for the

65 The applications included funding for a 'Project on Design Education' rejected by Schools Council on 23/2/1971; secondly for a project on 'Design Studies in Education' rejected on 26/9/1972; and thirdly for 'Design Education 11-16: a regional curriculum development project' rejected on 21/1/1973. London, The National Archives (TNA), *Schools Council for Curriculum and Examinations: Agendas and Minutes*, 18 November 1964 - 7 June 1978, EJ 1/246, 'Steering Committee 'A': meetings 1-41', February 1971, September 1972, January 1973.

RCA project with his own intervention, including ongoing conversations with Margaret Thatcher about the UK's international reputation in the field of design.

Thatcher, who was serving as Shadow Secretary of State for Education and Science (1967–1970), had apparently become aware of low design standards during a visit to Sweden for 'British Week'. Reilly recalls that on discussing the matter with Thatcher on her return to the UK, she concluded that providing a basic grounding in design in schools was key to raising standards and advised him that the 'Council would never achieve its aims unless it won the battle in the classrooms.'[66] When the Conservatives came into power in 1970, Thatcher reportedly invited Reilly and a group of secondary school headteachers to her offices to discuss the matter of design education. A disagreement arose, with Thatcher and Reilly making the case for students using their 'eyes' (to appreciate things) and the school representatives supporting the virtues of using their hands (to make things).[67] Out of frustration, Reilly claimed, the DES commissioned the RCA to investigate design in general education.

Bearing in mind the autobiographical context of Reilly's account of events, and with the exception of an interview with Woodham in the mid-1980s in which Reilly repeats this story pretty much verbatim, no further evidence has been found to corroborate his version of events.[68] It is notable that Reilly's account contrasts substantially with the ultimate ethos of the project, which according to Phil Roberts, who later became co-director of the Design

66 Paul Reilly, *An Eye on Design: An Autobiography* (London: Max Reinhardt, 1987), pp. 141-144.
67 Ibid., pp. 141-142.
68 Jonathan Woodham, 'Jonathan M Woodham Interviews Lord Reilly', in *Did Britain Make It? British Design in Context*, 1946-86, ed. by Penny Sparke (London: Design Council, 1986), pp. 39–45.

Education Unit (DEU), was to 'to undertake a survey and enquiry into the phenomena of "design education"' rather than to find ways of raising the public's awareness of design appreciation in order to improve the appearance (and thus the commercial viability) of British-made products.[69]

Given the archival evidence showing that the RCA team had already submitted several proposals to the Schools Council for a research project on design in general education prior to Reilly's encounter with Thatcher, this account of the project's origins is intriguing. Firstly, Reilly's account places the Design Council far closer to the development of new ideas about design education than has previously been suggested and indicates that they already had an 'eye' on design in general education some six years prior to the publication of the *Design Education at Secondary Level Report* and the introduction of a new educational policy position in 1980. This was perhaps not so surprising, given the existing connections between members of the RCA team and the Design Council. Reilly, for example, held what he describes as close friendships with Sir Misha Black and Robin Darwin,[70] and according to Reilly, it was on his advice that Darwin had appointed Archer to the Design Research Unit.[71] Meanwhile, other members of the RCA team included Ken Baynes, who had worked with Archer on the Kings Fund Bed project and was married at the time to Kate Baynes, née Russell, daughter of the CoID's former director Gordon Russell.[72] Secondly, and somewhat

69 Phil Roberts, 'Design Education, A Select Bibliography' in *The Nature of Research into Design and Technology Education*, ed. by, Bruce Archer, Ken Baynes, Phil Roberts (Loughborough: Loughborough University, 1992), pp. 22-30, (p. 24).
70 Darwin was principal of the RCA, 1948 to 1967 and rector from 1967 to 1971. R. Y. Goodden, 'Darwin, Sir Robert Vere [Robin], 1910-1974, *Oxford Dictionary of National Biography*, (Oxford University Press, rev. 2014) <https://doi.org/10.1093/ref:odnb/31003>
71 Reilly, pp. 80-81.
72 Gordon Russell, *Designer's Trade: An Autobiography* ([n.p.]: Allen & Unwin, 1968).

more surprisingly, it directly connects Thatcher, in her capacity at the head of the DES and within the Conservative Party, to the development of the RCA's design research department and to a project that ultimately adopted a radical reassessment of and proposals for design education.

Findings and legacy

In 1976, the RCA research team delivered their final report to the DES. The RCA's Design in General Education Report highlighted the historical interaction of science and technology paired with a demand for equal opportunities, consumer choice and real-world experiences. The result was a new vision for design education that was not about improving design appreciation, the status of craft, or the taught content of art, craft, technology, engineering or applied science courses, but was an entirely new educational model that challenged the traditional dominance of the sciences and humanities subjects and represented a third area of the school curriculum. Archer would go on to explain that the team's goal through their conceptualisation of design education was neither to establish collaboration between different areas of the curriculum, nor to 'try and make everyone a first rate or second-rate creative artist or craftsman', but to strive to 'give everyone a good grounding in design sensibility analogous to literacy and numeracy.' Modelling, he argued, in both a mental or physical sense, was the symbiosis of making and doing, the combination of cognitive and practical activity. As the 'medium' of design activity, modelling was to design what literacy and numeracy were to the humanities and sciences.[73]

73 Bruce Archer, 'The Need for Design Education', in Bruce Archer, Ken Baynes, Phil Roberts, *A Framework for Design and Design Education: A Reader Containing Key Papers from the 1970s and 80s*, (Wellesbourne: Design and Technology Association, 2005), 16-21 (p. 21).

Although DES funding for the RCA/Design in General Education Project ended in 1976, the work of the core research team did not. A Design Education Unit (DEU) was established under the design research department. Led by Archer and two co-directors, Baynes and Roberts, the DEU launched a master's degree course with the aim of bringing together design researchers, cognitive psychologists and mid-career teachers to undertake research in design education. The number of students graduating from the master's course was relatively small, but its alumni included individuals who would go on to become influential advocates of design education and pioneers of what would later evolve into a D&T subject community.[74]

The RCA's work on design education was particularly geared toward establishing design education as one of the fundamental elements of a basic education delivered in a state-school context. By the mid- to late 1970s, projects realised by affiliate members of the research team were beginning to gain recognition. One example was the Schools Council project, Art and the Built Environment 16–19, pioneered by Eileen Adams.[75] The scheme evolved from the Front Door Project, a case study running between 1974 and 1976 in conjunction with Ken Baynes at the RCA, which was premised on using the local area around

74 Krysia Brochochka for instance later became a member of the National Curriculum Design and Technology Working Group (NC/DTWG), Kay Stables became Professor of Design Education, working at Goldsmiths College on the Assessment Performance Unit (APU) on Design and Technology and as a founding member of the Technology Enhancement Research Unit (TERU), and Eileen Adams led a series of projects on urban spaces and education notably the 'Art and the Built Environment' project, developed in conjunction with the Inner London Education Authority.

75 Eileen Adams and Colin Ward, *Art and the Built Environment* (Hong Kong: Longman (on behalf of the Schools Council), 1982).

a school as a starting point for environmental design courses that brought together architecture and design studies.[76]

Building on a humanist perspective of design education that had been pioneered by Eggleston as part of the Keele Project, Adams' work was an example of the concept of design education moving out of university research departments and into an applied context, in and (given the nature of the project) around schools.[77] Art and the Built Environment mimicked the ethos of the Open University's Man-Made Futures course as design education was construed as a way of actively engaging with and challenging educational practitioners, industry professionals and students in order to enrich the learning experience. Reporting on the scheme in 1978, Adams highlighted the value of engaging with industry experts and pooling ideas across the school departments, not so that children would 'copy' professional practice, but so they could learn about people and issues in their own environment and apply their new knowledge, concluding that:

> perhaps it would be more constructive and creative if we were to try and base a design and environmental education course on the value systems of the children we are teaching – that is to build on the perceptions and meanings in which the child invests in his own environment.[78]

It was projects like Art and the Built Environment, and the RCA's researchers fundamental belief in the importance of design in general education, that led Baynes and Roberts to assert the vitality of the field and its fundamental importance to society on the basis that

76 Eileen Adams, 'Pimlico School' in *Design in General Education*, ed. by John Harahan (Rugby: Design Council, 1978), pp. 72-87.
77 See *Gillian Klein and Michael Marland, A Vision for Today: John Eggleston's Writings on Education* (Wiltshire: Trentham Press, 2004). pp. 45–52.
78 Adams, 'Pimlico School', p. 87.

‘[W]e are at a point where the deliberate development of the design ability may actually be important for survival.’[79]

Conclusion: Economic and societal benefits of a design education

The chapter responds to a historical tendency to overlook the social impetus behind public-facing design awareness schemes in favour of over-arching economic arguments. Although the nineteenth-century government schools of design, the post-Second World War consumer education campaign in schools and the RCA’s Design in General Education Project are not usually considered to be part of the same history, bringing them together foregrounds the development of design education programmes that in origin were aimed at the public, as opposed to the training of professional designers.

The debates described in the chapter demonstrates a remarkable continuity of ambition and highlights a tendency to foreground economic imperatives and downplay genuine aspirations to enact societal change through design. The story around the origins of the RCA Design in General Education Project, for example, is a prime example of how developments in design education are presented as a response to poor design being damaging to the economy, when in actuality the project was part of a longer-term aspiration to radically subvert approaches to education on a much wider scale. Moreover, in all three examples of design education we see a desire to use design to instil a sense of societal awareness and control in the public that will transform their experience of everyday life as makers, consumers and citizens.

79 Baynes and Roberts, ‘Design Education: The Basic Issues’ p. 12.

This history of design education distorts the usual rhetoric around the economic benefit and the chapter has shown that while fiscal justifications are often given as the main reason for funding the development of design education, this factor usually forms one of a number of nuanced ambitions closely aligned with the social and radical views of individuals involved in advising on design. Historically, this situation creates challenges because the relative success of design education is judged on its ability to address economic problems, but the underpinning ethos of the projects is formulated on the basis of societal reform. As subsequent chapters demonstrate, the emphasis on economic value permeates the development of National Curriculum D&T and has implications for how it has been judged a success or failure.

Chapter Three: Origins of Design and Technology Education in the English School Curriculum

'It shows our roots!'[1]

In *Craft, Design and Technology: Past, Present and Future*, John Penfold aimed to set 'a challenging polemic' on the history of the field, noting that at the time it stood out 'as the most under-researched area of the curriculum.[2] As a teacher at Shoreditch College of Education from the mid-1950s, a teacher training institute specialising in the handicrafts, Penfold was in the midst of a profound shift in thinking about craft, design and technology education practices as part of the school curriculum. A chance finding in a second-hand copy of his book reveals a brief handwritten dedication which adorns the title page: 'It shows our roots!' There is no indication of the intended recipient, but signed by Penfold, this inscription speaks to the significant changes the CDT subject community were involved in, alerting to them to their origins and locating their practice as part of a longstanding educational tradition.

In this chapter, the complex and overlapping threads that weave through the history of design education are brought together in a historiography of D&T. The evolution of debates within education, the relationship between arts, humanities and science and wider social changes in relation to gender all feature as part of the design education agenda and influence the shaping of D&T. The cultural value of D&T is thus found to be historically

1 Handwritten dedication in authors copy of John Penfold, *Craft, Design and Technology: Past, Present and Future* (Hanley, Stoke-on-Trent: Trentham Books, 1988).
2 Ibid., p. ix.

contingent, absorbing different ideas and concepts and reflecting the educational beliefs, societal needs and cultural expectations of those involved in defining it at a given moment in time.

The first section of the chapter deals with the historiography of D&T, interspersed with contextual information about educational policy development in relation to the state school sector in England. The second section makes a comparative analysis of the Design Council's attempts to amalgamate the conceptual ideology of design education in contrast to other public advisory bodies who might claim a vested interest in the field. The third section introduces wider curriculum and assessment development activities underway in the 1980s, creating an opportunity to foreground individuals who would go on to become protagonists in the ongoing development of National Curriculum D&T. The fourth section considers Penfold's characterisation of the 'roots' of D&T and finds that unlike the more consistent themes in design education, discourse in D&T is more porous and amenable to changing cultural and political ideas.

Historiographies of D&T

Ivor Goodson proposes that the history of a school subject is rarely neutral and needs to be understood as political acts rather than benign chronicles. Representatives of school subjects help to define its history, and are thus engaged in power struggles that help confer status, determine curriculum time and secure resources. A subject's history underscores the rationale behind its distinctive contribution to society.

In the 1980s, it was customary in the D&T subject community to link the subject with the tradition of vocational training as an entry route to employment, which in turn could be traced back to educational practices in art, craft, manual instruction and handwork. Writing at a time when curriculum reform was looming, chroniclers of CDT, which formed a precursor to D&T, include Tom Dodd, Penfold and Stephanie Atkinson (in order of publication) and to this day, this small pool of texts makes up the mainstay of D&T historiography.[3] In contrast, design educationalists, tend to focus on the conceptual origins of the approach and link the history of design and technology education to ideas about learning through doing and problem-solving, arguing that the focus on workmanship positioned the child as the 'passive recipient' of knowledge, whereas design is about 'making children think'.[4] Both these discourses have a role to play in the history of D&T, and are explored further in this chapter.

Origins of design and technology education

In England, state schooling initiatives began to take shape in the early nineteenth century.[5] Where education had traditionally been the preserve of the upper and middle classes, early schools for poor, and particularly for homeless, children and orphans were closely connected to the Church and relied on the philanthropic support of the local community. Charity Schools operated from the early eighteenth century to alleviate pressure on

3 In addition to Penfold, see Tom Dodd, *Design and Technology in the School Curriculum* (United Kingdom: Hodder and Stoughton, 1978)and Stephanie Atkinson, 'Design and Technology in the United Kingdom', *Journal of Technology Education*, 2, 1 (1990), <https://scholar.lib.vt.edu/ejournals/JTE/v2n1/html/atkinson.html> [accessed 31 October 2021].
4 Richard Kimbell, *Design Education: The Foundation Years* (London: Routledge & Kegan Paul, 1982), p. 1, 11.
5 For a thorough introduction into the history and development of state education practices in England, see Richard Aldrich, *An Introduction to the History of Education* (London: Hodder and Stoughton, 1982) and Derek Gillard, *Education in England: A History*, (2018), <http://www.educationengland.org.uk/history> [accessed 31 October 2021].

poorhouses and orphanages, while also turning a profit through religious instruction and strengthening the congregation of the Anglican Church. In the wake of industrialisation many Charity Schools morphed into Schools of Industry, which were intended to prepare children for employment, or Ragged Schools. These schools typically included religious and moral instruction, as well as craft lessons and useful skills such as repairing clothes and basic cleanliness. The rationale behind teaching children practical skills, including lessons in crafting and manual instruction, is linked to employment and the desire to engrain the 'habits of industry, technical skills and correct moral habits' from an early age.[6]

Over the course of the nineteenth century, schools for the poor and the working class delivered industrial, skills-based and technical instruction, governed by successive Education Acts legislating for the building of new schools, the introduction of local authority regulation and regular inspections.[7] The Peel Factory Act of 1802, for example, brought in legislation that required employees to provide a basic education for children who were raised in workhouses and expected to follow their parents into employment in the factories, and by the mid-nineteenth century day schooling had become the standard method of providing education.[8] Top-down educational reform activity was not restricted to the poor or the working class. In 1840 the government passed the Grammar School Act, stating that the curriculum of classical studies (the 'dead languages') must be expanded to include science and literature in order to 'prepare Boys or Youths for Admission to the Universities, with a view to entering the learned Professions, and preparing them for the superior Trades and

6 Hugh Cunningham, *Children and Childhood in Western Society since 1500* (London: Longman, 1995), p. 100, 129.
7 See Gillard, '1800–1860 Towards Mass Education', < http://www.educationengland.org.uk/history/chapter05> [accessed 31 October 2021].
8 Aldrich, p. 76-77.

Mercantile Business'.[9] Education policy development therefore led to two different types of schooling that fulfilled two different roles; one delivered vocational training that would prepare young people for employment, while the other pitted around the pursuit of knowledge and geared toward academic scholarship. Children from working-class backgrounds were expected to enter industry and children from the emerging upper middle-class backgrounds professional and learned careers.

The distinction is significant because, as will be discussed in detail later in the study, the inclusion of design in the National Curriculum was an attempt to reunite knowledge and skill and, in this regard, drew on a late-eighteenth-century educational concept of learning through doing, rather than through instruction. Popularised by Rousseau in *Emile*, his seminal and highly influential treatise on the education of children, published in 1780, Rousseau wrote: 'if instead of making a child stick to his books I employ him in a workshop, his hands work for the development of his mind. While he fancies himself a workman, he is becoming a philosopher.'[10] This approach accorded with design educationalists' emphasis on making children active participants in their own learning, which itself drew on the philosophical tradition of Rousseau, as well as Froebel and Montessori, educational reformists who were concerned with catering for the physical, emotional and mental wellbeing of children.[11]

9 See, 'An Act for Improving the Condition and Extending the Benefits of Grammar Schools', (London: HMSO, 1840). Reproduced in Gillard, <http://www.educationengland.org.uk/documents/acts/1840-grammar-schools-act.html> [accessed 31 October 2021].
10 Jean-Jacques Rousseau, *Émile*, trans. by Barbara Foxley (London: Everyman's Library, 1969), p.140.
11 Aldrich, p. 84-85.

According to Dodd, however, the British government were against this approach. Toward the end of the nineteenth century responsibility for education passed to the Department of Science and Art, who supported technical instruction over emerging ideology around 'learning through doing'.[12] Dodd cites the Department of Science and Art's response to Sloyd School pedagogy as evidence of this approach. In 1882, Otto Salomon, Inspector of the Scandinavian Sloyd Schools, visited the UK and found that there was hostility towards his methods due to the Sloyd emphasis on learning rather than instruction.[13] This account is used to illustrate the idea that practical education was premised on the economy and furthered by Dodd's claim that interest in the Great Exhibition of 1851 and the Paris Exhibition of 1867 encouraged schools to include practical work in the curriculum 'on the assumption that economic growth would be ensured by the increase in skilled artisans leaving school.'[14]

The state interventions in educational provision indicate that the government was more interested in extending the period in which children attended school, rather than putting them to work. The Elementary Education Act of 1870 introduced partially state-funded schools for children between the ages of five to ten, specifically in locations where existing educational opportunities, largely in the form of church-operated schools, was deemed

12 Dodd, p. 20.

13 While there were isolated examples of the Scandinavian approach being adopted (mainly in central London) the traditional workshop approach based on instructional methods prevailed in English schools. An exception to this includes the introduction of a limited number of Manual Training Centres that first appeared in London in 1886 and were distinct from other schools because they employed craftsmen to develop the hand and eye skills of the small number of boys who were enrolled. Funded by the Science and Art Department, Macdonald reports that the schools were issued with a grant of six shillings per pupil and delivered lessons in wood work or metal work to make, 'racks for tooth brushes, letters, keys, newspapers, pens and books and sawing common dovetails'. Stuart Macdonald, *History and Philosophy of Art Education* (United Kingdom: Hodder & Stoughton, 1970), p. 306.

14 Interestingly Dodd refers only to technical education initiatives and craft practices, omitting any reference to object lessons or 'the science of common things.' Dodd, p. 21.

inadequate. Further Acts of Parliament determined the age that all children were expected to stay in compulsory education, increasing it to age 11 in 1893 and age 12 in 1899.[15] Government legislation increased the school-leaving age again in 1918, this time to 14 and between 1923-1933, the Board of Education's consultative committee commissioned Henry Hadow to produce six reports on schooling in England, which proved particularly influential. Hadow's recommendations included separating primary and secondary school education (at this time there existed a mixture of elementary schools, technical schools, church schools, grammar schools and private schools), and that the break should occur at age 11. The reports also recommended that secondary schools should prioritise practical work that related to 'living interests' and that the school leaving age should be increased to 15.[16]

The emphasis Dodd places on the economic benefit of manual instruction may well have been informed by Hadow's 1926 report, *The Education of the Adolescent,* which described the historic rationale for teaching children practical, vocational skills in a school context:

> Thus from the first the primary schools established for children of the poorer classes were influenced by two ideals of education (i) a definite training with a vocational aim, such as that given by the schools of industry, designed to improve the earning capacity of children immediately on leaving school, and incidentally to illustrate the soundness of the prevalent economic doctrine of the period – the instruction of the poor in habits of work and in thrift and (ii) a general education throughout the years of incipient adolescence.'[17]

15 See, Gillard, '1860–1900 A State System of Education', <http://www.educationengland.org.uk/history/chapter06.html> [accessed 31 October 2021].
16 See, Gillard, 'The Hadow Reports, An Introduction', <http://www.educationengland.org.uk/articles/24hadow.html> [accessed 1 December 2021].
17 Board of Education, 'The Education of the Adolescent' (London: HMSO, 1926, [1927]) p. 4, reproduced in Gillard, <http://www.educationengland.org.uk/documents/hadow1926/hadow1926.html [accessed 31 October 2021].

Hadow went on to suggest that the arts had an educational merit that deserved greater recognition and higher status:

> It is a task of importance to make this other tradition of artistic or creative education (historically a matter of professional or technical training) as much a respectable part of the general education system as the largely analytical tradition of the schools.[18]

In presenting the arts as antidote to overt academicisation, and bearing in mind that at the time of writing, art and design education were largely interchangeable, it is interesting that Hadow's statement resonates with an ongoing debate about the cultural value of the creative curriculum in schools. This parallel points to the continuum of debate reflected in education policy around design education, despite significant social and cultural changes to education, employment, production and consumption.

Dodd reports that the educational potential of the crafts in the early twentieth century was in part a reaction to the 'rigid training and skills' of manual instruction lessons, although much of the pedagogy at this time was lacking in the 'meaning, structure or standard' that would later be realised through CDT lessons. Manual instruction classes were gradually superseded by 'handicrafts' lessons, which placed greater emphasis on specific types of instruction, usually in woodwork or metalwork, or in embroidery or cookery.[19] Design was therefore an indirect feature of these lessons, understood as a process in the context of craftwork or the link between art and craft.

18 Board of Education, 'The Education of the Adolescent' (London: HMSO, 1926, [1927]) p. ,
19 Dodd, pp. 24–25, 26.

Before moving on, it is useful to spend a moment reflecting on what this history of the origins of D&T do not include. For example, while practical training was closely linked with poorer children, who were expected to join the labour market at a young age, the curriculum for middle-class children had also been evolving over the nineteenth century and included object-based learning, a pedagogical device used to teach children about the material culture of both natural and man-made items. In 1870, the standard school curriculum in England comprised three basic subjects: reading, writing and arithmetic, with the addition of grammar, geography, history and needlework.[20] Added to the basic school curriculum by 1871, object lessons, also known as the 'science of common things', had, according to David Layton, also been prompted by the Great Exhibition of 1851, which provoked the Department of Science and Art to look beyond the provision of basic technical instruction and toward general education in science and art.[21]

The central purpose of object lessons was to teach children to observe, compare, contrast and impart information about common objects that form part of everyday life. These objectives were delivered via a Pestalozzian approach to learning through observation; teachers would ask the class questions about objects in the collection, including 'their number, their kind, their appearance, or form, and name', ideally framing each subsequent question around the answer to the previous one. The children's answers then formed the basis for instruction in language, drawing, number, modelling and other handwork.[22] The

20 Martin Lawn, 'A Pedagogy for the Public: The Place of Objects, Observation, Mechanical Production and Cupboards', in *Materialities of Schooling: Design, Technology, Objects, Routines*, ed. by Martin Lawn and Ian Grosvenor (United Kingdom: Symposium, 2005), pp. 145–62, (p. 146).
21 The value of object lessons as part of the science curriculum was questioned by educators who argued that while 'scientific knowledge is of course communicated', it was 'only incidentally'. David Layton, *Science for the People* (London: George Allen & Unwin, 1973), p. 24.
22 Lawn, pp. 147–148.

objects, and discussions about the objects, were related back to familiar processes and occurrences and 'emphasis was placed on the acquisition of useful knowledge which would enable pupils to understand better the nature of the world around them and of the tasks that would occupy them in employment.'[23]

While object lessons were about the application of knowledge and experience, it is interesting to note that they do not feature in histories of design in general education or the origins of D&T. They do, however, feature in texts about the material culture of the classroom and design *in* schools. Martin Lawn for example reports that as object lessons became increasingly popular in school contexts, manufacturers started selling 'cabinets of objects such as minerals, natural and manufactured products, shells and familiar chemical substances.' Schoolteachers were encouraged to build collections of objects, which were typically built around themes such as animals, coal, glass, common employments, papermaking, house building, local trades, colour, food plants or clothing. There was rarely any budget provision for obtaining these objects and thus teachers were expected to write to local museums, libraries, businesses and suppliers for items like buttons, cork, soap pens, salt, cornflour, sponges, mustard matches, candles, pencils, linen, cocoa and paper, ideally for free or very little cost.[24]

According to Lawn, one of the more significant outcomes of object lessons was a new relationship between schools and businesses, 'which developed its own logic in later years

23 Layton, *Science for the People*, p. 26, 27.
24 Layton in contrast indicates that there was some state support and that the early 1850s saw object lessons morph into, the 'Science of Common Things' as a way of teaching working-class children about science for which the government provided grants for appropriate books and apparatus for use in schools. Layton, pp. 100–103.

as business enterprises recognised schools as a potential place to advertise their goods, and encourage new customers.'[25] Although Lawn does not specify, it might be assumed that he is referring here to ideas about consumer education that gained traction in the 1930s and examples of schools being identified as spaces to showcase well-designed products and spaces, as discussed later in this chapter. Further parallels might be drawn between D&T curriculum development activities in the 1990s and 2000s, where commercial sponsorship was encouraged by government as a way of funding resource production.

One possible reason why object lessons are not referenced in histories of D&T might relate to subject boundaries and knowledge that the science community had already adopted this aspect of the school curriculum as part of their own origin story. Another reason might be that, in a science context, object lessons were not held in high regard in terms of their pedagogical approach. The ethos, however, of drawing on one's experience to understand material culture clearly has parallels with later developments in design education, and the fundamentals of the approach in terms of learning from physical objects or structures were not so dissimilar to later educational initiatives like the touring exhibitions of designed objects that were loaned out to schools in the mid-twentieth century.[26] Finally, the idea that object lessons cut across a number of areas of the curriculum, such as reading, writing and handwork, resembles the cross-curricula approach to D&T, discussed in the next chapter.

25 Lawn, p. 146.

26 In 1952, the LCC developed a touring exhibition of objects, eventually including a total of 217 boxed sets that were sent out to London schools via a loan scheme. Now archived as part of the Camberwell Collection, Jane Pavitt reports that 'by 1970 there were very few schools and no training schools which did not take part in some capacity'. Jane Pavitt, 'An Experiment in Design Appreciation' in *The Camberwell Collection: Object Lesson,* ed. by Jane Pavitt, (Camberwell College of Arts, 1996) pp. 4–15, (p. 13).

Educational policy reforms

The aftermath of the Second World War prompted numerous reports on educational practices and new acts passed as successive governments tried to consolidate a national school system across the UK. The most significant of these political interventions was the 1944 Education Act, which came into effect in 1947 and formally acknowledged the 'importance of state education to economic advance and social welfare.'[27] The 1944 Education Act extended the compulsory school-leaving age to 15 but left out any specific requirement regarding the content of the school curriculum, meaning that teachers were able to define course content, choose examination syllabi and had the autonomy to develop their own curriculum. By the mid-twentieth century, state-funded secondary education in the UK operated via a tripartite system consisting of grammar schools, secondary moderns and technical schools. The streaming process was determined through an examination at age 11, the final year of primary school; those deemed more academically able were sent to grammar schools, which provided an academic curriculum as a route to higher education; the remainder were sent to either secondary moderns or technical schools, which offered vocational training as a route to employment and further education in the form of technical colleges.

The balance between arts, humanities and sciences within this structure became a topical issue during the middle of the twentieth century. At tertiary level, art and design education was undergoing a series of reforms stimulated by the recommendations of the National

27 Clyde Chitty, *Education Policy in Britain* (Basingstoke: Palgrave Macmillan, 2004), p. 18.

Advisory Council on Art Education, established in 1959, and the publication of their first report, known as the Coldstream Report in reference to the chair of the Council, William Coldstream. The Coldstream Report laid out a series of proposals intended to reform the existing system and provide a 'liberal education in the arts'. These included the introduction of a new diploma in art and design, a specification for the minimum entry requirements on a given course (five O levels, three of which must be recognised as 'academic' subjects). The implementation of these recommendations would be overseen by John Summerson for the National Council for Diplomas in Art and Design, which was established in 1961.[28]

As the arts and sciences competed for space in the curriculum and correspondingly for resources, in 1959 the Government's Central Advisory Committee warned that the arts were being 'squeezed' due to the 'congestion which tends to take place in the curriculum of older secondary children'.[29] In 1959 the scientist and novelist C.P. Snow had given a controversial Rede Lecture entitled 'The Two Cultures' arguing that a deep division existed between the sciences and humanities, the latter of which had a higher intellectual status in schools, leading to academic bias in society.[30] The suggestion, however, that improvements in science and technology education in schools would be beneficial to the British economy was controversial. The Cambridge academic and literary critic F.R. Leavis, however, launched a 'counter-attack' in 1962, arguing that far from solving the world's problems, science and

28 University of Brighton, Post-war Curriculum and Assessment: Coldstream, Summerson, Art History and Complementary Studies (University of Brighton College of Arts and Humanities, n.d.), <http://arts.brighton.ac.uk/arts/alumni-and-associates/the-history-of-arts-education-in-brighton/post-war-curriculum-and-assessment-coldstream,-summerson,-art-history-and-complementary-studies> [accessed 31 October 2021].

29 The Central Advisory Council Report 15–18 (The Crowther Report), (1959), extracts qtd in Clive Ashwin, *Art Education: Documents and Policies, 1768-1975* (London: Society for Research into Higher Education, 1975), p.68.

30 C. P. Snow, *The Two Cultures,* 14 edn (Cambridge: Cambridge University Press, 1993), Pt 1 (1959), pp. 1-23.

technological developments were responsible for causing them in the first place.[31] Adding to the debate, Harold Wilson made an infamous reference to the 'white heat of technology' at the 1963 Labour Party Annual Conference that fuelled calls for improved provision of science and technology in schools.[32]

Another factor behind the calls for a review of technology education was evidence of inconsistent standards of education across the state-funded school sector, which raised questions about whether vocational education routes were providing adequate employability skills. Historically, technical education in the UK had a low status and was associated with lower-attainment pupils, and this comparison was used to encourage government to invest more in technical education in schools.[33] The Newsom Report, called *Half Our Future,* was published in 1963. It critiqued the streaming system and supported the introduction of a nationwide comprehensive school system.[34] This reflected parental dissatisfaction with state-funded schools, which was steadily escalating as the middle classes grew but the provision of grammar school places did not.

The 1970s brought unprecedented changes in state-funded education, including the introduction of comprehensive schools, mixed-ability classes, a rise in the compulsory school-leaving age and the introduction of the Certificate of Secondary Education (CSE)

31 See, Stefan Collini, 'Reactions and Controversies' in C. P. Snow, *The Two Cultures* 14 edn (Cambridge: Cambridge University Press, 1998), pp. xxix–xlii.
32 In 1964 Labour won the general election by a small majority under Harold Wilson, pledging to develop the comprehensive school model. The Conservative manifesto remained committed to grammar schools. In 1966 a second General Election was held, winning Wilson a larger majority. He stayed in office until 1970.
33 Gary McCulloch, E. W. Jenkins, and David Layton, *Technological Revolution? The Politics of School Science and Technology in England and Wales since the Second World War* (United Kingdom: Routledge Falmer, 1984), pp. 193, 207.
34 Penfold, p. 121.

examinations. Added to this was an increasing pressure to address gender divisions in subjects that saw boys taking woodwork, metalwork and electronics courses and girls opting for needlework and domestic sciences. Following the Sex Discrimination Act of 1975 and the Equal Opportunities Commission of 1985, there was agreement that the gender divide in schools needed to be addressed to improve equal opportunities, an issue that was particularly prominent in craft, design and technology courses.

To put the scale of the gender divide in context, Penfold reports on the considerable disparity between the number of male students and female students taking a Craft, Design and Technology Certificate of Secondary Examination (CSE). In 1985, for the sub discipline Metalwork and Woodwork, the entry level stood at 83,041 male candidates to just 2,070 female candidates.[35] David Rees notes that attempts at integration posed a significant challenge and that 'the craft teacher found himself – not yet herself – confronted not only with the problems of coping with notions of "designing" and "problem-solving" but also with dealing with girls in what has been essentially a male domain for nearly a century.'[36] In this regard, the government's intervention in the school curriculum in the late 1980s, and the introduction of compulsory technology education for all students was a significant step towards de-gendering courses and examinations.

In 1976, the Labour prime minister James Callaghan gave a speech attacking the teaching profession for their over-reliance on academic subjects and failure to deliver the types of skills required by employers. Callaghan's speech prompted a public discussion, nicknamed

35 Penfold, p. 63.
36 David Rees, *Teaching GCSE Craft, Design and Technology* (London: Hodder and Stoughton, 1987), p.vii.

the 'Great Debate', that proffered the idea of a standardised curriculum framework. Orchestrated by the then Secretary of State for Education, Shirley Williams, discussions pivoted around levelling out educational provision via a 'whole' or 'common' curriculum that *all* students would follow as part of their basic schooling.[37]

Coordinating 'the many interests in design education'

As debates about adequacy of the state school curriculum gained pace, public advisory bodies, including the Design Council, started to mobilise around educational issues as they related to their overarching remit. In 1979 the Design Council published their third report on educational matters, called *Design Education at Secondary Level*, and known as the 'Keith-Lucas Report' after David Keith-Lucas, chairman of the working group. L. Bruce Archer was on the advisory board of the Design Council's Secondary Education Working Group and the RCA project team's findings and final report *Design in General Education* were clearly influential. The Keith-Lucas Report re-presented aspects of the RCA's thinking about the role of design as part of the secondary school curriculum and advocated for a cross-curricula approach,

> Design education is the converse of traditional education by subjects; it brings subjects together instead of separating them. Nevertheless, it is an area of the curriculum in its own right, in that it develops certain techniques and attitudes that pupils will not acquire from other school disciplines. Just as the methods, ideas and values of science subjects in the curriculum can be learned through studying any of the science subjects in the curriculum, so the skills, ideas and values of the world of doing and making can be learned through any of the subjects in the design areas of the curriculum.[38]

37 Kelly provides a detailed overview of the political debate around education at this time and in the run up to increasing state control that culminated in the introduction of a National Curriculum, see A.V. Kelly, *The Curriculum: Theory and Practice*, 4th edn, (Gateshead: Paul Chapman Publishing, 1999), p. 179.
38 Design Council, *Design Education at Secondary Level*, (London: Design Council, 1980), p. 9.

The Keith-Lucas Report advocated for a 'close collaboration' between teachers of art, craft, design and technology, home economics, sciences, and other related subjects to challenge the traditional curriculum model that placed an arbitrary division between areas of learning or subjects.[39] This was not to suggest that design would become integrated within other subjects, rather that this area of the curriculum represented a way of developing certain techniques and attitudes that pupils could not acquire from other lessons. This approach was premised around the idea that design should be viewed as a fundamental component in the general education of all children, regardless of whether or not their future careers involved working in design-related industries.

Resonating with Bell's interpretation of the rationale behind the nineteenth-century Government Schools of Design, the Keith-Lucas Report suggested that design education was necessary to improve the standard of industrially manufactured goods that would in turn propel Britain's economic recovery. Britain's export market had been declining throughout the 1970s, and the success of manufacturing in other countries, like Germany, France, and Japan was attributed to the positive status of technical education, technical schools and high educational standards. The Conservative Party had come into power in 1979, now led by Thatcher, who, as previously discussed, was a proponent of the economic benefits associated with design.

The Design Council's recommendations were an example of how a project with an essentially social and indeed radical educational agenda was aligned with an economic

39 Ibid.

imperative to help garner support from a new government that was more sympathetic to national efforts to improve trade and the economy. Keith Grant, director of the Design Council between 1978 and 1988, stated in an interview for *Design* that whereas in the 1970s the Department of Industry's attitude to design was peripheral, it had now become 'a government priority'.[40] While the report did not exclude associated social and cultural skills, for example noting a holistic role for design in terms of improving students' 'quality of life', it was a key part of the Design Council's argument in support of design education.[41]

The Design Council adopted the recommendations of the Keith-Lucas Report in 1980 and swiftly shared it with secondary schools and local education authorities. One of Keith-Lucas's recommendations was that:

> A national body needs to be set up to bring together the many interests in design education and its application to life and work; and to co-ordinate the work that will be necessary for the effective furtherance of design education. The Design Council is probably the most appropriate organisation to provide the machinery for setting up and servicing this body.[42]

In 1980, under Grant's directorship, the Design Council helped found the Confederation of Art and Design Associations (CADA), to accompany the existing Confederation of Design and Technology Associations (CoDATA) with the intention of bringing 'together the many interests in design education and its application to life and work'.[43] The Design Council also

40 For reference, the Department of Industry was formally known as the Department of Trade and Industry (DTI), established in 1970 and was reunited in 1983 with the Department of Trade to form the DTI again with a remit for employment, science, business growth, innovation and economic development, amongst other areas.
41 Keith Grant, 'The Fourth Director', *Design,* 470 (1988), 3-9, (p. 3, 5, 9).
42 Design Council, *Design Education at Secondary Level*, p. 19.
43 CADA brought together professionals from different fields with the intention of evolving a cross-curricular approach to design education, Hooberman represented the Design Council at CADA meetings and also attended meetings of the Crafts Council Education Committee (CC/EC) from 1980 to 1990 to feedback on Design Council activities in the field. London, V&A Collections Archive of Art and Design (AAD), Crafts Council Records: 1960–1999: Education Records 1972–1991, AAD/1991/4/4 Box 1, 'Detailed report on the discussion of agenda item 6 at the Education Committee meeting, 12 January 1981'.

developed three new advisory committees to oversee resource development and research initiatives for schools. These were the Secondary Education Advisory Committee (DC/SEAC), the Curriculum and Resources Committee (DC/CRC) and the Primary Education Working Group (DC/PEWP). Each committee boasted cross-organisational membership from the Design Council, industry professionals, higher education representatives, professors, independent design educationalists, local authority advisors, schoolteachers and head teachers, HMI assessors and observers from the Department of Trade and Industry (DTI) and the Department of Education and Science (DES).

Five permanent members of Design Council staff served these committees: John Weston, Senior Education Officer; Freda Hooberman, Senior Secondary Education Officer (and former secretary to the DC/SEWG); Benedict Austen, Industrial Design Education Liaison Officer; Colin Ledsome, Senior Engineering Design Education Officer; and Roy Newson, Secondary Education Officer for the Curriculum Development Steering Committee. These committees, and the investment in key personnel to service them, were representative of the Design Council's commitment to pursuing design as part of general education, which would ultimately be realised through the inclusion of design as part of the technology component of the National Curriculum framework.

The committees were also a useful mechanism to oversee and coordinate work across other advisory bodies with an interest in design education. The shift towards design education, as opposed to craft-based training, had prompted a mixed response from arts and crafts communities, mainly because the focus on 'design' potentially encroached on the status (and thus resources) for art and craft initiatives in schools. Throughout the 1980s, the Crafts

Council, who at this time received their funding from the Arts Council, focused their efforts on crafts education in tertiary contexts. In recognition of the growing relevance of crafts in popular debates about education, they established their first Education Committee in June 1980 and tasked the group with considering the 'nature and value of craft activities in secondary schools' in supporting the creative and practical subjects that were found in art, home economics and CDT departments.[44] As a small organisation with limited resources, their emphasis leaned towards surveying what other organisations were doing, specifically the Design Council, the Design Education Unit at the RCA, the Schools Council and the Inner London Education Authority (ILEA), and they kept abreast of their activity by inviting representatives from different groups to observe their meetings and report back.

The Arts Council had also started to mobilise around the issue of general education. Much like the Design Council (but with a more substantial budget), the Arts Council had a remit to improve access to the arts and provide an advisory service to government. In 1979, they established their first education committee announcing a separate budget for this area of the Council's work and in 1983 produced their first policy document, entitled *Arts and Education: A Mutual Flame*, which outlined the Arts Council's responsibility to ensure that 'as many people as possible have the opportunity to enjoy the arts', but notably remained concerned with provision in higher education rather than in schools.[45]

44 See, AAD/1991/4/4 Box 1, 'Detailed report on the discussion of agenda item 6 at the Education Committee meeting, 12 January 1981',
45 AAD, Arts Council of Great Britain Archives, Cross-Departmental Units: 1962–1995: Policy and Information Files 1976–1995, ACGB/116/43 (1of 2), 'Education Working Party'.

The Engineering Council, meanwhile, conveyed little specific interest in schools-based educational matters in the early 1980s. Having received its royal charter in 1981, the Engineering Council's initial activity revolved around the implementing the recommendations of the *Finniston Committee Report* (1980).[46] Of the 80 proposals listed, only one related to a commitment to improve school education:

> It is the Council's intention to promote a higher standard of technological literacy within the education system and to engender a better understanding of the contribution that engineering makes to the life and prosperity of the nation. The Council is determined to encourage the development of teaching of mathematics, science and technology in schools in a way which is relevant to the needs of society, industry and the engineering profession. It is however, important that this education must not be narrow. The country needs engineers who are literate, articulate and widely educated.[47]

According to Colin Chapman and Jack Levy, and although incongruous with the Engineering Council's subsequent involvement in the development in National Curriculum D&T, in the 1980s this proposal was indicative of a long-term strategy:

> the Council were very conscious that changing the public's attitude to engineers would only effectively come about by changes in the education of the nation's children and this, of necessity would be a long-term task measured in decades, not just a few years.[48]

Educational policy work at the Engineering Council was overseen by a small team called the General Education Committee (EngC/GEC), chaired by Michael Harrison, former Chief Education Officer from Sheffield. Harrison, Chapman and Levy claim, boasted a 'encyclopaedic' knowledge of the UK school system, developed close links with the

46 Colin R. Chapman and Jack Levy, *An Engine for Change: A Chronicle of the Engineering Council*, (2004), pp. 11–12, <https://www.engc.org.uk/engcdocuments/internet/website/The%20Engineering%20Council%201981%20%E2%80%93%202001%20(The%20Chronicle).pdf> [accessed 31 October 2021].
47 As listed in the Engineering Council's Original Policy Statement (shortened), reprinted in Chapman and Levy, p.196.
48 Chapman and Levy, p. 22.

