

Table of Contents

Preface.....	9
--------------	---

Introduction

Vocational Education and Training Research – an Introduction	
<i>Felix Rauner and Rupert Maclean</i>	13

Section 1.0: Genesis of TVET Research

<i>Uwe Lauterbach</i>	23
1.1 Genesis of VET Research: Case Study of Australia	
<i>Philip Loveder and Hugh Guthrie</i>	32
1.2 Research on China's Technical and Vocational Education	
<i>Jiang Dayuan, Yu Zhijing and Yao Shuwei</i>	37
1.3 French Research on Vocational Training: A Mirror of the Position and Structure of the Training System?	
<i>Philippe Méhaut</i>	43
1.4 On the Genesis of TVET Research in Germany	
<i>Felix Rauner</i>	48
1.5 History of Vocational Education & Training Research in the United States	
<i>Cecilia Maldonado and Sterling Saddler</i>	57
1.6 Overview of Research Concerning Vocational Education and Vocational Training in Modern Japan	
<i>Susumu Sasaki</i>	62
1.7 UNESCO's Research on TVET and Skills Development	
<i>Keith Holmes and Rupert Maclean</i>	68
1.8 Research on TVET and Skills Development by Selected Intergovernmental Organisations and Bilateral Agencies	
<i>Keith Holmes and Rupert Maclean</i>	75
1.9 Steps towards International Comparative Research in TVET	
<i>Uwe Lauterbach</i>	82

Section 2.0: VET Research in Relation to VET Policy, Planning and Practice

<i>Anneke Westerhuis</i>	93
2.1 VET Research and Social Dialogue	
<i>Jonathan Winterton</i>	104
2.2 Work – Education – Training: An Interdisciplinary Research Approach	
<i>Manfred Eckert</i>	114
2.3 Occupations and Occupational Areas	
<i>A. Willi Petersen</i>	121
2.4 Vocational Education Research as an Innovation Process	
<i>Ute Laur-Ernst and Georg Hanf</i>	129
2.5 Research on Technical and Vocational Education and Training (TVET) in the Context of European Cooperation	
<i>Pekka Kämäräinen and Martin Fischer</i>	135
2.6 Research and VET Reform Policy in Transition Countries	
<i>Peter Grootings and Sören Nielsen</i>	143
2.7 Development Aid and VET Research	
<i>Godehard Köhne and Reinhard Stockmann</i> ..	149

Section 3: Areas of VET Research

3.1 The Development of Occupations

<i>Georg Spöttl and Morgan Lewis</i>	159
3.1.1 Occupational Research	
<i>Werner Dostal</i>	162
3.1.2 Sector Analyses	
<i>Georg Spöttl</i>	169
3.1.3 Historical Occupational Research	
<i>Falk Howe</i>	175
3.1.4 Prognostic and Prospective Vocational Education and Training (VET) Research	
<i>Philipp Grollmann</i>	181
3.1.5. Qualification Research	
<i>Otfried Mickler</i>	187

3.2 Research in the Vocational Disciplines

<i>Jörg-Peter Pahl and Felix Rauner</i>	193
3.2.1 Business and Administration	
<i>Antje Barabasch</i>	199

