Strengthening the Position of Technology Education in the Curriculum

Proceedings PATT-22 Conference
Delft, the Netherlands, August 24-28, 2009

Edited by
Arien Bekker
Ilja Mottier
Marc J. de Vries
Strengthening the Position of Technology Education in the Curriculum

Proceedings PATT-22 Conference
Delft, the Netherlands, August 24-28, 2009

Table of Contents

Preface vii

Where did Technology Go? - Lars Adiels 1

Cooperative Methods for Investigating the Influence of Swedish Compulsory Technology Education on Pupils’ Attitudes to Technology - Håkan Ahlbom, Ylva Bjelksäter, Eva Hartell and Edvard Nordlander 6

Technological Literacy in a Developing World Context: The Case of Bangladesh - Frank Banks 14

Fostering self-regulated learning in technological projects - Moshe Barak 21

Developing Teaching in Technology – From Isolation to Cooperation - Sirkku Männikkö Barbutiu 29

The STEM Programme in England – help or hindrance for design & technology education? - David Barlex 42

Working Together: Primary and Secondary Teacher Liaison - Clare Benson 54

The Forming and Assessment of Creative Skills, From a Neurocognitive Point of View - Lars Björklund 64

Technological Knowledge and Nature of Technology: Establishing the nature of progression - Vicki Compton and Ange Compton 77

Are Primary School Teachers Ready for Inquiry and Design Based Technology Education? - Lisette van Cuijck, Hanno van Keulen and Wim Jochems 108

Science through Technology in Junior High Schools in Israel - Osnat Dagan 122

Blurring the Boundaries between Humans and World - John R Dakers 128

Language Sensitive Design and Technology Lessons - Gerald van Dijk 140

Implicit Epistemic Assumptions as Facilitators or Barriers to Policy Implementation - Wendy Dow 151
Technology Education: Overcoming the General Motors Syndrome - Leo Elshof 161

The Wings of Society, by Techniclès - Jan Feenstra 178

Professional Development for Technology Teachers in Mainland China and Hong Kong: Bridging Theory and Practice - Wei-wei Feng, Kin Wai Michael Siu 181

Mapping Views of Technology Education – Patrick Foster 195

Stimulated Recall Using Autophotography - A Method for Investigating Technology Education - Wendy Fox-Turnbull 204

Teaching design skills: Technology in senior secondary education - Ineke Frederik and Wim Sonneveld 218

Back to the Roots: Strengthening Technology Education through Historical Research - Jonas Hallström 226

Building technological literacy in youth organisations - Peter Hantson and Didier Van de Velde 243

Repertory Grid Technique - a Window to Professional Thinking? - Helena Isaksson Persson 251

Technology in Pre-school and Primary School Analyzed in a Degree Project Perspective - Gunnar Jonsson and Veronica Bjurulf 262

Methods to Study the Influence of Recruiting Campaigns on Pupils’ Notions of Technology and Technology Education - Patricia Kingdon and Edvard Nordlander 270

Teaching Through Technology Concepts - Dov Kipperman 279

Searching for Direction - Gene Martin 284

Instructional Materials for Cultivating Students’ Analogical Thinking Competency in Problem Solving and their Virtual Lessons to innovate Japanese Technology Teachers - Toshiki Matsuda, Haruki Sato 291

Developing the Research Infrastructure for Design and Technology Education in England (and Beyond) - Eddie Norman, Andy Mitchell, Nigel Zanker and Abby Paterson 303

Technology education – the Ethical Challenges - Matti Parikka, Aki Rasinen And Arto Ojala 322

A Focus on Technological Literacy in Higher Education - John M. Ritz 333
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysing Teacher Knowledge of Technology Education and its Effects</td>
<td>346</td>
</tr>
<tr>
<td>on Pupils' Concept and Attitude - Ellen J. Rohaan, Ruurd Taconis</td>
<td></td>
</tr>
<tr>
<td>and Wim M. G. Jochems</td>
<td></td>
</tr>
<tr>
<td>Teachers’ Perceptions about Learning Programming - Lennart Rolandsson</td>
<td>361</td>
</tr>
<tr>
<td>Food technology – the Case for Interaction with the Science Curriculum - Marion Rutland</td>
<td>372</td>
</tr>
<tr>
<td>Improving the Attitude Towards Science and Technology in Dutch Primary Education - Carlijn Schendstok</td>
<td>383</td>
</tr>
<tr>
<td>Co-development of language and technological literacy - Didier Van de Velde</td>
<td>390</td>
</tr>
<tr>
<td>Engineering: Good for Technology Education? - P John Williams</td>
<td>397</td>
</tr>
<tr>
<td>Relation between technology education and science education: a difficult Alliance – Joel Lebeaume</td>
<td>410</td>
</tr>
<tr>
<td>List of First Authors</td>
<td>422</td>
</tr>
</tbody>
</table>
Preface

In this document we have published all papers that have been presented at the PATT-22 Conference, that was held in Delft, the Netherlands, August 24-28, 2009. All papers have been reviewed and therefore are refereed publications.

The conference was hosted by the Science Education and Communication (SEC) group at Delft University of Technology. We are glad that the conference papers are now available to a wider audience. The aim of the series of international PATT conferences was and is to serve as a platform for discussion and exchange of ideas and information in the field of technology education. For that purpose it is important that many colleagues can access these papers.

For many years now we have an excellent cooperation with the International Technology Education Association (recently renamed into International Technology and Engineering Education Association) in the USA. This organization was again willing to publish the PATT Proceedings on their website. We want to thank the ITEEA for their continuing support. Proceedings of previous conferences can be found at the ITEEA website (under Conference).

We also want to thank those that contributed to the organization of the conference, in particular Claudia Kemper, the management assistant of the SEC group, who did a tremendous lot of work to make this conference a successful one.

We hope that readers will find the papers in this document useful and are stimulated to attend future PATT conferences.

May 2010

Arien Bekker
Ilja Mottier
Marc J. de Vries