Book Review

A review of HildaRuth Beaumont and Torben Steegs' Design and Technology in your School: Principles for Curriculum, Pedagogy and Assessment

Reviewed by Mark Norris, University of Sussex, UK

Introduction

Design and Technology in your School: Principles for Curriculum, Pedagogy and Assessment is a book resulting from the long-term collaboration between Dr HildaRuth Beaumont (formerly David Barlex) and Torben Steeg, whose excellent blog I highly commend (Beaumont and Steeg, 2024). The book sets out a vision for how and why a well-planned and assessed design and technology curriculum can make a unique and important contribution to secondary school curricula. The book aims firstly to establish the importance of the subject and identify a philosophy and pedagogy for the subject. It goes on to explore key issues at the heart of its delivery before suggesting a model for teachers and subject leads within the subject to reflect on their approaches to curriculum design, delivery and assessment.

The book is written in a readable and engaging style with chapters which introduce the key concepts and ideas in a thought-provoking way, inviting pauses for thought and including additional contributions from a range of lively contributions from guest contributors from the field of design education. The chapters include many relatable links to classroom practice, detailed references to supporting literature and research as well as questions for the reader and links to further reading.

Chapter 1 Justifying design and technology

Here the authors explore the unique contribution design and technology can make to a balanced school curriculum and identify four possible justifications for teaching the subject, specifically asking the question of the reader how they would justify the place of the subject to school leaders. The first justification is that preparation for work, arguing that the skills taught in the subject prepare those studying it for careers in design. They pose the question can we rely on this to justify our subject given that there are relatively few jobs as designers in the economy as a whole. Personal development is the second benefit outlined in the chapter. A further justification identified is that the subject helps to develop self-efficacy and problem-solving skills and, the authors call on the design and technology community to provide a clear and unified vision for the subject. They invite the reader to reflect on the benefits of teaching the historical and societal achievements and the impact of design on society under the justification heading of cultural transmission and preparation for citizenship. In the first of the book's "thought pieces" Dr Alison Hardy encourages teachers to consider how they justify the subject to students studying it and agrees with the argument that the subject's impact on community and society should be considered.

Chapter 2 Understanding design and technology

In the fascinating second chapter Beaumont and Steeg explore the philosophy of design and technology challenging us to consider how our values relate to the subject. In the second half of the chapter, they go on to establish their vision of what is disciplinary and substantive knowledge within the study of the subject. At the heart of the chapter and, I would argue the book itself, is a challenge to those involved in the teaching of the subject to consider their values related to technology and how this might impact their curriculum and their approach to teaching the subject. Andy Mitchell, Ex-Deputy CEAO of the Design and Technology Association, contributes a think piece in which he explores how values can be explored and design thinking through collaboration developed. He makes the case for the value of designing - without making something - a concept championed by Beaumont herself (Barlex, 2012) and a theme returned to later in the book.

Chapter 3 Important issues

The challenge to design and technology educators to consider their values within their practice and curriculum continues in chapter three covering five key issues. The section on decolonising the curriculum makes a convincing argument for reviewing how existing curricula represent "minoritized" communities and their historical and current contribution to design and technology, asking the question of where do our students from all backgrounds see themselves in the materials we present them with. The chapter goes on to explore research around gender stereotyping and STEM subject uptake before the section on disruptive technologies calls for teachers to debate, dialogue and critique the subject in their classrooms, a theme revisited often in the book. The chapter on global warming sets out comprehensive evidence of climate change, its impact and potential solutions which could be used as a reference text for teachers looking to explore the subject in their classrooms. The final section covers a range of both challenges and possible solutions to issues around pollution and waste, much of which could be easily adapted for use in the classroom.