'influential' Society of Education Officers (SEO) and advised 'government officials on the revision of the school curriculum.'[49] One of the main educational initiatives organised by the EngC/GEC was the Women into Science and Engineering (WISE) project, which began in 1983 with the aim of encouraging women to choose careers in engineering by publicising career opportunities in schools and contributed its efforts to break down gender barriers in design and technology education.[50]

In the early 1980s, and when compared with other public advisory groups with a vested interest in the field, the Design Council were leading the way in terms of their commitment to design education in schools and appeared to have gained the government's support. Emphasis was placed on the economic relevance of design and emblazoning the cover of the Design Council's *1985/86 Annual Report and Accounts*, for example, was a quote from Thatcher that read, 'good design has never been more important for the success of the British Economy' (**fig. 5**).[51] Such support, claimed John Penfold, who noted the endorsement, had been 'nurtured by Lord Reilly' and the Design Council, who had forcefully asserted that design was an important factor in Britain's industrial regeneration and economic prosperity.[52]

49 Somewhat disappointingly Chapman and Levy do not go into any further detail about the revisions to the school curriculum that M. Harrison advised on. Ibid., p. 26, 42, 43.
50 Penfold notes that the Engineering Council in particular highlighted concern over the lack of women in the engineering profession and had committed to addressing the issue. Penfold, p.64.
51 As reproduced on the front cover of, Design Council, *Annual Report and Accounts 1985/86* (London: The Design Council, 1986).
52 Penfold, pp. 130–131.

Figure 5 'Good Design has Never Been More Important for the Success of the British Economy', The Prime Minister, Margaret Thatcher (1986)

Image: Design Council, *Annual Report and Accounts, 1985/86* (London: The Design Council, 1986), [photograph by the author, October 2021]

The Design Council launched a series of initiatives pre-National Curriculum with the intention of encouraging design practices in schools and actively engaging in curriculum development activities. In conjunction with the DTI, a collaboration between the Design Council and the Crafts Council led to the establishment of a new publication for schools in 1982 called *Designing*, a full-colour magazine aimed at secondary school teachers and students with the intention of providing information and inspiration for schools-based design projects.[53]

Indicative of the state's interest in education to boost industry, in 1983 the DTI offered the Design Council a further £90,000 investment to support the production of resources, with the express purposes of funding 'curriculum development projects in design education' over a three-year period.[54] While many of these projects were not fully realised, design curriculum development initiatives benefitting from the funding included: the Design Dimension Project founded by Roger Standen and Krysia Brochochka (who would later become a member of the NC/DTWG); case studies by David Perry, (who would later become project leader on the RCA Schools Technology Project between 1995–1998); and videos by John Cave (who would later lead the Engineering Councils Technology Education Programme (TEP)). Encouraged by the interest and investment, and in the interests of extending the remit of design education beyond the secondary school curriculum, in 1983 the Design Council convened a Primary Education Working Party (DC/PEWP) to consider the role of design at primary level.[55]

53 Design Council, *Annual Report 1982–1983* (London: The Design Council, 1983), p. 5.
54 Brighton, University of Brighton Design Archives, Design Council Collection, 'CDR dead projects'.
55 This group published their interim findings in a 1987 report, see Design Council/Andrew Fairbairn, *Design and Primary Education: The Report of the Design Council's Primary Education Working Party*, (London: Design Council, 1987).

Prior to this there had been little to no research carried out on the role of design in the context of the primary school curriculum, which catered for children between the ages of five and eleven. A small team, including Andrew Fairbairn (of the Esmée Fairbairn Foundation), Ken Baynes (former director of the RCA's Design in General Education Project) and David Jinks (who would go on to become a member of the National Curriculum Science Working Group (NC/SWG), which specialised in technology for primary schools), were commissioned to investigate the possibility of incorporating design work into the already cross-curricular approach of primary schools. The Design Council Report, *Design and Primary Education,* initially published in consultative form in 1986, anticipated opportunities for 'design-related activities' (a term used throughout the report to denote existing opportunities within the primary curriculum to develop children's 'capacity for design') within the science and technology curriculum. On the recommendations of the DC/PEWP, Richard Shearman, director of the Design Council's Education Unit, and Victoria Felton, education resources manager, initiated investment in a new magazine, this time targeted at primary schools. *The Big Paper,* first published in conjunction with the Crafts Council in 1987 showcased examples of pupils' work and suggested ways that teachers could incorporate design into the school curriculum, via the integration of design-related activities into other lessons.[56]

Prompted by the suggestion of educational reforms, the other public advisory bodies could be seen to be becoming more alert to the issue of design, as it related to crafts, art, and

56 Design Council, *Annual Report and Accounts 1985/86*, pp. 38–39.

engineering, in the context of their own educational policy development. In 1985, the Crafts Council created a new position for a specialist Schools Education Officer and in 1986 produced their first Statement of Policy, which asserted that 'the Council must remain very active in the field of education.'[57] Peter Green, by this time professor of art and design at Middlesex Polytechnic, was appointed chair of the Education Committee in 1987 and tasked with planning the Crafts Council's response to government proposals for a new National Curriculum framework. On receiving advice from Professor Leslie Perry of the Institute of Education, University of London, and Geoffrey Harrison, former leader of Project Technology, the field of 'design' was identified as the best opportunity through which to further the Craft Council's educational aims. With little hope of establishing a unique position for a craft component of the National Curriculum, and with the growing emphasis on technology posing a threat to provision, the Committee decided it was better to refrain from publicly criticising the proposals, in the hope that a member of the Crafts Council might be considered for inclusion on the relevant National Curriculum Working Group.[58]

Slower off the mark, and in recognition of the government's intention to reform the state school curriculum, in February 1987 the Arts Council's Education Advisory Committee (AC/EAC) announced a redraft of their educational policy document in light of 'events taking place in the arts world, in education and in wider society'.[59] Ken Robinson, the prominent author and lecturer in arts education whose reputation had been established with the publication of the Calouste Gulbenkian Foundation's Arts in Schools project (1982), advised

57 Crafts Council, *Crafts Council 1980–81*, (London: Crafts Council, 1981) and *Crafts Council Report 1987/88* (London: Crafts Council, 1988), p. 24.
58 AAD, AAD/1991/4/4 Box 19 2/2 (Education), Minutes of Crafts Council Education Committee meeting 12/1/1988.
59 AAD, ACGB/116/43 (1of 2), 'Education Working Party: Minutes of Meeting 24/2/87'

the AC/EAC on their educational remit.[60] Robinson asserted the urgent need for a national vision, telling the committee in 1987:

> the Arts need to take pre-emptive steps and make sure that they were included on the agenda in any discussion of the proposed national curriculum. [He reported that] this is the worst of times for the Arts but in many ways it is a good time in that a major initiative like the national curriculum could allow the Arts community to make a major contribution.[61]

Geoffrey Brandt, senior education officer of the ACGB, confirmed that the 'issue would be a priority for the Unit' and the AC/EAC was dissolved shortly afterwards. In April 1987 it was replaced by a one-off 'Education Working Party' (AC/EWP) chaired by Robinson and charged with producing a new policy statement on arts education that justified the arts in schools in terms of its 'positive contribution to culture', the promotion of widening participation and equal opportunities.[62] Reflective of the speed with which plans for the curriculum were shaping up, whereas the recommendations outlined in the original *Arts and Education: A Mutual Flame* policy had taken some three years to produce, Robinson and his team brought the second arts education policy to completion in just under six months, with the final consultation drawing to a close on 31st October 1987.[63]

The activities of the Arts Council and Crafts Council show that pending curriculum reforms proved to be a great motivator for policy development, in a way that they were not for the Design Council, who were already actively engaged in promoting design education and had established their policy in 1980. What is significant is that neither group paid heed to

60 See *Arts in Schools; Principles, Practices and Provision*, ed. by, Ken Robinson, Rpt. 1993 (Calouste Gulbenkian Foundation, 1982), <https://gulbenkian.pt/uk-branch/wp content/uploads/sites/18/1989/01/The_Arts_in_Schools.pdf> [accessed 1 December 2021].
61 AAD, ACGB/116/43 (1of 2), 'Education Working Party: Minutes of Meeting 24/2/87'
62 AAD, ACGB/116/43 (1of 2), 'Education Working Party: Minutes of Meeting Thursday 23rd April 1987'.
63 AAD, ACGB/116/43 (2of2), 'Response to the Draft Report', 1987.

making economic or vocational claims for the arts and crafts as they related to design, instead marking out a distinct contribution for their field as it related to culture and society's wellbeing. For the purposes of curriculum development, design education was championed by the Design Council where it spoke to economic revival and employability, while also featuring the 'arts', as they included craft and design in relation to culture and wellbeing. What this demonstrates is that the Design Council, the Crafts Council and the Arts Council were all aware of curriculum reforms and aware of the need to coordinate their efforts so that they could establish their own culture within school curriculum debates.

On this point, the Engineering Council were enthusiastic proponents of the idea that economic prosperity could be achieved through education, albeit with an emphasis on investment in technical training in comprehensive schools and, unsurprisingly, in engineering. However, in contrast to the Design Council, they mostly operated in an advisory capacity and the majority of their early educational work appears to have been focused on safeguarding government funding for post-school engineering courses (which provided the Engineering Council with a revenue via the EngC examination fees) rather than general education.

An exception to this was Harrison's involvement in the Technology Education Project (TEP) at the University of Leeds, which was co-funded by the Engineering Council. In 1985, one of the reports which was co-authored by Harrison – *Economic Importance of Technology in Education* – warned of 'a crisis around the quality and volume of manufacturing and export(s)', arguing that the only solution to this problem was the provision of technological

education.[64] It is pertinent to note here that although the Design Council were promoting design education and the Engineering Council were promoting technology education as a route to training more engineers, these reports indicate that they were both fundamentally supportive of a cross-curricular educational approaches. Moreover, despite their different communities of practice and professional affiliations spanning arts, crafts, creativity, industrial practice, technical and vocational education, they both aligned design activities and technology activities with an economic benefit and employability. This is significant because, in critiques of the National Curriculum recommendations for D&T and in the wake of the National Curriculum reforms in the early 1990s, the two organisations were pitted against each other.

Expansion of craft, design and technology subject communities

During the 1980s, the hybrid subject CDT had gained traction as a replacement for the stand-alone vocational subjects taught as part of a Certificate in Secondary Education (CSE), such as woodwork, electronics, domestic sciences and dressmaking. A plethora of new texts, including teacher guides and classroom resources, variously on design education and CDT advocated new ways of thinking about the field and of the increasing focus on design education.[65]

64 Michael Harrison, *Economic Importance of Technology in Education,* part of Technology Education Project. (University of Leeds, 1987) in West Bretton, National Arts Education Archive, The Burley in Wharfdale Teachers Centre: Historic Craft, Design and Technology Library, BHBWBK00785, 'Papers Submitted to the Consultation: Technology Education Project Paper 1 (1985)'.

65 See, for example, Rees; Peter H. M. Williams, *Teaching Craft, Design and Technology: Five to Thirteen* (London: Room Helm, 1985), Pat Williams & David Jinks, *Design and Technology 5–12* (Lewes: The Falmer Press, 1985).

A team of Her Majesty's Inspectors produced a report entitled, *Craft Design and Technology in Schools: Some Successful Examples* in 1980, which was published by the DES. Their conclusions, based on a review of good practice made in 1977/78, was that the 'most important extension of craftmanship, however, was the stress that teachers placed upon developing pupil's ability to design' and noting that:

> [T]he arguments advanced by teachers for design education in schools are not principally those of vocational relevance, or of consumer education, or even of education for leisure. Rather, there is a belief in the value of designing, and the corollary of making, as a unique and worthwhile intellectual activity in its own right.[66]

Teachers had the autonomy to develop their own courses and select examination syllabi according to the orientation of their particular programme of study. However, this led to huge disparities in learning outcomes and opportunities up and down the country. At its crudest, wrote Kimbell, design meant problem-solving and using a design brief. Pupils were expected to generate ideas, individually or in groups, design and build prototypes, and execute a final working product. At the more innovative end of the scale, design was presented as an intellectual pursuit rather than an updated syllabus of practical education.

Ian Holdsworth notes that the 1980s marked a period that 'saw many new authors grasping the opportunity to publish what their vision of the subject was, and how it should be resourced and delivered.' Previously sources of literature broadly relating to craft, design and technology education had covered the technical aspects and vocational origins of the course in the form of specialist technical guides or theory books that explained different

66 DES, *Craft, Design & Technology in Schools, Some Successful Examples* (Leicester and London: DES, 1980), pp. 30-31.

qualities of materials and the best use of material.[67] In 1977, however, Holdsworth noted a distinct shift realised through a series of books called *Design and Technology: Wood, Metal and Plastics*, containing 'not only technical information, but also sections on design methodology.'[68]

Ten years later, and teacher resources such as Kimbell's *Craft, Design and Technology* specifically supported secondary school GCSE courses in CDT and embraced the unique educational contribution of the field. Kimbell noted that while the community was shifting towards new approaches, many former craft teachers were caught in a limbo, 'aware of the need for change but unsure of the direction it should take and the ways it might be achieved.'[69] The publication of text books like this indicated to Holdsworth that the disparate pockets of information pertaining to manual instruction, handicrafts, woodwork and metalwork had been brought together through project-based work in which designing and making was seen as a unified activity, rather than two separate processes. Further, that students should learn to draw from their own experiences to solve real-world problems and receive an education that was relevant to the workplace and would provide them with better employment prospects.

Technical and Vocational Education Initiative (TVEI)

In 1982, a new pilot funding scheme for schools called TVEI was launched which placed emphasis on creating a closer alignment between schooling and industry or professional

67 Ian Holdsworth, 'Developing Textbooks', in *Teaching and Learning in Design and Technology*, ed. by Eggleston John (London: Continuum, 2000), pp. 71–90 (p. 86–87).
68 Ibid., p. 89.
69 Richard Kimbell, *Design Education: The Foundation Years*, (London: Rutledge & Kegan Paul, 1982), p. 1.

practice. Initially funded by the Department for Employment (DFE) in response to perceived weaknesses in the quality of school-based vocational education in England and Wales, TVEI represented another approach to developing practical and vocational aspects of the school curriculum, as an alternative to an academically orientated curriculum.[70]

Teachers, schools and local authorities were able to apply for TVEI funding to develop and deliver new courses and grants were provided, with the intention of supporting teaching programmes in secondary schools that might prepare students for working life outside of schools in general, rather than focusing on training or skills for a specific job. Local authorities were encouraged to manage projects in their own areas taking into account local and regional demand. Uptake, however, was essentially achieved through the provision of generous funding from the Department for Employment and David Yeomans confirms that the dependency on this central government revenue stream meant that the scheme was particularly vulnerable to party political change.[71]

According to Yeomans, under the Conservative Party government and in a decade in which state investment in education was linked to the economic success of the country, the TVEI scheme was unusual in that it was looked upon favourably by politicians, by businesses and by liberal educators.[72] The scheme peaked in the years between 1983 and 1987 under the

70 Penfold suggests it was Lord Young who had steered the department's educational initiatives towards creating closer links with industry, as exemplified through the launch and support for the TVEI scheme. Penfold, p. 140.
71 The TVEI scheme continued to run on a national scale until 1997 it was heavily watered down in favour in the General and National Vocational Qualification (GNVQ) scheme that was introduced to complement the National Curriculum in 1997, see David Yeomans, *Constructing Vocational Education: From TVEI to GNVQ*, (Leeds: University of Leeds, 1996), pp. 1–12, (p. 3).
72 Ibid.,, p. 3, 12.

continued support of Lord Young, Secretary of State for Employment, who supported a vocational philosophy for education.[73] When Lord Young became Secretary of State for Trade and Industry in 1987, the TVEI scheme was transferred to the Department of Education and Science (DES) under Kenneth Baker, whereupon central funding started to decline as DES resource was put into reforming the school curriculum. In this regard, the scheme was analogous to many government-funded initiatives relating to design and/or technology education, including the Keele Project, Project Technology and the Design in General Education Project, and even with the origins of public art and design education in the nineteenth century, where investment was always short-term.

The Design and Technology Assessment Performance Unit (APU)

Evidence that curriculum developments in CDT were being taken seriously by the DES came in the form of funding for a Design and Technology Assessment of Performance Unit (APU) in 1980. Patricia Broadfoot suggests that the way in which subjects are presented in examinations can be a telling indictment of broader social and political value at a given time and their existence enhanced the core status of the subject, indicating that it had a unique knowledge base that could be formally tested.[74] The status and take-up of CDT courses was boosted in the mid-1980s by the introduction of the new General Certificate of Secondary Education (GCSE) and Advanced (A) Levels.[75] Although there were still a large number of

73 Penfold, p. 140.

74 As discussed in greater detail in Atkinson, pp. 4–6.

75 At the behest of the British government, the GCSE was an amalgamation of the previous Certificate of Secondary Education (CSE) and General Certificate of Education (GCE) and replaced the Ordinary (O) Level qualification which, according to Patricia Broadfoot, set a political precedent for control over education, which would eventually extend to the reforms of 1988 Broadfoot, Patricia M, *Education, Assessment and Society*, (Suffolk: Open University Press, 1996), pp. 204–214.

vocational courses operating in schools, only two courses, one in CDT and one in Home Economics, were approved at GCSE level.

In 1975, a DES committee had been established to monitor standards in schools and identify areas of underachievement and commissioned a series of APUs to investigate and advise on assessment methods and performance indicators in different curriculum subjects. Effectively, Kelly suggests, the APU teams acted as a government 'watchdog' and their introduction marked a step toward greater centralised control of education and the school curriculum. It was no coincidence, Kelly continues, that the early APU reports on mathematics, languages and science were 'subjects that would become major components of the National Curriculum'. [76] The fact that an APU was commissioned to investigate design and technology was an early indication of the government's plans to include it within the National Curriculum and educational reforms announced in 1987.

Mirroring new ways of thinking about design education, the first APU Design and Technology assessment team concluded that to 'assess performance it is necessary to examine activities' and also that design and technology is 'both subject-based and cross-curricular'. The pilot project was followed up by a scoping survey overseen by the National Centre for School Technology at Trent Polytechnic. In 1985 a second APU contract for D&T as 'a new field of enquiry' was put out for tender, and awarded to a research team from Goldsmiths College, University of London, who set about preparing a major survey on the

76 A V Kelly, *The Curriculum: Theory and Practice*, 4th edn, (Gateshead: Paul Chapman Publishing, 1999), p. 179.

performance of 15-year-olds in D&T covering England, Wales and Northern Ireland.[77] Scheduled for completion in 1988, this second APU began to look less at monitoring and assessment and more at providing support for curriculum development, and represented the first national project to address design and technology as a unified concept, bringing together the two subjects, craft, design and technology, and home economics, as core elements of the D&T course.[78]

The APU was distinctive in that it accentuated the role of designing and of design as an integral, rather than optional, component of the subject. Moreover, it provided an assessment framework that could be practically implemented in schools, turning more conceptual beliefs about the educational value of D&T into a model that could be examined as part of the existing (and anticipated) curriculum framework. The project gave way to an innovative strand of work around assessment portfolios for coursework, pioneered by the Technology Education Research Unit (TERU) at Goldsmiths during the 1990s and 2000s.[79]

Networks and communities of practice

The precis of projects presented here reveals a network of education practitioners who were establishing territory in the design and technology space. Many of these groups were formed around research units at teacher training or design centres at universities and had their own distinctive take on the role of design, or technology (**fig. 6**).

77 Richard Kimbell and others, *The Assessment of Performance in Design and Technology* (UK: Schools Examination and Assessment Council, 1991), p. 5, 11–12.
78 A review of pre-1988 APU involvement in the development of Design and Technology is presented in Penfold, pp. 157–159.
79 See, 'The Story of TERU' in Richard Kimbell and Kay Stables, *Researching Design and Learning: Issues and Findings from Two Decades of Research and Development* ([n.p]: Springer, 2007), pp. 1-10.

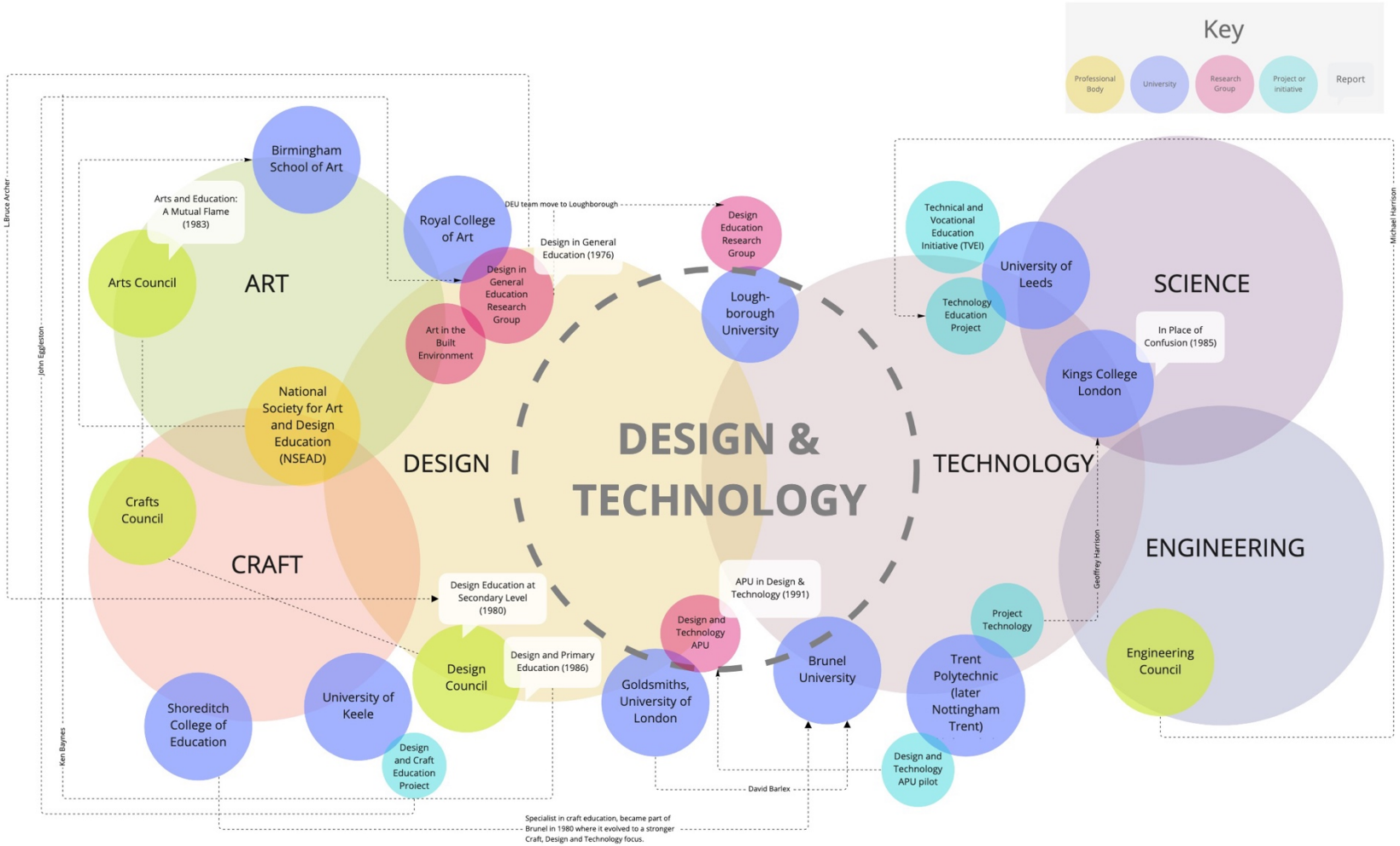

Figure 6 Networks and Communities of Practice withing in the D&T space, pre-1988

[illustration by the author, 2022]

At Goldsmiths, University of London, for example, Kimbell, Kay Stables and David Barlex were building on the legacy of George Hicks, a researcher and senior representative of HMI. Barlex and Kimbell co-authored a series of books that detailed the design process, suggesting projects that engaged pupils from conception through to a final product (**fig. 7**).[1]

The focus of the work at Goldsmiths was very much around design education as a principal concept, this was reflected in their highly regarded MA in Design Education (rather than D&T) and research that was driven by the concept of student's evolving capability through design-related projects, rather than their achievement in making a specific product. Kimbell and Stables would lead TERU, discussed earlier, and a series of research projects focusing on innovative new methods for assessing the evolution of a project; as opposed to the final outcome. Barlex meanwhile would go on to work on the Nuffield Design and Technology course with co-directors Harrison, formerly of Project Technology, and Paul Black, becoming a leading figure in D&T curriculum development and research into the Nuffield approach to D&T.

At Loughborough University design education researchers from the RCA were re-establishing themselves. The Design Education Unit had continued to operate out of the RCA for almost ten years, but a sudden and controversial restructure instigated by the incoming rector Jocelyn Stevens led to its closure in 1985.[2]

1 Richard Kimbell, David Barlex, *Craft, Design and Technology, Projects and Approaches* (London: Hutchinson, 1987).
2 Jean McIntyre, 'The Department of Design Research at the Royal College of Art', in *Design of the Times: One Hundred Years of the Royal College of Art*, ed. by Christopher Frayling and Claire Catterall, ([n.p.]: RCA/Richard Dennis Publishers, 1995), pp. 58–62.

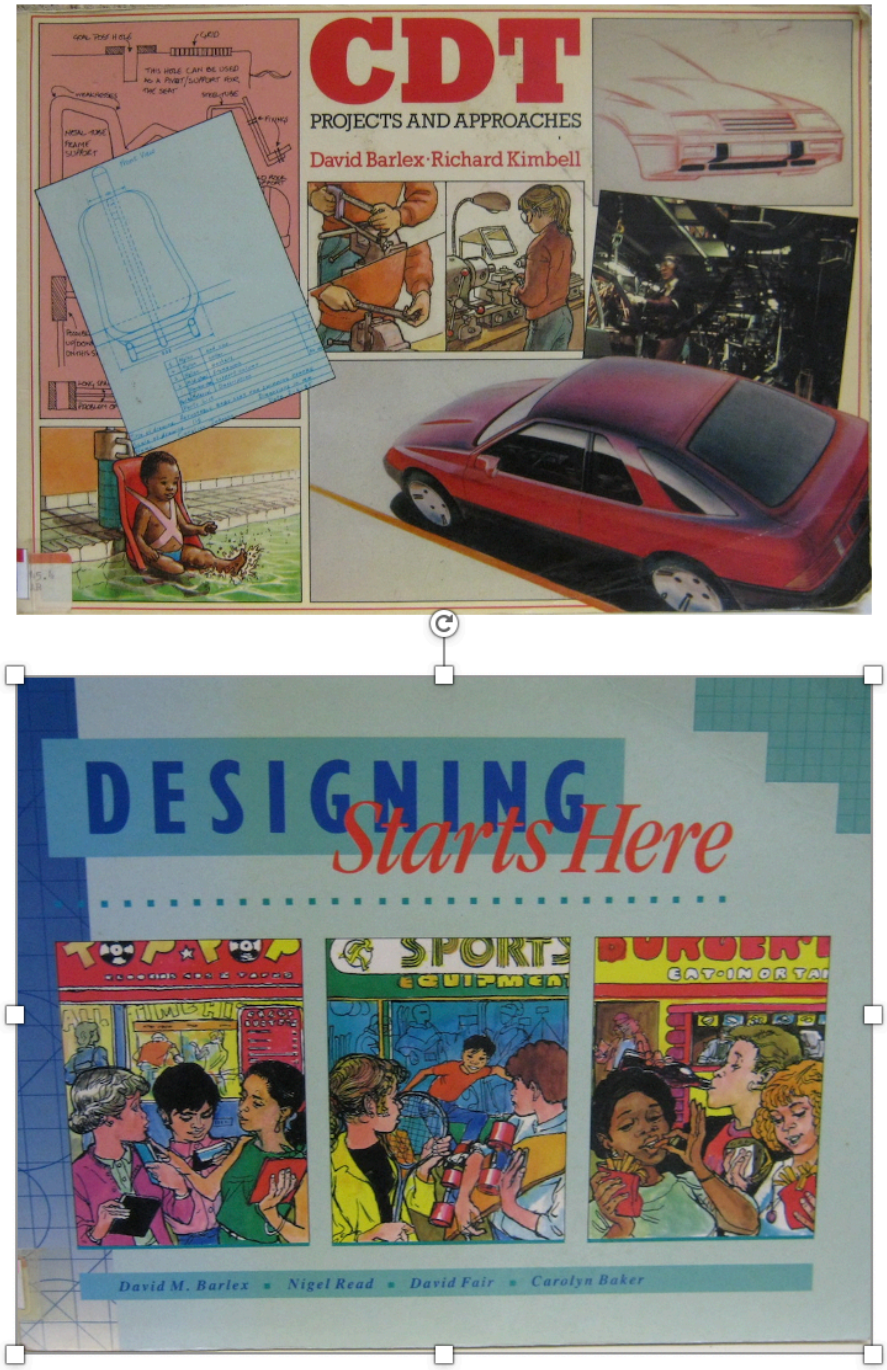

Figure 7 Sample of front covers by influential D&T researchers/authors (top 1986, 1991)

Images: David Barlex and Richard Kimbell, *CDT: Projects and Approaches*, ([n.p.]:Macmillan, 1986); David Barlex, et al, *Designing Starts Here,* (London: Hodder and Stoughton, 1991), [photographs by the author, October 2021]

Archer remained at the RCA as director of research until his retirement in 1988, Roberts moved to a professorship at Loughborough University, while Baynes was involved in various projects including a pioneering Design Council project on design education in the context of the primary school curriculum. The team continued to work together as part of the Design Education Research Group (DERG), established at Loughborough University in 1988. Archer, Baynes and Roberts would later reproduce key essays and speeches originating from the RCA/DEU, describing their work as a part of a pioneering and innovative 'design education movement'.[3] The team remained motivated by ideas generated through the RCA/DEU, including the overarching premise that design education was a different approach to the concept of education, that went beyond the confines of a curriculum framework.

Enabling the subject community to come together and share ideas, Loughborough University became the central partner in an annual conference called the International Conference on Design and Technology Educational Research and Curriculum Development or IDATER. Reflecting the broader scope of D&T, the conference was run in conjunction with the Design and Technology Association, the National Society of Education in Art and Design (NSEAD) and the National Association of Teachers of Home Economics (NATHE), as well as various commercial sponsors.[4]

3 See, L Bruce Archer, Ken Baynes, and Phil Roberts, *A Framework for Design and Design Education: A Reader Containing Key Papers from the 1970s and 80s* (Wellesbourne: Design and Technology Association and Loughborough University, 2005).

4 IDATER ran from 1988-2010. It regularly featured in excess of 30 papers from academics across UK universities. The line up in 1993, for example, included papers from a significant range of institutions from departments variously dedicated to cultural studies, technology, design, industry, design and technology, science and technology, see Eddie Norman, 'A Fork in the Road' Blog, (Loughborough Design Press, 2015) <http://www.ldpress.co.uk/a-fork-in-the-road-by-eddie-norman/> [accessed 31 October 2021].

At Brunel University, meanwhile, another community was forming. In 1980, Shoreditch College of Education, a sector leader in education for crafts teachers, had become part of Brunel University, whereupon its craft specialism switched to craft, design and technology. Barlex's move to Brunel brought connections to Nuffield and to King's College, and with it a far greater emphasis on science, technology and industry partners. Researcher's interests here were more strongly aligned in industrial design and technology that related to science and mathematics, and to engineering rather than design.

Alison Hardy, a researcher and educator in D&T, later reflected on her own experience of training to become a teacher, each university department took up a slightly different approach to D&T. Hardy studied at Brunel University where her disciplinary focus was industrial design. It was this, she suggests, ultimately helped to shape her approach to the field and her initial leaning towards technology over design.[5] The tendency for D&T educators to develop a stronger affiliation with either design, or technology, rather than both as a unified whole, is a feature of the subject's development to which I will return.

Conclusion: Absorption of cultural and educational values

The chapter has pointed to the limitations of historical accounts of D&T, or design education for that matter, that predominantly trace their origins back manual instruction and technical training. As Ken Baynes and Phil Roberts wrote in 1980,

> The streams of thought we are dealing with have developed first of all as a historical phenomenon. Many have roots as far back as the Renaissance: some are older still. The industrial revolution represents another moment of critical change and upheaval.

5 Alison Hardy, 'How Did We Get To This Point?' in *Redesigning D&T.. Talking …Thinking …About Design and/or Technology,* ed. by Alison Hardy and Eddie Norman (Oxford: Loughborough Design Press, 2021) pp. 27–39, (p. 32, 36).

> In a more immediate sense, the ideas we are dealing with have roots. In the art and design experiments of the 1930s, the explosion of the 1960s, the period of student revolt and the subsequent period of retrenchment and increasing bureaucracy. It is not our intention to deal with the history in this paper. That is an important piece of work that still remains to be done.[6]

Forty years later, this work has still to be done and, while not the focus of this study, there is potential to revisit this history and trace the origins of general education that involved experimentation, experiential learning and, as Kimbell put it, 'thinking' as opposed to receiving knowledge. Such a history would necessarily span science and art education, as well as academic and vocational education, areas of the school curriculum that in the UK educational system have traditionally been divided.

Where the previous chapter of this study demonstrated that the discourses of design education are surprisingly consistent, this chapter has found that the history of D&T is rather more porous, absorbing national debate, ideological positioning, technological advancements and social and cultural shifts that reflect changing attitudes as to what constitutes an appropriate general education. These narratives, alongside the activity of agencies like the Design Council, and literatures produced by the subject community, helped to establish the cultural value of D&T as a relevant, all-encompassing and fundamental aspect of the school curriculum at a time when extensive educational reform loomed, but had yet to be fully realised.

6 Ken Baynes and Phil Roberts 'Design Education: The Basic Issues' in *Design Education: The Proceedings of the Design Education Section of an International Conference on Design Policy. Royal College of Art, London 20-23 July 1982*, ed. by Richard Langdon, Ken Baynes, Phil Roberts (London: The Design Council, 1984). pp. 8–13, (p. 8).

The analysis offered in this chapter suggests that different groups held different opinions about the priorities for this area of the curriculum long before debates about standardising the National Curriculum and long before plans for technology and design across the curriculum had been announced. However, these debates existed in silos and advocates of different approaches, as well as teachers, had the opportunity to associate themselves with groups that best reflected their own ideals. As will become clear, the introduction of the National Curriculum and the statutory recommendations for technology changed the relative harmony between the different groups, forcing them to stake an interest in specific aspects of the curriculum that best aligned with their overarching beliefs and educational agenda.

Chapter Four: Ambitions for Design within the National Curriculum Framework, 1988–1989

'Our approach to design and technology is intended to be challenging and new.'[1]

In May 1988, the Design and Technology National Curriculum Working Group (NC/DTWG) was established to advise the government on the scope and content of technology, which included design, and also on the role of design across all subjects and for all pupils. Chaired by Lady Margaret Parkes, the NC/DTWG outlined their recommendations in two publications, an *Interim Report*, published in November 1988 and a *Final Report*, published in June 1989. These documents outlined the NC/DTWG's vision for a new area of the standard school curriculum and, crucially, identified design and technology as a unitary term, 'to be spoken of in one breath'.[2]

This new definition was an important juncture in design education discourse in the context of the state school curriculum, as design was acknowledged, for the first-time, as a fundamental component of a basic education. The NC/DTWG's interpretation of the core rationale underpinning this component of the curriculum was neither to train students for entry into a particular vocation, trade or business, nor as a direct route to a higher education course. Rather, design and technology was presented as an opportunity to deliver skills, knowledge and aptitude that were necessary for everyday life in any given context. In

1 DES/WO, *National Curriculum Design and Technology Working Group Final Report* (London: HMSO, 1989), p. vii.
2 DES/WO, *National Curriculum Design and Technology Working Group Interim Report* (London: HMSO, 1988). p. 2.

this regard it fulfilled the basic requirement of the 1988 Education Reform Act, which stipulated a responsibility for preparing 'pupils for opportunities, responsibilities and experiences of adult life.'[3]

Writing in 1992 about the introduction of technology as part of the National Curriculum, Peter Medway notes that it is difficult for researchers working contemporaneously to curriculum development to comment on the government's rationale because evidence 'is unlikely to be available until the relevant papers are released in many years' time'.[4] As a result, vernacular commentary is frequently a mixture of speculation and insider perspectives garnered from those involved in policy development. Added to this, and until relatively recently, reflecting on the specific treatment of design within National Curriculum D&T has been a rarity and technology has been privileged in research literatures.[5] To address this gap, the chapter utilises files held at the National Archives (TNA) to offer insight into the deliberations of the Department of Education and Science (DES) and the NC/DTWG. TNA records are supplemented with other archival sources and biographical information about the NC/DTWG members with a view to forming a better understanding of what was involved in the construction of National Curriculum D&T, and specifically the anticipated contribution of design as a part of this new subject.

3 *Education Reform Act 1988*, (London: HMSO) [online] <http://www.legislation.gov.uk/ukpga/1988/40/contents/enacted> [accessed 31 October 2021].
4 Peter Medway, 'Constructions of Technology: Reflections on a New Subject', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (Basingstoke: Falmer Press, 1992), pp. 65–83.
5 Examples of texts from the educational research community that have started to recognise the importance of the design component of the subject and address this lacuna include, *Redesigning D&T … Talking … Thinking …* About Design and/or Technology, ed. by, Alison Hardy, Eddie Norman, (Oxford: Loughborough Design Press, 2021), pp. 27-39; and Matt McLain and others, 'Humanising the Design and Technology Curriculum: Why Technology Education Makes Us Human*, Design and Technology Education: an International Journal***,** 24, 2, (2019) 8-19, <https://ojs.lboro.ac.uk/DATE/article/view/2610> [accessed 31 October 2021].

The first section of the chapter deals with the government's proposals for a National Curriculum framework. The second section deals with the formation of the NC/DTWG; their remit with specific reference to the intended role of design in both the primary and secondary school context; and the membership of the group, and the third section considers their initial negotiations. The fourth section summarises the recommendations contained within the *Interim Report*, specifically as they relate to the NC/DTWG's proposals for design and those elements that represented a new area of the school curriculum. The concluding section of the chapter emphasises the cultural values underpinning the original recommendation and also raises questions about the DES approach to retaining files related to the development of National Curriculum D&T, with the gaps and absences in the archival records forming a minor finding of this study.

A National Curriculum framework for schools in England and Wales

Plans to introduce a compulsory curriculum framework for all state-sector schools in England and Wales was first raised by Baker at the North of England Education Conference in early January 1987. More details would follow, Baker hinted, but assuming the Conservative Party were re-elected in the June 1987 general election, the DES would immediately embark on developing a new curriculum framework.

One of the first queries that educational researchers raised about Baker's proposals for a common curriculum was whether it would be subject-based and, if it was, which subjects would be included. Addressing this question during a speech given to the Society of Education Officers on 23 January 1987, Baker's initial answer was that the core components of the new curriculum would be 'English, mathematics, information technology, technology

and science.'[6] Technology was presented as an opportunity to align academic and vocational education and provide the type of skills and training associated with the 'real world' of work. Design was also to be encouraged as 'a growth area for employment whose potential we need to exploit' and would 'play an essential part of technology, while also drawing on and contributing to other areas of the curriculum.'[7]

This statement on design is interesting, because it implies that the cross-curricula approach that the NC/DTWG advocated, and that later proved so difficult to implement in schools, reflected Baker's original understanding of how design would operate as part of the National Curriculum. As for Baker's predisposition toward technology, his long-term ally and former Chair of the NCC, Duncan Graham suggests it stemmed from his prior interest in and experience of working as a junior trade minister where he was, 'the man who introduced computers into schools' in the early 1980s.[8] Moreover, Baker himself has repeatedly expressed his opinion that technology has an important part to play in education. This assertion forms a key component of his work on Community Technology Colleges (CTCs), and later on University Technology Colleges (UTCs) that provide technical and technological education and training to pupils age 14-18 in readiness for the 'fourth industrial revolution', that Baker believes will fundamentally change employment market and conditions.[9] All of

6 This would later change and a total of 10 subjects were formally included within the statutory National Curriculum framework, a decision that Baker later stated that the DES favoured but that was problematic in practice due to the length of the teaching day, see Peter Ribbins and Brian Sherratt, 'Kenneth Baker with Peter Ribbins' *Radical Educational Policies and Conservative Secretaries of State* (London: Cassell, 1997), pp. 87-116, (p.100-103).

7 See, London, The National Archives (TNA), National School Curriculum (NSC), Department of Education and Science Papers relating to the proposals for the establishment of the NSC, 1986 – 1987, ED183/81, 'Draft speech, 23/1/87'.

8 Duncan Graham, *A Lesson for Us All: The Making of the National Curriculum* (London: Routledge, 1993), p.53.

9 See, Kenneth Baker, *14-18 – A New Vision for Secondary Education* (London: Bloomsbury, 2013) and Richard Sharpe, 'Interview with Lord Kenneth Baker', *IT Archives (AIT),* 2018, <https://archivesit.org.uk/interviews/lord-kenneth-baker/> [accessed 31 October 2021].

this is to suggest that the introduction of technology was by no means a whim, but a deeply held conviction on behalf of Baker, one of the leading architects of the first incarnation of the National Curriculum in England.

As a new component of the standard school curriculum it was clear that technology was intended to fulfil the more vocationally-orientated needs of industry and business, which in turn would boost the economy. This narrative was in keeping with the Conservative government's political principles at this time and in particular with those of the incumbent Conservative prime minister, Margaret Thatcher, who stated in a speech to the Conservative Party in 1987 that Britain should focus on developing successful trading and that education needed to become the answer to, rather than the cause of, the country's problems.[10] So it was that technology, and by extension design, started to be presented as a part of a political educational discourse designed to address a range of national, social and economic opportunities and perceived threats.

Response to the proposed reforms

The scale of the proposed educational reforms and associated organisation of the school curriculum was quite unlike anything that had been previously attempted. For a start, the new legislation brought forth a significant shift in power, away from Local Education Authorities and under the control of central government. Leading educationalists from the University of London's prestigious Institute of Education (IoE), including A.V. Kelly, Clive

10 As referenced in, Gary McCulloch, *The Struggle for the History of Education* (Padstow: Routledge, 2011), p. 63.

Chitty, Dennis Lawton, Richard Aldrich and John White, were among those to critique the government's proposals and they identified a series of fundamental flaws in the plans.

