

Gerald Reisinger
Witold Jacak
Kakha Shengelia
Dagmar Strohmeier
Oliver Schauer
Markus Gerschberger

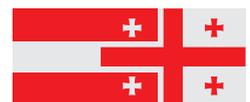
ABSTRACTBOOKLET

Young Scientists Conference 2017 „Sustainability“

5th – 8th July 2017

International Association of University Presidents

www.iauptriennial2017.com



IAUP 2017
Vienna Austria
International Association of University Presidents

ISBN 978-3-903040-24-3



UNIVERSITY
OF APPLIED SCIENCES
UPPER AUSTRIA



Abstractbooklet

Young Scientists Conference 2017:
„Sustainability“

Abstractbooklet

Young Scientists Conference 2017:
„Sustainability“

5th – 8th July 2017

Wagner Verlag

The sole responsibility for the content of this publication lies by the authors.

Contact:

University of Applied Sciences Upper Austria

Franz-Fritsch-Straße 11/Top 3

4600 Wels/Austria

Tel.: +43 (0)50804-14100

Fax: +43 (0)50804-11900

E-Mail: iaup@fh-ooe.at

<http://www.fh-ooe.at>

<http://iauptriennial2017.com>

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Austria.

Wagner Verlag • Harrachstraße 7 • A-4020 Linz

e-mail: office@wagner.at • www.wagnerverlag.at

Cover creation: COMO GmbH, Am Winterhafen 11, 4020 Linz, Austria

Editor: Dagmar Strohmeier, Oliver Schauer, Markus Gerschberger, FH Upper Austria

Layout: Nicola Spitzer, FH Upper Austria, Garnisonstraße 21, 4020 Linz, Austria

Producer: druck.at, Aredstraße 7, 2544 Leobersdorf, Austria

ISBN 978-3-903040-24-3

Linz 2017

Preface

Welcome to the Young Scientists Conference 2017

To actively share a culture of intellectual social responsibility and to demonstrate our commitment to the United Nations Academic Impact (UNAI) initiative, an innovative scientific conference format was created.

The young scientists conference was organized around the ten UNAI hubs and the submission of papers related with the UNAI hubs were invited.

- Higher Education
- Inter-Cultural Dialogue
- Sustainability
- Addressing Poverty
- Peace and Conflict Resolution
- Global Citizenship
- Capacity Building
- Education for all
- Human Rights
- UN Charter

While our main goal was to give the voice to early career researchers from around the world, we also created plenty of opportunities for intellectual exchange and possible future cooperation.

The young scientists conference also offers opportunities for exchange with distinguished keynote speakers and university presidents during the sessions but also during the social program.

To ensure knowledge transfer from science to decision makers, the results of this conference are discussed with the UN representative during the closing event on Saturday.

As demonstrated in this abstract book, many complex global challenges around the ten UNAI hubs are addressed in the papers from interdisciplinary perspectives.

We are proud to host this innovative conference and are happy that so many early career researchers submitted their papers and are eager to discuss global challenges in a friendly and stimulating atmosphere!

Welcome!

Dagmar Strohmeier
Scientific Chair, FH Upper Austria

Table of Content

Young Scientists Conference 2017

Keynote Speakers

Martyn Barrett Competences for Democratic Culture: Advancing Intercultural Dialogue and Global Citizenship through Education	p.11
Christoph Bode Supply Chain Disruption Response: Stages, Strategies and Behaviors	p.12
Andreas Leitner Sustainability and Circular Economy: Paradigm Shift in Polyolefin Markets?	p.13
Tina Malti Educating the Mind and the Heart: Why Kindness Matters	p.14
Wim Meeus Youth and Terrorism: A Six Step Interdisciplinary Explanation	p.15
Gil G. Noam Theory and Methodology to Foster Socio-Emotional Development and Thriving in Youth	p.16
Christiane Spiel How Education Can Promote Social Progress	p.17

Session Speakers

Session I: Capacity Building

Petra Gradinger Positive Development of Immigrant Youth: Validation of the Holistic Student Assessment	p.21
Katja Hofbauer Social Development in Adolescence: The Impact of Family Conditions	p.23
Elisabeth Stefanek Evaluation of the ViSC Program: Fostering Intercultural Friendships in schools	p.24

Session II: Education

Sybille Holz "Minority Teachers": Approaches for the Bavarian Teacher-Training Program to Utilise their Capabilities for Primary School?	p.29
Jakob Kopczynski Reaching out and Connecting Learners via Open Education – the Hamburg Open Online University	p.30
Iswar Chandra Naik Poverty Eradication and Social Inclusion through Education with Special Reference to Indigenous People in India: a Case Study of Kalinga Institute of Social Sciences (KISS)	p.32

Session III: Sustainability

Nureen Faiza Anisha Collective Impact of Climate Change and Rapid Urban Development on Peripheral Rivers: A Case of Halda River in Chittagong, Bangladesh	p.37
Tserendorj Davaakhuu Sustainable Development and Sustainable City	p.39
Abass Gibrilla Tracking Nitrate Sources in Groundwater and Associated Health Risk for Rural Communities in the White Volta River Basin of Ghana using Isotopic Approach	p.40
Eva Jung The Influence of Business Models and Development Trends in the Field of Logistics to Promote Eco-Friendly Transport	p.42
Rendani Humphrey Khwidzhili The Sustainable Agriculture Imperative: Implications for South African Agricultural Extension	p.44
Matthias Neubauer Subject-oriented Supply Chain Design and Execution	p.46
Marcus Pajones Development of an evaluation method for the selection of a sustainable business location	p.48
Jan Zenisek Predictive Maintenance for Transport Systems – Employing Model Ensembles for Online State Detection	p.49