Chapter 4 Planning your design and technology curriculum

From this point on the book's intention is to challenge teachers of the subject to consider the nature of the subject they teach and their values to how to effectively plan, deliver and assess the subject in the light of these challenges and considerations. The chapter on planning the curriculum includes key information on materials, manufacture and functionality and how to design into a curriculum which allows space for critically engaging with the values and issues previously highlighted. It goes on to look at not just physical resources but how human resources and intellectual resources can influence the planning and delivery of an innovative curriculum. In this section, there are think pieces that look at teamwork and modelling of design solutions and also strategies for leaders developing teams. The chapter goes on to consider classroom activities again looking at the possible benefits of designing without making and inviting the reader to plan for learning around "considering the consequences of technology". There are further helpful sections on how to plan a scheme of work along with a closing section looking at curriculum intent, implementation and impact in light of Ofsted inspections which highlight the author's intention to write a book of real use to those in charge of the curriculum in schools.

Chapter 5 Teaching design and technology

Chapter five begins by looking at cognitive science and popular models of learning such as Sherrington (2019) and Rosenshine (2010) before moving to the question of how students learn in the context of the design and technology classroom. Beaumont and Steeg explore teaching design and making skills and opt to include a detailed review of teaching control systems and structures, both core components for teachers of all materials specialisms in current GCSE specification. Again they return to key themes of how to teach critique and designing without making, offering ideas for how to do this in the classroom. Matt McLain writes about the demonstration as a signature pedagogy and James Pitt supports the author's call to bring critique into our design classrooms in two interesting thought pieces.

Chapter 6 Assessing design and technology

Chapter six quickly establishes verbal in-the-moment feedback as a powerful form of formative assessment and goes on to explore classroom talk in the context of a range of activities. As well as this, models are provided for peer and self-assessment at the end of activities. Throughout the chapter there are imagined dialogues between the teacher and student around design choices and so on with a thought piece by Malcolm Welch supporting reflective discourse in the design and technology classroom. The current UK GCSE assessment framework is explored and the chapter includes a lively critique of current assessment practice by Richard Kimbell. Shortly after Louise Attwood, head of curriculum at the awarding organisation AQA, is given a platform to argue in favour of the current system of assessment, an intriguing choice of contributors by Beaumont and Steeg.

Chapter 7 Supporting design and technology

In the final chapter of the book a range of factors and communities that can support the development of design and technology as a subject are highlighted. These other individuals and agencies range from the benefits of enrichment activities and CPD to links with STEM and primary schools. There is also a section reflecting on how those involved in the subject could engage with a range of interested parties from school communities to local industry and MPs. Here there is an explicit move made to engage with the Design and Technology Association (DATA) Reimagining D&T (2023), written in response to the worrying decline in the subjects uptake in the UK highlighted in the EPI report spotlight on D&T (Tucket, 2022). At the end of each section links to the DATA report are highlighted and the authors close the book with a call to design and technology departments in schools to develop their own vision and mission statements and to consider where they wish to put themselves within debates about the future of the subject.

Reviewer's Conclusion

I would recommend this book to anyone involved in delivering teacher education, design and technology teaching those in initial teacher education as well as early career teachers in the United Kingdom, although I am sure that those with an interest in the subject around the world will find much of interest here. I would particularly recommend this book to heads of departments considering how they deliver the subject in their settings in the light of the EPI report (2022) and to student teachers looking to explore, both ethically and practically, how the subject could be taught and assessed in the future. Given the worrying rise in numbers of non-specialists teaching across all materials areas in the UK (DfE, 2023) I think this is also an important reference book for teachers coming to the subject with other degree backgrounds

and experience. The ambitious scope of the subjects covered means that some sections feel as if there could have been more to say, something that HildaRuth acknowledges early in the book. I feels too that some of the real life exemplar projects used to illustrate key points in the second half of the book, whilst they reflect current practice in schools, could have been more aspirational in helping to inspire new approaches to teaching rooted in new technologies and looking out to industry.

At the heart of this excellent book is a call for critique both of our practice as design and technology educators and for a move to incorporate critique into our classrooms. In light of the new UK government's upcoming full curriculum review promising a focus on creativity and problem-solving (Dickens, 2024) and its manifesto pledge to promote oracy (2024) this book can make an important contribution to debates around where the subject goes next.

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