Rather than representing an improvement to existing educational provision, for Kelly, increased centralisation, a subject-based curriculum and 'emphasis on economically productive subjects' was indicative of the broader politicisation of the school curriculum that 'increased involvement for industry and commerce in the management of educational institutions'.[11] Chitty, Lawton, Aldrich and White meanwhile outlined their concerns in a special edition of the Bedford Way Papers.[12] Aldrich noted that despite Baker's assertion that technology represented a new area of the curriculum, the only change was in the naming of three of the subjects, with modern languages replacing foreign languages, art replacing drawing, and technology replacing manual work/housewifery.[13] Chitty argued that while many educationalists supported a National Curriculum and indeed had advocated for a common curriculum during the 1970s and 1980s, the model presented by Baker was 'not a radical step forward but a retreat away from the ideals of comprehensive education to a thinly disguised minimalist position'.[14] Taken as a whole these papers reflected strong misgivings about the proposed subject-based curriculum model on the basis that it created an arbitrary division between subjects, when in reality, the scholars claimed, 'teachers deliver knowledge and skills that stretch beyond single subject boundaries.'[15]

11 A.V. Kelly, *The Curriculum: Theory and Practice*, 4th edn (Gateshead: Paul Chapman Publishing, 1999), p.184.
12 *The National Curriculum*, The Bedford Way Papers No. 33, ed. by Clyde Chitty and Denis Lawton (London: Institute of Education, University of London, 1988).
13 Richard Aldrich, 'The National Curriculum: A Historic Perspective', in *The National Curriculum*, ed. by Clyde Chitty and Denis Lawton (London: Institute of Education, University of London, 1988), pp. 21–33.
14 Clyde Chitty, 'Two Models of a National curriculum' in *The National Curriculum*, ed. by Clyde Chitty and Denis Lawton (London: Institute of Education, University of London, 1988), pp. 33–47, (p.33).
15 Denis Lawton, 'Ideologies of Education' in *The National Curriculum*, ed. by Clyde Chitty and Denis Lawton (London: Institute of Education, University of London, 1988), pp. 10–20, (p.19).

While influential educational researchers appeared to support a cross-curricula approach, there is no evidence that their concerns impacted on Baker's plans, which progressed rapidly throughout 1987-1988. TNA records indicate that senior civil servants within the DES had not been consulted about Baker's plans for a National Curriculum. Noting that the process would have 'adverse' implications for the department's ability to plan and prepare, civil servants appeared to be surprised by Baker's announcements in early 1987, especially regarding the proposed timetable for the National Curriculum and the speed at which it was progressing.[16] All of which confirmed the IoE academic's concerns that, despite his claims to the contrary, Baker's reforms were not reflective of the many years of consultation undertaken in an attempt to reach a consensus around an appropriate approach to curriculum development.[17] Plans for the National Curriculum however carried on regardless. In July 1987, after the Conservative Party won the general election and started out on their third consecutive term in office, the DES set about developing a new National Curriculum that would form part of the 1988 Education Reform Act.

National curriculum structure and planning

As part of the National Curriculum framework, and as defined in the 1988 Education Act, a student's passage through compulsory education would be divided up into four key stages:

16 In the archived records of the DES, senior civil servant, WO Ulrich reported that the effect of National Curriculum planning on the department would be 'adverse'. See London, The National Archives (TNA) ED183/81, *National School Curriculum (NSC): Department of Education and Science papers relating to the proposed establishment of the NSC*, Jan 1986 – December 198, 'Establishing a National School Curriculum; WO Ulrich "Confidential: the national curriculum"'.

17 Interviewed in the late 1990s, Baker suggested that civil servants at the DES were behind his plans that 'a consensus had begun to develop which acknowledged a need for a greater level of prescription', Ribbins & Sherratt, p. 150.

Key Stage One (ages 5–7), Key Stage Two (ages 7–11), Key Stage Three (ages 11–14) and Key Stage Four (ages 14–16), when students were expected to study for a General Certificate in Secondary Education (GCSE) in three 'core' subjects, English, mathematics and science, plus a selection of foundation subjects, including music, art, physical education (PE), technology, history, geography and a modern language (French, German or Spanish). All three core subjects and seven foundation subjects were compulsory between Key Stage One and Key Stage Three (ages 5–14). Religious Education (RE) was outside the scope of the National Curriculum framework but would be taught as a statutory requirement in all schools. In Wales, Welsh was also compulsory through to Key Stage Four.[18]

To create a standardised programme of study each key stage, for each subject, was made up of a series of programmes of study and attainment targets. The programmes of study defined what would be taught over the duration of the course and what a pupil would be expected to know at each key stage and the attainment targets would be tested via Standard Assessment Tests (SATs) at the end of Key Stages One, Two and Three. With the stated aim of making schools more accountable and ensuring that test results were more transparent, SAT and GCSE results would be published annually in school league tables.[19]

Inside the DES, Schools Group 3 which had previously been involved in producing a series of statements that attempted to define the standard scope and content of subjects, as well as with coordinating research reports on curriculum development, was appointed to

18 These requirements would later change, but as proposed in 1988 religious education was not subject to any nationally defined content and would not be formally tested on, *Education Reform Act, 1988* (sections 84-88).
19 Although Kelly argued that this was less about accountability and more about centralised government bid for power and control of state school sector, Kelly, p. 184.

coordinate National Curriculum development plans. Senior civil servant, Jenny Bacon, headed up Schools Group 3 and was latterly described in the *Independent* newspaper as career civil servant, who was known for her 'boundless energy', which was arguably an essential quality given the speed at which the National Curriculum was progressing.[20]

Outside the DES an array of advisory bodies was created to counsel the government on the composition of the National Curriculum subjects, the operation of the framework and the procedures for assessment. For Kelly, the creation and involvement of these new bodies represented a worrying shift in power from schools and teachers to a succession of so-called 'specialist' groups who now determined the content and construction of the state school curriculum, leaving 'a much-reduced professional role for teachers at all levels from the nursery to postgraduate studies.'[21]

The National Curriculum Council (NCC) was charged with overseeing a national consultation process and converting the finalised plans for programmes of study and attainment targets into legally binding statutory orders.[22] The Schools Examination and Assessment Council (SEAC), meanwhile, whose activities have not been analysed within the remit of this study, was convened to oversee the development of the new national tests for Key Stages 1–3 and the revisions and GCSE examinations in Key Stage 4.[23]

20 Tom Wilkie, 'Here's To Your Health, Ms Bacon' *Independent*, 10 July 1995.
21 Kelly, p. 184.
22 Once the National Curriculum Statutory Orders for each subject had been passed through parliament, schools became legally required to teach them.
23 Richard Daugherty, *National Curriculum Assessment: A Review of Policy*, 1987–1994 (Hong Kong, Falmer Press, 1995) p. 121.

National Curriculum Working Groups (NC/WGs)

In between the DES and the NCC sat another layer of subject-specific advisory bodies, called the National Curriculum Working Groups (NC/WGs), who were required to make recommendations on the scope and content of each subject, including defining programmes of study and key stages. In the first instance, the DES prioritised four of the ten NC/WGs, three of which represented the three core National Curriculum subjects, English (NC/EWG), mathematics (NC/MmWG) and science (NC/SWG), and the fourth, technology, or design and technology as it was universally known (NC/DTWG) as a 'new' area of the curriculum.
In reflecting on the development of the National Curriculum policy, Graham later reflected that although Baker envisaged the working groups as a counter-balance to his administration, the sheer scale of the reforms and the speed at which the layers of the framework were to be enacted created tension between the DES organising team, advisory groups and government quangos.[24]

Highly dismissive of civil servants involvement in National Curriculum planning, Graham goes on to suggest that the DES were overcome by a 'palpable fear of failing to deliver what was expected of them and a determination to run the whole programme.' Recalling his experience of chairing the NC/MmWG, he notes:

> [C]ivil Servants were recorded on the minutes as observers, but they were far more than that. Sometimes they would come in packs. They were at every meeting of the council, working groups and committees. They spoke at every meeting, frequently upsetting the council with what some saw as arrogance and a dictatorial manner if they believed somebody was stepping out of line.[25]

24 Graham, *A Lesson for Us All*, p. 12-15.
25 Graham, p. 13.

Bearing in mind that Graham was a close ally of Baker, and that his account of the National Curriculum planning process was recorded after he had resigned from his post as chair of the NCC and was clearly outwardly frustrated by the experience, it is important to remain cautious of his account of the DES involvement. Given that the minutes of the NC/WGs meetings were recorded by the DES, it is however, very difficult to ascertain the extent to which members of the DES intervened, and whether this varied according to the group and the timing of their meetings.

Whatever the extent of the DES' involvement, and whether this proved a help or hindrance, it is undeniable that the NC/WGs were faced with a substantial task. For the most part, and certainly for the first four NC/WGs, their final reports were expected within less than a year of them being convened and their recommendations mirrored the speed at which plans for the first iteration of the National Curriculum framework was put together.

Membership of the National Curriculum Working Groups

Each NC/WG was expected to contain twelve to thirteen members; including two representatives from higher education (one professor, one leading academic), four serving teachers, or headteachers, one local education advisor, one chief examination officer, one expert on assessment, one person with experience of syllabus construction and two representatives from commerce and industry (manufacturing and service sector).[26] Her Majesty's Inspectorate (HMI) would appoint an observer to shadow the groups and the DES would provide secretariat. The Secretary of State for Education was responsible for selecting

26 TNA, ED 183/82, 'Q&A circulated by MM Capey' 28/4/87, in London'.

the chair for each NC/WG upon the advice of DES civil servants and in consultation with HMI.[27]

The NC/WGs were tasked with advising the government on the scope and content of each National Curriculum subject, as well as outlining appropriate attainment targets and programmes of study.[28] David Callaghan indicates that in this regard, the selection of members for the NC/WGs conflicted with the Conservative Party's overarching political thinking at the time, which branded the choices of 'left-wing teachers' to be a significant problem of the National Curriculum planning process.[29] Certainly, TNA records indicate that Schools Group 3 were particularly keen to find individuals who were not easily swayed and who were 'well-known and well-respected by those involved in school teaching'.[30] A letter from senior civil servant M.M. Capey for example suggests that the DES were especially keen to involve 'individuals, not as representatives of particular bodies or unions' who were:

> representative in the other sense – that is, the membership as a whole should reflect the wide range of interest which legitimately should have a say in determining the key targets and programmes of study.[31]

Reflecting on his experience of being invited to chair the NC/MWG, Graham notes that in the early days of curriculum development there appeared to be little rhyme or reason as to how individuals were chosen and that the working parties were largely selected on the basis

27 While the teams were originally envisaged as a series of specialist standing groups with a shifting membership of experts who could be called upon on an ongoing basis to advise the government on good practice and any necessary updates to the curriculum, in practice, they were only ever convened for the purpose of advising on the first iteration of a National Curriculum framework. In contrast the membership of subsequent education policy National Curriculum advisory groups have tended to be kept secret, albeit their identities are still often known within subject-related educational circles.
28 DES/WO, *The National Curriculum 5–16: Consultation Document* (London: 1987) pp.25-26.
29 David Callaghan, *Conservative Party Education Policies, 1976–1997: The Influence of Politics and Personality* (Brighton: Sussex Academic Press, 2006), pp. 86–87.
30 TNA, ED 183/82, 'Letter National Curriculum: establishment of working groups, July 1987'.
31 TNA, ED 183/82 'Q&A circulated by MM Capey 28/4/87'.

of their professional support for the concept of a National Curriculum, rather than their political persuasion and, more often than not, for their educational expertise.[32] The specific method for determining the broader membership of the NC/WGs is not documented in central DES files or those relating to the activities of the individual groups, but it is likely that the chair and members of the DES, in consultation with HMI, determined who would be invited to sit on the panel.[33]

Formation and remit of the National Curriculum Design and Technology Working Group (NC/DTWG)

On 29 April 1988, Baker confirmed to the House of Commons that the chair of the NC/DTWG was Lady Margaret Parkes, 'a governor of the BBC and a member of the Secondary Examinations Council'.

At the time of writing, the process for selecting the chair for NC/DTWG has not been located in the archived records of the DES. While it is likely that these records were not retained for archiving on the grounds that they were 'not in the public interest' following the dissolution of the group, as seen here, their absence is conspicuous because it contrasts with notes that were made and retained on the selection of chair for the NC/MmWG and NC/SWG. These gaps are reflected on in the concluding section of this chapter, it is worth noting that suspicions about the decision-making process surrounding which files to retain for public

32 Graham, p. 7, 15.

33 In the interviews for the Chair of the SWG, for instance, potential candidates were asked about their thoughts for other members of the group, see London, TNA, Establishing a National School Curriculum, ED 183/85, *National Curriculum (NC), Department of Education and Science Papers relating to the establishment and development of Policy towards a full NC*, 1 January 1988 – 31 December 1988, 'Annex C, Possible chairman of science working group'.

access are amplified by the absence of records relating to the second half of the NC/DTWG's meetings that proceeded after the publication of their *Interim Report* in November 1988, and by the subsequent criticism surrounding the NC/DTWG's membership, discussed in the next section.

In lieu of the DES records on the decision-making process that led to the choice of Parkes as chair of the NC/DTWG, insight is gleaned from TNA files that document the recruitment method for the chair of the NC/SWG. According to the DES records of the NC/SWG, Schools Group 3 were looking for individuals with a proven ability to manage a group and remain 'firm' in the face of disagreement.[34] Excerpts of a letter on the 'Structure and Membership of the NC/SWG'[35], drafted by Bacon in April 1987, for example, indicate that Schools Group 3 were directly involved in finalising the terms of reference and that upon inviting nominations for the position of chair from HMI, biographies of shortlisted candidates were compiled.[36] A round of interviews took place, with Baker in attendance, whereupon candidates were 'sounded out' on their views on the proposed National Curriculum, assessment procedures, and their position on the educational reforms that the government were pursuing.

34 TNA, ED 183/85, 'Letter National Curriculum: establishment of working groups' July 1987.
35 In the TNA/DES records, a letter from Bacon gives an indication of the extent of their involvement in relation to the Mathematics and Science NC/WGs; 'We have not yet finalised draft terms for reference .. What is needed is therefore a fairly small professional working group rather than a representative body. The proposed composition has 4 serving teachers or headteachers out of a membership of 13 Together with an LEA Adviser and experts in assessment and syllabus construction (who may well have a teaching background). Other areas of expertise will be covered by a CEO, two industrialists and one representing teacher training in that subject.' See, TNA, ED 183/83, 'Letter Curriculum Working Groups for Maths and Science Structure and membership, 10/4/87'.
36 See, TNA, ED 183/85, 'Curriculum Working Groups for Maths and Science: Structure and Membership'.

In the case of the NC/SWG, three candidates were mooted for the chair: Paul Black, professor of science, King's College London; Leslie Crombie, professor of organic chemistry, Nottingham Trent University; and J.J. Thompson, professor of education, University of Bath, a favourite from the outset for his 'forceful character' and reputation as a 'proven political fighter', who was ultimately offered the position. Of particular interest here are the DES notes on Black who, according to DES records, was in the running partly due to his expertise in the field of technology. At interview, Black was questioned over the potential membership of the NC/DTWG, and his recommendations, unsurprisingly, included those with proven leanings towards technology education as it linked to science and mathematics, including Geoffrey Harrison, former director of Project Technology.[37] Harrison had expressed his views on the expansion of the technology curriculum in the acclaimed report, *In Place of Confusion*, that he co-authored with Black in 1985.[38] He had also been involved in advising the Crafts Council on their tactical approach to shaping the outcome of the technology curriculum, so was clearly sought out for his expertise on this topic.[39]

The processes identified here suggest that the decision-making process surrounding the selection of a chair for the NC/WGs was taken carefully and, certainly in the early stages, was based on advice from HMI and with the direct involvement of Baker, in his capacity as head of the DES and Secretary of State for Education and Science. It is interesting to note that at this stage of proceedings, however, neither Black nor Harrison, who were clearly

37 TNA, ED 183/85, 'Annex C, Possible chairman of science working group'.
38 Paul Black and Geoffrey Harrison, *In Place of Confusion: Technology and Science in the School Curriculum*, (London: Nuffield-Chelsea Curriculum Trust & the National Centre for School Technology, Trent Polytechnic, 1985).
39 London, V&A Collections, Archive of Art and Design (AAD), *Crafts Council Records: 1960–1999: Education Records 1972–1991*, AAD/1991/4/4 Box 8 (Education), 'Minutes of the Crafts Council Educational Committee Meeting 12/1/1988'.

affiliated with a more technologically orientated curriculum and had a wealth of expertise, took up roles in either the NC/SWG or the NC/DTWG. This suggests that they either declined the opportunity or it was not offered to them. The former seems unlikely given that Black would go on to take a senior role in the NCC, where he oversaw the development of the official guidelines for technology and that both would be involved in subsequent curriculum reforms and Nuffield-resources, discussed in Chapter Five. The latter meanwhile suggests that they were not considered suitable candidates due to their more technologically-orientated outlook. In other words, the DES, in consultation with HMI, were looking for a different blend of expertise on the NC/DTWG and possibly, one that was more sympathetic to design.

Parkes' prior role on the Craft, Design and Technology Committee of the Secondary Examinations Council in the early 1980s is likely to have been one factor that marked her out as a candidate for chair of the NC/DTWG.[40] This experience not only meant that she was familiar with debates about raising standards in the field, the status of the subject, links between craft and technology education and cross-curricular approaches, but also that she was accustomed to government bureaucracy. Parkes' obituary in *The Times* noted that she had been a member of numerous councils, including chairman of the London Diocesan Board of Education, had previously taught sociology at a teacher training centre at Homerton College, Cambridge and had also worked as a school teacher of technology early on in her career.[41] Meanwhile, the *Oxford Dictionary of National Biography*, gives rather

40 Anne Pimlott Baker, 'Parkes [née Parr], Margaret, Lady Parkes, 1925–2007, educationalist', *Oxford Dictionary of National Biography,* (Oxford University Press, 2011), <doi.org/10.1093/ref:odnb/99042>
41 'Margaret Parkes: Obituary', *The Times*, 30 August 2007, p. 53.

more weight to her ability to manage maintain a non-partisan approach, claiming that her appointment was made on the basis of her 'no-nonsense' leadership style and determination not to give preference to any one particular strand of design or technology.[42]

While these reports make much of Parkes's characteristic style of leadership, it is important to note that she also came to the post with considerable educational expertise and what was likely to have been a fairly unique blend of pedagogical experience in technology and sociology. This blend was similar to that of John Eggleston, discussed earlier, a sociologist and woodwork teacher, who was an early pioneer of design as a way of making education more relevant to pupils' background, everyday life and experiences. This comparison is not intended to suggest that the two held parallel ideological beliefs about the potential role of design education in schools, or indeed that there was any connection between them, but instead to draw attention to the appeal of design beyond the immediate CDT subject community.

Membership of the NC/DTWG

Other members of the NC/DTWG included:

- Krysia Brochocka – educational design consultant
- Elsa Davies – Education Liaison Officer, British Institute of Management
- Malcolm Deere – Education Advisor (Curriculum), TVEI Unit, Manpower Services Commission
- Denis Filer – Director of Engineering, ICI plc
- Terry Gibbons – Head of Design Faculty, Gwendraeth Valley School, Dyfed
- John Hammond – Lecturer in Computing Science, City University
- Philip Hunter – Chief Education Officer, Staffordshire

42 Pimlott Baker.

- Ben Kelsey – Advisor for Business Education, Hampshire Local Education Authority and Director of the National Business and Information Studies Project
- Paddy O'Hagan – Head of Faculty, Design and Technology, Northolt High Street, Ealing.

Two further members were co-opted, with their late addition suggesting that they may have been added at the request of Parkes:

- Andrew Breckon, education inspector
- David Layton, professor and director of education at the University of Leeds

The standing members of the group were made up of, George Hicks (HMI) who was appointed to the role of HMI observer and a team from the DES, overseen by Stephen Jardine, the main secretariat for the group.[43]

As previously noted, there is nothing in the DES records directly pertaining to the selection of the NC/DTWG's membership. Certainly, Parkes would have previously been in contact with Brecon, who was a member of the Secondary Examinations Council at the same time as her. A connection between Parkes and Layton may also have existed on the basis that Parkes' husband, Professor Edward Parkes, was vice chancellor of the University of Leeds, where Layton worked. The University of Leeds had an established connection with research projects relating to the technology curriculum. Between 1985 and 1988, for example, a team led by David Yeomans and Medway had been commissioned to produce the first series of evaluations of the TVEI scheme.[44]

43 DES/WO, *NC/DTWG Interim Report*, p. 96.
44 Edward Parkes was an academic with a background in mechanical engineering. Prior to moving to the University of Leeds in 1983 he had worked at City University, London.

According to his obituary, Layton, an academic with a research specialism in applied science education, was co-opted as a member of the NC/DTWG for his 'scholarly exploration of the nature of technological activity and its interaction with scientific knowledge.'[45] Throughout the 1970s, Layton had been involved in establishing a new schools-based science programme that supported a more practical and less abstract application of science and emphasised 'learning from experience' and real-world application. In this capacity Layton had worked closely with the National Science Foundation, UNESCO, the Nuffield Foundation and the Schools Council, contributing to the status of applied science through a series of seminal publications about the history and development of science education in schools that documented the competing influence of different groups and organisations that had a stake in the field.[46] Aligning with Ivor Goodson's theory on school subject development and the processes that need to occur in order to establish 'new' subjects, Layton's scholarly interest in the theoretical and historical construction of the school curriculum meant he was keenly aware of how subjects usually develop, the factors linked to their success or failure, how status is achieved, and the importance of stakeholder groups in this context.

Layton had been one of the principal members of the Technology Education Project commissioned by the Engineering Council.[47] In 1987, just prior to being asked to join the NC/DTWG, Layton had been investigating the role of technology in the school curriculum and had co-authored a series of reports that identified the core principles of technology:

45 Edgar Jenkins, 'David Layton, 1925–2010', *International Journal of Technology and Design Education*, 21 (2011), 1–2, <doi.org/10.10007/s10798-010-9150-4>
46 University of Leeds, 'Obituaries, Secretariat; Emeritus Professor David Layton, OBE, MA, MSc', 2014 (2010) http://www.leeds.ac.ul/secretariat/obituaries/2010/layton_david [accessed 24 September 2014].
47 The project was called TVEI Curriculum National Evaluation Project, see, David Yeomans, *Constructing Vocational Education: From TVEI to GNVQ*, (Leeds: University of Leeds, 1996), pp. 1–12.

technological literacy, *technological awareness* and *technological capability*, concepts that were adapted to form the foundation of the NC/DTWG's recommendations.[48]

In critiquing the membership of the NC/DTWG, McCormick suggested that the lack of professional representation in the group was evidence of the 'hidden criteria' of the government, who were determined to accentuate the role of design activities at the expense of technological ones. Emphasising the dependency on individuals who were primarily involved in education, rather than from professional practice, trade or manufacturing, McCormick highlights that only one member of the group had experience of the technology industry.[49] In this regard he was presumably referring to Filer, a former engineer and director of the Engineering Council, although the selection of Davis, a representative of the British Institute of Management, must also be recognised as a nod to the role of industry and business.

The constituency of the NC/DTWG was not unusual; most of the NC/WGs had a strong educational bias (**fig. 8**). However, the lack of industry expertise was perhaps more noticeable given the emphasis of the NC/DTWG's remit on supporting routes to employment. It may have been that rather than demonstrating the government's lack of commitment to servicing industry through their plans for design and technology, the decision to include members with an educational background was reflective of longstanding

48 See, David Layton, Neil Bolton, Michael Harrison, *Technology Education Project, Paper 1* (University of Leeds, 1985) and 'Papers submitted to the consultation: technology education project paper 1 (1985)', National Arts Education Archive, BHBWBK00785.
49 See, Robert McCormick, 'Technology and the National Curriculum: The Creation of a "Subject" by Committee?', *The Curriculum Journal*, 1 (1990), 39–45, (p. 40).

issues associated with trying to engage with industry representatives. The records at TNA indicate that this was a known issue, that the DTI were keen to address.[50]

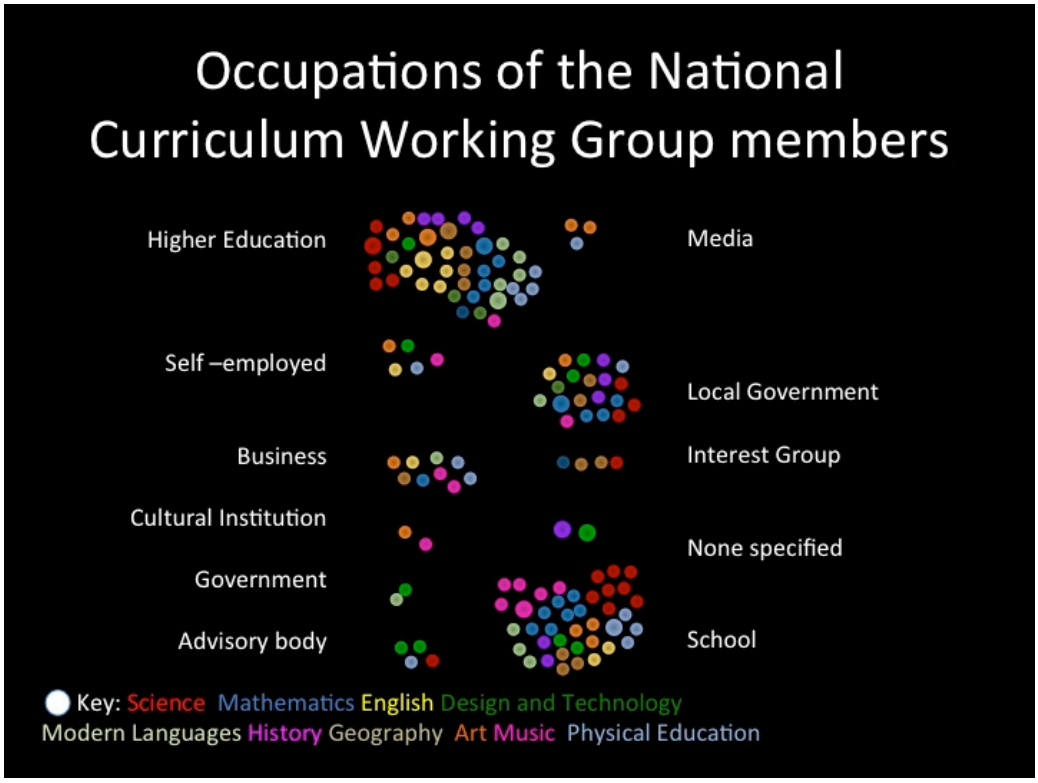

Figure 8 Breakdown of the National Curriculum Working Group membership by occupation, 1987-1994

[illustration by the author, 2015]

Of the NC/DTWG members, Gibbons and O'Hagan were teachers and heads of departments of secondary schools in England and Wales respectively, specialising in craft, design and technology education; Deere was a curriculum planning specialist with prior experience of working on government committees, specifically around assessment for craft, design and technology education and for the TVEI scheme; Hunter held an advisory role in a local

50 London, TNA, 'Department of Education and Science Schools Branches: Committee Records, 1988', National Curriculum: Design and Technology Working Group; Agendas and Papers, 1 January 1988 – 31 December 1988, Part 1 of 2, 'ED 282/83/1, 'Letter to Stephen Jardine (DES) from Martin Stanley, Industry/Education Unit (DTI) 13 July 1988'.

authority, as did Kelsey – albeit with a specific remit for business education – and Hammond in computing, via his lectureship in information technology at City University in London. This mix meant that there was no representation for home economics, art, mathematics, and science, despite being identified as key components of design and technology.

Certainly the choice of members included individuals who were open-minded about incorporating industry needs within an educational framework. For example, Deere, in addition to serving on the Design Council's Secondary Education Advisory Group during the 1980s, had a working knowledge of the TVEI scheme in his capacity as education advisor to the TVEI Unit as part of the Manpower Services Commission.[51] There were also links to the design industry. Brochocka, meanwhile, was formally trained as a designer and was working as a design consultant with strong links to education, having continued her education at the RCA Design Education Unit and worked as an educational consultant at Roehampton College of Teaching.

In terms of connections to the Design Council, which is not commented on in contemporaneous accounts of the NC/DTWG's membership, Brochocka had been awarded funds from the Design Council in 1983 for a design education project called Design Dimensions, which she worked on with Roger Standen. The Design Dimensions project was in turn linked to the RCA Design Education Unit (DEU), and Brochocka was married to Ken Baynes, at this time co-director of the DEU and member of the Design Council project team working on design at primary level. Deere, meanwhile, had attended the Design Council's

51 Design Council, *Annual Report and Accounts 1985/86* (London: Design Council, 1986), p. 39.

meetings in the early 1980s, and was married to Freda Hooberman, former employee and secretary of the Design Council Secondary Education Working Party, 1978–1980. Finally, the HMI representative was Hicks, who, as noted earlier, was an advocate of design education, a former researcher at Goldsmiths College and mentor to Richard Kimbell. His presence in the group is significant, not least because if he did have any involvement in advising the DES on the membership of the group, he almost certainly would have included the names of people who were sympathetic to the role of design in education.[52]

McCormick's critique of the membership of the NC/DTWG was based on his belief in the connection between technology and vocational education. Indeed in 1988, Angela Rumbold, Minister of State, DES, was quoted in a press release as saying that the National Curriculum 'will create a better relationship between education and requirements of employers' and that '[T]he subject of greatest relevance to this will be design and technology.'[53] If this had been the case, then not having adequate representation from figureheads of industry would, as McCormick indicates, have been a problem. However, as Rumbold continued '".. technology is all-pervasive and pupils must learn to deal with it as consumers as well as producers, as makers and builders as well as designers."'[54] Ultimately, the NC/DTWG were charged with establishing a viable model for D&T as part of the National Curriculum framework, which involved producing a proposal that could feasibly muster the approval of educational community and industry representatives, unite interested parties from across a

52 George Hicks' strong interest in and devotion to the development of design education in schools is evidenced in a statement he wrote in the late 1970s, London, UCL Institute of Education Archives, Newsam Library and Archives, Jack Kitching Archive: Records of the Board of Education Inspectors' Association; Accounts of HMI Life and Work in the 1970s, KIT/2/2/5/3, 'Account of George Hicks'.
53 See, TNA, ED 183/81, 'Angela Rumbold Announces Reunion of Education and Industry' Press Release, 8 December 1988.
54 Ibid.

disparate range of disciplines and reach an agreement within a very tight timeframe. That this was achieved at all is testament to the suitability of the group to achieve the task in hand.

The remit of the NC/DTWG

Baker had originally stated that technology would form one of the ten National Curriculum subjects and that design would feature as part of this field of study. However, when he announced the formation of the NC/WG for Technology to the House of Commons on 29 April 1988, he called it the 'Design and Technology' Working Group:

> Mr Kenneth Baker: My right hon. Friend the Secretary of State for Wales and I are from today establishing a working group on design and technology. The group will advise on attainment targets and programmes of study for technology within the national curriculum for secondary school pupils. The science working group which we appointed last summer is making recommendations about technology for primary school pupils.[55]

The inclusion of 'design' in the NC/DTWG's title was conspicuous. While it did not appear to provoke any immediate backlash among the broader subject community, it would ultimately prove to be a controversial decision, especially among those who supported a more technologically driven subject area, including Peter Medway and Robert McCormick.

In chronicling and critiquing the NC/DTWG's negotiations and recommendations in the early 1990s, McCormick felt that the addition of 'design' diluted the field, noting that 'it would be interesting to know what influence the Secretary of State was under to make him change

55 UK Parliament/House of Commons, *Hansards Parliamentary Debates: Technology* (29 April 1988, vol. 132, cols. 279–80), [online] < https://api.parliament.uk/historic-hansard/written-answers/1988/apr/29/technology> [accessed 31 October 2021].

the title.' [56] Medway meanwhile claimed that the decision was reflective of the haste in which plans for the National Curriculum were put together, and also blamed the design component for the NC/DTWG's more conceptual approach. DES civil servants, Medway suggests, were under pressure from the 'design lobby', although he gives no indication of who this lobby comprised of, or why civil servants were so vulnerable to this lobby when they appeared quite capable of rejecting more partisan lobby's in favour of a more technologically orientated curriculum.

In line with the National Curriculum as a whole, the NC/DTWG was put together quickly; however, evidence already presented in this study relating to the development of new projects and classroom resources, demand for new approaches to confront the gender divisions and investment in assessment and examination evaluations, alongside written evidence located in the DES records at TNA, indicates that the decision to include design was not as perfunctory as Medway claimed. Rather than being a response to immediate lobbying, it appears highly likely that the decision had been formed over a number of years in response to a legacy of Schools Council curriculum development projects, conceptual re-situating of design education and the engagement with design of the Conservative government.

Any significant change to the name or remit of the NC/WG for example would have likely been sanctioned by the DES prior to publication, and while there is nothing in TNA directly relating to the name change, it is clear that senior civil servants were keen to see design

56 McCormick, p. 40.

represented in the National Curriculum. As part of Schools Group 3 and prior to her involvement with National Curriculum planning, Bacon had previously been working on a series of policy statements that defined the content and scope of individual school subjects. This included a policy statement for design, which was in the pipeline when Baker made his announcement about the proposals for educational reform in early 1987, just before the announcement of a general election. A letter in the TNA files, dated April 1987, from Bacon to Christopher Jones, deputy head of the educational programme services for the Independent Broadcasting Authority, shows that she had been due to meet with him to discuss content for the proposed policy statement. Baker's announcement on curriculum reform had meant that she needed to cancel the meeting and indeed the series of policy statements, but she was clearly confident that design would feature as part of technology:

> One upshot of work on the national curriculum is that we have deferred, if not abandoned, our intention to produce a policy statement on Design, since there is likely to be a Working Party set up to look at attainment targets and programmes of work for technology and related subjects (including design) in the not too distant future.[57]

Furthermore, in draft documents about the development of National Curriculum technology, dated March–May 1987, Bacon's handwriting can repeatedly be identified in the marginalia, noting where the word 'design' in connection to 'technology' was omitted from drafts of official letters or policy documents and inserting it.[58] Bacon's role in repeatedly ensuring that design was inserted in official curriculum planning documents is a new finding that has not previously been cited in published literature and has only come to light in this study through close scrutiny of the DES files at TNA.

57 TNA, ED 183/83, 'Letter from Jenny Bacon to Chris Jones, 13/4/87'.
58 'Again, 'design' gets no mention' writes Bacon on one of the documents relating to design and technology, TNA, ED 183/82, 'Establishing a School Curriculum' March –May 1987.

As the investigation into the DES files at TNA continued, it became increasingly apparent that the decision to include design within the remit and name of the NC/WG for Technology was not as last-minute as other literatures have implied. Evidence in the archives shows, for example, that the DES decided to continue supporting the Assessment Performance Unit (APU) survey on D&T, which had been commissioned before the National Curriculum was announced, because of fears that cancelling it would undermine the government's commitment to including design in curriculum planning.[59] In March 1987, the senior civil servant O. Ulrich wrote to Bacon to discuss whether or not to pull the APU survey which was due for completion in 1988; however, it was noted that there would be 'presentational disadvantages and conflicting signals to the education service if the new design and technology survey (1988) was cancelled, given ministers' public commitment to the importance of design education'.[60]

Another new finding, drawn from TNA archives, was that the Department of Trade and Industry (DTI) had been involved in drafting the NC/DTWG's terms of reference. This is not surprising, given the DTI's known interest in design education at the time, but it is not something that has been directly referred to in texts about the development of National Curriculum D&T. While it was not possible to ascertain the exact nature of the DTI's involvement, a letter held in the TNA NC/DTWG files confirms that that ministers and DTI member Martin Stanley 'were involved in drafting the Group's Terms of Reference' and had

59 As discussed in Chapter Three of this study, see, APU/DES, *Design and Technological Activity: A Framework for Assessment* (London: HMSO, 1987).
60 See letter from Jenny Bacon to O Ulrich, TNA, ED 183/83, 'Future of the APU' 16 March 1987.

been working with the Industry Education Unit (IEU), a pressure group that was intended to persuade industry to take an interest in education and educationalists to take an interest in industry.[61] In the letter to Stephen Jardine, NC/DTWG secretary, Stanley emphasises the DTI's hope that 'the Group will resist the temptation to produce an introverted technology-driven programme' and the need to avoid a narrow industry focus:

> It will be important, of course, to avoid an over-emphasis on manufacturing. The word 'industry' should be interpreted to include the whole of the wealth-creating sector, including distribution, financial services etc. After all, the Design and Technology Curriculum is going to be taught to all people, whether they ultimately work in a shop or on a shop floor.[62]

Stanley's statement is another example of the desire to establish D&T as a subject that went beyond training young people for employment in manufacturing industries, and instead looked to support a much wider range of vocational outcomes as befitted an entire generation. Yet another indication of prior support for including design as part of the technology curriculum, that went beyond the 'design lobby' is a 1987 report published by the education working party (NEDO) of the National Economic Development Council (NEDC) which was located in TNA files. The report argues that there is an urgent need for design to be seen as part of a multi-disciplinary process and notes that the barriers that separate one discipline from another hamper design.[63]

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61 The records of the DTI currently available from TNA did not contain any information about their involvement in this work and neither did the records of the DES. In 2015 a Freedom of Information Act (FOI) enquiry was raised, requesting access to files relating to this work and to the IEU, however this request was rejected on basis of the cost of retrieval exceeding £600, as per FOI regulation. The only reference that has been located to this activity therefore is a letter in the DES files, TNA, ED 282/83/1, 'Letter to Stephen Jardine (DES) from Martin Stanley, Industry/Education Unit (DTI)', 13 July 1988.

62 TNA, ED 282/83/1, 'Letter to Stephen Jardine (DES) from Martin Stanley, Industry/Education Unit (DTI)', 13 July 1988.

63 York, National STEM Learning Centre Library, National Economic Development Council, *Design Working Party Recommendations* ([n.p.]: NEDC, 1987), p. 1.

Finally, trawling through the archives of the Design and Technology Association in Warwickshire, revealed another document, marked for the interest of Gordon Warren (one of the Design and Technology Associations founders and its first chairman), that implied that the inclusion of design was not simply the result of pressure from the 'design lobby', as Medway has suggested. Dated 23 July 1987, nine months before the formation of the NC/DTWG was officially announced, the Design Council and the Engineering Council issued a jointly authored statement signed by Sir Francis Tombs, Chairman of the Engineering Council, and Simon Hornby, Chairman of the Design Council.

The press release and accompanying letter to Baker, assert their 'common interest in design education' and 'firm commitment' to the view that 'the term "technology" should embrace the practice of design as an integral part'.[64] Offering the government their support, the letter confirms their contribution to the Secondary Examinations Council's Working Paper series and states their expectation that design would form an important aspect of technology:

> The opportunity for all children to acquire an understanding and competence in the process of designing, involving both the technological and expressive aspects is an exciting prospect, with great potential for individual children and national prosperity. We therefore urge the Government to embody this broad approach to technology in the future core curriculum.[65]

The content of this document has implications for later claims that the more technologically driven and vocationally orientated views of the Engineering Council had been overlooked in

64 See documents (available by arrangement) located in, Wellesbourne, Design and Technology Association Headquarters, 'Letter to Secretary of State for Education from Sir Francis Tombs, FEng (Engineering Council) and Simon Hornby (Design Council), "Design in the School Curriculum" and Press Release, The Engineering Council and The Design Council, 23rd July 1987.
65 The Engineering Council and The Design Council, '"Design in the School Curriculum" and Press Release', 23rd July 1987.

the National Curriculum planning process. Indeed, the press release indicates that not only were the Engineering Council aware of the decision to emphasise design, they had supported this approach and officially put their name to it. It would appear that this is the first time that this document has been referenced in relation to the naming of the NC/DTWG and their remit to include design.

The discovery of the joint press release, alongside the evidence that there were a number of central government players who were keen to include design in technology, is significant. Firstly, the press release contradicts Medway and McCormick's claims that the naming of D&T was simply a way of appeasing the design lobby. Secondly, it reflects the acceptance of an ideological positioning around the need for a more holistic and humanistic approach to education that had found a grounding through the concept of design as a domain of knowledge and that brought together knowledge from different subjects to provide skills and experiences that could be utilised in everyday life. Thirdly, the actions of Bacon, the awareness of the government's public commitment to design, and the DTI's support for design over and above a 'technology-driven' field of study indicate that the inclusion of design in the remit for National Curriculum technology was well established, rather than being a cursory and last-minute decision. Even if only momentarily, this evidence shows that the discourses of design education were widely acknowledged in government as an important feature of nationwide educational policy and planning activity.

In summary, the study has presented a new combination of evidence that supports the assertion that the inclusion of design into the naming of the NC/WG, but not the 1988 Education Act, was not a cursory decision, but a peculiar failure of communication between

the Secretary of State for Education and the DES at a moment of intense political activity. Design's role in the technology curriculum was part of a long-term campaign fought by actors from across a broad spectrum of organisations representing education, industry, design and engineering, who all wished to see design recognised as part of the new curriculum framework.

A framework for design across the curriculum

The NC/DTWG's formal terms of reference stated that National Curriculum technology should be modelled as an 'area of study in its own right, with its own distinctive objectives and content' and should include design so that pupils could:

> be taught the principles and practice of good design, the application of theoretical knowledge, and within that context the practical craft skills needed for realising their designs in wood, metal, plastics, textiles and other materials. They should also learn about the variety of modern materials and technologies in use in the industrial and commercial world.[66]

Design was to be considered by the NC/DTWG in 'all its aspects' and as 'an essential part of technology', with the group paying particular attention to students' ability to:

> i) be able to design and make artefacts and systems, applying scientific or mathematical and other knowledge and skills;
> ii) be familiar with designing process and have had experience of applying them to real life tasks within typical constraints (time, money etc) with due regard to cost, marketability, social, environmental and other relevant factors;
> iii) appreciate the importance of design and technology in society, historically and present day, particularly as it affects the economy.[67]

Although it was proposed that the NC/DTWG should advise on design as part of a cross-curricular approach that would require 'a framework for design across foundations subjects,

66 DES/WO, *NC/DTWG Interim Report*, p. 87.
67 Ibid., p. 88.

for all pupils of compulsory school age', the group were initially only required to advise on technology at secondary school level. This was because the remit for primary technology had already been assigned to the NC/SWG, appointed earlier in 1987. By August 1988, however, this remit was altered. Again, critics of the NC/DTWG's proposals, such as Barnett, suggest that this last-minute change was indicative of the overall confusion surrounding the National Curriculum recommendations.[68] TNA files, however, indicate that the issue originated with the NC/SWG and their failure to achieve consensus about their approach, let alone make any recommendations.