3.2.2	EEE/ICT in Selected European Countries <i>Klaus Jenewein, Alison Shilela and Len O'Connor</i>	206
3.2.3	Construction <i>Johannes Meyser and Ernst Uhe</i>	214
3.2.4	Agriculture <i>Martin Mulder</i>	221
3.2.5	Health/Care <i>Ingrid Darmann, Regina Keuchel and Florence Myrick</i>	227
3.2.6	Education/Social Pedagogy <i>Maria-Eleonora Karsten</i>	233
3.2.7	Nutrition <i>Barbara Fegebank</i>	238
3.3	VET Systems Research <i>Thomas Deißinger</i>	244
3.3.1	Comparative Research on Technical and Vocational Education and Training (TVET) – Methodological Considerations <i>Philipp Grollmann</i>	253
3.3.2	Comparative VET Research – Methodologi- cal Considerations, Results and Current Questions <i>Hubert Ertl and Dietmar Frommberger</i>	259
3.3.3	Historical VET Research. Case Studies	
3.3.3.1	Research on Vocational Education History in China <i>Qiding Yu and Zhen He</i>	266
3.3.3.2	Vocational Educational Theory s Historical Research on Vocational Education and Training (VET) <i>Günter Pätzold and Manfred Wahle</i>	269
3.3.3.3	Historical Study on the Western School Model of TVET in Japan <i>Tatsuo Horiuchi</i>	275
3.3.3.4	Historical Research in Vocational Educa- tion: A Case Study of the United States <i>Cecilia Maldonado and Sterling Saddler</i>	279
3.3.4	National and International Reporting on VET. Case Studies	
3.3.4.1	National Reporting on VET – Case Study of Australia <i>Philip Loveder</i>	284
3.3.4.2	Report on Vocational Education in China <i>Lin Sun</i>	288
3.3.4.3	Germany <i>Heinrich Althoff and Elisabeth M. Krekel</i>	292
3.3.4.4	VET Reporting: Case Study of the USA <i>Lisa Hudson and Karen Levesque</i>	296
3.3.4.5	National and International Reporting on VET. Case Study of the European Union <i>Friederike Behringer</i>	300
3.3.4.6	National and International Reporting on VET – Case Study of OECD, ILO and the World Bank <i>Simone Kirpal</i>	305
3.3.5	Development and Evaluation of VET Courses <i>Thomas Deißinger and Jürgen Zabeck</i>	310
3.3.6	VET Research on Pre-Vocational Education. Case Studies	
3.3.6.1	Vocational Guidance and Work Orientation <i>Heinz Dederling</i>	317
3.3.6.2	Prevocational Education: Case Study of UK <i>Karen Evans</i>	324
3.3.6.3	Pre-Vocational Education in the Netherlands <i>Jeroen Onstenk</i>	327
3.3.6.4	The Development and Study of Pre-Vocational Education in Japan <i>Moriki Terada</i>	331
3.3.7	Further Education and Training Research <i>Rolf Arnold and Henning Pätzold</i>	335
3.3.8	Vocational College Research. Case Studies	
3.3.8.1	Study of Higher Vocational Education Research in China <i>Weiping Shi and Guoqing Xu</i>	342
3.3.8.2	Research on Vocational Colleges and Schools <i>Günter Pätzold</i>	346
3.3.8.3	Vocational College Research: Case Studies of the USA <i>Stephanie Riegg Cellini</i>	354
3.4	VET Planning and Development <i>Jeroen Onstenk</i>	359
3.4.1	Qualification and Curriculum Research <i>Felix Rauner</i>	364

3.4.2 Competence and Expertise Research <i>Peter Röben</i>	371	3.6.6 Occupational Socialization <i>Walter R. Heinz</i>	481
3.4.3 Cooperation between Learning Venues and Training Partnerships <i>Günter Walden</i>	379	3.6.7 The Development of Moral Judgement <i>Wolfgang Lempert</i>	489
3.4.4 Technical and Vocational Education and Training Research for the Professionalisation of Vocational Teachers <i>Philipp Grollmann and Waldemar Bauer</i>	385	3.6.8 Vocational Identity <i>Sabine Raeder</i>	496
3.4.5 Vocational Education and Training and Organisational Development in Companies <i>Gisela Dybowski and Agnes Dietzen</i>	392	3.6.9 Professionalisation <i>Harald A. Mieg</i>	502
3.5 Costs, Benefits, and Financing VET <i>Robert I. Lerman</i>	398	3.7 Shaping Teaching and Learning in TVET <i>Lorna Unwin</i>	508
3.5.1 Costs and Benefits of In-Company Vocational Education and Training <i>Günter Walden</i>	403	3.7.1 Curriculum Research and Development <i>Ulrike Buchmann and Richard Huisinga</i>	511
3.5.2 National Systems of Financing TVET <i>Dieter Timmermann</i>	412	3.7.2 Cross-Curricular Competencies <i>Katharina Maag Merki</i>	517
3.5.3 National Arrangements for Financing Training in Companies <i>Andrew Smith</i>	420	3.7.3 Shaping and Evaluating Vocational Training Offers <i>Peter Gerds</i>	523
3.5.4 The Wider Benefits of Learning <i>Leon Feinstein, Simone Kirpal and Inés Arévalo Sánchez</i>	424	3.7.4 Shaping Learning Environments <i>Peter Dehnbostel</i>	531
3.5.5 The Contribution of TVET to Innovative Practices <i>Klaus Ruth</i>	433	3.7.5 Task-Oriented Learning <i>Falk Howe</i>	536
3.6 Occupational Work and Competence Development <i>Martin Fischer and Nicholas Boreham</i>	439	3.7.6 Self-Directed Learning – Conceptual Clarifications, Theoretical Perspectives and Modelling <i>Martin Lang and Günter Pätzold</i>	543
3.6.1 Learning in Work Processes – Competence Development <i>Peter Dehnbostel</i>	444	3.7.7 Learning and Teaching Research <i>Gerald A. Straka</i>	552
3.6.2 Work Design and Work Organization <i>Karlheinz Sonntag and Ralf Stegmaier</i>	453	3.7.8 Research on Disadvantaged Groups <i>Arnulf Bojanowski, Peter Eckardt and Günter Ratschinski</i>	558
3.6.3 Organisational Learning <i>Michael Dick</i>	458	3.7.9 Media Research and Development <i>Antje Pabst and Gerhard Zimmer</i>	565
3.6.4 Work Process Knowledge <i>Martin Fischer and Nick Boreham</i>	466	3.8 Shaping Work and Technology <i>Peter Brödner and Paul Oehlke</i>	573
3.6.5 Learning with Tutorial Working Systems <i>Matthias Becker</i>	475	3.8.1 Work and Technology Research <i>Felix Rauner and Paul Oehlke</i>	581
		3.8.2 Participative Technology Development <i>Franz Stuber</i>	589
		3.8.3 Participative Organisational Development <i>Franz J. Heeg</i>	593
		3.8.4 Participatory Prototyping <i>Jürgen Friedrich</i>	598

