

Editorial and Introduction to the Volume

Editorial: Vocational Education and Training in the Age of Digitization— Challenges and Opportunities

Eveline Wuttke, Jürgen Seifried, and Helmut M. Niegemann 9

1 Introduction - A Look Back Ahead

Helmut M. Niegemann.....15

Section I: Vocational Education and Training in the Age of Digitization

2 The Impact of Learning Factories on Multidisciplinary Digital Competencies

Michael J. J. Roll & Dirk Ifenthaler23

3 Competence Development with Digital Learning Stations in VET in the Crafts Sector

Mareike Schmidt, Alina Makhkamova, Jan Spilski, Matthias Berg, Martin
Pietschmann, Jan-Philipp Exner, Daniel Rugel, & Thomas Lachmann39

4 Tablet PCs in Economics Classes—An Empirical Study on Motivational Experiences and Cognitive Load

Christin Siegfried Rico Hermkes63

5 Gamification. A Novel Didactical Approach for 21st Century Learning

Silke Fischer & Antje Barabasch89

Section II: Teacher Education and Professional Competence of Teachers in the Age of Digitization

6 Development of a Video-based Test Instrument for the Assessment of Professional Competence in the Vocational Teacher Training Course

Andrea Faath-Becker & Felix Walker109

<i>7 Assessing Professional Knowledge of Teachers at Vocational Schools—Using the Example of a Professional Development for Automation and Digitized Production</i>	
Pia Schäfer, Nico Link & Felix Walker	131

Section III: Workplace Learning in the Age of Digitization

<i>8 Digital Competences in the Workplace: Theory, Terminology, and Training</i>	
Henrike Peiffer, Isabelle Schmidt, Thomas Ellwart & Anna-Sophie Ulfert	157
<i>9 Microlearning via Smartphones in VET for Professional Drivers: The Case of Securing Cargo for International Transport</i>	
Andreas Korbach & Helmut M. Niegemann	183

Section IV: Higher Education in the Age of Digitization

<i>10 Openness in MOOCs for Training and Professional Development—An Exploration of Entry and Participation Barriers</i>	
Kristina Kögler, Marc Egloffstein, & Brigitte Schönberger	205
<i>11 The High School Career Academy as a Model for Promoting Technological Preparation: Promising Practices and Challenges in the United States</i>	
M. Hernandez-Ganter & Edward C. Fletcher	225

Conclusions and Outlook

<i>12 Developing a Skillful and Adaptable Workforce: Reappraising Curriculum and Pedagogies for Vocational Education</i>	
Stephen Billett.....	251
Authors	273