A few months after the NC/DTWG had been convened, and as the NC/SWG approached the deadline for the submission of their first *Interim Report*, it became apparent that their proposals regarding technology and the primary curriculum had not progressed sufficiently. Cross-referencing to the TNA files for the NC/SWG indicates that members of the Primary Technology sub-group could not agree on why, or indeed whether, design should feature in their recommendations. David Jinks, a former member of the Design Council Primary Education Working Group (DC/PEWP) which in 1987 had produced one of the few published reports on design in primary schools, insisted not only that technology was 'just the application of science' but that design was a vital element of it. Others in the group, however, questioned why they should have to consider it at all, 'if, as a cross-curricular process, design permeated the whole of the curriculum.' [69]

68 Michael Barnett, 'Technology, within the National Curriculum and Elsewhere', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (London: Falmer Press, 1992), 84–104, (p.86).
69 The minutes of the NC/SWG primary subcommittee meeting in October 1987 indicate that Jinks' colleagues were unable to reconcile their differences on this matter. 'Primary Science Subgroup', in TNA, *National Curriculum, Science Working Group; Primary Sub-Group: agendas and papers*, 1987, ED 282/94, 'Summaries of points made at the third meeting held at DES Elizabeth House on 5 October 1987' internal ref NC/SWG/PSG/M2.

Lacking consensus about the relationship between science and technology, and in particular about the role of design, the NC/SWG Primary Education Sub-Group's discussions failed to reach a conclusion. The DES received another letter in June 1988 advising them that 'the work could not be completed on time and that prioritising this area would unbalance the work of the group and damage the prospect of finishing the main remit on time.' By July 1988, and following informal discussions alluded to in a series of letters between Jardine and the NC/DTWG's chair, the NC/DTWG asked to take over ownership of primary technology. This was agreed and in August 1988 the remit and responsibility for primary technology was formally reallocated to the NC/DTWG.[70]

That the NC/SWG did not consider technology to be central to their work is reflective of historical debates about the lower status afforded to applied science and technology and of science educators' longstanding resistance to incorporating technology into the science curriculum. In contrast, the readiness of the NC/DTWG to take primary technology off the NC/SWG subgroup might be viewed as an earlier indicator of the porous nature of the field, and the opportunity to present a whole-curriculum approach that recognised the value of technology at all stages of general education.

Phase one of the NC/DTWG's meetings, May–September 1988

70 It was taken on by the NC/DTWG on the proviso that they did not have to take on the members of the Primary Science Sub-Committee, whom Parkes regarded as 'low quality', see TNA, ED 282/83/1. 'Primary Technology' Letter from Lady Parkes to Stephen Jardine, July 1988.

The minutes of the NC/DTWG's first meeting on 19 May 1988 note that the group's first challenge would be to 'establish design and technology in the curriculum in a way that went beyond the limitations of one subject area'. The ensuing discussion, which would become a core feature of the NC/DTWG's recommendations, emphasised that 'design and technology' represented a unitary concept rather than a distinct subject. According to the DES records, this decision was agreed upon from the outset and without need for further debate. This was also the case during the NC/DTWG's second meeting, when discussion turned to the Secretary of State's request for a recommendation on design. The minutes of the meeting give little away about the 'ins and out' of the discussion, simply recording that the group agreed that, rather than providing an interpretation of design within the context of technology, a broader explanation would be appropriate.[71]

While the minimal tone of the DES minutes records only that the group reached a consensus on these matters, the decision-making process was highly likely to have been the result of a more nuanced set of discussions. As shown in Chapters Two and Three, the role of design in general education was a widely debated topic and its inclusion had implications for the approach to technology. It is certainly the case that the minutes of the NC/DTWG's meetings provide a very 'matter-of-fact' overview of the discussions without revealing the more nuanced debates that would likely have taken place over the course of the day. However, peppered between the minutes are copies of letters between members of the NC/DTWG outside of the meetings, notes and transcripts of the papers that were delivered

71 TNA ED 282/83/1, *Agenda and Minutes 1-8* 'NC/DTWG (88) M2' 22-23 June 1988.

up until the publication of the group's interim report, which provide something of the 'flavour' of both the individuals involved and the discussions they had.

During the first meeting, each member of the NC/DTWG received a series of papers to familiarise themselves with the broader field, and optional visits to schools were arranged so that examples of good practice could be witnessed. These visits were typically held at schools in the West Riding area, where Breckon was an advisor, and which had a strong reputation for being highly supportive of proactive and innovative approaches to craft, design and technology education and, to design education in particular.

Experts were invited to give papers on different aspects of the curriculum (**Table 1**). While no information is given about the rationale behind the selection of experts, or who chose them, it appears that some were pre-scheduled and others were commissioned from within the group, when it was felt that they were missing information.

The papers given in that first meeting prompted an initial debate about definition, and a glossary of terms was proposed on the basis of confusion surrounding terminology such as 'technological literacy', 'technological awareness' and 'technological competency'.

Meeting	**Presented by**	**Details (paper/author/year)**
2nd Meeting: 22-23 Jun 1988	George Hicks (HMI)	Technology in CDT
	Phillip Hunter (NC/DTWG)	Model of Design and Technology used in Staffordshire
	David Layton (NC/DTWG)	Technology for all: an introductory paper Peter Medway, David Yeomans, *Technology in TVEI*

		Douglas Barnes, George Johnson, Stephen Jorden, David Layton, Peter Medway, David Yeomans, *The TVEI Curriculum 14-16: an interim report* (1987)
	Andrew Breckon (NC/DTWG)	*Understanding Design and Technology* (APU working paper, 1980)
3rd Meeting: 5-7 Jul 1988	Krysia Brochocka (NC/DTWG)	*Designing in the Curriculum*
	Paddy O'Hagan (NC/DTWG)	*Design: A Schools Perspective*
	David Layton (NC/DTWG)	*Current Issues in Design and Technology*
	G Goldstein (HMI)	*IT and Computing*
	V Emmett & M Boydd Clarke (HMI)	*Technology & Home Economics*
	M. Walmsley (HMI)	*Links between Technology and Business Education*
	Richard Shearman (Design Council)	*Contribution of Art and Design to Technology*
	Jeff Thompson (NC/SWG)	*Interim Report of the Science Working Group*
	Ben Kelsey (NC/DTWG)	*Business Education and Design and Technology*
4th Meeting: 18 Jul 1988	David Layton (NC/DTWG)	*The Contribution of Design and Technology to the School Curriculum*
	Martin Stanley (DTI)	*The needs of industry*
	Denis Filer (NC/DTWG)	*The key technologies: some implications for education and training*
5th Meeting: 8 Aug 1988	Malcolm Deere (NC/DTWG)	*Concepts of technology in designing*
	Philip Lewis (IT in Schools)	*IT in schools*
	David Marjoram (HMI)	*Contribution made to design and technology by art and design*
	Elsa Davies (NC/DTWG)	*Working together: the contribution of design and technology*
6th Meeting: 31 Aug – 1 Sept 1988	Richard Kimbell & John Saxon (APU)	*APU: progress report on design and technology*

Table 1: List of reports presented to NC/DTWG, June – September 1988

Table listing reports given in person to the NC/DTWG between June -September 1988. Adapted from records obtained from TNA ED 282/83/1 'Agenda and Minutes 1-8'

The problem the group faced was that stakeholders with a vested interest in the technology curriculum used terms differently. The minutes of the meeting recorded that the group found it 'both pointless and inappropriate to strive for or attempt to impose definitions

which are aimed to achieve consensus.' [72] Not wishing to side with any one interpretation or by extension any one stakeholder, the solution was to agree and then present an approach to design and technology, rather than a definition that might restrict practices and alienate practitioners.

The pressure to include design could be seen through papers that were submitted to the group for referral. The National Council for Educational Technology (NCET), for example, asserted the need to link education and the economy more strongly and asked for a curriculum that would provide 'an effective understanding of how markets work', including 'pricing policy, distribution and marketing' and opportunities for 'pupils to experience the challenge of achieving product quality and reliability at a price the customer is prepared to pay'. Mirroring earlier arguments about the ability of consumers to shape industry, NCET's report noted that the UK:

> …has a good track record of inventing or making things. But by and large, we have failed to recognise that the customer is in the longer term interested in much more than functional efficiency and price. Quality, reliability are very important, and so are design and user-friendliness. The design process has to be integrated with technological problem solving to as to produce a product which the customer will want to buy. [73]

During the second meeting of the group, Brochocka and O'Hagan were nominated to write and present reports to help the group achieve consensus on the issue of design. In their paper, presented at the third NC/DTWG meeting, Brochocka emphasised the unique features of design, insisting that it was neither a means through which to 'problem-solve'

72 London, TNA, Department of Education and Science: Schools Branches: Committee Records, National Curriculum: Design and Technology Working Group, agenda and papers ED 282/83/1, 'Agenda and Minutes, NC/DTWG (88) M1' 19 May 1988.
73 See, TNA, ED 282/83/1, NCET, 'Submission to the National Curriculum Working Group for Design and Technology'.

nor was it just about aesthetic styles. Design, wrote Brochocka, involves 'speculation into the future and the unknown, risk-taking and learning from failure. No recipe, algorithm or rule of thumb.' She continued:

> Designing is the total of all the activities needed to determine and realise the form of future environments, products and communications. In the practice of design in the professional world this activity will always be associated with the potential of technology and manufacture.[74]

O'Hagan meanwhile focused on the activities of a designer in order to understand the relevance of the field in the context of general education:

> A designer evolves a solution, where success involves conflicting judgements concerning fitness for purpose, the aesthetics of form and funding and the constraints of making. It also requires an informed critical awareness of the natural and made environment. Designing is therefore a widely appropriate procedure.[75]

Design activities suggested by O'Hagan for example included 'electronic alarms for the elderly, packaging and graphic design, mechanical systems, pollution control, product evaluation or clothing', all of which derive from one theme – in this instance Survival.'[76] Brochochka and O'Hagan's emphasis on what design is and does, on what a designer does and why it is a useful educational skill, suggests there was still a perceived need to convince the group of the potential role of design. Emphasis was placed firmly on the social attributes associated with design, rather than the anticipated economic benefits, and on projects based on 'real-world contexts'.

Brochocka and O'Hagan's presentation on design was followed by a paper from Layton that outlined the concept of technological awareness, literacy, capability, values and knowledge.

74 See, TNA, Department of Education and Science, Schools Branches: Committee Records, part 2 of 2, 1988, ED 282/83/1, Brochocha, 'Designing in the Curriculum'.
75 See, TNA ED 282/83/1, O'Hagan 'Design: A School Perspective'.
76 Ibid.

The importance of rooting problems in 'real-world contexts' was also prominent in Layton's proposals and in contrast was justified in relation to the economy and as a way of providing 'fertile ground for growth of economic awareness and understanding', as well as more transferable skills that might lead to the development of 'valuable personal qualities such as imagination, persistence, the disposition to see a job through to the end'. For Layton real-world problems involved the perceived need to position educational tasks in design and technology within the contexts of 'specific constraints like deadlines, cash limits, ergonomic requirements' rather than in response to societal issues that might be addressed through designed solutions.[77]

Papers delivered at the third meeting emphasised the need to represent the potential role of art in the design and technology curriculum. In terms of the titles alone, two of the papers, including one by Richard Shearman, Design Council and another paper at their fifth meeting by David Marjoram, HMI, spoke to the relationship between design and technology and art and design education. The decision to ask the Design Council to talk on the role of art and design within technology education initially seems odd, especially for an organisation that had undertaken significant work on the role of design education as a field of study that drew on subjects like art, but nonetheless remained distinctive from them.

Despite the title of his paper, Shearman took the opportunity to assert his view on the relationship between design and technology education, rather than art and design, asserting

77 See, TNA, ED 282/83/1, Layton, 'Current Issues in D&T'.

that technology 'only gains sense and coherence if approached through design' and highlighting its essential contribution:

> In our view there are powerful arguments for treating design as the principal overarching theme, because it is a concept which is already recognised by many (though not yet enough) practitioners in a number of different subject areas as being relevant to them, while technology is seen as a narrower concept in terms of the school curriculum.[78]

It is regrettable that, although Shearman's papers are stored in the Design Council collection at the University of Brighton Design Archives, no reference was found to either the invitation, the paper, its presentation, or the Design Council's role in the NC/DTWG's deliberations.

During the fourth meeting of the NC/DTWG, Martin Stanley of the DTI (mentioned earlier in relation to their support for design as part of technology) presented a paper highlighting the needs of industry and Filer presented a paper that discussed employee needs in relation to technological developments. These papers served to emphasise the intention to link the design and technology curriculum with industry needs. In addition to these papers, members of the NC/DTWG also undertook to compile information on specific topics and present them to the group based on their areas of expertise. Recognising a deficiency in relation to home economics (in terms of representation on the group and papers presented to the group from experts in the field or from practising teachers), for example, Brochocka was called upon to investigate and report back on practice and scope for inclusion, despite noting in the report she produced that 'she had no direct background in the area'.[79]

78 TNA, ED 282/83/1, Shearman, 'Design and Technology in the School Curriculum: Some preliminary thoughts by the Design Council'.
79 TNA, ED 282/83/2, Brochocka 'Paper 45'.

In the fifth and sixth meetings the proposed content for the group's plans for their *Interim Report* was discussed. The records at TNA suggest that the first part of the report, which would lay out the group's proposed approach, was written almost entirely by Layton. As noted, large sections of this text had been presented as part of a report he had co-authored in 1985 as part of a series, sponsored by the Engineering Council, for the Technology Enhancement Project undertaken at the University of Leeds, that has since fallen out of general circulation and was located during this investigation in the storerooms of the National Art Education Archive (NAEA) in West Bretton.

Significantly, the rationale Layton outlined in Chapter One of the NC/DTWG's *Interim Report* mirrored the rationale for design and technology that Layton had previously prepared. Due perhaps to the restricted access to the Technology Enhancement Project report, this appears to be the first time in published literature that a direct link has been made between these two documents.

NC/DTWG's *Interim Report*

The NC/DTWG's initial recommendations were published and circulated as part of their *Interim Report*, submitted to the DES in November 1988.

***Interim Report*, November 1988**

As stipulated in their original remit, the NC/DTWG's *Interim Report* presented an approach that drew on and linked between a range of different activities in schools, most obviously art, business studies, information technology and science. Its more unusual feature, however, was to define design and technology as a 'unitary concept'; neither technology nor design were to dominate the field but were expected to exist in harmony and 'to be spoken of in one breath'.[80]

The first chapter of the *Interim Report* outlined the distinct contribution of design and technology education to the National Curriculum and its inherent difference from science education. In presenting different modes of knowledge, one column (on the left) represented the scientific approach and the other (on the right) represented the central premise of the design and technology curriculum. The intention was to emphasise that their proposals were not to be seen as an extension of the science curriculum, which had its roots in the abstract acquisition and application of knowledge:

Knowing that'	and	'knowing how'
'propositional knowledge'	and	'action knowledge'
'homo sapiens'	and	'homo faber'
(man the understander)		(man the maker)[81]

Acknowledging the NC/SWG's account of the relationship between science and technology as outlined in their final report, the NC/DTWG's *Interim Report* drew heavily on Layton's conceptualisation of technology in his report for the TEP, emphasising that design and technology education was based on real-world problems and experiences, as opposed to abstract concepts:

80 DES/WO, *NC/DTWG, Interim Report*, p. 2.
81 DES/WO, *NC/DTWG, Interim Report*, p. 4.

> design and technology is always purposeful (i.e. developed in response to perceived needs or opportunities, as opposed to being undertaken for its own sake), takes place within a context of specific constraints (e.g. deadlines, cash limits, ergonomic and environmental requirements as opposed to unconstrained, blue-sky research) and depends upon value judgements at almost every stage.[82]

Other highlights that the DES appeared to support included active engagement in *doing*, in addition to thinking, as the field's unique characteristic, reporting that the adoption of a cross-curricular approach meant that it was broader than existing subjects (e.g. CDT, which had a reputation for a strong mechanics/electronic bias). This was intended to address the historical issues around gendered course choices, and the low status associated with practical subjects. The second characteristic of design and technology that distinguished it from science concerned the conceptualisation and realisation of 'what might be' and the 'form of things unknown' that might be achieved through cultivation of the 'mind's eye' and 'creative thinking' as 'different from and complementary to verbal modes'. This was presented as a 'visionary activity, a mode of thought which is non-verbal' and which 'finds representation in drawings, diagrams, plans, models, prototypes and computer displays and simulations, before its eventual realisation in a product, which might be an artefact, system or environment.'[83]

In the second chapter of the *Interim Report* the NC/DTWG's thoughts about course content were presented in the format of 'Profile Components, Attainment Targets and Programmes of Study for Design and Technology'.[84] The NC/DTWG had identified one single profile component, 'design and technological capability' and the Attainment Targets that were linked to this component (**Table 2**).

82 DES/WO, *NC/DTWG, Interim Report, p.4*.
83 DES/WO, *NC/DTWG, Interim Report*, p. 4-5.
84 Profile components represented 'a cluster of attainment targets which has some homogeneity in relation to the skills, knowledge and understanding. DES/WO, *NC/DTWG, Interim Report*, p. 20.

AT	Descriptor
AT 1	Through exploration and investigation of a range of contexts (personal, social, environmental, business, industrial) pupils should be able to identify and state clearly needs and opportunities for design and technological activities.
AT 2	Pupils should be able to explore, develop and combine design and technological proposals, and use their judgement, based on various criteria (economic, technical, aesthetic, ergonomic, environmental, social) to choose and appropriate design for further development.
AT 3	Pupils should be able to develop their chosen design by refining and adding detail, and to produce a plan for making the required artefact or system by identifying tasks and sub-tasks, and ways of undertaking them, and by making judgements of what is realistic, appropriate and achievable.
AT 4	Working to a scheme derived from their previously developed design, pupils should be able to identify, manage and use appropriate resources, including both knowledge and processes, in order to make an artefact or system.
AT 5	Pupils should be able to produce a critical appraisal of process, outcomes and effects of their own design and technological activity, as well as of the outcomes and effects of the design and technological activity of others, both historic and present day. With respect to their own activity, they should be able to use their appraisal to propose and justify modifications to the processes they have used and to the outcomes realised.

Table 2: National Curriculum Design and Technology Attainment Targets

Adapted from the DES/WO, National Curriculum Design and Technology Working Group Interim Report, (London: HMSO, 1988), p.27.

As a holistic activity, the attainment targets for the design and technology curriculum comprised a series of activities rather than a linear process.[85] Activities were to take place within different contexts and the application, as opposed to the acquisition, of knowledge and understanding were categorised under four domains:

1) The media for design and technological activities (materials and components, energy, information);
2) The influence on design and technological practice (business and economics, tools and equipment, mathematics, aesthetics);

85 DES/WO, *NC/DTWG, Interim Report* , pp. 28–38.

3) The characteristics of design and technological products (systems, structures, mechanisms);
4) The applications and effects of design and technological activities (economic and social).[86]

The records at the TNA suggest that the project examples for the attainment targets had largely been based on examples conceived by Brochocka, which might explain the leaning towards design problems as opposed to technological ones.

Within this last domain the NC/DTWG noted the 'importance of understanding technological change and its economic, social and other consequences', noting that the effects of design and technology education were:

- the ability to change economic performance by introducing more sophisticated manufacturing functions that will reduce cost;
- the ability to achieve new goals (such as increased quantity and increased accuracy);
- and the ability of technological change to bring changes in social and individual well-being, the quality of living and the made world. [87]

It would be important, the NC/DTWG emphasised, for pupils to locate their design and technology work in a historical context; 'to understand the needs and opportunities that led to them, the influences which shaped them and the broad implications they have had and are having for individuals and society'.[88] In this regard it is worth highlighting that the NC/DTWG considered the historical context to be relevant in terms of fostering a better understanding of how and why design and technology operated in society, rather than as a form of aesthetic inspiration or as a way of realising economic benefits.

86 DES/WO, *NC/DTWG, Interim Report*, pp. 31–32.
87 DES/WO, *NC/DTWG, Interim Report*, p. 38.
88 DES/WO, *NC/DTWG, Interim Report*, pp. 38–39.

Having set out the contexts in which 'knowledge and understanding' might be achieved, the *Interim Report* went on to identify six skills (or processes) that pupils would need to undertake in these activities:

1. Exploring and investigating
2. Imagining and speculating
3. Organising and planning
4. Making
5. Communicating and presenting
6. Appraising [89]

The programmes of study, which specified the content, skills and processes taught to pupils at the different key stages, followed. The NC/DTWG specified that 'designing and making should be developed through a wide range of contexts – personal, domestic, communal, industrial, commercial and environmental – so that every pupil has his or her experience broadened to an extent appropriate to his or her age.' It was important, they added, that these experiences were not gender restrictive and did not mean that girls would end up following personal and domestic contexts, and boys industrial and environments.[90] Specific examples of different activities were then given, which linked to specific key stages and attainment targets.

The third and final section of the NC/DTWG's interim report, was devoted to information technology, which was envisaged as a distinct component that 'might be achieved in any subject'.[91] In this regard, the cross-curricula approach it followed was the model originally

89 DES/WO, *NC/DTWG, Interim Report*, pp. 41–43.
90 It is interesting to note that the NC/DTWG did not include business contexts, presumably on the basis that commercial enterprise is not part of pupil's everyday context or experience. DES/WO, *NC/DTWG, Interim Report*, p. 53.
91 The specifications and recommendations for Information Technology will not be dealt with in this study, but are detailed in the NC/DTWG's Interim Report. DES/WO, *NC/DTWG, Interim Report*, pp. 64–73.

intended for design, but with separate key stages and programmes of study. The files at TNA indicate that this section of the report was written in isolation from Chapters One and Two, and it ended up representing the 'add-on' that many technology educators perhaps would have preferred design to have been.

In contrast to the headlines, news stories and one-line quotes that discussed the rationale for National Curriculum D&T, the NC/DTWG's *Interim Report* was clear that the unitary concept they proposed was as much about empowering children and young people, and instilling in them the ability to be prepared for and adapt to change, as it was about their contribution to the nation's fiscal wealth. Throughout the NC/DTWG's *Interim Report* only cursory reference is made to the potential of the design and technology curriculum to grow 'economic and careers awareness and business understanding'. Instead, it is the role of 'design and technology in society' that appears to have engaged the group's interests and in responding to their terms of reference the NC/DTWG are clear that the field needed to be understood 'not only to solve practical problems, to invent, optimise and realise solutions' but also for the 'transformatory power' of technological change on lifestyles and in the workplace.[92]

As previously discussed, in relation to the original rationale for design education in the nineteenth century and the 1836 Select Committee's advice to the government on projects and educational investments, emphasis was placed on preparing society for change. Whereas in the nineteenth century this related to industrialisation and the influx of

92 DES/WO, *NC/DTWG, Interim Report*, p. 5.

consumer goods, in the twentieth century it related to the technological revolution and the birth of the twenty-first century, which was anticipated to bring forth significant leaps in society's technological awareness, access and capability.

Response to the *Interim Report*

In the first instance the NC/DTWG's *Interim Report* was sent to the DES for review. In appraising the work, Bacon appeared satisfied, noting that

> [T]he Groups task has not been easy: although high quality work in individual subjects has been in evidence for a long time, the broad area of design and technology lacks a school curriculum tradition comparable with that of other National Curriculum subjects.[93]

It was observed that the NC/DTWG had yet to set 'specific recommendations' for 'design in all its aspects' and 'for design associated with technology in the context of a broader perspective on design in the whole curriculum', but the DES put this down to lack of time rather than lack of intention.[94] The attainment targets, the DES noted, were used to bring together work currently done in different subjects with a common objective, to 'design, make and evaluate new artefacts and systems; to improve and rectify faults in existing artefacts and systems critically in terms of personal, social, economic and environmental impact'. In conclusion, the DES reported that 'the Group has made a reasonable start in a very complex field,' but that 'their report was not an easy read', and there was some concern that reaction might be 'fractious', particularly in relation to the more abstract model the group had adopted.[95]

93 TNA ED 183/88, 'Letter to Jenny Bacon', 14 November 1988.
94 Ibid.
95 Ibid.

Having consulted the Minister of State, who was not identified by name, but presumed to refer to Baker, the following feedback on the NC/DTWG's report and the DES response was obtained: '"Jolly Good – one of the best because in a way it had the most difficult task and because no-one knew what it had to do. My instincts are to let them get on with it"' and,

> '"I disagree that we should try to pin down Design and Technology, whilst accepting some sharpening of attainment targets is needed. I think this is a case for allowing development to take place. Given all pupils will have to study it and the parameters are already described."' [96]

As discussed later, and in relation to the challenges that schools would face in implementing D&T in the early 1990s, this suggests that a broader approach and the scope for interpretation with the NC/DTWG's recommendations was authorised directly by Baker.

Despite concerns amongst the DES that the *NC/DTWG's Interim Report* would receive negative feedback, it would appear that they had been overly cautious. Responses were at best broadly positive and at worse unexceptional. The feedback they received largely came in the form of advice; Brian Allison, emeritus professor of education at Leicester Polytechnic, for instance, commended the NC/DTWG's focus on real-world issues and the relevance of design in the context of everyday life, adding his interpretation of the uses of a design and technology education, which again emphasised its social imperative:

> Engagement in design and technology throughout general education as part of the National curriculum is designed to ensure that our future fellow citizens are able to take both personal and community responsibility for the kind of world in which they and future generations will live as well as to appreciate and enjoy the contributions of design and technology to contemporary societies.[97]

96 TNA ED 183/88, 'National Curriculum – Design and Technology Interim Report of the Subject Working Group', (SG2-51) Letter to Mr Jeffrey from Shan Scott, 18 November 1988.
97 TNA ED 183/88, 'Design and Technology Working Group: Interim Report', feedback from Brian Allison, January 1989.

While a few criticisms were raised by the home economics teaching community, who, aggrieved at being subsumed within the design and technology curriculum, and also presumably by their lack of representation on the working group, raised some formal concerns about the proposals. Beyond this, there were no record of criticisms from the technology education community at this point, or formal complaints about the unitary concept which placed equal emphasis on design.

On this basis, why was the technology community aggrieved by the inclusion of the design component of the subject? Especially when, as shown, the technology education community's voice was present in the group's early deliberations at least, via the members of the NC/DTWG, experts who gave evidence and the papers that were presented for consideration. It may well be because the NC/DTWG's *Interim Report* had more influence than would ordinarily normally be the case for this type of document. This was largely to do with the sheer speed with which the different elements of the National Curriculum were coming together, which meant that resource providers and teachers did not have time to access the slew of subsequent recommendations that were variously issued by the NCC, relying on their reading of the *Interim Report*. As Carrie Paechter writes,

> When the current version of the Orders was in preparation, teachers were, generally, excited and interested in the process and read each document as it came out. However, several events coincidental to the consultation period for the draft rewrite, coupled with a feeling that this time around that it doesn't pay to get too familiar with a document that may be changed before implementation, resulted in a general disengagement with the policy process.[98]

98 Carrie Paechter, 'Texts Power and Design and Technology: The Use of National Curriculum Documents in Departmental Power Struggles', *IDATER 1993 Conference* (Loughborough: Loughborough University, 1993), 151-154, (p. 151).

The identification of original copies of the NC/DTWG's *Interim Report* in archives across the UK, replete with marginalia and notes, indicates that advocates of design and technology education, involved in teacher training and advising the community, engaged deeply with the content of the report and particularly with the first chapter, which provided something of a manifesto for the field.

It may of course also have been the case that technology educators felt isolated by the lack of representation on the NC/DTWG and that their voices were not adequately represented in the subsequent preparations for the NC/DTWG's *Final Report*. By necessity, however, the analysis of the NC/DTWG's deliberations ends here. Members of the group have been unwilling to comment further on the debates that took place and at the time of writing (2021), the DES NC/DTWG's files at TNA only includes minutes, correspondence and reports relating to the group's six meetings in May–November 1988, plus written feedback from the consultation process received in Dec 1988–Jan 1989 and a folder of notes relating to possible approaches to examination, which would require specialist understanding of assessment to interpret.

The gaps in the DES files relating to the formation of the NC/DTWG and their second set of meetings is conspicuous because it is inconsistent with the records of other NC/WGs and raises questions about rationale behind the DES's approach to record-keeping and archiving. Why would the first set of NC/DTWG files be considered relevant for public interest, but not the second set? Especially when, firstly, the NC/DTWG's thinking clearly shifted between their *Interim Report* and *Final Report*, secondly, it was the second phase of the group's discussions that led to their final recommendations, which in turn formed the basis of the

statutory orders for technology in 1990 and thirdly, an informal conversation with a former member of the NC/DTWG suggests that discussions surrounding their recommendations became increasingly lively during their successive meetings. Surely, records of these meetings would be of equal, if not more, interest to the public, as would the rationale behind the group's terms of reference and membership, which are available for both the NC/MmWG and NC/SWG.

Conclusion: Challenging and new

Using information obtained from the DES records, the chapter has explored debates about the development of the NC/DTWG's thinking about design and technology education and their approach to design in particular. Ultimately, the political desire to include design in the National Curriculum appears to have been less arbitrary than has previously been suggested, however this has been played down because it did not suit the political objectives of technology educators who were keen to establish a higher status for technology. In other words, certain elements of the NC/DTWG's membership and recommendations had been cast to suit a later-day narrative about the apparent failure of the new subject in the classroom.

In the instance of the NC/DTWG, and where their remit and membership was criticised for failing to address the full potential of technology or to speak to industry partners and employers, the chapter has shown that their recommendations were based on educational philosophy and convictions that the members had honed over many years. Attempts to undermine the importance of the design component of the subject, and to challenge its value in comparison to technology, were reflective of rupture between the design

educationalists and technology educationalists; the former who believed that design was the fundamental component of the subject, and the latter who believed that technology should be the fundamental component of the subject, and that this should be more closely associated with science. This disparity continued to play out across during the early implementation of D&T in schools, to which I will now turn.

Chapter Five: Inception of Design and Technology, 1990–1995

Never before had it been an entitlement for all children to study technology;
now it was.[1]

The 1990s signalled a period of unprecedented change for the burgeoning D&T subject community. The Statutory Orders for National Curriculum Technology (which included design and technology as one of two core components) was passed through parliament in April 1990 and from September 1990 all students attending state-funded primary and secondary schools in England were expected to study the course from the age of five all the way through to the end of their compulsory schooling at age sixteen.

The National Curriculum Design and Technology Working Group's (NC/DTWG) conceptualisation of a cross-curricular subject that drew together knowledge and skills from business studies, art, home economics, craft, design, technology and computing remained at the heart of the 1990 Technology Orders. Meanwhile work on a new technology GCSE syllabus, carried out by the Secondary Examinations and Assessment Council (SEAC) in conjunction with UK examination bodies, was underway and it was anticipated that in 1995 the first cohort of students would leave school with a formal qualification in the subject.[2] As Richard Kimbell reflected:

> Never before had it been the least bit significant in the primary school curriculum; now it was. Never before had the specialist subjects in the secondary school technology domain (craft, design and technology, home economics; art and design)

1 Richard Kimbell, *Assessing Technology, International Trends in Curriculum and Assessment* (Buckingham: Open University Press, 1997), p. 51.
2 The 1990 Orders for Technology included two profile components, one in design and technology and the second in Information Technology. It was envisaged that the GCSE examination would test all five Attainment Levels for Technology (see Chapter Four) that covered the two profile components.

> been grouped and expected to provide a single technology experience; now they were. But crucially, never before had this compulsory (statutory) experience been described in such incontrovertibly procedural terms; now it was.[3]

Implementation of the 1990 Technology Orders, however, proved deeply problematic. It was dubbed 'the crisis of technology', and tensions grew between groups with vested interests in the subject who were ideologically opposed about its core rationale. In 1992 these debates came to a head. National news media reported on concerns about the delivery of the new course in schools, debates raged, and the government announced a formal review and suspension of the Technology Order. This gave way to a wholescale review of the entire National Curriculum in 1993, led by Ron Dearing, that recommended 'urgent action to reduce the statutorily required content of its programmes of study and to make it less prescriptive and less complex'.[4]

The first section of this chapter engages with the complexities of educational policy making, analysing the original 1990 Statutory Orders for National Curriculum technology and conflicting responses to the guidelines from researchers working as part of the subject community. The second section reviews preparations to support the subject community prior to implementation that was undertaken by groups like the newly established Design and Technology Association. The third section deals with the growing dissatisfaction around the technology curriculum and specifically the Engineering Council's campaign to discredit it. The fourth section discusses the government's revised approach to D&T in 1995 and the consensus that different groups eventually reached. The last section considers how key

3 Richard Kimbell, *Assessing Technology*, p. 51.
4 SCAA/Ron Dearing, *The National Curriculum and Its Assessment: Final Report*, (London: HMSO, 1993) p.7.

actors progressed, influenced, disrupted and consolidated curriculum development in D&T and shows that the NC/DTWG's original emphasis on twenty-first century life skills was displaced by a more overtly economic rationale that hindered the more porous and exploratory character of design education.

The 1990 Statutory Orders for National Curriculum Technology

Parkes had been keen to get the NC/DTWG's *Interim Report* published as soon as possible, 'in order to provide the basis for the informal and selective consultation exercise' on which she wanted to get started. Phase two of the Group's work began in December 1988 and a body of experts were invited to attend an oral consultation process and provide feedback to the NC/DTWG during a series of conferences scheduled for March 1989.

Emphasis in the second phase of the group's discussions was placed on assessment processes; however, as previously discussed, very little information about the meetings exists in the National Archives (TNA). This clearly restricts the analysis of the NC/DTWG's negotiation process in the lead-up to the publication of their *Final Report*, and as a result the discussion that follows focuses on responses to the content of the document, rather than its background.

NC/DTWG's *Final Report*, June 1989

In June 1989 the NC/DTWG's *Final Report* was published. The technology education community may have wanted a more technically and vocationally geared curriculum, which supported their view of an educational system that enabled 'young people to do all those laudable things that contribute to the "nation's wealth"'; however, Parkes and the

NC/DTWG, were clearly looking towards broader social and educational accomplishments that would help prepare students for cultural and technological change in their surrounding environment. As stated in the introduction to their *Final Report*:

> The aim of our proposals for design and technology is to prepare pupils to meet the needs of the 21st century: to stimulate originality; enterprise; practical capability in designing and making and the adaptability needed to cope with a rapidly changing society.[5]

This principle fed into the social impetus that underpinned the document and highlighted holistic qualities:

> the ability to work constructively with others, a spirit of enterprise (taking initiatives and risks, seeing opportunities, identifying needs) self-discipline, persistence in the day of difficulties and a sense of social responsibility.[6]

Capability and learning through experience now stood at the heart of the NC/DTWG's proposals as a new form of knowledge acquisition and the revised attainment targets were still centred around a basic premise of there being four stages within the design and technology process (with the fifth relating solely to IT).

The *Final Report* reiterated that 'design and technology was not intended to be a 'practical subject' in the traditional sense and emphasised the importance of avoiding 'narrow vocationalism' leading to specific career paths or, in regard to craftsmanship, 'the pursuit of perfectionism'. Instead, the group recommended weaving together knowledge gained from other subjects, particularly science, mathematics, English, history, geography and art, on the

5 WO/DES, *National Curriculum Design and Technology Working Group Final Report*, (London: HMSO, 1989), p. vii.
6 WO/DES, *NC/DTWG Final Report*, (London: HMSO, 1989), p. 4.

basis that instilling an understanding of technological change would mean pupils had a better idea of 'the ways in which it is restructuring the workplace and influencing lifestyles'.

Although, the NC/DTWG's recommendations for design and technology would face a series of revisions in the hands of the National Curriculum Council, the Group's work represented an important critical shift in the presentation of technology education. As Kimbell summarised, whereas previously technological outcomes had been associated with making items and then understanding their 'social impact', the NC/DTWG's approach centred around 'technological processes (design, development, manufacture and testing) that generates the outcomes' with the result that, in theory at least, pupils were 'transformed from passive recipient into active participant, not so much studying technology as being a technologist.'[7]

National Curriculum Council (NCC) remit and consultation process

Upon the publication of their *Final Report* in April 1989, the NC/DTWG was dissolved and responsibility for the new subject passed over to the National Curriculum Council (NCC) in the summer of 1989. The NCC were charged with consulting on the recommendations before preparing the final guidelines for implementation in schools. No further records pertaining to the process or feedback were located in The National Archive's records, with the exception of references to some 650 letters written by members of a religious group vociferously opposed to the use of computers in schools.[8]

7 Kimbell, *Assessing Technology*, p. 47.
8 London, TNA, *National Curriculum (NC): Department of Education and Science papers relating to the establishment and development of the policy towards a full NC, 1988 'National Curriculum – Design and Technology Interim Report of Subject Working Group, 1988-89*, ED 183/88, 'DGG/WMB', Letter to Lady Margaret Parkes, 31 July 1989.

As previously discussed, in the early 1990s advocates of technology education had drawn attention to what they consider to be the flawed membership of the NC/DTWG in relation to the recommendations for National Curriculum design and technology. To date, however, comparatively little reference has been made to the membership of the NCC and those involved in working up the 1990 Technology Orders ready for implementation in schools. In part, this is likely to be because the membership of the NC/DTWG was public knowledge and the membership of the NCC was not; although it is to be expected that those involved in the evolving subject community would have had informal knowledge about who the members of the NCC were and what their stance on design and/or technology might have been.[9] To aid an understanding of who had control over the final iteration of the 1990 Technology Orders, it therefore appears pertinent to reflect on the membership of the NCC. This is especially relevant given the perceived 'vulnerability' of design and technology to the partisan approaches that the DES had been so keen to avoid in the formation of the NC/DTWG.

The DES files at TNA provide little insight into the NCC's membership or their negotiations. It is apparent that technology was assigned to NCC Sub-Group B, who led a six-month consultation exercise before drawing up the final policy document. It is also notable, although not widely cited, that from 1989 to 1991, NCC Sub-Group B was headed by Professor Paul Black, professor of science education at King's College. Black was a staunch advocate of technology education as it related to the science curriculum. He had helped set

9 Kimbell, for example, alludes to having 'reliable sources' willing to provide insider knowledge about internal debates going on 'behind closed doors', see Kimbell, *Assessing Technology*, pp. 93–94.

up the Nuffield Chelsea Curriculum Trust as an independent commercial publishing wing for school curriculum resources in the 1960s, before taking up a position on various government education committees during the late 1980s and early 1990s, including chairing the government Task Group on Assessment and Testing (TGAT) between 1987 and 1988.[10]

Working with Geoffrey Harrison, professor of technology at Trent Polytechnic (now Nottingham Trent University) who was the former project lead on Project Technology (1967–1972), Black had set out his vision for technology education in the 1985 report, *In Place of Confusion*, which included recommendations for a technology, moving it away from the auspices of CDT toward a more applied science model that was structured around 'capability tasks' comprising individual projects in which students 'identify and need and construct an optimum solution.'[11] It is notable that the NC/DTWG's concept of design and technological capability, as outlined in their recommendations, differed from Black and Harrison's model by being context-based and determined by complex multiple constraints that were comparable to real-world situations and pupil experience.[12]

While Black and Harrison's expertise in technology had been noted by the DES in the context of National Curriculum Science, there is no indication in the TNA records that either individual had been invited to become members of the NC/DTWG. Neither did they present papers in the group's initial consultations between May and September 1988, although, it is

10 British Educational Research Association (BERA), 'Paul Black, Professor', [online] <https://www.bera.ac.uk/person/paul-black> [accessed 1 December 2021]
11 An extract from the pamphlet *In Place of Confusion* is given in, Paul Black and Geoffrey Harrison, Technological Capability' in *Teaching Technology*, ed. by Frank Banks, (London: Routledge, 1994), pp. 13-19, (p. 17).
12 DES/WO, *National Curriculum Design and Technology Working Group Interim Report* (London: HMSO, 1988), pp. 17-19.

possible that they may have been involved in the second planning stage, where archival records are not available. Without knowing the extent of Black's role in NCC Sub-Group B and given that the NCC had a very limited timescale to rework the NC/DTWG's proposals or make significant changes, it is difficult to assess his involvement in the final decision-making process around National Curriculum technology. Nonetheless, given his background and his ideological position on technology education, it seems likely that he would have been engaged with, and perhaps even have signed off on, the Technology Orders on behalf of NCC Sub-group B. It is on the basis of this evidence that it seems only fair that the criticism apportioned to the NC/DTWG by Robert McCormick, Peter Medway and Michael Barnett should be at least in part shared by the NCC.

National Curriculum Orders for Technology, 1990

The NCC took the decision to change the name of the subject back to National Curriculum technology on the basis that the NC/DTWG's proposals contained two profile components, one in design and technology and a second in information technology, and that calling the subject 'design and technology' risked implying that the first component of the subject had a greater status.[13] This also overcame the issue that 'technology' was the original name of the subject, as listed in the 1988 Education Act. According to McCormick, this decision proved fairly arbitrary, because the constant renaming of the subject and its anticipated

13 Despite the NCC's stated intention, nomenclature proved to be a decision that continued to cause confusion and while this digression was partially settled by the 1995 Statutory Orders for Design and Technology, the role of design and/or technology continues to be a matter of debate. For example, see, Alison Hardy and Eddie Norman, ed. by, *Redesigning D&T.. Talking …Thinking …About Design and/or Technology,* (Oxford, Loughborough Design Press, 2021).

delivery through former CDT workshop spaces meant that teachers interpreted the 'design and technology' component as the 'main ingredient of the subject' anyway.[14]

The NC/DTWG's concept of a cross-curricular approach and the recognition of capability as a fundamental feature of the design and technology curriculum remained intact in the Statutory Orders, with the addition of examples of the types of projects that teachers might undertake to provide classroom context now accompanying the attainment targets. However, the results of the NCC's six-month consultation indicated that the generality of the NC/DTWG's Programme of Study for design and technology curriculum was problematic, so the number of categories were reduced from the sixteen options that had been recommended in the NC/DTWG's *Final Report* down to four broader groupings (**Table 3**).[15] Whereas the NC/DTWG's programmes of study had mapped across to the four attainment targets for design and technology (with the fifth primarily relating to information technology) in 1989, the revisions now meant that there was no connection between them.[16] The implications of this approach led Kimbell to the conclusion that responsibility for the failure of the first incarnation of technology lay with the prescription and adjustments made to the Technology Orders, which represented: 'multi-level modelling of an awesome kind: four programmes of study; leading to three classes of outcome; in four materials; from within five contexts; delivered by five 'subjects. It was completely mad'.[17]

14 Robert McCormick, 'Technology and the National Curriculum: The Creation of a "Subject" by Committee?', *The Curriculum Journal*, 1 (1990), 39–45, (p. 41).
15 See, NCC, *Technology in the National Curriculum* (London: HMSO, 1990).
16 See McCormick, Michael Barnett, 'Technology, within the National Curriculum and Elsewhere', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (London: Falmer Press, 1992), 84–104; Peter Medway, 'Constructions of Technology: Reflections on a New Subject', in *Technological Literacy and the Curriculum*, ed. by John Beynon and Hughie MacKay (Basingstoke: Falmer Press, 1992), pp. 65–83; and Kimbell, *Assessing Technology*, p. 51.
17 Kimbell, *Assessing Technology*, p. 58.