3.8.5 Human-Computer Interaction

Karl-Heinz Rödiger 605

Section 4: Case Studies of TVET Research

Philipp Grollmann and Geoff Hayward 613

4.1 Pilot Test MME: Innovation Project at the Turning Point (BBF)

Ute Laur-Ernst 617

4.2 Using the Dreyfus Model of Skill Acquisition to Describe and Interpret Skill Acquisition and Clinical Judgement in Nursing Practice and Education

Patricia Benner 624

4.3 The Automotive Mechatronics Technician: Steps in Research and Development towards a European Occupation

Wilfried Kruse 632

4.4 Production and Qualification

Fred Manske 636

4.5 Training and High Performance Work Systems: A Case Study in Synergy

Andy Smith 641

4.6 Youth, Work and Identity. Life Perspectives and Interests of Young People – a Research Project

Andreas Witzel 647

4.7 Implementing Dual Vocational Education in China: A Case of Transnational Innovation Transfer through a German-Chinese Research and Development Project

Zhao Zhiquan and Xu Han 656

4.8 The Assessment: Knowledge, Skills and Competitiveness

Ewart Keep and Ken Mayhew 660

4.9 Learning to Cook: Analysing Apprentice's Knowledge and Skill Construction in the Workplace

Susan James 674

4.10 Transferability, Flexibility, Mobility as Targets of Vocational Education and Training – The COST Action A11

Frank Achtenhagen and Susanne Weber 683

Section 5: Research Methods**5.1 Methodological Aspects**

Georg Hans Neuweg and Peter Putz 699

5.1.1 Subject-Related Research Approach: Vocational Work and Education Processes

Felix Rauner 703

5.1.2 Situated Learning in Communities of Practice as a Research Topic

Christoph Clases and Theo Wehner 708

5.1.3 Distance and Proximity in VET Research

Lars Heinemann 713

5.1.4 Shaping-Oriented Research and Interdisciplinarity

Gerald A. Heidegger 718

5.1.5 The Tacit and Implicit as a Subject of VET Research

Georg Hans Neuweg 725

5.1.6 On the Implementation of Basic Methods in Vocational Training Research: (Observation, Experimentation, Interviewing, Content Analysis)

Rainer Bremer 731

5.2 Research Methods: Interview and Observation Methods

Winfried Hacker 738

5.2.1 Technical Interview

Manuela Niethammer 740

5.2.2 Action-Oriented Specialised Interviews

Matthias Becker 747

5.2.3 Task Analysis in Vocational Science

Peter Röben 751

5.2.4 Expert Skilled Worker Workshops

Georg Spöttl 756

5.2.5 Knowledge Diagnosis

Winfried Hacker 761

5.2.6 Assessing Vocational Competences

Bernd Haasler and John Erpenbeck 766

5.2.7 Situation Film

Felix Rauner 774

5.2.8 Studies of Work

Jörg R. Bergmann 780

5.3 Experimentation and Development

Peter Röben 786

5.3.1 Laboratory Experiments and Quasi Experiments

Gerald A. Straka, Katja Meyer-Siever and Johannes Rosendahl 790

5.3.2. Qualitative Experiments

Franz Stuber 795

5.3.3 Experimental Research Designs (ERD) in Vocational Education

Peter F. E. Sloane 800

5.3.4 Participative Development

Bruno Clematide 807

5.3.5 Interdisciplinary Development

Felix Rauner 813

5.4 Evaluation, Quality Development and Assurance

Jürgen van Buer and Eugenie A. Samier 819

5.4.1 Evaluation Research

Gerald Heidegger 825

5.4.2 Participative Quality Assurance

Philipp Gonon 833

5.4.3 Output Orientation as Aspect of Quality Assurance

Sabine Kurz 839

5.4.4 Educational Controlling

Jürgen van Buer 847

5.4.5 Benchmarking in Vocational Education and Training

Susan Seeber 851

5.4.6 Programme Evaluation

Ludger Deitmer 858

5.4.7 Knowledge Management

Michael Dick and Theo Wehner 862

Indexes

References 873

Index of Names 1053

Index of Subjects 1081

The Authors 1095