Review
Positioning Technology Education in the Curriculum

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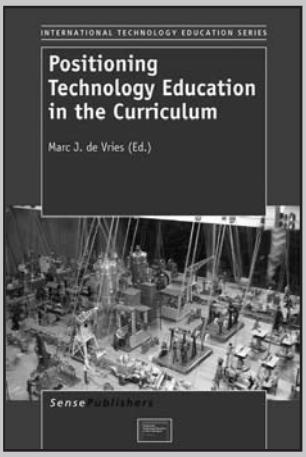

This book represents a timely contribution to the debate about the value and cultural significance of technology education worldwide and its position in the school curriculum. The articles are taken from the Pupils' Attitudes Towards Technology (PATT) Conference 2009 where participants were asked to reflect on the way Technology Education should be positioned in the school curriculum. Marc de Vries successfully pulls together a range of interesting perspectives on the positioning of technology education in the school curriculum including:

I. Developmental Aspects.
II. Defining Technology Education.
III. Technology, Engineering and Science Education.
IV. Formal and Informal Technology Education.
V. Contributing to Responsible Citizenship: Ethics and Sustainability.
VI. Teaching Technology as a Contribution to Literacy.
VII. Progression in the Curriculum.
VIII. Positioning Technology Education in Developing Countries' School Curriculum.
IX. The Future of Technology Education in the School Curriculum.

Following the introductory chapter by Marc de Vries, the second chapter by Gene Martin represents a powerful call to arms to address the issues causing the demise of technology education programmes in higher and general education in a number of countries. At a time when design and technology education is at a watershed of its own in the UK there is some comfort to be gained from the fact that the UK is not alone in experiencing similar difficulties to other countries. Martin's view is that it is time to recalibrate the profession's current path and set a whole new direction for it. He suggests teachers' leaders and scholars have a collective responsibility to lead the profession and build a new consensus for it through collaboration and co-operation around a globally agreed research agenda. The following chapter presents a contextualist history of the development of technology education in Sweden highlighting the methodological issues involved in such a study and the need for similar studies to take account of the educational, social, cultural and political contexts in which subjects evolve.

Chapter four and five present some interesting philosophical discussions on the nature of technology and its pervasive nature. The following three chapters look at the relationship between technology education, engineering and science and include a contribution from David Barlex on the development of STEM in the English education system. Joêl Lebeaume highlights the epistemological and pedagogical differences between science and technology and John Williams presents an interesting critique of engineering and technology approaches to developing technological skills as part of general education in Western Australia.

The ninth chapter looks at how technology as a school subject is being developed in Sweden. It discusses the results of a research project aimed at supporting teachers through a collegial co-operative approach and highlights the contradictions between teachers' beliefs about the subject and their practice. Mannikko-Barbutiu reports on a number of projects in Sweden aimed at promoting greater interest in studying STEM related subjects in higher education and encouraging more collaboration and co-operation between teacher education and teachers and better links between school and work life. The findings of The Relevance of Science Education international comparative project are cited which suggests that science and technology are not perceived as compatible with the

late-modern values of the young. The individualistic zeitgeist which permeates much of modern society is identified as a key factor which influences the career choices young people make along with their interests and values. This suggestion raises some interesting questions which are worthy of further investigation if we are to address this potential mismatch and develop technology education programmes that are truly trans-generational.

In Chapter ten, Hantson and Van de Velde look at the development of technological literacy through the COU@work project in Finland. The results reported show the potential for this type of initiative to influence the perceptions of young people and their future career aspirations.

The contribution of technology education programmes to developing technological literacy and responsible citizens capable of questioning the omnipotence of technology and technology determinism is discussed in the following two chapters. Chapter eleven looks at the issue of responsible citizenship and how technology teaching should enable children, as future citizens, to live with technology in a responsible and ethical way and the implications for the way technology education is positioned within the curriculum. Leo Elshof's chapter 'Technology Education: Overcoming the GM syndrome' is a thought provoking treatise on the role of technology in education. He uses the GM analogy to point to the need for a long hard look at the rationale for technology education and the realities of the current situation in many countries across the world. Elshof asks whether we have been fooled into believing own rhetoric by the same compliancy, insularity and short-term thinking that dogged General Motors for so many years? He also questions whether technology education is guilty of 'greenwashing' its image and calls for new constituencies for technology education to be rebuilt around a green agenda.

Contributions from Gerald van Dijk and Didier van de Velde in Chapters 13 and 14 focus on the co-development of language and technological literacy through technology education in both formal and informal contexts. They discuss how technology education programmes can contribute to developing linguistic and literacy skills in learners engaged in design and technological activities. There is an obvious link between the achievement of students in any subject and their literacy skills and, as Dijk points out, there is a clear need for teachers to become linguistically sensitive if they are to contextualise language learning and development into technology lessons in the classroom.

In Chapter 15 the issue of progression is discussed and the results of a curriculum development research project in New Zealand are presented. The authors argue that a constructivist outcomes based curriculum provides a strong direction for the development of technology programmes that can be supported by socio-cultural learning models. The final section of the books looks at technology education in the context of developing countries. Two examples are discussed and in the first Frank Banks discusses developments in Bangladesh. Feng, Siu and Gu discuss the challenges faced in developing technology education in China which appears to be facing similar challenges in positioning the subject in the curriculum to other countries around the world. Whilst the scale of the challenges and the context is vastly different to the United Kingdom, the issues seem to be similar i.e. a lack of understanding about the aims and aspirations of the subject and its place in general education amongst the political élite and a consequential lack of support for the subject in the curriculum and those responsible for school budgets and teacher training. This has led to a loss of professional development opportunities for teachers and the demise of some teacher training programmes. The cumulative effect of this has been to undermine pedagogy and practice further. There are obvious parallels to be drawn here with the current context in the UK.

Conclusions

There are a number of typographical errors which should have been captured by the editorial process and in some instances these affect the readability of the texts. However, this is a text I would recommend to all those involved in, or interested in, the debate about the future of design and technology education in the curriculum. The book contains some thought provoking articles which challenge the reader to consider more deeply their own rationale for the subject and the way they teach it. However, there are a number of contributions that stand out. These include deliberations on the development of technology education in different contexts and thought provoking discussions on philosophical, ethical and cultural considerations.
The contributions by Gene Martin, Leo Elshof and Feng, Sui and Gu, in particular, resonated with me personally because of their relevance to the current debate in the UK.

The impression left by the articles in this book as a collection is that technology education is under threat in many countries but there is some comfort to be found in the fact that the challenges are similar. The themes running through this book deserve further discussion and research and go some way towards setting the research agenda Gene Martin called for in the opening chapter. It highlights the need for strong leadership for the subject at

local and national levels and the need for a wide ranging debate about the future form and direction of the subject per se. It also points to the need for pragmatic action to re-educate society about the benefits of technology education in all its forms if the subject is to continue to play an important part in the general education of children in the future.