Programmes of Study for design and technology, NC/DTWG Interim Report (1988)	**Programmes of Study for design and technology, NC/DTWG Final Report (1989)**	**Programmes of Study for Technology, NCC Guidelines (1990)**
1) Media for design and technology - Materials and components - Energy - Information 2) Influence on practice - Business and economics - Tools and materials - Mathematics - Aesthetics 3) The characteristics of design and technology products - Systems - Structures - Mechanisms 4) The application and effects of design and technology activity 5) Skills for design and technological activities - Exploring and investigating - Imaging and speculating - Organising and planning - Making - Communicating and presenting - Appraising	1) Materials and Components 2) Energy 3) Business and economics 4) Tools and equipment 5) Aesthetics 6) Systems 7) Structures 8) Mechanisms 9) Exploring and investigating 10) Imaging and generating 11) Modelling and communication 12) Organising and planning 13) Making 14) Appraising 15) Health and safety Social and environmental	1) Developing and using artefacts systems and environments 2) Working with materials 3) Developing and communicating ideas 4) Satisfying needs and addressing opinions

Table 3: Programmes of Study for the Design and Technology component of National Curriculum Technology, 1988-1990

Adapted from: Richard Kimbell, *Assessing Technology, International Trends in Curriculum and Assessment* (Buckingham: Open University Press, 1997), p. 47, 48, 57.

The National Curriculum Technology Orders were passed through parliament in April 1990 and teaching was expected to commence in primary and secondary schools at the start of the next academic year, September 1990. Adding to the sense of 'madness' associated with the implementation of the National Curriculum, the orders were retracted and reissued twice during this period, which did little to instil confidence among teachers and did not give schools time to prepare. Recalling the deeply entrenched historical debates that were associated with the design and technology curriculum, specifically the divisions between technical and academic education and between the arts and science, it was incredible to imagine that a satisfactory solution could be arrived at in such a short amount of time.

Conflicting responses

It was soon apparent that the NC/DTWG's proposals fell short of providing the more practical and vocationally orientated curriculum that technology education specialists wanted. For Barnett, for example, the NC/DTWG's recommendations did not adequately address the emphasis on mathematics and science that was within their original terms of reference and thus failed to address the government's concerns about 'the national crisis in advanced engineering skills'.[18] Meanwhile for Medway,

> Despite the planned inclusion of technology, the planned National Curriculum of England and Wales represents a partial rejection of practical education, even though such an education, as represented by the Technical and Vocational Education Initiative, was introduced as a contribution to national economic revival.[19]

18 See, Barnett, p. 94.

19 Peter Medway, 'Issues in the Theory and Practice of Technology Education', in *School Science and Technology: Some Issues and Perspectives*, ed. by E. W. Jenkins ([n.p.]: Centre for Studies in Science and Mathematics Education, 1993), pp. 15–40 (p. 35).

The delineation between the two camps here comes into focus when contrasted with Jim Morley's conclusion that one of the most important features of the NC/DTWG's recommendations, to educational practitioners and theorists at least, was inclusion of the 'capability' as a core feature of the new subject. Cited by Morley, in 1989, a DES document called 'Design and Technology for Ages 5 to 16' specifically stated that, '[T]he inclusion of design and technology as a foundation subject in the National Curriculum is a recognition that the capability to investigate, design, make and appraise is as important as the acquisition of knowledge.'[20] For educationalists this underscored underpinning D&T was,

> …developing the capability to operate in the made world, understanding the importance of knowledge in action, of investigation and appraisal and, not least, the idea that confidence and capability in the process skills associated with designer will provide useful and transferable skills for future life.[21]

For Morley this meant that the recommendations were 'less pre-vocational and more generally educational in nature; less of a preparation for the minority to undertake very specific practical activities, and more of a preparation for the majority for the common challenges that will confront them in dealing with modern life.[22] Kay Stables similarly asserted that '[d]esign and technological activity has increasingly come to be seen as a fundamental human activity which is characterised by a desire to change or improve some aspect of the made world.'[23] With 'design and make' becoming an increasingly central feature of National Curriculum technology, Kimbell suggested that the NC/DTWG's

20 DES/WO, *Proposals of the Secretary of State of Education and Science and the Secretary of State for Wales, Design and Technology for Ages 5 to 16*, (London: HMSO, 1989) qtd in Jim Morley, 'The Challenge for Design and Technology Education', in *Issues in Design and Technology Teaching*, ed. by Su Sayers, Jim Morley, and Bob Barnes (Perth: Routledge, 2007), pp. 3–12. (p. 10).
21 Morley, 'The Challenge for Design and Technology Education', p. 10.
22 Ibid.
23 Kay Stables, 'Who are the Clients in School Based Design and Technology Projects?' in *IDATER 93*, ed. by, John Smith (Loughborough, Loughborough University of Technology, 1993) pp. 50–53, (p. 50).

proposals represented a significant discursive shift in educational thinking, providing students with a 'bridge' between 'what is and what might be' and that the process of 'identifying real-world problems and engaging in design and make projects' in order to 'improve things' presented a radical switch in ways of thinking.[24]

To briefly summarise the situation, for technology educators like Medway and McCormick, the new subject was not robust enough, it lacked clarity and it was built around a flawed conceptualisation of design and technology education that did not include enough 'making' or evidence of technical capability. They blamed the inclusion of design for this and sought to realign the subject with the sciences and mathematics to confer greater status. For supporters of the 1990 design and technology curriculum approach, like Stables, Kimbell and Morley, for whom there was plenty of potential for new research opportunities and teaching approaches, the issue was the scale of the change in a short time period and the pressure on teachers to perform.

Preparing for implementation of the National Curriculum Technology Orders

With the launch of technology there was an immediate need for financial support for specialist equipment, new technology and dedicated classroom spaces that were suitable for the mixture of practical, computer-based and desk-based work. The NCC and Her Majesty's Inspectorate (HMI) were alert to the challenges of a cross-curricular approach that brought together the subjects home economics (including textiles); business studies; art; CDT and information technology, they published a series of booklets that explained the

24 Kimbell, 'Assessing Technology', p. 46.

recommendations and how they might be applied in schools-based settings. Aware of the scale of the curriculum changes that were underway and the pressures of the school education system to adapt to new policy and uncertainty surrounding what teachers were supposed to be teaching under the banner of technology, organisations like the Design Council and the Design and Technology Association were also actively working to support the curriculum and help teachers with examples of good practice and new resources.

The Design Council had historically been involved in developing resources and collating examples of good practice and producing resources that could be used in schools. Recognising that textbooks were particularly scarce at primary school level, they had launched *The Big Paper* in 1987, part funded by the Crafts Council and WHSmith, to accompany their magazine for secondary schools, *Designing* (**fig. 9**). Another initiative for primary schools was 'Wolf Proof House', a touring exhibition that encouraged teachers to use fairy stories to come up with design problems and solutions. This complemented the Design Council's annual 'Design Week', a touring exhibition and award scheme staged during the early 1990s that offered schools the opportunity to promote examples of strong design work and share best practice. Ultimately, however, the Design Council's ongoing involvement with National Curriculum development was complicated by their financial relationship with and reliance on funding via the Department of Trade and Industry (DTI) and by an increasing awareness of the 'chaos' surrounding technology.

Figure 9 Sample of front covers, Design Council magazines for schools, *The Big Paper* and *Designing*, 1987-1992

Image: Wellesbourne, Design and Technology Association, private archives [photographs by the author, 2015]

A letter written by Anthony Tomei, director of the Nuffield Foundation, to Shearman in 1993 expressed his concern that 'anything to do with design and technology has seemed to go beyond anyone's control'. Noting the scarcity of resources and reiterating the belief that the subject needed more time to become established, Shearman replied defending the new area of the curriculum and arguing that it would need longer to bed down in schools.[25] However, in 1993, budget cuts were announced, directly affecting the operation of the Design Council, as well as the Arts Council and Crafts Council (although not the Engineering Council, who drew most of their income from the ENG-C examination).

In contrast to the Design Council, the Arts Council continued to designate education as a priority area and as a result the budget cuts did not have a substantial impact on their activities.[26] While the Arts Council had a remit for design, they were heavily embroiled in the development of National Curriculum art and their attention was firmly focused on educational policy development as it concerned art, music, dance (as part of Physical Education or PE) and photography.[27] The National Curriculum Art Working Group (NC/AWG) had been one of the last of the government's working groups to convene and had defined the relationship between art and design, in the context of National Curriculum art, as follows:

> while noting and indeed welcoming that design is linked with technology, we feel that the design component in a broadly based art course cannot be overlooked. We have

25 Brighton, University of Brighton Design Archives, Design Council, Consultative Committee, 'Letter from R. Shearman to A. Tomei 20/12/1993'.
26 London, V&A Collections Archive of Art and Design, *Arts Council Education Committee 1993/194*, ACGB/116/159 'Notes from LEA Arts Advisory Structure National Convention, 30/9/93'.
27 The NC/AWGs final recommendations ended up coinciding with a review of the whole of the National Curriculum that was instigated in 1993, so the subject was not formally rolled out until 1995. As discussed further in Roy Prentice and Tony Dyson, 'Art and Design: Developments and Dislocations' in *School Subject Teaching: The History and Future of the Curriculum*, ed. by Ashley Kent, (London, Koogan Page, 2000), pp. 213–237.

> therefore used the terms 'art' and 'art and design' almost interchangeably on occasion.[28]

Keen to influence the membership of the NC/AWG, the archives of the Arts Council Education Unit (AC/EU) show that from 1987 to 1990 they repeatedly lobbied government about their preferred nominees.[29] A memo dated 18 June 1990 from Sue Harries, Education Officer, attests to their desire to influence the committee membership and the value associated with representation:

> …once we see the composition of the working parties, we will know what sort of recommendations they are likely to come up with, and we will also be able to influence, should there be any members of either the Music Working Party or the Arts Working Party who are known to us, and who we know to be sympathetic to our point of view.[30]

However, unlike the Crafts Council, who achieved representation on the NC/AWG via Lady Marina Vaizey, the Arts Council had limited success. Reflecting on the outcome, on 5 July 1990 Harries sent the secretary general of the Arts Council, Anthony Everitt an internal memo explaining that,

> The make-up of the Working Parties will be announced today and I'm afraid it is not good news for either Music or Art. We are delighted that Gillian Moore at least is on the Music Working Party, and that F.P. Young has said that he will feed in any information from the Arts Council through directly to the Working Party and makes sure that it is taken account of and taken seriously, provided we keep it brief and to the point![31]

28 DES/WO, *National Curriculum Art Working Group, Interim Report*, (London: HMSO, 1990).
29 Arts Council records indicate that the DES, via the Office of Arts and Libraries, asked for the Arts Council's comments on the terms of reference for the National Curriculum Arts Working Group (NC/AWG) and also to 'the contribution which art can make to the attainment targets for design and technology set out in the (draft) Order for Technology as well as the contribution of design and technology to art.' See, AAD, *Education Unit: Education Reform Act: submissions to working parties*, ACGB/110/58 'Letter from Office of Arts and Libraries to Anthony Everitt 4/4/1990.'
30 AAD, ACGB/110/58, 'Arts Council Internal Memo. To: Ian Reid, From Sue Harries, 18/6/1990'.
31 AAD, ACGB/110/58, 'Arts Council Internal Memo, to Anthony Everitt, From Sue Harries, 5 July 1990'

Changing tack, the AC/EU decided to 'take greater advantage of its influence as an establishment body and use this as a tool for developing national change' and to 'cultivate' key people. Aware that other groups were vying to influence curriculum development, it was noted, for example, that the BFI had already met with Baker; and it was decided that the AC/EU 'should now follow suit'. They attempted to exert pressure on government via regular correspondence and meetings with the new Secretary of State for Education and Science, Kenneth Clarke, and his administration team: Duncan Graham and latterly Dave Pascal, chairman at the NCC; Ron Dearing, head of the SCAA; and with members of the newly established school assessors the Office for Standards in Education (OFSTED).[32]

With energy focused on the development of National Curriculum art, the Arts Council did not appear overly engaged in the debates that were brewing about the implementation of technology. This might have been considered unusual, given that the art education community had publicly engaged in the NC/DTWG's consultation programme, and representatives of the NSEAD had stressed that the new approach to design in the National Curriculum was not modelled on previous iterations of the craft, design and technology curriculum.[33] David Thistlewood, co-founder and editor of the NSEAD's *Journal of Art and Design Education*, for example, had made the case that both art and design and design and technology shared the same educational responsibility, 'to develop the imagination and cognition in relation to a set of

32 See AAD, ACGB/116/146 (2of 2), 'DES general 1989–1993'
33 See, for example John Steers, 'Design and Technology in the National Curriculum', *Journal of Art and Design Education*, 9/1 (1990), 9–22, and 'Current Issues in Art and Design Education: The NSEAD Response to the Report of the National Curriculum Working Group for Design and Technology', *Journal of Art and Design Education*, 9/1 (1990), 23–37.

circumstances that are identifiably “of the real world”, and to promote creative intervention in this world of constructive events.’[34] Given that the Crafts Council had included a number of design and technology representatives on their educational advisory board in the late 1980s, including Ken Baynes, David Jinks (of the National Curriculum Science Working Group) and Peter Green, it would appear that emphasis had been shifted to the evolving plans for the art curriculum and technology was somewhat abandoned.

Design and Technology Association

An emerging group with an important contribution to the future of technology was the Design and Technology Association, who in theory represented all stakeholders, including those in industrial and professional backgrounds. Prior to announcements about the National Curriculum, and about the role of technology and design within this framework, a corpus of subject associations variously represented the subjects art, design, craft, technology, home economics, computing and business studies. Early attempts had been made by the Design Council to create a cross-curricular group, but this ambition had not been fully realised and with the arrival of National Curriculum technology the need to bring people together became all the more urgent.

Membership of the group included representatives from the Association of Advisers in Craft, Design and Technology (AACDT), Educators in Design, Craft and Technology (EIDCT), the National Society for Art and Design Education (NADE) and International Society for Craft,

34 David Thistlewood, ‘Introduction’, in *Issues in Design Education*, ed. by David Thistlewood, (Harlow: Longman in association with the National Society for Art and Design Education, 1990). p.3–7 (p. 7)

Design and Technology (ISCDT), the Association of Design and Technology Educators (DESTECH) and the National Association of Teachers of Home Economics (NATHE), who would later become more formally aligned with the Design and Technology Association.

The Design and Technology Association was originally funded by a grant from the Smallpiece Trust, a charity set up to promote design education and intended to be like the Association for Science Educators (ASE). According to a newspaper report in *The Times*, which significantly ran with the title 'Forum for *Design* Teachers' [my emphasis] the Design and Technology Association was established with the 'approval' of Kenneth Baker and the exclusion of the word craft in their title was significant:

> it emulates the working party's interim report by dropping the word craft from the title now given to the subject in schools craft, design and technology. The move, likely to be fiercely resisted by traditionalists, is seen as a means of updating the subject's image in line with its new importance in the national curriculum.[35]

According to *The Times* article, founding members of the Design and Technology Association had been working with the NC/DTWG on proposals for the technology curriculum and that they drew on an approach adopted in private schools in which 'the subject pervades the curriculum, with pupils using computers to write English essays and state of the art equipment in other subjects.'[36] *The Times'* article also indicates the Design and Technology Association was originally led by a group at the Westminster Centre, based at Westminster College of Higher Education in Oxford, whose primary objective was to enhance the use of

35 Douglas Broom, 'Forum for Design Teachers; Design and Technology Association', *The Times*, 30 January 1989.
36 Ibid.

technology in the private sector. Following enquiry, however, no further information about the Westminster Centre has been forthcoming.

This contemporary account of the Design and Technology Association is interesting, firstly because it indicates that protagonists did not assume that technology would be taught as a separate subject, and secondly because it describes an approach based on best practice in the private education sector. Funding and resource for technology in this context would have been more substantial than in state schools, and pupils were generally expected to go on to higher education, rather than employment, meaning there was less need for vocational or business-facing education.

In its original incarnation, the Design and Technology Association was managed by a small steering group led by Gordon Warren, chief executive (1989–1994). John Eggleston was the Design and Technology Association's chair and had allowed the group to take over publishing a journal he had originally set up called *Design and Technology Teaching: A Journal of New Approaches*, which itself had emerged out of *Studies in Design Education and Craft*, a resource originally developed as part of the Keele Project in 1967. It was anticipated that the Design and Technology Association's membership would be drawn from a far wider pool of teachers and educators than previous specialist subject associations had done, including practitioners in primary, secondary, special education, independent schools, further

education (FE) establishments, training support agents, advisors, inspectors, local education authorities, international parties, industrial and professional partnerships.[37]

Pending the formal introduction of National Curriculum technology in schools, the Design and Technology Association's membership grew rapidly, and an advertisement printed in one of their early publications claims that after just one year they represented over 1,000 members. Their primary mission, they stated, was to help teachers deliver National Curriculum technology and to mediate the changes that the new cross-curricular approach required. In this regard, the Design and Technology Association aimed to:

> act as a catalyst for well-planned change and development. Such changes include improvement in resources, the professional development of teachers, assessment and recording techniques, teaching methods, and the co-ordination of contributing specialists.[38]

As it was a 'new' subject, there was an immediate need and urgent demands for new classroom textbooks and resources that complied with the National Curriculum programmes of study and attainment targets for technology. With very little time to prepare, these resources were typically based on the NC/DTWG's recommendations, rather than the NCC's Statutory Orders, and complementing the worked examples were courses, conferences and workshops, as well a forum for discussion across the wider community of design and technology professionals, educators and industry, government representatives, training agencies, and other subject associations.

37 The Smallpiece Trust consulted with other subject associations and undertook a feasibility study, before agreeing to fund their launch in 1989. These events were detailed in a section of called 'The Aims of Design and Technology Association' in one of Association's first publications. See John Eggleston, *Delivering the Technology Curriculum: Six Case Studies in Primary and Secondary Schools*, (Chester: Design and Technology Association in association with Trentham Books, 1990), pp. 33–35.
38 John Eggleston, *Delivering the Technology Curriculum: 2* ([n.p.]: Design and Technology Association in association with Trentham Books, 1991). Back page.

One example of the Design and Technology Association's first publishing initiatives, which, according to Warren, proved to be exceptionally popular, was a series of booklets, called *Delivering the Technology Curriculum*.[39] Edited by Eggleston and Warren, the series explained the National Curriculum guidelines for technology and provided examples of good practice in schools, drawing particular attention to the ways that project leaders might achieve a cross-curricular approach by collaborating with different school departments. Acknowledging the strain that teachers were under, Warren advised that while the new approach was difficult to achieve, 'it was possible, through careful planning and effective use of resources'.[40]

More Design and Technology Association resources followed, including *Imagineering*, intended to encourage collaborative projects between industry and schools and based on the notion that 'everything that we use relies in some way upon Engineering and Technology'.[41] Written in conjunction with the Engineering Training Board (ENTRA), the text spoke to campaigners who were keen to strengthen the links between the science and mathematics curriculum and the delivery of practical skills, while also fulfilling the requirements for National Curriculum technology. At this point in time, it appeared that the

39 Ivor Goodson and Colin J Marsh notes that there exists a hierarchy within school subjects which has traditionally determined the allocation of resources and funding. A higher status subject is usually one that is more 'academic' and attracts more able students. See Ivor Goodson and Colin J Marsh, *Studying School Subjects: A Guide* (London: Falmer Press, 1996), p. 45.
40 See, John Eggleston & Gordon Warren, *Delivering the Technology Curriculum: Six Case Studies in Primary and Secondary Schools* and Gordon Warren, *Delivering the Technology Curriculum, No. 4* (Cardiff: Design and Technology Association 1994).p. iv.
41 David Ross, *Imagineering*, ([n.p.]: Design and Technology Association, 1992), p. 3, 21.

Design and Technology Association was straddling all aspects of technology, including cross-curricular approaches and the more technologically driven science-based approaches.

Dissatisfaction with the implementation of National Curriculum technology in schools

Despite the resourcing efforts, initial attempts to deliver technology proved deeply problematic as administrative issues impeded the cross-curricular approach that drew together learning from CDT, home economics, business studies, information technology and art. According to Carrie Paechter, the challenge was particularly acute in secondary schools where staff maintained their own budgets and managed their own resources from within a departmental structure. The Technology Orders and related classroom resources were aimed at teachers who were not familiar with working with each other, and Paechter claims, the cross-departmental approach proved untenable in most schools, threatening the hegemonic order and exposing ructions between disciplines.[42] These problems were aggravated by a lack of time to prepare for the new guidelines in schools; complaints about the restrictive physical spaces that were available; limited resources and budgets; issues with timetabling; and an inexperienced and disenfranchised body of teaching staff.

Another factor working against the successful implementation of D&T was the entrenched ideological divisions between stakeholder groups. David Layton (former member of the NC/DTWG) argued that these 'powerful external-to-schools influences', each had an ideological frame of reference that put them firmly at odds with one another (**Table 4**).[43]

42 Carrie Paechter, *Changing School Subjects: Power, Gender and Curriculum* (Bury St Edmonds: Open University Press, 2000), p. 63-65.
43 David Layton, *Values in Design & Technology*, (Loughborough: Department of Design and Technology, University of Loughborough, 1992), pp. 6–9.

Layton's Stakeholder Categories (1992)	Key Representatives	Core Values for Technology	Perspective on National Curriculum design and technology
Economic functionalist	National Institute of Economic and Social Research	Vocational education to enhance nation's economy	Guidelines too broad with too much focus on designing at the expense of making
Professional technologist	Engineering Council	Rigour, industrial standards, skills (particularly engineering)	Guidelines too general and ill defined
Liberal educator	Not specified by Layton, but cold include Design Council, Richard Kimbell and John Eggleston – essentially advocates of design education	An epistemology based on technological knowledge	On the right lines in terms of holistic position
Sustainable developers	Intermediate Sustainable Technology Group	Global responsibility, improving quality of life for future generations	Favourable, but with risk of conflict around business objectives v. sustainability
Women's groups*	Women in Technology History (WITH)	Reposition women's place in technology and address gender bias	Favourable as technology education for all is step towards countering inequalities

Table 4: David Layton's National Curriculum Design and Technology Stakeholder Categories, 1992

Contents of table adapted from David Layton, *Values in Design and Technology* (1992), pp. 6–9.

*Layton noted that it was a stretch to designate women as a single constituency, but nonetheless did so on the basis that he wanted to capture the distinct perspectives on technological activities from groups like the Women in Technology History group (UK) and the Institute of Women and Technology USA.

According to Layton the problem with technology was 'not the area of study itself, but the number of stakeholders, and specialist communities… each with its own traditions, its own agenda, or its own purpose.'[44] Of the five groupings of stakeholders in D&T, Layton indicated that the liberal educators, sustainable developers and women were relatively satisfied with the 1990 Technology Orders and with the NC/DTWG's recommendations. The economic functionalists and professional technologists, however, represented by the National Institute of Economic and Social Research and the Engineering Council respectively, had become increasingly aggrieved by what they considered to be an 'ill-defined' and all too 'general' approach to technology.[45]

Layton's paper helped to realise the differences in opinion between stakeholder groups, as well as countering claims that D&T was 'created by committee'. It should be recalled, that Layton had a background as a science historian and was well acquainted with the trajectory of subject development prior to the National Curriculum, which to a greater extent relied upon power struggles between different groups with a vested interest in the field. His stakeholder analysis was, in this regard, a way of establishing D&T's rite of passage as a legitimate school subject that had been negotiated over time and space long before the introduction of a National Curriculum policy.

According to Ruth Wright, the struggle between these stakeholder groups came to a head in 1992, when critics of National Curriculum technology, who had either not been able to influence or not paid adequate attention to developments during the planning and

44 Layton, *Values and Design & Technology*, p. 2.
45 Ibid., p. 2-3.

consultation period, found themselves dissatisfied with both its focus and content and began to mobilise. Having analysed newspaper reports printed in the popular press between May and June 1992, Wright notes that the Engineering Council, who might conventionally be associated with the economic functionalists, but were found to be more closely aligned with the professional technologists, sought to enhance society's perception of engineering and technology more broadly. Economic functionalists were pitted against the liberal educators, represented by the Design Council, Kimbell and Eggleston, who were supporters of holistic educational values through design education.[46]

The Engineering Council and the 'crisis of technology', 1992

The Engineering Council's criticism of National Curriculum technology was unusual on two counts. Firstly, the organisation had always maintained more of a vested interest in further education, due to the income gained from engineers sitting for the Certificate in Engineering (C-Eng). Secondly, unlike other public advisory bodies, the director general of the Engineering Council, Dennis Filer, had been a member of the NC/DTWG, where he presumably had ample opportunity to raise any concerns.

In terms of projects and publications, the Engineering Council's education officer Michael Harrison had been involved in the Technology Education Project, with Layton, in 1985, and was co-author of one of the reports that formed the basis of the NC/DTWG's conceptualisation of design and technology.[47] This involvement, again, makes it all the more

46 Ruth Wright, 'The 1992 Struggle for Design and Technology', *Design and Technology Education: An International Journal*, 13 (2008), 29–39, (p. 30).
47 See, West Bretton, National Arts Education Archive (NAEA), Burley in Wharfdale Teachers Centre, The History Craft and Design and Technology Library, BHBWBK00785, David Layton, Neil Bolton, Michael Harrison,

surprising that the Engineering Council became staunch campaigners against the conceptual basis of the 1990 Technology Orders. Wright, who writes about the 'struggle' for D&T in 1992 in a personal capacity, but who also worked for the Engineering Council, notes there is:

> little extant evidence from before 1992 of the Engineering Council's policy position or value place upon craft, design or technology or home economics education at school's level. However, the Engineering Council was engaged at the time in various related projects and programmes with schools.[48]

Although enquiries were made, it has not been possible to expand upon the Engineering Council's engagement in policy debate, due to the absence of archival records relating to technology in schools pre-1995. The only original sources that have been located and which give an indication of the Engineering's Council's central concerns in the late 1980s and early 1990s have been extracted from the Museum of Science and Industry (MOSI) archives and includes the papers of Jack Blears, a statistician and researcher commissioned to work for the Engineering Council between 1986 and 1993. While there is little in the files that directly relates to educational initiatives at schools level, what is apparent is the Engineering Council's keen interest in comparator figures between the number of engineers in the UK and Japan, which at the time was billed by the Conservative government as a key manufacturing competitor. In several instances, Blear notes the DES figures provided by the National Institute of Economic and Social Research are overinflated or misrepresented, and the actual figures indicate that the funding from the UK government is 'more generous than

Technology Education Project, Paper 1 (University of Leeds, 1985) and 'Papers Submitted to the Consultation: Technology Education Project Paper 1 (1985)'.
48 Wright, p. 31.

most'.[49] Blears advised the Engineering Council in their response to government, which is centred around retaining, if not increasing, funding for qualified engineers.

As early as 1987, Blears noted that the Engineering Council was alert to the fact that Kenneth Baker was sympathetic to science and technology education and that the Engineering Council was working to pit the UK against Japan in terms of technical education to justify their call for more investment in engineering courses. In private notes, representatives of the Engineering Council acknowledge to Blears that there is a need to attract enough students to fill these places, which relies on 'influencing a sufficient number of youngsters'.[50] This prospect was problematic given that, '[T]he projected demographic decline in the number of 18 year olds will make this even more difficult in the 1990s' and in recognition that the situation would reach a 'nadir in 1995 when the number of 18 year olds will be approx. 70% maximum', meaning there was an 'urgent need for action'.[51] In other words, the Engineering Council needed ways to strengthen the cohort of school pupils who would go on to study engineering at university, in order to retain government investment courses and secure the Engineering Council's revenue.

The Engineering Council's biographers, Colin Chapman and Jack Levy suggest that by 1989 there was a 'clear change in emphasis, if not direction' within the Engineering Council on general educational matters and disdain for National Curriculum technology, which was

49 Manchester, Science Museum, Museum of Science and Industry (MOSI), Jack Blears Papers, YA2001.129. See, YA2001,129/4/3/7/1/51 EPC Research Unit no 3017 'Japan/UK comparison of output level of level 6 Engineering Graduates (Jack Blears, University of Liverpool, Jan 1988)' and correspondence between Blears and Denis Filer (Engineering Council) 31 October 1988 -5 November 1988.
50 MOSI, YA2001,129/4/3/7/2/32, 'Notes', October 1987.
51 Ibid.

criticised for diverting 'a lot of money to domestic science, largely because it was politically convenient to include this activity within technology' at the expense of 'engineering and technology'.[52] This frustration did not appear to have been picked up by Filer, who voiced his support for the NC/DTWG's proposals in 1990, stating that the introduction of D&T was destined to improve the capability of 'the first cohort of sixteen year olds after eleven years of education in design and technology in the National Curriculum.'[53]

The *Getting It Right* Report

Reviewing the publication dates of key reports commissioned by the Engineering Council in the 1990s suggests that they were actively attempting to amass evidence about the impact of the National Curriculum. After just five months of implementation in schools, the Engineering Council commissioned Alan Smithers and Pamela Robinson to produce a confidential briefing on the impact that the National Curriculum guidelines were having on schools in terms of local management and mathematics and physics teaching. Their findings, made available to the Engineering Council in August 1991, outlined headteachers' concerns over 'never-ending modifications to the National Curriculum', and pointed to ongoing issues with 'continuing staff shortfall in Technology and Modern Languages' and 'costs associated with delivering the Technology curriculum.'[54]

52 Colin R. Chapman, and Jack Levy, *An Engine for Change: A Chronicle of the Engineering Council*, 2004, p. 92, <https://www.engc.org.uk/engcdocuments/internet/website/The%20Engineering%20Council%201981%20%E2%80%93%202001%20(The%20Chronicle).pdf> [accessed 31 October 2021].
53 Denis Filer, 'Foreword', in Managing Design & Technology in the National Curriculum: A Co-ordinated Approach, ed. by Robin Murray (Oxford: Nuffield-Chelsea Curriculum Trust, Heinemann Educational, 1990), pp. 1–3.
54 Alan Smithers and Pamela Robinson, *Staffing Secondary Schools in the Nineties* (Manchester, University of Manchester, 1991), p. 17.

Throughout the 1990s and 2000s, Smithers and Robinson were commissioned by charities, government departments and professional bodies to produce over 50 reports on educational issues relating to English schooling. The Engineering Council had worked with Smithers and Robinson in the past, and on reports like *Gender, Primary Schools and the National Curriculum* (May 1991) and *The Shortage of Mathematics and Physics Teachers* (May 1988). A report by Smithers and Hilary Steedman, entitled *Every Child in Britain*, (1991) commissioned by Channel 4 and the Gatsby Charitable Foundation, compared education in Britain to other European countries, and highlighted a series of specific concerns around technology:

> Most recently we have been seeing an academic drift or 'inappropriate intellectualism' in relation to the teaching of 'technology' in our secondary schools […] The reason given for the changes in emphasis in Britain is that they make the subject more attractive to academically inclined pupils […] The rise of technology in our secondary schools has been at the expense of practical subjects, taught and examined in a practical way.[55]

This finding supported the assertions of the National Institute of Economic and Social Research, whom Layton had categorised as economic functionalists, who were staunch supporters of vocational education initiatives as they would improve the economy and bring the UK's system in line with other countries, including Germany and Sweden where technical education had a higher status. Indeed, Sigburt Prais, a member of the National Institute of Economic and Social Research and advisor to the Engineering Council, was a member of the steering group on the Channel 4 Commission on Education in 1991.

55 Alan Smithers and Hilary Steedman, *Every Child in Britain: Report for the Channel Four Commission on Education* (London: Channel 4 Television/Gatsby Charitable Foundation, 1991), p. 14.

Smithers, meanwhile, was a former member of the NCC, an appointment that must have occurred between 1989 and 1993, so while he claimed to have no political attachments, he certainly had first-hand knowledge about the debates and concerns of politicians and the government. One of Smithers' other attributes was his connections with industrial partners, including British Petroleum (BP), which gave him status as someone who, if not from industry (Smithers was primarily employed as a professor at the University of Manchester and later the University of Buckingham), nevertheless served as a representative of industry.[56]

In the summer of 1991, the Engineering Council commissioned a third report from Smithers and Robinson, originally intended to be confidential, this time focused on the implementation of National Curriculum technology. The report, entitled *Technology in the National Curriculum: Getting it Right*, was published in May 1992 and included a foreword by Filer that indicated his change of heart about technology:

> I have become increasingly alarmed at the level of concern about the development of school technology, expressed by teachers, students, parents, and educationalists. […] Action needs to be taken now if technology is to be a valuable part of the education of our children and if it is to be given any credibility and respect amongst the community at large and in industry.[57]

Smithers and Robinson's report was damning. National Curriculum Technology, they claimed, is a mess and '[W]hat has emerged seems to be very different from what was intended.'[58] Blame was apportioned to what they considered to be an intellectual and

56 See, 'Alan Smithers', Centre for Education and Employment Research, University of Buckingham, <https://alansmithers.com/staff/> [accessed 31 October 2021].
57 Alan Smithers and Pamela Robinson, *Technology in the National Curriculum: Getting It Right* ([n.p.]: Engineering Council, 1992), Foreword.
58 Smithers and Robinson, p. 5.

overly conceptual interpretation of the Secretary of State for Education and Science's original request for a subject based on 'designing and making' to a 'progressively generalised and abstract notion' of technology.[59]

The recommendations that featured in 'Getting it Right' were strongly geared towards the role of technology as a practical subject and got to the heart of Conservative policymaking discourse by linking industry with the nation's economic growth and aligning technology with the technical education programmes offered in other competitor countries. Contradicting the NC/DTWG's claims that their recommendations represented a new approach to education, Smithers and Robinson linked technology with CDT and based their theoretical underpinning on Black and Harrison's process-based model of technology education as outlined in *In Place of Confusion,* which took students through a series of stages, from resource (material) to task (brief) to outcome (finished model) as an indicator of capability. Smithers and Robinson's advice for improvements to technology duly included; establishing technology as a practical/technical subject concerned with the design and manufacture of products and systems; specifying its content as a practical organisation of knowledge and skills; distinguishing technology from the overlapping but different areas of basic life skills and vocational education; creating clear progression in content, with the subject acting as a stepping stone to higher education and employment; devising curriculum materials to reflect this sharper focus, and setting tests and examinations that embody the objectives and content more precisely.[60]

59 Ibid.
60 Smithers and Robinson, p. 18.

Having asserted that the inclusion of design as part of the technology curriculum was because of the Design Council's efforts to broaden the meaning of the term in the 1960s, the *Getting it Right* report attacked the more holistic, cross-curricula and socially meaningful merits of the field that had guided the NC/DTWG and focused instead on the subject's potential contribution to a pipeline into engineering, which in turn would lead to long-term economic benefit. Layton was concerned by the emphasis on practical and technical education that was being endorsed by the Engineering Council, arguing that the more human-based aspects of the subject, such as 'how a product had affected people's work, lifestyles and values, and what unintended consequences had arisen', would be overlooked and highlighting at IDATER conference that, 'issues like those of recyclability and disposability, even financial and environmental cost seemed to have dropped down, if not from the agenda'.[61]

The economic argument concerned Layton, who, as a former member of the NC/DTWG, endorsed their belief that the central premise of the subject was to prepare students for future change. He wrote that, 'to grant economic imperatives an overriding influence on school technology would be to sanction a curriculum which sold children short and failed the future.'[62] Layton continued,

> One of the dangers facing school technology today is that it will be shaped too exclusively by economic values. This danger stems in part from the vocational origins that technology in general education has had in many countries; in part, from the pressures on schooling to service the economy in a period of deep recession (as the old saying goes, education is an ornament in good times, a refuge in bad); and, in part, from alliances forged to elevate the status in society of activities like engineering which, in our Anglo-Saxon culture at least, have historically been deemed inferior to

61 Layton, *Values and Design & Technology,* p. 9.
62 Layton, *Values and Design & Technology*, p. 8.

> basic science and which now appear to have a chance of showing how economically useful they really are.[63]

This review of the Engineering Council's stance on technology in 1992 is interesting, not least because it mimics the discourses of design education, discussed in Chapter Two, that show that an economic rationale is all too often identified as the driving force behind educational development, to the detriment of other cultural determinants.

By the time the Engineering Council launched their campaign, technology had only been taught in schools as part of the National Curriculum for around a year and a half and even this was in the context of a still-evolving National Curriculum, teachers' strikes and three different Secretaries of State for Education. Moreover, the evidence that they based their findings on was collected over a period of just six months, so no wonder the situation appeared as it did. Where the NC/DTWG had recommended that the implementation of the subject would need fifteen years to become established critics, who supported a more technologically orientated curriculum, gave it less than two years.

Media interest

According to Wright, the timing of the *Getting It Right* report was key in terms of the media interest it generated. There had been a series of delays to the first HMI report on National Curriculum technology in 1990/91 and when it was published just days after *Getting It Right*, the evidence of its low standards was plain to see.[64] Wright cites several sources that

63 Layton, *Values and Design & Technology*, p. 8.
64 HMI, *Technology: Key Stages 1,2 and 3: A Report by H M Inspectorate on the First Year, 1990–1991* (London: HMSO, 1992).

suggest the delays to the publication of HMI's report had allowed for numerous leaks, making it highly likely 'that Smithers and Robinson were in a position to draw on HMI's findings'.[65] Echoing HMI's report, Smithers and Robinson associated implementation difficulties with a progressively generalised and abstract notion of 'technology' and recommended a simplified curriculum that provided clarity for teachers and redefined technology as a practical subject that delivered technical skills.[66]

The news reports that followed picked up on Filer's description of the subject being theoretical and irrelevant to the needs of modern manufacturing, focusing in on the phrases 'Mickey Mouse Technology' and 'Blue-Peter activities' to describe the 'childish' activities that were being undertaken.[67] Ironically, the use of those phrases in the report derived from a teacher who was reflecting relatively positively on the cross-curricular concept that he was now working towards: 'it is not just about design, it is not just about all this Blue Peter technology we hear about. We actually get children to use pieces of steel and wood and to develop some sort of craftsmanship'.[68]

Advocates of design education, including Richard Shearman at the Design Council, Kimbell and Eggleston, picked up the baton and defended National Curriculum technology against the Engineering Council's criticism. For example, Kimbell, writing in *The Times Educational Supplement* (TES), argued that vocational training models were not the answer; and

65 Wright, p. 32, 34.
66 Smithers and Robinson, p. 5, 18.
67 See, for example, Donald Macleod, 'Technology Lessons to Undergo Review' *The Independent*, 3 June, 1992; David Ward, 'Patten Orders Technology Teaching Review', *Guardian*, 3 June 1992.
68 See Barnett, 'Technology, within the National Curriculum and Elsewhere', p.96, and Smithers and Robinson, p. 7.

Eggleston was quoted in the same source a month later claiming that proposals for closer links to technical education, science and mathematics, at the exclusion of food, textiles and business studies, represented an approach that undervalued 'thinking' as opposed to 'making'.[69]

The narrative around technology, however, rested on a disaster scenario that failed to acknowledge the progress that had been made by organisations that were seeking to support technology, like the Design and Technology Association, or account for the extremely short period in which the subject had been running. The frustration that was felt around this was conveyed by Shearman in a letter to *Education*:

> Sir, your normally even-handed style of reporting has deserted you in your coverage of the review of national curriculum technology. Phrases such as 'curriculum nightmare' […] and 'disaster' […] are better suited to the tabloids than to the serious education press. No one has ever pretended that the implementation of technology would be easy.[70]

Indicative of the strength of the Engineering Council's publicity department at this time and ability to secure headline news items, responses to the criticisms tended to feature in the educational rather than the tabloid press. However, frustration was clearly running high, as evidenced in this statement written by Kimbell, published as part of a special report in *The Times Education Supplement*:

> Among the leading exponents of this reactionary corpus sits the engineering fraternity, steeped in generations of science and mathematics and deeply sceptical of anything that cannot be explained on a slide rule. This is the body that produced a model of education that completely failed our industry […] And this is the body that now has the gall to tell us all what we should be doing with technology in our schools

69 Wright, p. 35.
70 Wright, p. 34.

> .. Having failed in their field they now want to tell us how to organise ours. In my experience non-swimmers do not make good life savers.[71]

In Chapter Three, reference was made to debates about the balance between arts and science that were triggered by C.P. Snow's contested lecture on 'The Two Cultures' in 1959 and F.R. Leavis's response in 1962. Parallels may be drawn here. For Kimbell and Eggleston, the issue was more than just over prescription on the part of the Technology Orders and a general sense of confusion caused by the rapid change in guidance and documentation.[72] For the Engineering Council, meanwhile, while there were issues with a lack of guidance and reliance on a conceptual and theoretical model that was not relatable to industry need, the bigger argument revolved around the delivery of practical education that would create a pipeline to engineering courses.

Revising the National Curriculum

Shortly after the Engineering Council's media campaign, in June 1992, the NCC announced that they would be taking immediate action to: 'reduce complexity', 'improve clarity'; 'define the full range of skills required'; 'introduce more flexibility and choice' and 'strengthen links with mathematics and art and design'.[73] As Eggleston noted at the time, the speed at which the NCC responded was astounding, given that they had denied any intention of revising the Order just a few weeks earlier.[74]

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71 Richard Kimbell, 'A Problem Of Success' *Times Education Supplement*, (16 October 1992, Special Report) p.1, qtd in Wright, p. 35.
72 Paechter describes the raft of paperwork that accompanied National Curriculum technology, see Carrie Paechter, *Texts, Power and Design and Technology: The Use of National Curriculum Documents in Departmental Power Struggles*, IDATER 1993 Conference (Loughborough; Loughborough University, 1993).
73 National Curriculum Council (NCC), *The Case for Revising the Order: Advice to the Secretary of State for Education* ([n.p.]: NCC, 1992), p. 9.
74 See, John Eggleston, 'Technology The End of a Honeymoon? *Journal of Technology Education*, 4, 1, (1992) 61–64, qtd in Wright, p. 34.

By early 1993 a consensus had been reached, with key protagonists, including the Engineering Council, the Design Council, Eggleston and Kimbell agreeing an approach to technology that, notably, put design back on the table, albeit in a new hybrid model.[75] The rolling out of D&T, however, would ultimately be delayed, due to a review of the entire National Curriculum announced later in 1993 that was due to widespread dissatisfaction with the curriculum as a whole, as well as with technology specifically.[76] Added to the chaos, the D&T courses for Key Stage 4 were impeded because the exam syllabi had arrived late. The explanation, according to HMI, was the late introduction of the new National Curriculum syllabi and the unsettled climate that surrounded D&T, which had impacted on teachers' ability to plan for their classes, 'hampered planning and depressed achievement' and left students feeling aggrieved by the compulsory entry for GCSE examination.[77]

At this point, the new Secretary of State for Education Kenneth Clarke announced a temporary suspension the Technology Order (and with it the first Key Stage 4 course in technology, which had already started in September 1993) on the basis that, '[I]t would be unreasonable to expect the examining boards to introduce syllabuses based on the old order for one year, only before they were superseded by those based on the new Order'.[78] The decision was indicative of the general confusion around the technology curriculum at

75 Wright, p. 36.
76 The Review was led by Sir Ron Dearing, head of the renamed School Curriculum and Assessment Authority (SCAA) which under the 1993 Education Act, replaced the NCC and SEAC and who asserted in December 1993 that 'urgent action is needed' to reform the whole of the National Curriculum Dearing's advice on reforming the National Curriculum see SCAA/Ron Dearing, *The National Curriculum and its Assessment: Final Report* (Great Britain: SCAA, 1993 (1994)), p. 7.
77 HMI, *Design and Technology: A Review of Inspection Findings 1993/94* (London: HMSO, 1995), p.8.
78 School Curriculum and Assessment Authority (SCAA), *Design and Technology in the National Curriculum: Draft Proposals* (London: SCAA, 1994), p. 8.

this time, which might be linked to changes in government policy as much as to the content of the policy in and of itself.

A new model for National Curriculum D&T

In 1995, under Gillian Shephard, Secretary of State, the renamed Department for Education and Employment (DfEE) formally introduced a new 'slimmed down' National Curriculum, including the 1995 Statutory Order for Design and Technology.

The cross-curricula proposals put forward by the NC/DTWG were no longer apparent in the 1995 version of D&T and the new legislation was slanted towards a materials-based rather than concept-driven approach. The materials-based approach originally advocated by Black and Harrison in 1985, backed by Smithers and Robinson in the *Getting It Right* report for the Engineering Council and associated with Nuffield Design and Technology classroom resources had, by 1995, become the basis of the new National Curriculum model for D&T.

Kimbell notes that the success of the 1995 revisions was in being 'simpler and less prescriptive', and at least recognised the ability of teachers to be able to determine their own courses and approaches within the framework of a curriculum.[79] The common core element had been removed from the course and the new subject, now officially named design and technology, divided into seven areas of material-related specialisms: electronics, food technology, graphics, product design, resistant materials, systems and controls and textiles, which all students would study as they progressed through school. Short courses in

79 Kimbell, *Assessing Technology*, p. 89.

D&T, as an alternative to the GCSE, were offered in addition to the full courses and a General National Vocational Qualification (GNVQ) was introduced as an alternative, employment-driven route for students aged 14 to 19.

Shephard heralded the introduction of the revised orders during a speech at the Design and Technology Association's annual conference in 1995:

> Why are we for D&T? First, it is vital for Britain's competitiveness in the modern world that we are confident in our understanding and use of technology. You do not learn about technology just by reading books – you learn by doing something yourself, designing and making. Now ALL our children have the right not only to be taught about the theory of design and technology, but about how to do it.[80]

The model for D&T that was introduced in 1995 allowed scope for teachers and departments to select the 'best fit' according to their educational specialism or philosophy. Daniel Wakefield and Gwyneth Owen-Jackson agree that the programmes of study introduced in Revised Technology Order (1995) were 'welcomed by many' and helped clarify the 'design and make' approach that had been unclear in the original proposals.[81] Meanwhile, according to Clare Benson, the 'crisis' meant that few in the D&T community were willing to embark on further revisions, especially after Dearing made the welcome announcement that a five-year period should be ringfenced to allow the guidelines to become established in schools before the next period of review.[82] The consensus meant

80 Extract from Shephard's speech quoted in Andrew Breckon 'The Journal in Context; Design and Technology in an Era of Growth' in *Footprints in Shifting Sands, Ten Years of Editorials from the Data Journal*, *1996–2005*, ed. by Richard Kimbell, ([n.p.], Design and Technology Association, 2006), pp. 1-12 (p. 8).
81 Daniel Wakefield and Gwyneth Owen-Jackson, 'Government Policies in Design and Technology Education', in *Debates in Design and Technology Education*, ed. by Gwyneth Owen-Jackson (Great Britain: Routledge, 2013), pp. 7–20, (p. 17).
82 Clare Benson, 'Ensuring Successful Curriculum Development in Primary Design and Technology', in *Teaching and Learning in Design and Technology: A Guide to Recent Research and its Applications*, ed. by John Eggleston (London: Continuum, 2000), pp. 1–14, (p. 1).

that research collaborations and networks of key personnel could start to patch over some of the cracks between formerly opposing organisations, who now shared a common interest in ensuring that D&T remained part of a basic educational entitlement for young people.

Conclusion: Achieving consensus

In analysing the activities of groups with a vested interest in the development of D&T from 1990 to 1993, it is important to note influential educators' central belief in the cultural value of design. Technology was judged a failure on the basis of its flawed implementation in schools, which was the result of the complexity of policymaking in education and difficulties in delivering wholescale curriculum change, rather than the underpinning ethos that guided many of its supporters and advocates. Recalling the jointly signed press release between the Design Council and the Engineering Council which argued for the central provision of design, it seems ironic that just a few years later the inclusion of design was pinpointed by the Engineering Council as a particular point of failure and they would be commended for leading 'industry's criticism of the original curriculum for placing too much emphasis on design and not enough on practical skills.'[83]

Understood in a broader political context, the Engineering Council's campaign message was very much in keeping with the Conservative Party's longstanding distrust of teachers and educationalists, which was upheld by the incoming Secretary for the Department for Education (DFE) John Patten (1992–1994), who was known to avoid meetings with teachers'

83 Stephan Bates, 'Sharper Lessons Cut "Mickey Mouse"' *Guardian*, 18 December 1992.

unions and engaging with the education profession.[84] It is not so much of a stretch to speculate that the economic rationale presented by the Engineering Council was well received by the government administration services with responsibility for education, who at the time were experiencing a rapid turnover over leadership and widespread criticism about the implementation of the National Curriculum. In other words, the economic argument for reforming the technology curriculum was politically persuasive, if not wholly representative of the community's view on the value of the subject.

84 Derek Gillard, '1990-1997: John Major, More of the Same', in *Education in England: A History* (2018) <http://www.educationengland.org.uk/history/chapter16.html> [accessed 31 October 2021].

Chapter Six: Implementation of Design and Technology, 1995-2012

'"What's wrong with DT?"
The question comes not because the subject has failed, but from a sense that the great DT experiment itself has underachieved.'[1]

In 2011, two reports, *A Review of Literature in Design Technology in the National Curriculum* by Ian McGimpsey, and *What's Wrong with DT?* by John Miller, were published by the Royal Society of Art.[2] Their commission reflected growing concern amongst advocates of D&T that the ongoing delivery of the subject was unsustainable in the context of government reforms that supported a much reduced and academically orientated curriculum, as reported in the national media.[3]

Applying a retrospective lens to the history of D&T as part of the National Curriculum, Miller aligned the success and subsequent failure of the subject with its inability to secure long-term political support and the knock-on effects on resourcing, funding and tenure as part of the National Curriculum framework. McGimpsey, meanwhile, suggested that there was little evidence that D&T could ever achieve the 'loftier' aspirational outcomes that its advocates laid claim to, further speculating that its status had only been maintained through constant realignment of the subject in support of ever-changing political goals, until the point that it

1 John Miller, 'What's Wrong with DT?' (RSA: Design and Society, 2011), p. 3, < https://www.thersa.org/globalassets/pdfs/blogs/rsa_whats-wrong-with-dt.pdf> [accessed 31 October 2021].
2 Miller and Ian McGimpsey, 'A Review of Literature in Design Education in the National Curriculum (RSA: Design and Society, 2011), p. 20. <www.thersa.org/__data/assets/pdf.../RSA_DT-Lit_Review_final.pdf> [accessed 31 October 2021].
3 See media reports, including, Jessica Shepherd, 'Goodbye Department for Curtains and Soft Furnishings' *Guardian,* 13 May 2010; Greg Hurst, 'Arts Squeezed Out As Schools Focus on Core Subjects', *The Times,* 16 April 2011, <http://search.proquest.com/docview/862127134? Acountid=1927> [accessed 31 October 2021]; Tom Dyckhoff, Tom, 'Arts Looks Ace, but What's It Like for the Cleaners?' *The Times* 28 July 2011; James Dyson, 'Lessons in Making Things Shouldn't Be Axed from Schools', *The Times*, 5 April 2011, p. 18.

was consumed by the system that created it.[4] Was it the case that D&T was 'unable' to defend its status? Or, having experienced over 20 years of National Curriculum conformity, was the community increasingly powerless against political decision-making, and unwilling to comply with a reductive and prescriptive model of their subject?

In interrogating debates about design education in schools in the twenty-first century, this chapter attends to the different groups involved in promoting and supporting National Curriculum D&T and considers the rationale for including, or excluding, design in the 2010 educational reforms. Despite criticisms about the rigidity of the D&T curriculum following the 1995 revisions, the chapter demonstrates that changes in key personnel in related professional bodies were vital in determining the organisational response and investment priorities and, as will be shown, training and resource provision was often driven by the beliefs of a limited number of autonomous individuals. Finally, the chapter will show, once again, that while an economic justification was resurrected as the main reason for maintaining a design curriculum, the underlying impetus of those involved in training and provision was predominantly societal. The issue with this is that the potential economic contribution of design education ends up dominating debates at the expense of more nuanced discourse about how design in education can help prepare young people for a spectrum of anticipated social, cultural, environmental, political and economic changes. While McGimpsey makes the point that these accomplishments cannot be proven, the chapter will show that they remain an important part of the aspirational ideology

4 McGimpsey points to three main problems with educational research on design and technology, firstly, that it is produced by a small subject community whose interests lie in providing positive accounts of good practice that do not accord with broader aims; secondly that research is geared around policy implementation and thirdly, that broader claims about design and technology's ability to improve truancy, skills in numeracy or literacy or engage with disadvantaged students, are unsubstantiated, see McGimpsey, p. 6.

underpinning developments in the field that motivated the educational research community. Further, that by focusing on the economy, politicians and campaigners do a disservice to the potential value of design education and to the efforts of educators and educational approaches to the wider social applications of design-related learning experiences.

The first section of the chapter looks at the literature produced by key groups that were working to scaffold D&T after the crisis of 1992 and how they addressed the design element of the course. The analysis includes an account of groups that had previously been involved in getting D&T on to the National Curriculum, as well as the three research groups that were granted government funding to develop classroom resources. The second section of the chapter reflects on the dramatic shift in the government's educational policy in 2010 and the impact of this on D&T. The third section looks at who responded to reform proposals and how they justified the ongoing delivery of design-related subjects. Recognising the shift back to the 'economic argument' that featured in Chapters Two and Four, the chapter then considers the pros and cons of this discourse and the extent to which it forms a credible rationale, particularly given the academic and research community's alignment with social and educational imperatives that historically recognise the value of nurturing life skills and holistic, human-centred approaches to education and a move to de-professionalise or democratise design through a school subject.

A growing unification of ideas and approaches, 1995–2010

Policy reform proved to be an enduring component of the National Curriculum. Despite Ron Dearing's initial reassurances that the 1995 revisions would remain in place for at least five

years, in 1997 a change in British government from Conservative to Labour led to the announcement of a second wholesale review of the National Curriculum, just two years after the previous changes had been implemented. The consultation, led by the renamed Department for Education and Employment (DfEE) under David Blunkett, in conjunction with the Qualifications and Curriculum Agency (QCA), resulted in a revised set of instructions for all National Curriculum subjects that were issued in 1999.

Just prior to this, during the latter half of the 1990s, the broader D&T community had been working to turn the 1992 crisis narrative into one of success. According to Gwyneth Owen-Jackson and Ruth Wright, disagreement about the core ideological rationale underpinning the subject was put to one side as organisations, such as the Design Council, the Engineering Council and the Design and Technology Association, began to realign their core activities according to their overarching strategic remit and budget.[5]

After the turbulence of the early 1990s, the broader subject community appeared to unite around the 1995 D&T National Curriculum orders and their focus shifted from ideological positioning to developing practical guidance, support and pedagogy for teachers to use in the classroom. David Layton's assessment of the competing values associated with technology, which became characterised by bitter exchanges between opposing stakeholder groups, helped to establish a 'rite of passage' for D&T. This new narrative drew on more harmonious relationships between organisations with a vested interest in the field and a

5 See Gwyneth Owen-Jackson, 'National Curriculum Design and Technology', in Owen-Jackson (ed), *Aspects of Teaching Secondary Design and Technology: Perspectives on Practice* (Glasgow, Routledge, 2002) pp.3–8, p.6 and Ruth Wright, 'The 1992 Struggle for Design and Technology', *Design and Technology Education: An International Journal,* 13:1, pp. 29–30, (p. 36).

subject community that had started to work together in a way that involved 'a straightforward division of interest… [and/or] a growing unification of ideas and approaches.'[6]

New partnerships

Post-1995, the Engineering Council, who had been so vehemently opposed to earlier iterations of National Curriculum technology, started investing in research projects that were closely linked to assessment and curriculum development. Keen to support the pipeline into engineering, and with the aim of encouraging practical support for teachers of D&T and a portfolio-based assessment model, they funded a research team at Goldsmiths College, led by Richard Kimbell and Kay Stables. Drawing on their experience of and involvement in the Assessment Performance Unit (APU) in the 1980s, which was charged with advising on assessment practice for D&T, Kimbell, Stables and colleagues at Goldsmiths' Technology Education Research Unit (TERU) undertook a range of evaluative projects and research aimed at broadening the research base. One of the most significant projects TERU embarked on was E-Scape, a radical new approach to examining competency through portfolio-based assessment that measure progress over a project, rather than attainment at a single point in time.[7]

6 Tony Becher and Paul Trowler, Academic Tribes and Territories: Intellectual Enquiry and the Cultures of Disciplines, 2nd edn. (Philadelphia, PA: Society for Research into Higher Education & Open Univ. Press, 2001), p. 60.

7 For information about TERU and commissioned research projects see, Richard Kimbell and Kay Stables, *Researching Design and Learning: Issues and Findings from Two Decades of Research and Development* ([n.p.]: Springer, 2007), pp.1-11 and pp. 183–211.

Kimbell and Stables latterly claimed that following the introduction of National Curriculum D&T, one of the biggest challenges for the subject was that 'there was almost nothing in the way of research upon which to base decisions about curriculum, or pedagogy or assessment.'[8] Research funding from the Engineering Council then would presumably have been a useful asset. Kimbell would go on to praise the Engineering Council's commitment to funding practical resources, the development of practice in schools and research into assessment, and the novelty of the collaboration between Goldsmiths' researchers and the Engineering Council deserves to be emphasised.[9] Whilst not blind to its faults, Kimbell had fiercely opposed the Engineering Council's campaign to reform the 1990 version of the design and technology curriculum, and Stables was an alumni of the Royal College of Art, having studied at the Design Education Unit with L. Bruce Archer, Ken Baynes and Phil Roberts at the during the heyday of the course. Post-1995, however, the two organisations were working together to support design and technology education.

Having played such a key role in pushing for changes to the D&T curriculum in the early 1990s, the Engineering Council's investment in classroom resources and research into assessments processes might in part be seen as an effort to bring stability to the field and to ensure that it worked better this time. It is pertinent to note that Richard Shearman and Ruth Wright, former employees in the Design Council's education department, had both moved to new jobs within the Engineering Council education department in 1995. Furthermore, in published statements by the Engineering Council after this date, the relationship between technology and science is no longer emphasised at the expense of

8 Ibid., p. 10.
9 Richard Kimbell, 'Engineering Influence', *The Design and Technology Education Journal*, 6,2 (2001), 99–100.

other subjects. Instead, the stated need for synergy between science and D&T is described using words like 'coordination' and 'collaboration', and recognition is given to the formation of 'links with other subjects, including maths, English and art and design'.[10]

All of this was not to say that the tensions about the emphasis given to design in technology, or technology in design, were immediately resolved. The position of design remained a contentious issue, as apparent in statements made by Andrew Breckon, former member of the original National Curriculum Design and Technology Working Group (NC/DTWG, 1988–1989), who became chief executive of the Design and Technology Association in 1995. When commenting on the first set of results from a major research project on in-service training (INSET) for D&T teachers in 1996, for example, Breckon emphasised the role of technological awareness while any mention of 'design' was conspicuous by its absence:

> This investigation and report are a major contribution to bringing coherence to the development of design and technology in secondary education. It will only be through close collaboration between everyone working in this field, maximising the use of limited resources available, that sustained improvements in standards will be achieved and sound curriculum innovation will take place. A technological curriculum for the twenty-first century requires teachers to be effectively trained, updated and retrained as new technologies are developed and integrated into the curriculum.[11]

Breckon's introduction to a Design and Technology Association consultation document on the National Curriculum guidelines expands upon his position on the design component of D&T. Writing in anticipation of the next government review, he describes the inclusion of 'design' as a prefix and suggested that the decision to use it in the title was a 'quirk of the English education system', remaining 'purely because of the fluency with which the term was

10 David Barlex and Richard Shearman, 'Engineering Complementary Links', in 'Talking Shop', *The Times* Educational Supplement, 29 December 2000, p. 4.
11 See, R.H. Welch, *A Future Framework for Inset in Design and Technology in Secondary Education* ([n.p.]: Design and Technology Association, 1996), p. 4.

now used' and because changing it 'could cause confusion with the general public which has over the last decade become familiar with the term "design and technology"'.[12]Furthermore, according to Breckon, the addition of 'design' obscured the UK's reputation as a 'world leader in technological education', which was a 'marketable and exportable' characteristic that should be developed. He went on to point to a lack of public awareness about what design in an educational context meant: '[P]arents and society at large think technology is a good thing, although many may not understand the concept […] the concept of design is less well recognised; most consider it to be patterns or style.'[13]

As previously shown, from the outset, the UK's commitment to D&T as part of the school curriculum created an opportunity to promote an exportable 'model' to other countries and although variants of the subject exist internationally, the UK approach can often dominate debate in the field.[14] Like other education experts at the time, including Kimbell, Breckon was likely to have been keen to emphasise the technology aspect because this gave the subject an international edge and helped to bolster discourse about the United Kingdom being world leaders in the field.

New sources of revenue

The Design and Technology Association was able to generate a substantial source of revenue from government funding and private grants that were earmarked for D&T resources. Based on their annual survey, the Design and Technology Association's

12 Ibid., p. 6, 7.
13 Ibid.
14 See, Jeffrey Buckley and others, 'Framing the Constructive Alignment of Design within Technology Subjects in General Education', *International Journal of Technology and Design Education,* 31 (2021) 867-883, (p.867-868). DOI: 10.1007/s10798-020-09585-y

recommendations to the government in 1995/96, for example, included financing for trained classroom technicians; schemes to help refurbish and re-equip D&T classrooms; improving computer aided design (CAD) resources; refreshing primary curriculum modules and modernising courses in food technology to reflect updated manufacturing methods.[15] In 1998/99 they requested £10.35 per secondary school pupil per year, and received on average an actual amount of £6.16. Although they did not achieve the capitation allowance they believed was required in schools, or what they considered to be adequate funding for professional development, they did attract funding to develop practical and administrative guides.[16]

Using the annual survey as evidence of need, the Design and Technology Association developed new guidelines on health and safety advice for the use of equipment in the new D&T workshops, and information about employment regulations and job descriptions, including relevant qualifications, for hiring D&T technicians.[17] Furthermore, in 1999 the Design and Technology Association was granted a substantial Department for Education and Employment (DfEE) research contract for a suite of classroom and teacher guides using CAD

15 While the Design and Technology Association benefitted substantially from government and industry investment in D&T, capitation levels in schools remained an issue. In 1993 the Design and Technology Association launched their first survey of design and technology departments, funded by the Gatsby Charitable Foundation, in response to ongoing concerns about 'low levels of funding, lack of resources, poor quantity and quality of teacher training, impact of OFSTED, and the ensuing health and safety risks of a growth in class sizes'. The questionnaire was repeated in 1995 and then annually until 2003. The survey results were used to inform the Design and Technology Association's annual recommendations to the government, which typically involved asking for increases in the amount of funding per pupil; funding for subject development initiatives and for continuing professional development for teachers. The Design and Technology Association, *Survey of Provision for Design and Technology in Schools 1995/6*, ([n.p.]: Design and Technology Association, 1996).
16 The Design and Technology Association, *Survey of Provision for Design and Technology in Schools, 1998/9*, ([n.p.]: Design and Technology Association, 1999).
17 See the Design and Technology Association, *The Design and Technology Secondary Head of Department Handbook*, (Wellesbourne: Design and Technology Association, 1997); The Design and Technology Association, *The Design and Technology Primary Coordinators' File* (Wellesbourne: Design and Technology Association, 1996), The Design and Technology Association, *Design and Technology: Technical Vocabulary for Key Stages 1 & 2* (Wellesbourne: Design and Technology Association, 1995).

software, commissioned in anticipation of the 'government's major drive' to equip schools with computing resources and software.[18] In this regard, Clare Benson notes that where subject associations traditionally safeguard their members from government interference and provide learning materials, the Design and Technology Association was unusual in that they were closely affiliated with curriculum development at policy level.[19] This clearly had advantages, helping them secure public funding for curriculum development projects, as well as commercial sponsors like Unilever, Esso and British Telecom (BT) and philanthropic organisations like the Gatsby Charitable Foundation.

Although the link does not appear to have been drawn in extant literatures, the involvement of commercial and philanthropic partners in the production of D&T resources was reminiscent of the relationship that developed between businesses and schools in the delivery of object-based education in the nineteenth century that was discussed in Chapter Three. Whereas previously linked with an applied science curriculum and with expectation that placing of goods or products in the classroom would influence future consumers, the financial support provided by these multi-conglomerates satisfied a political imperative to align commercial and educational interests. In this regard, it was exactly what A.V. Kelly had warned about in her critique of the plans for the 1988 Education Act.[20]

18 The project attracted additional sponsorship from the Smallpiece Trust, and British Aerospace. See Andrew Breckon, *Teaching CAD/CAM*, ([n.p.]: Design and Technology Association, 1999).
19 Clare Benson, 'Ensuring Successful Curriculum Development in Primary Design and Technology', in *Teaching and Learning in Design and Technology: A Guide to Recent Research and its Applications*, ed. by John Eggleston (London: Continuum, 2000), pp. 1–14, p. 5.
20 A V Kelly, *The Curriculum: Theory and Practice*, 4th edn, (Gateshead: Paul Chapman Publishing, 1999), p.179.

There were advantages associated with the accumulation of these grants, awards and research funding, which is demonstrated through a direct comparison between the financial operation of the Design and Technology Association and the National Society for Education in Art and Design (NSEAD) in the early 2000s. In general, the NSEAD suffered considerable losses from the decrease of government funding for arts education, and by the financial year 1999/2000 they had become reliant on membership income to cover their annual expenditure. Money was lost on a series of publications produced in the late 1990s and the financial problems were enhanced by a general decline in the availability of grants, from the government, philanthropic organisations, cultural or private sector, to support NSEAD's endeavours. A substantial Arts Council contract for developing in-service training for schools came to an end in 2000, and as a result NSEAD's annual operating profit by the end of the year was just £25. This, NSEAD's treasurer reported in their annual report, was affecting their ability to fund new schemes, provide resources and keep staff on payroll.[21]

The Design and Technology Association, in contrast, continued to prosper via conglomerations or mergers with other subject associations, which increased membership and, by extension, subscription fees.[22] Their financial return for 2003 provides evidence of the lucrative position that the organisation found itself in, with 15% of their income coming from membership fees, but the majority, (57%), coming from research grants. When the incoming chief executive, Richard Green, took over from Breckon in 2003 he inherited a

21 National Society for Education in Art and Design (NSEAD), *Annual Report and Accounts 1999–2000*, ([n.p.]: NSEAD, 2000), p. 13.

22 Benefitting from the decision to bring together previously separate subjects under one umbrella, by 1995 the Design and Technology Association had absorbed a suite of subject associations and advisory bodies that had previously represented different areas or specialist professional interests. This included the Confederation of Design and Technology Associations (CoDATA), the International Society for Craft, Design and Technology (ISCDT), DESTECH and the National Association of Teachers of Home Economics (NATHE).

'financially secure' organisation achieving an income in excess of £800,000 per annum. Of the 14 externally funded 'live' projects, the DfES directly funded three, including the Marconi Electronics and Communications project, Food in Schools, and CAD/CAM development projects, accounting for £600,000 of the association's annual income.[23]

The flip side was that the Design and Technology Association's operations were heavily reliant on national funding and grants from private investors that had been leveraged because of the subject's status as part of the National Curriculum. The research and development funding they drew on from government was restricted for use on specific projects and when the status of D&T was threatened by reforms, so was the resource that fuelled subject development projects.

New research groups

The Design and Technology Association were not the only organisation to benefit from demand for new classroom resources. In recognition of the scarcity of classroom support in the early 1990s, the government invested in three research groups: the Technology Enhancement Programme (TEP), Nuffield Design and Technology and Royal College of Art Schools Technology Project (RCA/STP). Commissioned to produce resources for D&T, these groups each developed their own distinct interpretation of the relationship between design and technology and how this might be realised through classroom-based projects (**fig. 10**).

23 The terms and conditions of the DfES funding meant that it was restricted to use on these projects, rather than on other work, research or infrastructure. Design and Technology Association, *The Data Directors Report and Financial Statements for the Year Ended 31/12/03* ([n.p.]: Design and Technology Association, 2003).

Figure 10 Sample of front covers from influential D&T classroom textbooks, 1990s/2000s

Images (clockwise from top left): John Cave and Andy Bardill, *Technology in Practice* (London: John Murray, 2000); sample of Nuffield Foundation Design and Technology Teachers Guides, Food Technology and Graphics (1996); sample of RCA, D&T Routes series (1997, reprinted in 2002), [photographs by the author, October 2021].

These research groups were aligned with a preconceived affinity with either the design or the technology component of D&T that accorded with the overarching approach of the parent, or former parent, organisation:

- **Technology Enhancement Project (TEP):** Extending to around 50 publications, TEP textbooks were instructional and emphasised accuracy, attention to detail, the ability to follow a set procedure, and the quality of manufacture. Envisaged as an add-on programme to standard technology courses, TEP aimed to strengthen knowledge and understanding of science and mathematics. The resources proposed projects involving technical skills applied in industrial settings, and emphasised the need for students to become familiar with technical specifications and production processes.[24] Ultimately, and quite unlike the original blueprint for the design and technology curriculum outlined by the National Curriculum Design and Technology Working Group in their 1988 report, the success of a TEP project rested on the quality of production and the final piece.

- **Nuffield Design and Technology Project:** The Nuffield model revolved around three types of activities. Stage one involved completing resource tasks, 'short practical activities that make you think and help you learn about the knowledge and skills you need to design and make really well'.[25] Stage two involved a series of case studies, 'real examples of design and technology in the world outside school', which were then subdivided into two types; 'large technologies' that explore how the intervention of different technologies affect people's daily lives, and products that were 'similar to those that you can design and make.' Finally, stage three encompassed a series of predefined 'capability tasks' that involved designing and making a product that, and this was crucial, worked and involved the bulk of the time commitment.[26] Nuffield advocated a distinct pathway through their courses; lessons learnt in stages one and two were applied in stage three, the capability task, which involved drawing up a design brief that defined the features of the final product. The ultimate success of the project depended upon whether the student's 'designing made sense' in relation to 'what it will be used for; who will use it; where it might be used and where it might be sold.'[27]

- **Royal College of Art, Schools Technology Project (RCA/STP):** The RCA/STP approach centred around a core book for students called *Routes*, themed by type of course and

24 John Cave, 'Resourcing Design and Technology', in *Teaching and Learning Design and Technology: A Guide to Recent Research and its Applications*, ed. by John Eggleston (London: Continuum, 2000), pp.62–70, p.66.
25 Nuffield Foundation, *Nuffield Design and Technology: Students Book* (Harlow: Longman, 1995), p. 2.
26 Ibid., p. 5.
27 For example, see Nuffield Foundation, *Food Technology: Resource Tasks*, (London: Longman, 1996), p. 4.

containing 'general advice on how to manage and organise your D&T work'.[28] Emphasis was placed on the individual, who was expected to develop their own project from a set of broad guidelines. Attention was also given to thinking about the end user, about who the design and end-product was for and what their needs were. The RCA/STP approach recommended that students try to improve their work until it resembled 'real' examples from the adult world; those one-off products were thought about in terms of mass production method and projects should have a holistic aspect, developing students' confidence when working alone, but also as part of a team, because 'this will help you now and later in life.'[29]

The resources produced via the TEP, Nuffield and the RCA, in addition to other publishing companies that became available between 1995 and 1997, meant schools had some autonomy to select an approach to D&T that suited their understanding of the field and any local schools-based specialisms or teacher-led interests. In other words, the teaching of D&T was not so regulated that school departments and teachers could not pursue courses that slanted more towards design, or technology, or a materials-based approach.

The different 'brands' of D&T essentially meant that while teachers were working to one set of national guidelines, there was the flexibility for them to pursue a syllabus that aligned most closely with their way of thinking about the subject. The adoption of different approaches was also an example of how D&T could be manipulated according to the interests and values of different groups that were often historically associated with specific institutional approaches or agendas. In this regard, there can be little surprise that the more technical, engineering-orientated approach was represented by the TEP and funded by the Engineering Council; that the more materials-based, systems-focused approach was represented by Nuffield, an organisation who had a reputation for building courses intended

28 For example, Royal College of Art, *D&T Routes: Design and Technology 14–16 Core Book* (London: Hodder and Stoughton, 1996).
29 Ibid.

to instil practical skills; and that the design component of the course was strongly promoted in resources produced by an RCA project team, which had been an incubator for a more conceptual approach to design in the 1970s.

It is also worth highlighting that while TEP and the Nuffield Design and Technology Project continued to attract funding from the government, the Engineering Council, industrial partners and other charities linked to science and technology, public funding for the RCA project was not renewed and the project materials became obsolete because they were not updated in line with ongoing policy reforms. This suggests that the technology aspect of the subject became the more dominant feature because of the funders' affiliation with science, technology, engineering and technical education over design-related educational concepts.

Activities of design-related public advisory bodies

In this overtly technology-orientated culture, where had the 'design lobby', believed to have been so instrumental the decision to include design in D&T, gone?

The Design Council, for one, had started to retract its educational activity. In response to budget cuts announced in 1993, the incoming chair of the Design Council, designer John Sorrell, had embarked on a drastic restructuring programme. As a result, many of the Design Council's responsibilities and activities were discontinued, including both their magazines for schools and the Design Centre shop in the Haymarket. The cuts saw a change in personnel in the educational division of the Design Council and the launch of a new division called the 'Education and Training Foundation' which aimed to target three sectors, 'schools, further and higher education and business education' to promote life-long learning

about design. More radical pre-National Curriculum ambitions for design education were clearly reflected in their aims, but in a diluted form, reflecting for example, 'the aspiration to live with, work with, use and own good design, and to communicate visually as a natural part of life alongside numeracy and literacy.'[30]

In 1995, the Design Council Education and Training Foundation's commissioned a Goldsmiths research team, led by Kimbell, to work on a project called 'Decisions by Design' (1995-197) that was premised on the power of 'designerly thinking for those who are not (and do not intend to become) designers.'[31] This progressed to a second commission called 'Design Skills for Work' (1997-1999) which focused on employability skills associated with a design education.[32] As discussed earlier, the idea that a design education provided skills and experiences appropriate for a range of jobs beyond that of the designer was well established. The project sought to better explain the importance of the relationship between design education and employment:

> Design education is in a parallel transition from being merely a vocational training programme for industry to being a powerful learning medium that enables students to develop the strategic, innovative, intellectual, personal, and interpersonal skills that are increasingly sought in so many areas of employment.[33]

Where the terms of reference for the project cited design education in relation to employment, the focus of the final report prepared for the Design Council by the Goldsmiths team was more orientated toward identifying routes from schools-based D&T

30 Design Council, *50 years of Design, Schools and the Design Council* (London: Design Council, 1995), p. 30.
31 Ibid.
32 John Saxton and Soo Miller, 'Distinctive Skills and Implicit Practices' in *Teaching and Learning Design and Technology: A Guide to Recent Research and its Applications*, ed. by John Eggleston (London: Continuum, 2000), pp. 116–133, (p. 133).
33 Design Council/Richard Kimbell, *Design Skills for Work: An Exploration of Transferability*, (London, Goldsmiths College, 2000), p. 116.

A level courses to higher education courses. Kimbell would later criticise the Design Council's decision to prioritise 'conceptual clarity about the subject' rather than supporting pedagogy, learning materials and best practice.[34] In the context of budget cuts and a realignment of their engagement with schools-based learning, the project might be seen as being symptomatic of a change in approach and a perceived need to affiliate design education with a more tangible understanding of career pathways, as opposed to a more general development of life skills. Certainly, in this instance, the ethos of the project appeared to be far more geared toward rehearsing historical debates about the value of design as a pathway to HE.

Where the Design Council report identified skills gained through a design education that were potentially useful to employees, the Crafts Council project Learning through Making set out to understand how the types of skills that were useful in employment could be satisfied through crafts-based practical projects. The Crafts Council had always worked on a small budget and at a remove from classroom practice, but in 1995 the Learning through Making project reflected the dissatisfaction of some educationalists, Peter Green and John Eggleston among them, with the revised model for D&T. Conspicuously aligning craft with art, as opposed to the technology, curriculum, the project allied the Crafts Council with three reputable educational institutions:

- Middlesex: learning through making, how human competence and capability can be enhanced through making
- Loughborough: experience of making in education and development of understanding how materials, technologies, processes and wealth generation occur in human affairs

34 Richard Kimbell and Kay Stables, *Researching Design Learning: Issues and Findings from Two Decades of Research and Development* ([n.p.]: Springer, 2001), p. 5.

- Sheffield Hallam: employability of craft education graduates, and demand for them.[35]

As seen here, the project similarly sought to identify career progression routes for students with making skills and questions for the research team centred around recognising the competencies associated with making, such as cooperation, communication and problem-solving:

> …has the school curriculum supported or hindered the development of creative practical skills and the understanding of the made world? How did art, craft and design graduates contribute to the economy in the post-industrial age? What are the implications of our future policy making in creative and cultural education and working life?[36]

The project would imply an increased awareness that evidence was needed to retain a position in the National Curriculum. Furthermore, that the inclusion of design, and the nature of National Curriculum, had led to an increased sense of division between the arts-orientated and technology-orientated education, rather than cohesion.

It would appear that design-related public advisory bodies, and the Design Council in particular, were still active in the field of education, but their focus had changed and they no longer acted as central coordinating bodies, or as a 'design lobby' for school curriculum development. As I will go on to discuss in the next section, ongoing revisions to the National Curriculum and educational reforms, that coincided with changes in governments or government party administration, would serve to highlight the fragility of art and design

35 John Eggleston, 'Learning Through Making: The Crafts Council Research' in *Teaching and Learning Design and Technology: A Guide to Recent Research and Its Applications*, ed. by, John Eggleston (London: Continuum, 2000), pp. 134–146.
36 Eggleston, p. 136, 145.

subjects. It was the threat to the ongoing provision of creative education as part of the school curriculum, that would prompt the broader design community to join forces and voice their public support for design education.

D&T policy in the twenty-first century

In 1999 the National Curriculum, and D&T by extension, underwent its third review under the new Labour British government who had come into power in 1997 under prime minister Tony Blair. The revised 1999 guidelines picked up once more on D&T's cross-curricular opportunities, in particular highlighting its contribution to 'pupils' spiritual, moral, social and cultural development'; to the promotion of 'key skills' such as communication, IT, working with others and problem-solving; and the subject's ability to relate to other areas of the curriculum in the form of enhancing thinking skills, financial awareness, work-related learning and issues around sustainability.[37]

The reforms meant that each National Curriculum subject was now issued with an 'Importance Statement' highlighting the subject's key contribution to the school curriculum, and to students' learning. For D&T, the importance of the subject was defined as follows:

> Design and Technology prepares pupils to participate in tomorrow's rapidly changing technologies. They learn to think and intervene creatively to improve quality of life. The subject calls for pupils to become autonomous and creative problem solvers, as individuals and as members of a team. They must look for needs, wants and opportunities and respond to them by developing a range of ideas and making products and systems. They combine practical skills with an understanding of aesthetics, social and environmental issues, function, and industrial practices. As they do so, they reflect on and evaluate present and past design and technology, its uses, and effects. Through design and technology, all

37 DfEE/QCA, *Design and Technology* (London: HMSO, 1999), pp. 8–9.

> pupils can become discriminating and informed users of products and become innovators.[38]

Interestingly, reference to thinking and creative interventions is boosted in this description of D&T, while the contribution to economy is coded through phrases like 'industrial practice' and 'innovation'. Furthermore, direct parallels between the tone of the 1999 Importance Statement, and Kimbell's interpretation of 'technological capability', as a 'combination of skills, knowledge and motivation that transcends understanding and enables pupils creatively to intervene in the world and "improve' it"' suggest that his role as a policy influencer had become more established by this point.[39]

This more socially orientated understanding of D&T was reflected in feedback on the 2002 National Curriculum review, overseen by the renamed Department for Education and Skills (DfES, 2001–2007).[40] It continued to feed through into the 2004 revision and into the 2007 revision by the government under the -once again - newly named Department for Children, Schools and Families (DCSF).

By and large, a comparison between the Importance Statements in 1999 and in 2007 display a broadly consistent approach, which, given the rapid changes in the 1990s, must have been a relief to the subject community.[41] McGimpsey finds it striking that in the 2007 Importance

38 DfEE/QCA, p. 15.
39 Kimbell, *Assessing Technology*, p. 46.
40 See, for example, David Prest, 'An Analysis of the Attainment Target Level Descriptors and Associated Programme of Study in Relation to the Design and Technology Mission Statement' (Cornwall Education Development Services, 2002).
41 See, Qualifications and Curriculum Authority, 'Design and Technology Programme of Study: KS3 The Importance of Design and Technology' (2007) quoted in David Barlex, *Design and Technology for the Next Generation: A Collection of Provocative Pieces written by Experts in their Field to Stimulate Reflection and Curriculum Innovation* (Whitchurch: Cliffeco, 2007), p. 11.

Statement 'creativity has found greater prominence than in past statements, in association with problem solving' and that 'key concepts now also contain "cultural understanding", "creativity" and "critical evaluation"'.[42] The content of this statement also reveals a series of subtle semantic shifts that reflect D&T's ability to encompass new educational discourse. The inclusion of confidence and self-esteem in the 2007 updated statement, for example, echoed the Labour government's 'personal, social and health education' agenda, later known as the 'personal, social, health and economic' (PSHE), which aimed to promote children's wellbeing. It also aligned D&T with plans to dedicate a quarter of the school timetable to basic skills and strengths that aimed to 'help children and young people deal with the real life issues they face when they grow up'.[43]

By highlighting the subject's potential contribution to humanistic values associated with helping young people to lead a good quality of life, curriculum developers were taking advantage of the flexibility of the design component of the subject, using this to steer D&T closer toward new political thinking about what a national education system should or could deliver in a social capacity. This new focus on D&T's more creative and holistic potential was advantageous in 2007 aligning the subject with Labour government's emphasis on learning personal skills to enable young people to make a positive contribution to society. As the chapter will go on to show, however, by 2010 it would prove detrimental as a Conservative/Liberal Democrat coalition government set out to progress their vision of a more academic education for the state school sector.

42 McGimpsey, p. 9.
43 DCSF, 'Independent Review of the proposal to make Personal, Social, Health and Economic (PSHE) Education Statutory' (London, HMSO, 2009) p.7, <http://www.educationengland.org.uk/documents/pdfs/2009-macdonald-pshe.pdf> [accessed 31 October 2021].

Establishing an academic culture for D&T

Under the 2000 National Curriculum policy framework, D&T had remained a foundation subject, meaning that pupils in schools in England were expected to study it between the ages of 5 and 16. In the 2002 review, D&T retained a position as part of the National Curriculum framework, but the subject's status was still not secure.[44] In 2003, Marlene Harris and Valerie Wilson's government-commissioned report *Designs on the Curriculum? A Review of the Literature on the Impact of Design and Technology in Schools in England* gave a critical account of the quality of research in design and technology education. Harris and Wilson found that while the community of practice had produced a quantity of literature, evidence concerning the impact of the subject on young people, or their achievements as a result of studying D&T, remained weak. Furthermore, at the risk of being insular, the subject community and the research produced was represented by a small pool of researchers.[45]

As might be expected, the Design and Technology Association disputed Harris and Wilson's findings on the basis that their small sampling did not consider the broader spectrum of literature that related to the field. In acknowledging the issues caused by the subject's multifarious origins, one of the problems they cited was that the sampling did not take into account pre-National Curriculum research on approaches to education that were aligned with D&T and which contributed to the theoretical underpinning of the subject. However, the report had clearly shaken them and in response they committed to improving the

44 Although, a series of exemptions were applied so that schools could 'disapply' the National Curriculum requirements for limited numbers of individual pupils, see, Owen-Jackson, p. 6.
45 Marlene Harris and Valerie Wilson, 'Designs on the Curriculum: A Review of the Literature on the Impact of Design and Technology in Schools in England', *Journal of Design and Technology Education, 8.3 (*2003) 166-171.

accessibility of existing research in the field.[46] Swathes of literature, including historical research on pre-National Curriculum design and technology educational practice and theory and on design education, from many of the sub-groups that the Design and Technology Association had merged with over the years, was made available through the Design Education Research Group (DERG) open access online database, managed by Loughborough University.[47]

Recognising a need to improve D&T's image and establish its distinct theoretical and practice-based knowledge base, the Design and Technology Association embarked on a series of initiatives that aimed to extend the professionalisation of the field and improve the general 'lack of understanding' about D&T in schools, outside the immediate subject community.[48] A new and dedicated periodical, the *Journal of Design & Technology Education*, was launched in 1997, edited by Kimbell and with a remit to reinvent D&T and make a serious attempt to address 'the design agendas of the day'.[49] By 2005, the Design and Technology Association were looking to appeal to an international audience and renamed their periodical *Design and Technology Education: An International Journal*, with the editorial position passing from Kimbell to Eddie Norman at Loughborough University.[50]

46 Eddie Norman, 'An Unbroken Chain: Linking our Past and Future', *Design and Technology Education: An International Journal*, 10,1 (2005), pp. 3–5.
47 As described in Eddie Norman, 'Our Heritage and Opportunity', *Design and Technology Education: An International Journal*, 13.3 (2008), pp. 3–5.
48 Andrew Breckon, 'The Journal in Context; Design and Technology in an Era of Growth', in *Footprints in Shifting Sands: Ten Years of Editorials from the Design and Technology Association Journal 1996–2005,* ed. by Richard Kimbell, ([n.p.]: Design and Technology Association, 2006), pp. 8–9.
49 Kimbell, *Footprints in Shifting Sands*, p. 13.
50 Eddie Norman, 'On Becoming International', *Design and Technology Education*: *An International Journal*, 20, 2 (2015) 3–6.

In addition to safeguarding the D&T community, this attempt at internationalisation should be understood as part of a wider movement to academicise education scholarship. In 2001, the editorial board of NSEAD's *Journal of Art and Design Education* (JADE) had undergone review and an editorial team based at Goldsmiths College under Dennis Atkinson was established, outlining their intention to use the journal to 'disseminate innovative practice and research which manifest the ever-changing boundaries of how we understand art and design in all contexts of education'.[51] NSEAD reviewed their publication portfolio in view of dwindling resources and in 2003, Blackwell's took over publication of JADE, which was relaunched as the *International Journal of Art & Design Education* (iJADE). Jeff Adams, a later editor of the journal, suggested that the shift in 'institutional research requirements' warranted the academicisation of the journal and a move from being the 'mouthpiece' of NSEAD to a repository of academic scholarship.[52]

Ongoing changes to D&T curriculum

The community's anxiety about D&T's status as part of the National Curriculum was triggered in 2004, when the Key Stage Four specifications became non-statutory and students were offered the course as an 'entitlement', rather than as compulsory GCSE subject. As McGimpsey explains, it was

> …no longer the case that every student must take a DT GCSE course at age 14, however, every school in England that is subject to the national curriculum must make available DT courses as a choice for their students at this key stage.[53]

51 Dennis Atkinson, 'Editorial', *Journal of Art and Design Education*, 27, 1 (2002) 2–4, (p. 2).
52 Jeff Adams and John Swift, 'The Ebb and Flow of Art and Design Education', *International Journal of Art & Design Education* 30,1 (2011) 2–6, (p. 2).
53 McGimpsey, p. 9.

One response to this change, and to a further round of policy reforms in 2006, was to turn attention back to design education in an effort to re-establish debate about the field's broader leverage. In 2006, Steers (NSEAD) and Green (the Design and Technology Association) collaborated on a provocation paper entitled 'Design Education – Now You See It; Now You Don't'', which argued that design had been neglected ever since the introduction of the National Curriculum framework in England and Wales. In contrast to Breckon's views on design as an unfortunate add-on, and underlining once again the power of individuals to determine an organisation's outlook, Steers and Green called for unity (across subjects), action and for a new way of thinking, asking:

> Has the time come when the needs of pupils, higher education and employers would be better served by a bold revision of the fundamental approach to this area of study by embracing and developing a concept of design education across the curriculum? [54]

Wright praised this attempt at setting down an 'agreed policy position' but noted that this, along with other policy-forming documents that tended to be developed in-house, was a reaction to the challenges of the day, rather than a proactive step to consolidate a position for D&T and reach consensus across the community.

Certainly, in comparison to the enormous disruption that National Curriculum technology faced in 1992, characterised through the ideological rift between stakeholders and a wave of reforms and policy revisions, there was a greater sense of cohesion among the community. As Wright notes,

> Currently (2008) many of the policy-influencers in this field know one another and are versed in sharing what they consider to be key information and thinking to present a

54 Richard Green and John Steers, *Design Education – Now You See It; Now You Don't: A Position Paper Prepared by the Design and Technology Association and National Society for Education in Art and Design (NSEAD),* (Corsham: NSEAD/the Design and Technology Association, [2006]).

> united position in most situations. They also by-and-large hold similar beliefs about the nature and value of D&T, irrespective of the organisations for which they work.[55]

Any sense of accord, however, risked being finite. As Wright correctly predicted, D&T remained on shaky ground, with fewer pupils taking the course and a 'real danger of not only loss of policy-memory, but also loss of a shared, and often implicit, understanding of the nature of D&T, and why D&T is worth fighting for.'[56] Based on the professional standing of a network of individuals who had gained knowledge and experience through 20 years of engagement with National Curriculum policy, and would soon be approaching retirement, there was an urgent need for 'discussing positions on a range of D&T matters' as Wright suggested. Unfortunately, the advice was not acted upon and just two years later the coalition Conservative–Liberal Democrat government's sweeping educational reforms severely undermined the ongoing delivery of the subject.

Educational reform activity 2010–2012

In 2010, a general election in Britain ended 13 years of a Labour Party majority and resulted in a coalition government between the Conservative and Liberal Democrat Parties. Both the Conservatives and the Liberal Democrats had campaigned on the issue of education, to different ends. To help heal the longstanding divide between academic and vocational qualifications, the Liberal Democrats had stated that they would axe the National Curriculum altogether and opt instead for a slimmed-down model that allowed children the option to

55 See Ruth Wright, 'Design and Technology: Exploring Elite Beliefs', (unpublished MRes dissertation, Kings College London, (2006), qtd in Wright, p. 37.
56 Wright, p. 37.

access tailored education that best suited their individual abilities and interests.[57] In sharp contrast, Michael Gove positioned the Conservative Party election campaign pledges around a more academically styled curriculum that focused on English, science and maths, with the aim of instilling rigour in the system and improving Britain's rating in international league tables.[58]

Upon the formation of a coalition government, the chancellor of the exchequer, George Osborne, set out his intention to introduce a series of social reforms under the slogan 'austerity Britain' that would reduce public spending to cut the UK's deficit, and the rationale behind educational reform coincided with the discourse of austerity and the apparent urgent need to boost the economy and create new jobs.[59] One of Gove's first actions as Secretary of State for Education was to rename his department and thus reassert its relationship with the previous Conservative administration. Shifting the emphasis away from services for young people, what had been known under the Labour government as the Department for Children, Schools and Families (DCSF) became the Department for Education (DFE) in 2010, as it had been under the Conservative government in 1994.[60] Two landmark parliamentary acts quickly followed: the 2010 Academies Act and the 2011 Education Act.

57 'General Election 2010: Liberal Democrat Manifesto at a Glance', *Guardian*, 14 April 2010, <https://www.theguardian.com/politics/2010/apr/14/liberal-democrat-manifesto-at-a-glance> [accessed 31 October 2021].
58 See Conservative Party, 'Invitation to Join the Government of Britain', *Conservative Manifesto* (2010), pp. 51–52 <https://general-election-2010.co.uk/2010-general-election-manifestos/Conservative-Party-Manifesto-2010.pdf> [accessed 31 October 2021] and Rachel Williams and Patrick Wintour, 'Tory Pledge to Overhaul Curriculum in English, Maths and the Sciences', *Guardian*, 2 March 2010.
59 'Spending Review 2010; George Osborne Wields the Axe', *BBC News*, 20 October 2010, <https://www.bbc.co.uk/news/uk-politics-11579979> [accessed 31 October 2021].
60 Jessica Shepherd, 'Goodbye Department for Curtains and Soft Furnishings', *Guardian*, 13 May 2010.

The Academies Act built on the previous Labour administration's plans to expand the existing network of academy schools in England through the expansion of the academies programme and the creation of more free schools, which were privately funded and operated outside of the financial jurisdiction of central government.[61] Achieving Royal Assent on 27 July 2010, the Academies Act removed local authority powers to veto schools becoming academies, and granted academies the right to opt out of the National Curriculum altogether. The policy brought about intense disruption to the National Curriculum framework.

The Education Act, introduced in 2011, built on the DFE's November 2010 White Paper, 'The Importance of Teaching', which set out a case for overhauling the National Curriculum with the intention of creating a new 'slim, clear and authoritative' model by limiting the number of subjects studied and by placing emphasis on academic courses.[62] It made provision for changes to how discipline was managed in schools, teacher training, vocational apprenticeship schemes, qualifications and the administrative functions of local authorities in regard to local school provision.[63]

The 2010 White Paper also outlined plans to introduce an English Baccalaureate (EBacc). Initially conceived of as a GCSE performance measure to 'encourage schools to offer a broad

61 Crucially, the Academies Act removed local authority powers to veto schools becoming Academies. See *Academies Act 2010* < https://bills.parliament.uk/bills/642> [accessed 31 October 2021].
62 DFE, *The Importance of Teaching: The Schools White Paper*, (2010), <https://www.gov.uk/government/publications/the-importance-of-teaching-the-schools-white-paper-2010> [accessed 31 October 2021].
63 See *Education Act 2011* [online] <http://www.legislation.gov.uk/ukpga/2011/21/contents/enacted> [accessed 31 October 2021].

set of academic subjects', [64] it later evolved into an award given to students who achieved five A*–C grades in English, science, maths, a modern language and a humanities subject, either history or geography. For non-traditional and non-academically orientated subjects, including D&T, art and design, music, media studies, drama and art history, this sounded warning bells among subject communities and broader support networks.[65]

Gove prized 'traditional educational values' and had repeatedly taken to news media to outline his broader views and ambitions for the school curriculum. In an article in *The Times* newspaper in 2010, for example, he claimed that most parents 'would rather their children had a traditional education, with children sitting in rows, learning the kings and queens of England, the great works of literature, proper mental arithmetic, algebra by the age of eleven, modern foreign languages'.[66] Alison Hardy writes that Gove and Nick Gibbs, Schools Minister, based their approach on the theory of a cognitive scientist (Hirsch) and an education researcher (Willingham) who focus on the value of 'learning knowledge and facts', which Gove and Gibb interpreted as evidence that thinking skills were developed through knowledge. This approach went against the 2007 National Curriculum policy that, according to Hardy, some believed 'emphasised skills to the detriment of knowledge'. [67] It should also be noted that there was a close correlation between the government's approach and a spate of reports produced by the Policy Exchange, a Conservative Party think tank that Gove had

64 DFE, *The Importance of Teaching*, p. 44.
65 Nicholas Watt and Patrick Wintour, 'Fast Pace of Change is Blair's Lesson for Coalition', *Guardian*, 1 October 2010, <https://www.theguardian.com/politics/2010/oct/01/gove-interview-reforms-education> [accessed 31 October 2021].
66 Alice Thomson and Rachel Sylvester, 'Gove Unveils Tory Plan For Return To 'Traditional' School Lessons', *The Times*, 06 March 2010, <https://www.thetimes.co.uk/article/gove-unveils-tory-plan-for-return-to-traditional-school-lessons-wnkhqw0k3mz> [accessed 1 December 2021]
67 Alison Hardy, 'How Did We Get To This Point?' in *Redesigning D&T.. Talking …Thinking …About Design and/or Technology,* ed. by Alison Hardy and Eddie Norman (Oxford, Loughborough Design Press, 2021) pp. 27–39, (p. 27).

been a founding member of in 2002, just prior to the general election in 2010. These policy briefings questioned the value of 'soft' subjects in schools and claimed that basic standards in literacy, numeracy and science had been falling since 1997, when the Labour Party took over government office.[68]

The promotion of 'essential knowledge' and the EBacc proved controversial among critics of the government and educational experts. There were widespread concerns that subjects that qualified for the EBacc would undermine other areas of the school curriculum, specifically creative subjects, as teachers and students focused their attention on achieving higher grades in academic subjects to the detriment of a broader and balanced curriculum. Following the publication of school league tables in 2011, there were reports that in the previous year 'over half of state secondary schools' were unable to produce substantial numbers of students who had achieved the EBacc award.[69] This prompted former government Minister for Education (2001–2002) Estelle Morris to pose three questions regarding the proposed measures:

> First, which subjects are relevant – should science and design be favoured over Latin and ancient history? Second, which subjects are more likely to engage a generation used to multimedia and personalised communication? Third, which subjects will give young people progression to top universities or good quality employment? [70]

68 See, for example, Policy Connect/Anna Fazackerley & Julian Chant, *The Hard Truth About Soft Subjects*, 2008 <https://www.policyexchange.org.uk/wp-content/uploads/2016/09/the-hard-truth-about-soft-subjects-dec-08.pdf> [accessed 31 October 2021] and Policy Connect/ Tom Redmond & Sam Freedman, *Rising Marks, Falling Standards*, 2009, <https://www.policyexchange.org.uk/wp-content/uploads/2016/09/rising-marks-falling-standards-apr-09-2.pdf> [accessed 31 October 2021].
69 Jessica Shepherd, 'GCSE Arts Choice Cut Blamed on Push for English Baccalaureate', *Guardian*, 7 February 2011.
70 Estelle Morris, 'Michael Gove Loves his Traditional Curriculum, But It Won't Do For Today', *Guardian*, 22 March 2011.

Those who opposed the introduction of the EBacc, of whom there were a growing number, also expressed their concerns about which five GCSE subjects would qualify and the speed with which schools were being asked to introduce it.

Reviewing the National Curriculum

On 20 January 2011, Gove announced a National Curriculum review, stating that a rigorous academic education 'is the best preparation for the new opportunities that will be created by the knowledge industries of the future'. To illustrate his point, Gove optimistically utilised the academic educational experience of the social media entrepreneur and Facebook founder Mark Zuckerberg:

> When Zuckerberg applied to college he was asked what languages he could speak and write. As well as English, he listed, French, Hebrew, Latin and Ancient Greek. He also studied maths and science at school. He would have done very well in our English baccalaureate. And the breakthroughs his rigorously academic education helped create are now providing new opportunities for billions.[71]

In this example, Gove failed to mention that Zuckerberg's schooling was not just rigorous, it had been delivered through one of the most highly selective, prestigious and elite independent schools in the United States, an experience that arguably would also have contributed to the entrepreneur's later success.[72]

71 Jeevan Vasagar and Jessica Shepherd, 'National Curriculum Review puts Emphasis on Facts' *Guardian*, 20 January 2011.

72 In 2016, for example, Zuckerberg's former school 'Phillips Exeter Academy' was No. 1 in the *Business Insider's* 50 most elite boarding schools in America, See Emmie Martin and Tanza Loudenback, 'The 50 Most Elite Boarding Schools in America, 2016' in *Business Insider*, 17 February 2016, <https://www.businessinsider.com/most-elite-boarding-schools-in-america-2016-2?r=US&IR=T> [accessed 31 October 2021].

With the announcement of the impending Educational Reform Act, an Expert Panel was convened and given a clear directive to review the National Curriculum on the basis that young people needed to be equipped with essential knowledge based on facts.[73] The panel was chaired by Tim Oates of the Cambridge Examination Board and former head of research and statistics at the Qualifications and Curriculum Authority, who would have had experience of working with politicians. Interestingly, the panel also included members who might have been more sympathetic to a well-rounded, as opposed to fact-based, curriculum, including Andrew Pollard and Mary James, who had worked together previously on classroom assessment as a tool for improving learning, and Dylan Williams, an expert on formative assessment models and co-author of *Inside the Black Box*, with Paul Black, previously discussed in this study in relation to his views on technology capability and his role on the 1990 National Curriculum Council.[74] Notably, Williams and Black had been educational advisors to former Labour prime minister Tony Blair. Advising the group, and in a stance against educational expertise, were the controversial historians Niall Ferguson and Simon Schama, and mathematician and TV presenter Carol Vorderman. The power of the group to inform the outcome of the report was questioned when even a former member of the Expert Panel of the National Curriculum review was critical of Gove's plans to introduce the EBacc as a replacement for GCSEs, claiming that 'it alone cannot achieve breadth and balance and basic entitlement.'[75]

73 See, DFE, *Framework for the National Curriculum, A Report by the Expert Panel for the National Curriculum Review* (London: Department for Education, 2011), <https://www.gov.uk/government/publications/framework-for-the-national-curriculum-a-report-by-the-expert-panel-for-the-national-curriculum-review> [accessed 31 October 2021].
74 See, Paul Black and Dylan William, *Inside The Black Box: Raising Standards Through Classroom Assessment* (London, Kings College, University of London, 2006).
75 Jeevan Vasagar, 'Michael Gove's Curriculum Attacked by Expert who Advised Him', *Guardian*, 12 June 2012.

Shortly before the Expert Group's findings were published, the 2011 Education Act achieved Royal Assent on 15 November 2011, making provision for the further expansion of the Academy and Free Schools programme; reforms to the National Curriculum; and provision for good behaviour and discipline, accountability, freeing up professionals' time and the fair use of resources. This was followed in December 2011 with the recommendations of Gove's Expert Group, which outlined plans to place greater emphasis on 'essential knowledge', based on a concept of 'powerful' subjects that constitute 'concepts, facts, processes, language, narratives and conventions' and condense the National Curriculum by reducing the number of compulsory subjects.' This was with the aim of realising five core goals, notably with 'economic needs' prioritised at the top of the list. D&T was identified as one of the subjects that would be demoted on the basis that it represented applied knowledge with 'weaker epistemological roots'.[76] This was not a surprise, it was never going to perform strongly in this academic and subject-focused view of education, however interestingly the Group did not suggest it was removed altogether, rather they supported a model in which D&T was a statutory requirement throughout Key Stages 1-4, but was not subject to mandatory assessment.

The Gove administration faced a barrage of criticism over their plans to reform the National Curriculum. School headteachers and teaching unions were among the first to speak out against the proposals for the EBacc and slimmed-down curriculum model. The Association of Teachers and Lecturers (ATL), for example, questioned Gove's rhetoric around academic rigour and Mary Bousted criticised attempts 'to restore an elitist and outdated curriculum'

76 DFE, Framework for the National Curriculum, p. 16, 23, 24.

and an irrelevant 'public school curriculum', arguing that 'The subjects and skills taught in schools should not be based on ministers' pet interests'.[77] The DFE, however, ploughed on with plans to establish the EBacc as a reward achievement in core subjects like English, maths and science and in 2012 published a consultative paper on its introduction, emphasising the focus on academic rigour.[78]

Concerns about the higher status afforded to English, maths, science, modern languages and humanities subjects were raised by representatives from the education sector on the basis that the 'backward-looking' educational position of the EBacc meant that 'someone doing subjects such as Latin and ancient history is going to get recognition for it, while another doing ICT and engineering will not.'[79] In the context of political debates about austerity measures, policies that centred around making fiscal savings and a Conservative Party that was driven by welfare cuts and job creation, as well as increasing industrial, business-facing, commercial and international vantage points, it was curious that educational policy focused on traditional academic subjects to the exclusion of more skills-based and applied education. However, as Goodson observed in response to the reforms instigated in 2010, the National Curriculum was increasingly becoming based on the beliefs of powerful individuals who were actively hostile to the education profession and driven by the desire for change, which is 'not educational at all. The impetus is a corporate drive to colonise public education as a site for profit accumulation'.[80] Although the government announced a U-turn on the full

77 Jeevan Vasagar and Jessica Shepherd, 'National Curriculum Review puts an Emphasis on Facts' *Guardian*, 20 January 2011.
78 Department for Education (DFE), *Reforming Key Stage 4 Qualifications* (2012), <https://dera.ioe.ac.uk//15560/> [accessed 31 October 2021].
79 Warwick Mansell, 'The English Bac Causes Fury in Schools' *Guardian*, 11 January 2011.
80 Ivor Goodson, 'Context, Curriculum and Professional Knowledge' *History of Education: Journal of the History of Education Society*, 43:6, (2014), 68 –776, (p. 776).

scope of the EBacc proposals in 2013, many schools had already adjusted their standard curricula in response to the proposals and now prioritised a much smaller and more academically oriented number of core curriculum subjects.

Defending design education as part of the creative curriculum

Advocates of a 'creative curriculum', including educators, professional bodies, museums, creative and cultural figures, national agencies, industry and business spokespersons, philanthropic organisations also spoke out about the reforms. In supporting the ongoing delivery of the arts in schools and acknowledging political debates about austerity, campaigners rehearsed arguments about the economic significance of design education. The responses of different community groups and organisations are scrutinised in the remainder of this chapter to understand the tactics behind emphasising the value of design to the British economy when, as this study has argued and continues to argue, the drivers for design in educational contexts and among design advocates tend to be weighted towards its cultural significance and broader societal benefits.

One of the more powerful and persistent campaigns in support of a creative curriculum for schools was launched by the Cultural Learning Alliance (CLA), who called for a broad arts education, including art, design, dance, drama and music, and whose membership included artists, designers, engineers, educators, schools professionals, advisory bodies, subject associations, teaching unions, ambassadors and representatives from the creative industries. In November 2011 the CLA published a report called *ImagineNation*, that confirmed that there was already a steady reduction in the number of students taking 'creative courses' at

GCSE.[81] Lending their support to the CLA's campaign, well-known leaders in the cultural sector, including the director of the Tate Nicholas Serota, , musician Julian Lloyd Webber, architect Richard Rogers, and artist Grayson Perry variously claimed that Gove's proposals were threatening the imagination of children and 'creative future of this country.'[82] Martin Roth, director of the V&A also lamented the proposals, commenting on the intrinsic value of the arts:

> The UK is one of the greatest creative nations in the world – remember the Olympics this summer? But if art, design, music, drama, and dance are squeezed to the edges of the curriculum, Britain's creative economy could be destroyed within a generation.[83]

Meanwhile, the artist Bob and Roberta Smith, a vigorous supporter of art and design education in schools, gained media attention with his work of art *Letter to Michael Gove, 2012* (**fig. 11**). In this artwork, Smith argued that 'a future that works will be a future where people can draw and design wonderful British products – one where they can be inventive and innovative, creative, discursive, and imaginative.'[84]

81 Creative Learning Alliance (CLA), *ImagineNation: The Case for Cultural Learning* (2011), <https://culturallearningalliance.org.uk/wpcontent/uploads/2017/08/ImagineNation_The_Case_for_Cultural_Learning.pdf> [accessed 31 October 2021].
82 See, Charlotte Higgins, 'Arts Leaders Voice Deep Concerns Over Lack of Cultural Subjects in Ebacc', *Guardian*, 2 November 2012, <https://www.theguardian.com/education/2012/nov/02/arts-leaders-concerns-ebacc-schools> [accessed 1 December 2021] and Tom Lawrence, 'No Arts in the English Baccalaureate Could Kill Britain's Creative Economy, Say Top Arts Figures', *Independent*, 3 November 2012, <https://www.independent.co.uk/news/education/education-news/no-arts-in-the-english-baccalaureate-could-kill-britain-s-creative-economy-say-top-arts-figures-8280114.html> [accessed 1 November 2021].
83 Martin Roth, *Martin Roth's Keynote Speech at Museums Association Conference*, Edinburgh 2012, <http://www.vam.ac.uk/blog/network/martin-roth-delivers-keynote-speech-museums-association-conference-2012> [accessed 31 October 2021].
84 Bob and Roberta Smith, 'Bob and Roberta Smith: Why I'm Making an Art Protest to Michael Gove', *Guardian*, 19 October 2012.

Figure 11 Bob and Roberta Smith, *Letter to Mr Gove* (2011)

Image: Bob & Roberta Smith, *Letter to Mr Gove*, (2011) ©2000-2021, permission to reproduce granted on website; <http://bobandrobertasmith.co.uk/letter-to-michael-gove/> [accessed 31 October 2021].

Presenting the economic imperative for design education

In the context of a national debate about austerity cuts, and a coalition government motivated by fiscal growth, it was unsurprising that arguments in support of design education were slanted toward the economy. What was noticeable, however, was the almost exclusive focus on the economy above and beyond all other qualities of the subject or indeed, of the education system as a whole. It appeared as if, despite many years of attempting to establish the breadth of D&T, its application in everyday contexts and contribution to citizen's basic educational toolkit, it was its role in supporting 'British commerce', and as a pipeline to the specific career pathways of future designers, architects, crafts people or engineers, that the debate returned.[85]

As soon as Gove's plans for educational reform were announced in 2010, the designer, entrepreneur, businessman and self-nominated spokesperson for 'British design and industry', James Dyson, voiced his concerns about the potential threat that an academically biased curriculum might pose to D&T and appealed to a sense of national pride, the need to improve industry and export and bolster the economy:

> If Britain is to once again be a world beating powerhouse of invention, we need a generation of highly skilled, creative engineers and scientists. People working magic in the real world… How do we do this? For a start, we need to take Science and Design and Technology seriously in schools.[86]

Dyson went on to make a case for a Science, Technology, Engineering and Mathematics (STEM) curriculum, based on the economic and industrial benefits to be gained by trading

85 See fig 8 and transcript, Smith, Bob and Roberta, *Letter to Mr Gove* (2011) <http://bobandrobertasmith.co.uk/letter-to-michael-gove/> [accessed 1 December 2021]
86 James Dyson, 'Why Our Children Must Quit-Ditch Harry Potter for the Magic of Science', *Sun*, 28 May 2010.

more engineers. In arguing that removing the subject would be 'to our economic detriment' and resurrecting debates about the threat of international competitors to the UK industry, Dyson elaborated,

> D&T will give us engineers. Coupled with maths and science, we'll get the logical, academic, and creative thinkers, the polymaths, we need… More bright graduates will develop more new technology for us to export – staving off competition from China and India and reducing our deficit.[87]

The fiscal advantages associated with the subjects art and design, and D&T were highlighted by public figures, including product designer Jonathan Ive; fashion designer Stella McCartney and designer Terence Conran, who put their names to an open letter written to Gove that claimed the 'the omission of subjects such as design and technology and art and design from the English baccalaureate will damage the future prosperity of our industry and the wider creative economy'.[88] Arguments about D&T's significance to the UK's economy and national competitiveness continued apace. At the John Eggleston Memorial Lecture in July 2011, Barlex argued that the subject had gone some way in the last 25 years to prove its educational rationale as a 'culturally significant, effective, economically advantageous subject, with global outlook'. To make the latter case he linked the design and manufacture of innovative products as a major factor in economic recovery, and positioned D&T as the only subject to deliver an education in both modern design and manufacture, as well as a taster of technical career paths and vocational education.[89]

87 James Dyson, 'Britain's Got Talented Young Engineers – We Just Need to Find an Edge', *Daily Telegraph*, 26 July 2010.
88 Amy Frearson, Jonathan Ive joins Campaign to Save UKs Creative Education', *Dezeen*, 6 December 2012, <https://www.dezeen.com/2012/12/06/jonathan-ive-joins-campaign-to-reinstate-uks-creative-education/> [accessed 1 December 2021].
89 David Barlex, 'Dear Minister, This Is Why Design and Technology Is a Very Important Subject in the School Curriculum', *Design and Technology Education: An International Journal*, 15 (2011), p. 9.

In 2010, the Design Council launched a campaign entitled 'Include Design' that highlighted the contribution of the design industry to the UK economy and described the value of design as 'the linchpin that connects our creative industries.'[90] For some scholars and advocates of design education, the data provided evidence of the success of the UK's investment in D&T at schools level. Reflecting an increase of international scholarship about the value of design education in 2012 and in the context of a global economic downturn, Süreyya Çakır, for example, linked the introduction of design technology to the United Kingdom's curriculum to 'the emergence of design culture and a growth in the design market', citing the Design Council's report on the increased number of designers as evidence of the subject's success.[91]

By utilising data pertaining to the increase of design students in universities between 1999 and 2009 obtained from Design Council reports, Çakır connected the increased use of the term 'creative industries' as evidence of the way in which D&T in schools had influenced how design is 'practised, circulated, and perceived'. Robin Vande Zande also cited a Design Council study to substantiate her claim that introducing a design focus into the curriculum is linked to profitability, making a connection between data about the UK design industry and Stuart Macdonald's statement in 1998 that 'design is integral in the K-12 curriculum as it is a compulsory subject for all grade K9 students and available as electives to students in in grades 10–12'.[92] Vande Zande referred to research by Stephen Harrison suggesting that the economic advantage associated with design education in compulsory education is witnessed

90 See Design Council's 'Include Design' campaign, (27 November 2012) Internet Archive, 'includedesign.org', <http://web.archive.org/web/20121127233004/http://includedesign.org:80/> [accessed 31 October 2021].
91 Çakır, Süreyya, 'Communication Design Education: A New Trend in Schooling', *Procedia – Social and Behavioural Sciences* 55 (2012), 710–719, DOI: 10.1016/j.sbspro.2012.09.556
92 With K-12 education in the UK going up to the age of 16, see Robin Vande Zande, 'Teaching Design Education for Cultural, Pedagogical, and Economic Aims', *Studies in Art Education: A Journal of Issues and Research*, 51/3 (2010) 248–261, p. 257.

in countries like Britain where 'design is an essential component in making competitive products and increasing profits.' There are, however, issues with the claims made in Vande Zande and Çakır's papers that warrant further attention.

To start with Çakır's argument, it is apparent that the basis of the claim rests on data about increasing numbers of design graduates in the UK and links the delivery of D&T with an ability to nurture more designers. However, as shown in this study, in the discussions about the value of design education in the 1960s, 1970s and 1980s and in National Curriculum design and technology guidance documents, the rationale for delivering design as a component of general education in schools was never to create more designers. Furthermore, notwithstanding widespread criticism of the indeterminate quality and availability of design education in schools in the early 1990s, pupils who were taught compulsory D&T courses would be in the very early stages of their career in the 2000s, and thus unlikely as a cohort to be the only factor in the UK's commercial design success during this period.

Moving on to Vande Zande's paper, it is noticeable that much of the argument rests on historical discourse around the interplay between design and the economy. Vande Zande's paper repeatedly refers to the origins of design education and particularly to a 1923 paper by Charles Bennet that suggested that the 1851 Great Exhibition had shown the connection between design, industry and the economy and that the introduction of industrial drawing in public schools in the UK had 'shown positive results in the design of their products'.[93]

93 Vande Zande, p. 255.

This statement is problematic because, as noted earlier, the origins of design education had first emerged in the 1830s in response to an already recognised connection between design and stylistic quality of manufactured goods; there was no standard delivery of industrial drawing in public schools in the UK. Indeed, this was a trend in schools in the USA, and there was certainly no evidence of a link to product design.[94]

The positioning of design education in these texts and in the examples of media reporting provided earlier is symptomatic of the economic mythology surrounding the field. As McGimpsey argues, tangible evidence about improvements to the economy and enhanced employability skills as a result of D&T education remain scant.[95] Despite this, messages surrounding the value of design education in schools, and D&T specifically, build on a problematic historical discourse about its fiscal benefit and an inaccurate assumption about the historic need for better design skills to prop up industry, an argument that has since been shown, by Mervyn Romans, to be an inaccurate portrayal of the original rationale for a design education programmes in the UK.[96]

The arguments for design education collected in this study, dating from around 2011 and 2012, indicate ongoing conjecture about the economic necessity of design education.[97] In a

94 Korzenik discusses how technical drawing manuals were imported from Britain in the mid-nineteenth century for use in US Schools, who were struggling to resource this aspect of the curriculum. These skills were desired because they 'were essential to the carpenter, the shipbuilder and the mechanic', Diana Korzenik, '"How to Draw" Books as Sources for Understanding Art Education of the Nineteenth Century' in *Histories of Art and Design Education, Collected Essays*, ed. by Mervyn Romans, (Bristol: Intellect, 2005), 33-40, (p. 38).
95 McGimpsey, p. 6-7.
96 Mervyn Romans, 'Living in the Past: Some Revisionist Thoughts on the Historiography of Art and Design Education', *Journal of Art and Design Education*, 23, 3 (2004), 270–277.
97 Romans, p. 272.

2016 key-note delivered by John Sorrell, co-founder of the Sorrell Foundation, initiator of the National Art and Design Saturday Club, and former chief executive of the Design Council, suggests that this was a matter of tactics, rather than principle. Addressing attendees at the Council for Higher Education in Art and Design (CHEAD) 2016 Annual Conference*,* Sorrell implored them to unite and defend the role of the arts in schools; to get the government to listen, he argued, it was vital to present them with an economic incentive.[98]

The issue with highlighting fiscal imperatives over the social and cultural benefits associated with providing people with an education that will help enable autonomy in their everyday life is that it results in a situation whereby the rationale that fuels subject development, and the values upon which D&T is judged, are at odds with one another. Writing about how further education is associated with more vocational discourse, John Bryan questions whether any one type of education can ever be more or less well positioned to support a national economy on the basis that the 'ability to make a profit is what determines the creation of employment opportunities and not a skilled workforce,' and that education needs 'to produce individuals for society who are educated for life, not just trained for a job.'[99] This argument is usefully applied to the case of D&T, repositioning the economic imperative as an unrealistic expectation to inflict on the subject community and questioning the logic of applying this argument just for the sake of getting a government committed to a more classical approach to education to listen.

98 Sorrell argued in a Keynote at the CHEAD Conference 2016 that the Chancellor of the Exchequer George Osbourne knows about design because his parents owned a wallpaper company, and he therefore grew up listening to conversations about design around the dinner table. Attended/notes by the author, Higher Education Council, 'Art School, Location, Agency' *CHEAD Conference 2016*, 16-19 March 2016, Bath School of Art and Design, <https://chead.ac.uk/events/chead-conference-2016/> [accessed 1 December 2021].
99 John Bryan, 'FE Cannot Save the Economy' in *The RoutledgeFalmer Guide to Key Debates in Education* ed. by Dennis Hayes, (London, RoutledgeFalmer, 2004) pp. 143–146, (p. 141, 144, 146).

The social and cultural imperative for design education

Away from the headlines and from literature about the impact of design education in a schools context from an international perspective, the role of design in the school curriculum has long been understood by educators as a way of helping children to have a more rounded education of relevance to the 'real world' rather than to a specific industry or to the economy. If the role of design education was, as campaigners suggest, to improve the economy then this could be partly quantified by using data about the number of trained designers and their contribution to GDP. However, in the context of general education, D&T had also been aligned with the need to provide real-life everyday skills as a broader aim of a holistic and human-centred education.

Alison Hardy's research on the value of D&T to academics and trainee teachers, for example, found that for the most part, both groups tended to equate the subject with themes like creativity, personal skills, making a product, using brains and hands, acting on the world and learning skills and techniques.[100] Notably, these values are not explicitly orientated toward economic or vocational concerns. Rather they relate to design's social role and sense of a holistic education that empowers autonomous individuals.

An Associate Parliamentary Design and Innovation Group (APDIG) debate in 2012, which offered a reappraisal of the field in the context of the proposed National Curriculum reform,

100 Alison Hardy, 'What's D&T for? Gathering and Comparing the Values of Design and Technology Academics and Trainee Teachers', *Design and Technology Education: An International Journal*, 20.2 (2015) 10-21, (pp.14-15) <https://ojs.lboro.ac.uk/DATE/article/view/2026/2170> [accessed 31 October 2021].

demonstrates the ongoing consensus around the social impetus for design education. Rather than discussing the specific development of the subjects D&T, or art and design, the 'expert' panel, including Emily Campbell (Creative Education Academies Trust), Guy Claxton (Centre for Real World Learning), Sarah Huntingdon (Huddersfield Studio School), John Sorrell (Sorrell Foundation) and Kay Stables (Goldsmiths University), focused on design in schools more broadly *and on* the potential of design education, asking:

- How should design be taught?
- How can its multiple facets be represented?
- How can it connect adequately with industry and the pace of change in the real world?
- How can children get the good design grounding they need to navigate the complex twenty-first-century world?
- How can design pathways from school through to HE be made more coherent and clearly defined?[101]

The panel debate and audience, which included representatives from the Design and Technology Association and NSEAD in addition to Bel Reed (Design Council), Helen Charman (Design Museum), James Pitt (Ellen MacArthur Foundation) and Katy Bevan (Crafts Council), emphasised the social aspects of design education. Claxton, for example, suggested that it was important to think about the function of education, which he posited was not only about qualifications, but also about instilling creativity and autonomy, qualities that could be achieved through the arts. Sorrell highlighted that not all students would become designers, but it might inspire a few and at least they would be 'better informed', and Stables emphasised that firstly 'design capability is one of the things that make us human', secondly 'design education can nurture that capability' and thirdly 'society is in a much better shape

101 Transcript provided to the author on request, Associate Parliamentary Design and Innovation Group (APDIG), *A New Vision for Design Education: Is Design Learning at Schools Fit for Purpose?* 1 May 2012, [p. 1].

when design capability of each individual is nurtured'.[102] Notably neither the questions that were tabled for the group, nor the thrust of the debate, cited economic benefit.

These debates reflected the broader arguments of the academic design community who, in 2012, were involved in re-evaluating their survival, approach and development in the context of global economic crisis. Commenting on the delivery of design education in relation to the training of designers in higher education contexts, design theory veterans Jorge Frascara and Guillermina Noel, for example, highlight the social benefits of design education, calling for a greater degree of emphasis on the social function of design that deals primarily with 'real-world' design problems and solutions in the context of everyday life. In another example, Fatima Cassim discusses the challenges of teaching design to students who will use it to respond 'strategically to contemporary challenges, influenced by ethical and environmental issues as well as technological advancements'.[103]

The case for the social importance of a design education was again emphasised by Ken Baynes and Krysia Brochocka in 2010, who argued that design education fulfils a basic educational need for 'understanding designing and making in everyday lives and the big environmental and technological issues facing society.'[104] Furthermore, that it is this aspect of the course that is vital for young people:

> There is the tendency to devalue what might be called the skills of everyday life and instead celebrate professional and academic achievement at their expense… The creative work of making an economically, socially, and personally successful base for

102 Ibid., [p.3].
103 See Jorge Franscara and Noel Guillermina, 'What's Missing in Design Education Today?', *Visible Language* 133/46 (2012) 35–53 and Fatima Cassim, 'Hands On, Hearts On, Minds On: Design Thinking within an Educational Context', *International Journal of Art and Design Education* (2013) 32:2 190–202, (p. 190).
104 Ken Baynes and Krysia Brochocka, 'Models of Change: The Future of Design Education', *Design and Technology: An International Journal*, 15 (2010), 10-17.

> living is one of the most important human enterprises… Inexplicably society has largely been content to leave young people to sink or swim without help from formal education.[105]

There is little to suggest, however, that the government was listening particularly attentively to any arguments in favour of retaining D&T, economic or societal. In 2013, a long awaited and much-derided DFE Consultation Paper outlined an approach to D&T based on the making of well-crafted products, technical skills, craftsmanship and practical skills, which undermined many of the core principles of design and technology education that had been established over the previous 25-years.[106] It was apparent that the DFE had not consulted experts on the proposals for D&T or indeed on the effects of the reforms on what schools taught, more broadly.

As it transpired, the proposals for D&T were so out of sorts with existing practice that questions were raised over who had been responsible for drawing it up. At a Westminster Education Forum, Reviewing the New Design and Technology Curriculum, Matt White, Assistant Director of the National Curriculum Review Division Department of Education indicated that expert panel advice had not been sought and the proposals had been put together by an internal DFE team. White continued to inform the forum that while the DFE team had policy expertise, there was no specific expertise in the field of Design and

105 Ken Baynes, *Design Education, A Vision for the Future* (Loughborough: Loughborough Design Press, 2013), p. 233.

106 For commentary on the proposals see, David Priestland, Margaret Reynolds, Richard Wentworth, Matt Parker, Yvonne Baker, Chris Hamnett, Nick Byrne, 'Michael Gove's New Curriculum, What the Experts Say', *Guardian*, 12 February 2013, and William Stewart, 'Gove's Curriculum Could Lead to Chaos, School Leaders Warn', *The Times Educational Supplement*, 12 April 2013, p. 8.

Technology (although he was an Engineering graduate).[107] Meanwhile the complete lack of consultation was not limited to D&T, as the *Guardian* reported;

> The public consultation on Michael Gove's plans for a new school curriculum closed on Tuesday. But don't worry too much if you've forgotten to reply. For I think we all know where most responses will end up: either the bin, or in some filing cabinet under 'I' for Ignore, along with the recommendations of teachers, professors and other experts.[108]

The polarisation of social and economic arguments in support of design education in schools continued to play out against this backdrop. Meanwhile, the impacts of the 2010 reforms were becoming increasingly apparent. In 2013, the DFE announced a monumental U-turn on the EBacc, and halted plans to make it a qualification in its own right. It was however retained as a way of monitoring school and student performance in core National Curriculum subjects and this meant that many schools adjusted their standard curricula to improve their results in key academic subjects.[109]

Conclusion: Cultural value of design education in schools contexts

The chapter has charted the enormous efforts that went into branding D&T as a national success story, the creation of an educational product that curriculum developers, governments, interested organisations and international governments could invest in, and a cohesive community of educators who were engaged in resourcing and supporting subject development. However, in the two years 2010 to 2012, a change to the political agenda and a move to support a more classic education undermined twenty years of conceptualisation,

107 Matt White, 'Curriculum Reform and Design and Technology' in Westminster Education Forum, *Reviewing the New Design and Technology Curriculum*, 13 November 2013 (transcript) pp.10–16, (p.10, 14).
108 David Priestland, 'Michael Gove's Disdain for Experts is Typical of the Laissez-Faire Ideologues', *Guardian*, 18 April 2013.
109 Andrew Sparrow, 'Government Denies Humiliating U-Turn over GCSE Replacement' *Guardian*, 7 February 2013.

experimentation, pedagogical development and the gradual development of consensus between the subject community.

When faced with the threat of educational reform driven by an economically minded Conservative party, the chapter has shown that dominant and mainstream public arguments returned to cite fiscal benefits, job creation and industry-orientated solutions in a bid to respond to the perceived political concerns of the day. This argument, however, is based on the premise that design education exists to sustain the design profession. Comparing the economic argument presented in campaign literature and with debates taking places within inner circles of design educationalists and members of the D&T research community, demonstrates that there is a mismatch between the public-facing rationale for design education that is presented to government by policy influencers and campaigners, and the aspirations of leading design educators, and the D&T research community. This tension comes to the surface when reform activity triggers renewed debate about what is truly at the heart of D&T, and paves the way for renewed speculation about the 'social' benefits of design education that had been marginalised in efforts to conform to government policy and keep D&T in the curriculum.

McGimpsey suggested that there was no evidence that D&T has fulfilled its economic obligations as originally intended in 1988. The evidence presented in this study, however, suggests that this claim for D&T was notional, rather than implicit. It is posited that the economic discourse surrounding subject development was, for educators at least, more of a means to an end, and a way of securing a position as part of the National Curriculum framework, rather than a guiding ambition.

In England, D&T was created and supported by a community of educational researchers and design educators who, by and large, sought to meaningfully prepare children for their role as active citizens. This both spurred from, and was an attempt to, democratise design by sharing the principles of design knowledge, practice, skills and capability beyond the confines of the professional design community. While statements about design's fiscal potential permeate public debates about why we should deliver design education in schools, what lies at the heart of subject development is a social argument about the human-based value of understanding and applying design concepts in everyday life. This is what inspires educators and, historically, encourages progress.

Conclusion

'[T]he concept of *Design* encompasses a very wide range of everyday human experience, enterprise and action – that is, not to just the disciplines and areas of professional design practice.'[1]

This thesis set out to explore the inception and implementation of National Curriculum D&T as part of the English school curriculum. The study was distinctive because it offered a design history perspective on D&T that drew on histories and theories of art, design and technology education in and outside of schools; curriculum and education policy development; vernacular reports, extant literatures and primary sources.

The use of archival source materials created an opportunity to unpack debates about the role of design within D&T and piece together a highly nuanced picture of the evolution of influential literatures. The investigation brought to light documents that appear to have evaded scrutiny in other accounts of D&T's development. Archival records were compared and contrasted with official reports, newspaper articles and policy documents to reveal new knowledge about the involvement of civil servants, government departments, individual educational experts, and public advisory bodies involved in early decision-making processes. Adding nuance to what was known about subject development during a during a period of intense educational reform, these findings challenged claims that design was added to D&T at the behest of an undisclosed 'design lobby' and foregrounded the social aspirations of key proponents of D&T in a way that had not previously been possible.

1 Phil Roberts, 'Characteristics of Design Education: Reviewing and Developing Design Curricular Provision and Practice in General Education', in *Design Education: A Vision for the Future*, ed. by, Ken Baynes, and Eddie Norman, (Leicestershire: Loughborough Design Press, 2013), pp. 13-19, p. 13.

One of the significant features of D&T, as conceived by the National Curriculum Design and Technology Working Group (NC/DTWG) in 1988, was that it positioned students' as active citizens and aimed to equip them with a combination of cognitive and practical ability to navigate everyday life. Significantly, the design component of the subject was not intended to train the next generation of designers, but to establish the public's critical engagement with design as part of an educated person's essential skillset. Over the next twenty-five years, the fluidity of design's meaning proved advantageous for curriculum planners and educational policy advisors, enabling them to conform with changing political and educational discourse and helping them secure vital resource to support D&T's ongoing tenure as part of the National Curriculum. This fluidity, however, also proved detrimental, deferring the development of a more cohesive identity for the subject and creating unrealistic expectations about the social and economic benefit of D&T education.

Taken together, the study shows that the porous nature of design helped D&T retain a position in the National Curriculum framework between 1988-2012, but that this also complicated design's consistent translation into a stable and meaningful category of teaching at school level. This tension, I suggest, stems from an overt reliance on the economy and a designer-centric rationale to warrant the ongoing delivery of D&T in public campaign literature. Repeatedly justifying D&T in terms of the contribution of design to the national economy, and the persistent characterisation of design education as a way of servicing the design profession, undermines the importance of design and designing as a feature of everyday life.

This observation is significant because it shows how history writing and design education discourse can shape contemporary debate. The focus on design education as a means of servicing the design profession helps explain why economic arguments are better rehearsed when educational reform threatens provision. Meanwhile, the dearth of historical research about the delivery and impact of design education outside of professional training contexts means that D&T policy influencers and campaigners struggle to express the holistic and heuristic value of design as part of everyday life or describe its historical precedence. This study provides a preliminary response to this lacuna, but there is still a significant amount of ground to rover if we are to develop a deeper understanding of the democratisation of design through general education.

Research findings

The study began by exploring the historical discourses of design education in a UK context, in terms of its origins, format and conceptual development. It was noted in Chapter Two that, historically, discourses of design education are remarkably static and can be characterised by a focus on the professional development of designers and the economic imperatives associated with training them. This dominant economic narrative stifles the social and cultural rationale for design education, and the translation of design as a set of skills, knowledge and understanding that can be applied in everyday contexts.

Chapter Two also demonstrated that there has been a tendency in the UK to commission and then condemn design education initiatives before their impact can accurately be evaluated. Despite substantial investment in the nineteenth century Government Schools of Design, for example, they only operated in their original capacity for a 12-year period. At the

1849 Select Committee hearing that signalled the reappropriation of the Government Schools of Design, Henry Cole heavily criticised them for not achieving commercial success.[2] However, the schools were not originally intended to realise tangible fiscal improvements, and indeed would have been extraordinarily hard pressed to do so in such a short time period.[3] Other examples of short-termism in design education includes the Royal College of Art's design education MA programme, that stemmed from a government-funded research project specifically intended to realise design's perceived economic potential through general education. The research team subverted this remit, repurposing the project as a catalyst for a more radical and socially orientated concept of designerly activity, but despite its reputation the RCA's design education MA course lasted less than ten years.[4] Yet, despite their premature demise, both of these examples spurred a long-term legacy that would impact on the development of design education.

In Chapter Three, it was noted that D&T subject histories tended to align themselves with a tradition of practical education, rather than the development of ideas analogous with design or designing, perhaps to counter this sense of short-termism. These production of these histories coincided with the government's announcement of a National Curriculum framework, which presented an opportunity to shift emphasis away from practical training, to balance gender biases, and redeploy the discourses of design education in a new school

2 See extracts of the *Report of the Select Committee on the Government School of Design*, (1849) chaired by Thomas Milner Gibson reprinted in Clive Ashwin, *Art Education: Documents and Policies 1768-1975* (London: Society for Research into Higher Education, 1975), pp. 26-38.
3 See, Mervyn Romans, 'An Analysis of the Political Complexion of the 1835/6 Select Committee on Arts and Manufactures', *International Journal of Art and Design Education*, 26 (2007), 216–224, (p. 216) and Mervyn Romans, 'A Question of "Taste": Re-Examining the Rationale for the Introduction of Public Art and Design Education to Britain in the Early Nineteenth Century', in *Histories of Art and Design Education: Collected Essays*, ed. by Mervyn Romans (Trowbridge: Intellect, 2005), pp. 41–54.
4 Baynes and Brochocka, p. 11.

subject. Central protagonists spent the early 1980s exploring the possibilities of design and technology education, with new resources and projects emphasising the role of design within the school curriculum.

The formation and recommendations of the NC/DTWG were central to this shift, consolidating decades of design curriculum development activities and heralding a novel cross-curricula approach that brought knowledge together from all subjects and encouraging students to apply it in everyday scenarios. The close reading of archival source materials in Chapter Four showed how the design component of the National Curriculum, in its original format, was the result of deeply held social and cultural aspirations of educationalists who aspired to provide young people with skills and experience that would prepare them for their everyday lives, as opposed to a career in engineering or professional design industries.

In this context, a grounding in design was intended as a way of empowering a twenty-first century generation who would face new and unknown challenges signalled by the impending technological revolution, and relating to the job market, domestic conditions, culture and economy. However, as became apparent in Chapter Five, the existing structure of secondary schools, and the prescription inherent in a nationally administered curriculum, did not prove to be a supportive environment for design and technology as a unitary concept. The full vision of the NC/DTWG was never realised on a national scale and subsequent iterations of D&T guidelines were flexed to account for the practical limitations of administrative systems in schools; the beliefs of different groups with a vested interest in

the field, and ongoing reforms instigated by incumbent government politicians and political advisors.

As historic debates about the function of D&T were resurrected, the educational reforms that threatened subject's ongoing delivery created an opportunity to re-examine the essential purpose of design education. Chapter Six demonstrated that the D&T community worked to bridge complex system of disciplinary silos, opposing educational ideologies and political priorities, but despite a growing sense of cohesion in the 1990s and 2000s, curriculum reform activity threatened the provision of design-related subjects in 2010. As media headlines became dominated by economic imperatives, more nuanced debates from within the education community continued to advocate for the holistic and socially-orientated ethos of the field.

These examples all point to a recurrent issue regarding unrealistic expectations of design education, and an inability to clearly establish intended aims and outcomes, which can be linked back to the fluidity of design's meaning and different interpretations about its value.[5] This trend helps to explain why, in 2010, D&T was quickly branded a 'failure'. Matt McLain and others, came to a similar conclusion in their interpretation of D&T as an educational construct that contains a combination of so called hard and soft skills that, they suggest, negates D&T's ability to retain a stable position in the curriculum.[6] Encouragingly, given the

5 See, Ian McGimpsey, 'A Review of Literature in Design Education in the National Curriculum (RSA: Design and Society, 2011).
<www.thersa.org/__data/assets/pdf.../RSA_DT-Lit_Review_final.pdf> [accessed 31 October 2021].
6 Matt McLain and others, 'Humanising the Design and Technology Curriculum: Why Technology Education Makes Us Human*, Design and Technology Education: An International Journal,* 24, 2, (2019) 8-19, (p. 11), <https://ojs.lboro.ac.uk/DATE/article/view/2610> [accessed 31 October 2021].

focus of this study, McLain has also called for educational research that moves away from the technological focus of D&T and recognises 'the value of the subject as cultural rather than a merely technical or economic imperative.'[7]

It is somewhat frustrating that D&T is persistently judged on its ability to have an economic impact, when this was not necessarily its original purpose. Baynes and Brochocka wrote that, '[I]n 1973, governments began to take design seriously but it was on the economic significance of design that they focused. Educationalists followed their lead.'[8] Throughout this study, I have shown that D&T's narrative is distorted by this economic versus a social rationale, which impacts on the subject's ability to sustain a position as part of general education. By relating the fluidity of design to the tendency for design-related education initiatives to be misconstrued at a later date, I suggest that this distortion is a perennial issue in the translation of design in educational contexts. The ongoing focus on economic gain means that commentators understanding of success is skewed, and when critics' claim that innovative design education initiatives have failed; it tends to have been the demands on the subject that have changed.

Contribution of the research to design history scholarship

In 1993, David Mulberg wrote a timely article for the *Journal of Design History* about how technology was perceived in the National Curriculum.[9] In reviewing the journal nearly thirty

7 Matt McLain and others, 'How Technology Makes Us Human: Cultural Historical Roots for Design and Technology Education', *The Curriculum Journal*, 30:4, (2019), 464- 483, (p. 464), DOI: 10.1080/09585176.2019.1649163.
8 Ken Baynes and Krysia Brochocka, 'Models of Change: The Future of Design Education', *Design and Technology: An International Journal*, 15 (2010), 10-17, (p. 11).
9 David Mulberg, "Just Don't Ask Me to Define It": Perceptions of Technology in the National Curriculum', *Journal of Design History,* 6, 4 (1993) 301–305.

years later, it is apparent that there has been little to no further debate about the role of D&T as part of design's history since this article. Instead, scholarship is dominated by debates about design education in relation to further and higher education courses and this means that the majority of design historical literature continues to service the professional design industry through a focus on design pedagogy for specific sub-disciplines, such as fashion, textiles, graphic design, or on case studies of small scale approaches to design teaching and learning in classroom contexts.[10]

This gap is surprising, given design history scholar's interest in social design and the phenomena of design in everyday life; given D&T's widespread delivery to generations of young people attending schools in England, and given ongoing debates in the field that would benefit from new perspectives. While research about designer's training represents an important contribution to the domain, there is a risk of overlooking spaces in which non-professional design education takes place on a much larger scale. I suggest that the history and development of D&T in the National Curriculum is a prime example of this practice. This study is significant because it contributes a historical interpretation of D&T development, and offers a response to Maya Oppenheimer's call in the *Journal for Design History* for design historical scholarship that re-considers design education narratives.[11]

10 For an example of research on schools-based design education, which continues the tradition of focus on small-scale case studies rather than an analysis of wholesale mass education experiments, see, Fabrizio Pierandrei & Elena Marengoni 'Design Culture in School, Experiences of Design Workshops with Children', *The Design Journal*, (2017) S915-S926, DOI: 10.1080/14606925.2017.1353036

11 Maya Oppenheimer, 'Introduction; Histories of Design Pedagogy', ed. by Maya Oppenheimer, *Journal of Design History,* 14 (2016), 2 - 24 , <https://doi.org/10.1093/jdh/epw014>

Implications of the research

Operating from the outskirts of education and from 'within' the domain of design history, it was intended that the study would resonate first and foremost with historians of art, design and visual cultures, with the potential scope to engage with design educators and D&T subject communities. In 2012, a moment of educational change was imminent, urgent debates about the future of D&T in schools was underway. The future for D&T education looked uncertain, and in the context of this huge upheaval, this study has proved timely. For example, the study speaks to calls by the D&T subject community for new research that positions design as part of a broad and balanced curriculum.[12]

The ability to trace those different perspectives in this study was possible, partly, because of the availability of primary sources about D&T subject development. Many of those sources are now not so readily available. When this research project began, access to archival materials was comparatively straightforward and, in many cases, due to the relative 'newness' of the materials – was unrestricted. Over the lifetime of the project however, resources and documents that had been widely available over the past twenty-five years (because they spoke to the requirements of the National Curriculum framework) were becoming increasingly obsolete. Library stock, for example, was gradually diminishing due to a combination of curriculum reform activity, the increasing availability of e-publications made available through repositories like the STEM Resource Centre, the changing priorities and budgets of university libraries and the physical age of the materials. The texts had not

12 Alison Hardy, 'How Did We Get To This Point?' in *Redesigning D&T.. Talking …Thinking …About Design and/or Technology,* ed. by Alison Hardy and Eddie Norman (Oxford, Loughborough Design Press, 2021) pp. 27–39, (p.31).

become irretrievable, but access to them had to be mediated differently. Resources that were originally available locally at the university library in 2012 became accessible only via electronic download, through online digital repositories or by visiting special collections. There was a timeliness to this study, that meant it was part of the history it was writing about.

Contemporary debates

Writing in 2021, persistent and ongoing education reforms, combined with the challenges associated with evidencing student's capability in design and technology, retraction of investment in teacher training, and a renewed focus on traditional academic educational values, have led to the dismantling of D&T.[13] The predicted decline of a creative curriculum is a reality in many schools in England, and there is evidence of a continual decline of schools offering, and pupils taking, D&T GCSE examination courses, a reduction of the number of teachers employed to deliver these subjects, lack of training and inadequate resources.[14] This has led to a resurgence of interest in the role of design as part of technology, and is a marked shift from the 1990s when, as the study has shown, the focus was firmly on technology.[15]

13 Design and Technology take up faced the most rapid decline of all National Curriculum subjects associated with the creative curriculum. Between 2010-2019 entries for GCSE dropped by 65% and in 2021 the government withdrew support for teacher training, prompting calls to re-think the provision of design and technology on a national scale. See, Tom Richmond, *A Step Baccward: Analysing the impact of the 'English Baccalaureate' performance measure* (2019), p. 1. <https://www.edsk.org/wp-content/uploads/2019/07/A-step-Baccward.pdf> [accessed 31 October 2021] and David Spendlove, 'Design and/or Technology 2.0: Is This The Way Forward? Rpt in *Redesigning D&T … Talking … Thinking*, ed. by Alison Hardy, Eddie Norman (Oxford, Loughborough Design Press, 2021), pp. 11-14.

14 Sarah Dawood, 'Design Being "Squeezed Out" Of State Schools, Says V&A Director Tristram Hunt' *Design Week*, 18 July 2018, <https://www.designweek.co.uk/issues/16-22-july-2018/design-being-squeezed-out-of-state-schools-says-va-director-tristram-hunt/> [accessed 10 September 2018].

15 Buckley, for example, reframes the role of design technology through an educational theory framework, Jeffrey Buckley and others, 'Framing the Constructive Alignment of Design within Technology Subjects in

The aftermath of the Covid-19 pandemic makes debates about the essential structure and content of England's national education system even more vital. While it is not within the scope of this study to wrestle with the enormous educational challenges that have been prompted post-2012, it is noted that there is a danger that history will neglect the deep social and cultural imperatives that fuelled subject development, and which have contributed towards the democratisation of design through design and technology education.

In July 2021, a BBC Radio 4 panel discussion series called *Rethink* debated the relevance of educational practices in the UK in light of the impact of the Covid-19 pandemic, 2020-21 and ongoing questions about the suitability of the current system. In the first episode, focused on examinations, Lord Kenneth Baker, the original architect of the National Curriculum and long-standing advocate of technical education, claimed that state education was on the 'cusp of change'. In critiquing the overtly academic emphasis of the current approach, he argued that the education system should better prepare young people for employment and identified a particular deficit in data skills, as well as:

> skills that employees really value such as empathy, the ability to communicate, to be a team leader, the ability to work with others, all of the skills which are actually called soft skills but should be called essential life skills because they are actually transferable into everyday life.[16]

General Education', *International Journal of Technology and Design Education,* 31 (2021) 867-883, (p.867-868). DOI: 10.1007/s10798-020-09585-y

16 'Rethink Education: Is the Current Exam System Fit For Purpose?' *Rethink*, BBC Radio 4, 7 July 2021, 30:50-30:59.

This claim hit a chord and was picked up again in the next Rethink Education panel debate that focused on whether the subjects taught as part of a formal education were fit for purpose. The panel's views on this were not dissimilar from those of the NC/DTWG in 1988, emphasising cross-curricula, interdisciplinary and collaborative approaches so that these 'soft skills' and data analysis could be delivered through any and all subjects in order to teach young people to be adaptable 'when the world changes you change with it.'[17]

Their argument was not technical versus academic education, rather it was about capability realized through the ability to engage in problem-solving, communication and critical thinking. For panelist, Steven Spier, these skills were precisely what a design education offered, and reminiscent of the debates in the 1970s and in relation to D&T, the debate swung to the potential of design to offer transferable skills. With design education acting as shorthand for any form of learning that is progressive or 'real-world' facing, the fluidity of the term once again comes to the fore. Certainly, the history of design education in schools since 1988, and the development of D&T as presented here, would warn against a simplistic assumption that design education can meet the educational requirements of employment. The study has shown that thinking behind the construction, delivery and understanding of the field runs far deeper.

Looking forward, one issue for design and technology curriculum planners is that the community of educators involved in National Curriculum D&T development have retired taking with them the 'institutional' knowledge of the past. New trainee teachers are unlikely

17 'Rethink Education: Are We Teaching the Right Subjects?' *Rethink*, BBC Radio 4, 8 July 2021.

to have ever experienced pre-National Curriculum education and they are faced with declining support, resource, and time on the curriculum timetable, which also comes with relaxed regulation and limited statuary guidance on what is required to be taught. I suggest that this is where an awareness of the history of the field becomes vital and perhaps where focusing efforts on understanding what a design education might encompass would be best delivered.

Design histories of public design education: scope for further research

It is hoped that this study has helped to prepare the ground for further research into schools-based design education from a design history perspective. Opportunities for future scholarship include revisiting the history of D&T, and the history of design education imagined on a public scale, to realign it with social and cultural heritage as opposed to government's technical and economic ambitions. The history and development of design education resources would offer an excellent resource for this work, with D&T textbooks published after 1990 offering a particularly fruitful source of materials.

Another area that is ripe for further exploration relates to the material culture of design education. In writing about DIY as 'a democratising agency' in design, Paul Atkinson notes that, for many consumers, DIY projects, are a 'significant element of the fabric of their everyday life', but that the outcomes tend to exist within a private and personal sphere, and often without any physical legacy, 'the results of the activity itself, owing to their individual and personal nature, often disappearing without trace with the passing of time.'[18] Similarly,

18 Paul Atkinson, 'Do It Yourself: Democracy and Design', *Journal of Design History*, 19, 1 (2006), 1-10, (p. 1), <https://www.jstor.org/stable/3838669> [accessed 31 October 2021]

within the history of D&T, it is the projects undertaken in the classroom and the processes involved in achieving an outcome that whilst ephemeral, have the potential to provide a rich and rewarding topic for further study. These objects are hard to come by, but an interesting point of comparison would be the examples of pre-1988 D&T best practice included in the Design Council's Slide Collection at Manchester Metropolitan University, complemented with the contents and illustrations used in the *Big Paper* and *Designing* magazine.

Lastly, there is an opportunity to undertake a visual mapping of the constellations of actors; reports; research centres; teacher training centres; research projects; reports; resources; and classroom materials that are referred to throughout this study and that have contributed to the development of D&T. Such a process would necessarily spread out across other subject domains; highlighting the complexity and also commonality of aspects of design education, as well as the ebb and flow of discourse within this fluid and highly nuanced field.

Conclusion

The final words in this study speak to the broader history of design and technology education and to its potential role mediating everyday lived experience of design and the design profession. As Penny Sparke writes, the two cultures are closely connected:

> Design is all around us. It's there in the boardroom and on the battlefield: on the factory floor and the supermarket aisle, in our cars and kitchens; on advertising hoardings and food packaging; on movie sets and in computer avatars. However, design is not just a feature of our surroundings, it is also a process. When we buy a table, arrange flowers in a vase or present a meal we all engage with design and - on one level - become designers ourselves. Constantly arranging and re-arranging our

> surroundings and the objects within them to make our worlds look and work in the way we want.[19]

Design, understood in this way, forms an inescapable aspect of our material life and fuses with everyday experiences. For Tony Fry, a proponent of future-focused thinking through design, it is precisely this enormous breadth and capacity that make design and design studies indispensable, arguing that, 'design practice, history, theory and journalism have failed to grasp and communicate, especially to leaders and decision-makers, just how powerful is design's distributive and compound directive agency.'[20] As the study has demonstrated, it is the case that discourse surrounding public design education in England, understood as a more democratically and less designer-orientated domain, also has a long way to go in before it can comprehensively establish its importance as part of general education.

I suggest that there is an urgent need to move beyond bland statements about the fiscal advantages of sustaining Britain's creative economy through design. The intention is not to undermine arguments about the economic importance of design; the need to fund art and design education at all levels, or the ongoing need to support, resource and invest in the arts and humanities, nationally. Rather to suggest that there is a space and opportunity for design historians, amongst others, to support the development of a more nuanced interpretation of design education, that reflects the broader spectrum of design's political,

19 Penny Sparke, *The Genius of Design* (London: Quadrille, 2009) p. 16.
20 Tony Fry, 'Whither Design/Whether History' in *Design and the Question of History*, ed. by, Clive Dilnot, Tony Fry, and Susan Stewart, (London: Berg Publishers, 2015), pp. 3-24 (p. 7).

social, cultural, democratic, and economic impact and establishes the historical precedent for the importance of the democratisation of design outside of professional practice.

Glossary of terminology used to describe elements of the English National Curriculum framework

Attainment Targets (ATs): Numbered statements, or benchmarks, which define the level of knowledge that children should have achieved by the end of each Key Stage. From 1988 onwards Attainment Targets were specified for each of the National Curriculum subjects.

English Baccalaureate (EBacc): The EBacc is used in performance tables to show how many students took examinations in, English, maths, 2 sciences, a language (ancient or modern), and humanities (history or geography).

Key Stages – Separate out periods, or blocks of years, in a student's compulsory primary and secondary schooling.

Key Stage 1 – up to age 7 (years 1-2)	Primary School
Key Stage 2 – up to age 11 (years 3-6)	
Key Stage 3 – up to age 14 (years 7-9)	Secondary School
Key Stage 4 – up to age 16 (years 10 and 11)	

National Curriculum – set of subjects that must be studied by all school students, performance is set against criteria for various stages.

National Curriculum Subjects (as defined in 1988):

- **Core Subjects (compulsory throughout Key Stages 1-4):** English, mathematics and science

- **Foundation Subjects, (compulsory throughout Key Stages 1-3 and optional at Key Stage 4):** history, geography, modern languages, art, technology, music and physical education.

National Curriculum Subjects (as defined in 2021):

- **Compulsory subjects (Key Stages 1-3):** English, maths and science, design and technology, history, geography, art and design, music, physical education (PE), computing, ancient and modern foreign languages (at Key Stage 2 onwards), citizenship (from Key Stage 3 onwards)
- **Core subjects (Key Stage 4) English, maths, science**
- **Foundation subjects (Key Stage 4)** computing, physical education, citizenship **+ a minimum of one** of the following: arts, design and technology, humanities, modern foreign languages

Programmes of Study: a set of core components, centrally agreed and legislated for, that define what should be studied on each of the National Curriculum courses.

Statutory Assessment Tests (SATS): a combination of student tests and teacher's assessments, introduced under the Education Reform Act, 1988 to monitor a student's attainment within the National Curriculum framework. Carried out in all state funded primary and secondary schools (up to 2008) at the end of Key Stages 1,2,3.

Appendix A: Index of central protagonists

ADAMS, Eileen – Co-creator of Art and the Built Environment Project, Freelance Design Education Consultant, Alumni of the RCA Design Education MA

ARCHER, L. Bruce - Professor of Design at the RCA, Director of the DEU

AUSTEN, Benedict - Former student of the RCA/DRU, Industrial Liaison Officer, Design Council

BACON, Jenny - Senior Civil Servant in charge of Schools Group 3, Department of Education and Science

BAKER, Kenneth - Secretary of State for Education and Science

BARLEX, David - Taught science and Design and Technology at a comprehensive school for 14 years. Lectured in education at Goldsmiths for 5 years. Senior lecturer Faculty of Education, Brunel University. Co-Director of the Nuffield Foundation Design and Technology project

BAYNES, Ken - Design educationalist, lecturer, researcher, exhibitions designer, graphic designer and author. Studied stained glass at Bideford School of Art (Devon); completed post graduate qualification at the Royal College of Art (RCA); Assistant Editor of Graphis [Zurich]; Lecturer at Hornsey College of Art 1965-1968; Research Fellow: Kings Fund Hospital Beds Project (RCA), Welsh Arts Council Exhibitions (1970-1975); Director of Design Education at the Design Education Unit, RCA; Visiting Professor Design and Technology Department, University of Loughborough

BLACK, Paul – Co-Author of 1985 Report 'In Place of Confusion, member of the National Curriculum Council, Co-Director of the Nuffield Foundation Design and Technology project

BROCHOCHA, Krysia - Former student of the RCA/DEU, founding member of the Design Dimensions project, member of the NC/DTWG, married to Ken BAYNES

CAVE, John - Professor of Technology Education at Middlesex University, founding member of Technology Education Centre at Middlesex, lead author Technology Enhancement Project (TEP)

DEARING, Ron - Chairman of the SCAA/NC Review, 1991-1995; close associate of Kenneth BAKER.

DEERE, Malcolm – TVEI adviser, Member of the NC/DTWG, married to Frida HOOBERMAN

EGGLESTON, John - Woodwork teacher, Headteacher 1957-1960; Lecturer at Loughborough University, 1963-67; Professor of Education, Keele University, 1967-1984; Keele Project 1967-73 Professor of Education Warwick, 1985-96. Founding member of Trentham Books in

1983. Visiting Professor in Education at Middlesex University, founding member, Vice Chair and Treasurer of the Design and Technology Association until 2000

EVERITT, Anthony - Arts Council Secretary General

FAIRBAIRN, Andrew - Chair of the Design Council /Primary Education Working Party

FILER, Denis - Director of the Engineering Council, member of the Design and Technology Working Group

GRAHAM, Duncan - Chief Executive of the NCC, 1988-1991 and ally of Kenneth BAKER

GRANT, Keith - Director of the Design Council (1978-1988)

GREEN, Peter - Hornsea/Middlesex, Chair of the Crafts Council Education Committee 1987-1990

GREEN, Richard – Director of Design and Technology Association, 2003-current

HARRISON, Geoffrey - Project Technology Project leader, (1966-1972), joint author of 'In Place of Confusion' founder of the National Centre for School Technology, Trent Polytechnic, Co-Director of Nuffield Foundation Design and Technology Project

HARRISON, Michael - Chief Education Officer, Sheffield, Member Technician Education Council, Deputy Chairman, Standing Conference on Schools Science and Technology. Member Eng C Standing Committee Education and Training

HICKS, George – Goldsmith College, HMI (Design and Technology specialist), observer NC/DTWG and SWG, mentor to Richard KIMBELL

HOOBERMAN, Freda - Secretary to the DC/SEWG 1978-1979, Senior Secondary Education Officer for the Design Council, married to Malcolm DEERE

IVE, Michael – pioneer for National Curriculum design and technology, HMI

JINKS, David - Member of the Design Council /Primary Education Working Party, the National Curriculum /Science Working Group and Crafts Council Education Committee.

KEITH-Lucas, David - Chairman of the DC/SEWG

KIMBELL, Richard- Project Lead APU Design and Technology, Professor of Technology Education at Goldsmiths College, University of London. Founded TERU in 1990

LAYTON, David – University of Leeds, contributor to Nuffield Foundation Science Project, member of the NC/DTWG

PARKES, Lady Margaret – Chair of the NC/DTWG

RUSSELL, Gordon – Director of the Council of Industrial Design

SHEARMAN, Richard – Director of Education, Design Council

SORRELL, John – Designer, Director of the Design Council, founder of the Sorrell Foundation

STABLES, Kay – Goldsmiths College, Professor of Design Education, RCA Design Education, alumni, member of the APU Design and Technology team

STEERS, John – NSEAD Director, member of Crafts Council Education Advisory Committee

WRIGHT, Ruth – Former education specialist at the Design Council and Director of Education at the Engineering Council

Appendix B: Timeline

Key:

Government ruling party		
Conservative	Labour	Conservative/ Liberal Democrat Coalition

Significant D&T-related events and publications	Year	Government-led educational policy developments
Design and Technology Working Group (NC/DTWG) established NC/DTWG Interim Report published Design and Technology Association established	**1988**	**Education Reform Act** (under Kenneth Baker, incumbent Secretary of State for Education and Science, 1986-1989) National Curriculum Council (NCC) established
NC/DTWG Final Report published	**1989**	John MacGregor becomes Secretary of State for Education and Science (July)
NCC launch series of resources for schools on Technology in the Curriculum Design and Technology Association's first National Curriculum resources published	**1990**	National Curriculum Technology Order passed through Parliament National Curriculum rolled out to all schools in England and Wales (Sep) Kenneth Clarke becomes Secretary of State for Education and Science (Nov)
National Curriculum Art Working Group Report published APU Design and Technology Report published	**1991**	NCC Review of the Technology Order commissioned School Teachers' Pay and Conditions Act
Engineering Council Report 'Getting it Right' published NCC issue interim report on Technology Order	**1992**	John Patten becomes Secretary of State for Education (April) National Curriculum Art Order passed through Parliament
First TEP resources published D&T Association launch their first survey on D&T departments in schools	**1993**	Full National Curriculum Review commissioned for all subjects First Key Stage 4 Technology course commences

				1993 Education Act (miscellaneous provisions)
SCAA's draft proposals for D&T published Dearing Report published		**1994**		Statutory Technology at Key Stage Four suspended **1994 Education Act** Gillian Shephard becomes Secretary of State for Education (July)
Nuffield Foundation D&T resources first published		**1995**		Revised Design and Technology Order passed through Parliament for Key Stage 1-3 Revised Art Order passed through Parliament Second version of the National Curriculum launched
Dearing Review of Qualifications for 16-19 year olds published		**1996**		New Design and Technology Orders implemented at Key Stage 4 **1996 Education Act**- makes Religious Education classes compulsory in state-maintained schools (parents have the right to withdraw students) and encourages Personal, Social, Health Education (PSHE)
RCA/STP National Curriculum D&T resources first published		**1997**		General Election: Labour Party win majority and form government Qualifications and Curriculum Agency (QCA) established (replacing the SCAA) David Blunkett becomes Secretary of State for Education and Employment (May)
		1998		
		1999		Full National Curriculum Review in England
Design Council Report: Design Skills for Work published First DfEE/QCA D&T Importance Statement published		**2000**		Third version of the National Curriculum launched: 'Curriculum 2000' National Curriculum Art formally becomes Art and Design

		2001		Estelle Morris becomes Secretary of State for Education and Skills (June)
Revisions to National Curriculum D&T published		**2002**		**2002 Education Act** (amendment to legislation regarding academies – previously called as city academies) Charles Clarke becomes Secretary of State for Education and Skills (Oct)
Harris and Wilson's Literature Review on Impact of D&T published		**2003**		
		2004		D&T becomes non-statutory at Key Stage 4 as part of National Curriculum reforms Ruth Kelly becomes Secretary of State for Education and Skills (Dec)
		2005		
Steers (NSEAD) & Green (D&T Association) provocation paper on design education published		**2006**		Alan Johnson becomes Secretary of State for Education and Skills (May)
Revised QCA Importance Statement for D&T published QCA consultation published for new curriculum for Key Stages 3 and 4		**2007**		Ed Balls becomes Secretary of State for Children, Schools and Families (June)
		2008		Education and Skills Act 2008 – raises the school leaving age to 18
		2009		
DfE *Importance of Teaching*, *The Schools White Paper* published		**2010**		General Election: no party win majority. Conservative and Liberal Democrat's form a coalition government Michael Gove becomes Secretary of State for Education (May) **Academies Act 2010**
RSA Design and Society papers on issues surrounding D&T published		**2011**		**Education Act 2011** National Curriculum Review announced
Cultural Education in England (Henley Report) published		**2012**		2012 National Curriculum Review commences

Appendix C: List of holdings relating to Design Council design curriculum development activities in the 1980s/90s held at the University of Brighton Design Archives

Location	Folder headings	Period covered (where known)
Aisle 1	11x Ben Austen files (Records of Educational Liaison Officer)	1990s
	SCOTVEC	
	16-19 FE	
	Young Engineers and Medical Project	1992-93
	Partners by Design (Background info and Wolf Proof House)	
	Miscellaneous folder (inc. Big Paper)	
	Photography of exhibitions in secondary schools	
	CD Rom project	
	Archive and CD Rom	
	Regional Education Co-ordination Committee	
	Educational Policy 1	
	Educational Policy 2	
	S.C.D.C	
	Engineering design guide	
	Boxes of CDR dead projects (Curriculum Development Review)	
Aisle 2	Greenwich File	1991
	Design Council Awards	1967
	Design Centre proposed seminar	
	Design Centre Exhibition	1972
	Design Centre Awards	1966
	Boxes of Pamphlets (industrial design)	
	Budgets (project evaluations)	1990/91
	Education and Training Conference	1995
	Design Focus in Schools	1995
	Designing Magazine	1982-1995
	From Rough to Ready (exhibition)	
	SEAG Papers 1	
	SEAG Papers 2	
	IT for CDT	
	Student Design Show	1993
	Education to be sorted (various)	
	The Big Paper	1987
	Education Slides	1995
	Various books	
Aisle 3	Technology in the Curriculum folders	
	Richard Shearman general files	

	Big Paper pull out	
	Primary Lecture Series	1995
	Secondary Conference files	
	Design Centre Exhibitions	1975
	Design Centre Exhibitions	1977
	Design Centre Exhibitions	1981
	Design and Primary Education	
	Eileen Taylor day file	June 1993
	SEAG reports: secondary education	
	PEAG files: current meetings	
	Primary Conference, Keele	
	Professional designers in schools (articles from the Big Paper)	
	Design Centre Exhibitions	1997
	PEWP report	
	PEWP meetings	1985-1986
	Teacher Education Seminar	1986-1989
	Design and PEWP (Groups and expert witnesses)	
	Suffolk training	
	PEWP	1984-1985
	PEWP School visits	
	PEWP	1985-
	Initial teacher training	
	Sec EO Sub Committee minutes	
	SDP	1989
	Curriculum Resource Pack	
	PEAG minutes	1988-
	Misc pamphlets	
	NISDP	1994
	NISDP archive	1987, 1988, 1989, 1990
	ICED (industrial design)	
	Furniture evaluation project	
	Conference tasks	
	Cross cultural technology	
	Museum and Gallery Education	
	Essex cross-phase project	
	Professional designers KS3	
	Norther Ireland, Scotland and Wales	
	Blue folders – various	
	Design and economy slide	
	Slides	
	Conference File Bishop Grossehente	
	Lincoln	1992
Aisle 4	Fashion and Textiles archive material	

	Designing the future: clothing and textiles course lists and requests	
	Forecast	1993
	Guide to grants and funding	1990, 1992
	Young Designers Centre	1989
	Work plan and wool at work	1993
	Industrial design education forum, 1989	
	General enquiries and fashion textiles	Feb 1989
	SCUE correspondence	
	A'Level core exercises Art and Design	
	CDT syllabus	
	A'Level Acceptability – papers	
	A'Level Correspondence with exam boards	1983
	HMI Reports A-Z	
	HMI Reports A-C	
	HMI Reports K-R	
	HMI Reports S-Z	
	HMI Reports D-J	
	London: KEA boroughs	
	Secondary education	
	PEAG 2 1989-91	
	Design HMI Reports Misc	
	Text folders	
	PEAG folders	1987-88
	General Design HMI Reports	
	The first signs of design	
	Primary lecture series evaluation report	
	Various files	
	Design Council: Change in Practice	
	Secondary exhibition list	
	Text books (various)	
	Education: The Big Paper	
	ISCO schools/teacher seminars	
	DAOS reports	
	Secondary budget book	
	Big Paper	
	Signs of Design	
	Primary slides	
	Books and Videos	
	Blue files	
	Pink files (design focus)	

Appendix D: Oral Testimony Agreement Form, 2015

Background Information
I am a part-time student currently studying for a PhD in the School of Arts and Humanities at the University of Brighton. My research project aims to explore the history of design education in relation to secondary schools in England, from 1988 to 2012. It investigates the discourses of design education since 1988, and to this end, traces the origins, membership and activities of different organisations involved in developing design-related educational policy. The research utilises archival records, resources and reports to discuss the agenda of different groups, and the opportunities and obstacles they faced in evolving their vision of a design-related education programme in schools. I also hope to collect the oral testimony of some of the individuals who were active in the field of design education, or related subjects, between 1988-1990. I intend to use this testimony to reflect upon the long-term evolution of a school-based design education programmes.
Further information about my research is accessible from the University of Brighton website:
<http://arts.brighton.ac.uk/research/doctoral-centre-arts/student/jane-shepard.>

As an expert in the field, and member of an organisation or group that played a key role in design curriculum development, I would like to discuss your background in the field, your involvement in negotiating the structure and content of design-related courses for the national curriculum, and your personal opinion about the role of design education in schools.

What is involved?
The interviews comprise of ten questions, which should take approximately 30-45 minutes to answer. Participants will receive the full list of questions in advance of the interview.

All information obtained from the interviews will be subject to the conditions stated in the University of Brighton Oral Testimony Agreement (overleaf). Ideally, the interview will take place between January-March 2015, at a convenient and pre-agreed location. With the participant's permission, I will make a digital recording the interviews. Due to the audio recording equipment, it is preferable that the interviews take place somewhere with minimal noise disruption.

I welcome any additional comments that participant's might have, before, during or after the interview. There may be one or two additional points I need to clarify with interviewees after the interview, and if agreement is given, I will follow this up via email or telephone.

I very much hope that you would like to be involved in this research project. I have appended an Oral Testimony agreement form on the next page. If you are willing to participate, I would be grateful if you could read these conditions, sign the consent form and return it to me (via email). Upon receiving this form, I will contact you to arrange a convenient time and location to meet.

Contact Details
My Supervisors at the University of Brighton are Dr Lesley Whitworth Deputy Curator and Senior Research Fellow (School of Arts and Humanities), and Avril Loveless, Professor of Education (School of Education).

If you have any queries about the information contained in this Oral Testimony Agreement Form, or about any other aspects of my research, please feel free to contact me:
Jane Shepard (Researcher), School of Humanities, University of Brighton. E-mail [redacted]

Alternatively, if you have any questions you would like to discuss with a third party please contact my lead supervisor:
Dr Lesley Whitworth, School of Art and Humanities, University of Brighton, Brighton, BN2 0JY. [redacted]

Oral Testimony Agreement Form
University of Brighton

I agree that JANE SHEPARD (the Researcher) may use the information obtained from me in a Humanities PhD research thesis at the University of Brighton entitled:
Discourses of design education: perspectives on design and the secondary school curriculum, 1988-2012

By signing this document I (the participant) understand that:

- My participation is entirely voluntary
- I am free to refuse to answer any question
- I am free to withdraw at any time

Data Protection
Unless otherwise agreed, the Researcher will be responsible for storing data relating to the interview. Data includes all audio recordings, photographs, research notes and any other images taken by the Researcher for their research. The Researcher will not use the data for commercial purposes.

Terms

- All participants will be identified in the Researcher's thesis either by their own name, or - upon request - a pre-agreed pseudonym
- With permission, all interviews will be digitally recorded by the Researcher
- After the interview, and if requested, the Researcher will provide the participant with a copy of the digital recording.
- Excerpts from the digital recording may be transcribed by the Researcher, and included in their written thesis, or other related works.
- If, after the interview, the participant wishes to withdraw their comments, or retract their permission to use any part(s) of the digital recording, the Researcher must be informed by December 2015.

Intellectual Property
All intellectual property rights created by or associated with this research are vested in the Researcher.

I agree for the researcher to record:

Photographs	Questionnaire/survey results
Verbal communication	Non-verbal communication

Please sign this form if you recognise and agree to the stated conditions.

Signed:…… Name …….. Date:……..

Email:
Phone:
Address:

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