Session IV: Peace and Conflict Resolution & UN Impact

Ezekiel Mbitha Mwenzwa Nomadic Children in Kenya: Understanding the Conflict, Livelihood and Vulnerability Interface	p.55
Andrea Nechtelberger The Ten Basic Principles of the United Nations Academic Impact Initiative (UNAI): Can Personal Endorsement be Predicted from Value Orientations and Globalization? Findings from Austria, China, Cyprus, India, Nigeria, and Slovakia	p.56

Session V: Risk & Resilience

Alireza Faraz Monitoring discrepancies in a Buyer-Supplier Relationship	p.61
Patrick Freinberger The role of supply chain complexity for implementing global risk management strategies	p.63
Michael Herburger A grounded theory approach to understand supply, operations and logistics resilience in supply chains	p.65
Ila Manuj Supply, Operations and Logistics Resilience in Global Supply Chains: Contextual Conditions and Strategies	p.67
Antonio Padovano Education and Training Solutions for Disasters and Emergencies Management in Industrial Plants	p.69

KEYNOTES

Martyn Barrett
Inter-Cultural Dialogue

Christoph Bode
Risk & Resilience

Andreas Leitner
Borealis

Tina Malti
Education for All

Wim Meeus
Peace and Conflict Resolution

Gil G. Noam
Capacity Building

Christiane Spiel
Education



Competences for Democratic Culture: Advancing Intercultural Dialogue and Global Citizenship through Education

Martyn Barrett

University of Surrey, Guildford, Surrey, UNITED KINGDOM

ABSTRACT

This presentation will provide an overview of the Council of Europe project “Competences for Democratic Culture”. The project is developing a new European reference framework of the competences that enable people to function as effective democratic citizens within culturally diverse societies. It is also formulating guidance for ministries of education on how the school curriculum in citizenship education can be used to equip young people with these competences. While the competence model that lies at the heart of the framework has been developed as a model of the competences required for intercultural dialogue and democratic culture, it also provides a model of global competence and can provide a robust foundation for global citizenship education. It is intended that the framework – which has already been strongly endorsed by European Education Ministers – will be used to inform educational decision-making and planning across Europe, enabling national educational systems to be harnessed for the preparation of young people for life as interculturally and globally competent democratic citizens.

BIOGRAPHY OF SPEAKER

Professor **Martyn Barrett** is Emeritus Professor of Psychology at the University of Surrey, UK. He obtained his degrees from the Universities of Cambridge and Sussex. He is a developmental and social psychologist but has a strong commitment to multidisciplinary research and works with educationalists, political scientists, sociologists and policy analysts. His primary research interests are focused on young people, race, ethnicity and nation and the societal challenges that arise from cultural diversity. He is particularly interested in the development of intercultural and global competence, and the development of political cognition, civic attitudes and active citizenship. He is currently leading a flagship project for the Council of Europe that is producing a European reference framework of the competences that young people require to participate effectively in democratic culture. He is also working with the OECD PISA team developing the conceptual framework and assessments of global competence for PISA 2018. For further information, please see www.martynbarrett.com and www.coe.int/competences



Supply Chain Disruption Response: Stages, Strategies and Behaviors

Christoph Bode

Endowed Chair of Procurement, University of Mannheim, Mannheim, GERMANY

ABSTRACT

It is well established that supply chain disruptions can have a severe negative impact on firms and general wisdom suggests that this impact can be mitigated by quick responses. Yet, aside from general wisdom (“act quickly”) and a few anecdotes, relatively little is known about effective response processes in the aftermath of supply chain disruptions. Indeed, disruption response situations present several important challenges to managers: time pressure, uncertainty in the form of incomplete or unreliable information, and ambiguity of cause, effect, and means of resolution. This talk reports about a multi-method research project that entails a survey study on disruption stages, an agent-based simulation of organizational recovery processes, and behavioral experiments addressing the response preferences of purchasing professionals. Collectively, the obtained insights shed light on responses stages, response strategies, and behaviors, and may help firms to implement more effective disruption management frameworks.

BIOGRAPHY OF SPEAKER

Christoph Bode is a full professor at the Business School of the University of Mannheim and holds the Endowed Chair of Procurement. He obtained his Ph.D. from WHU - Otto Beisheim School of Management (Germany) and his Habilitation from the Swiss Federal Institute of Technology (ETH) Zurich (Switzerland).

His teaching and research interests lie in the areas of procurement, supply chain, logistics, and operations management with a special focus on risk and disruptions, interfirm relationships, innovation and entrepreneurship, sustainability, and strategies and performance. His research in these areas has been published in multi-disciplinary management journals, such as the *Academy of Management Journal*, *Decision Sciences*, or *Organization Studies*, as well as in leading operations management journals, such as the *European Journal of Operational Research*, *Journal of Operations Management*, or *Journal of Supply Chain Management*.

Prof. Bode serves as an associate editor for the *Journal of Business Logistics*, the *Journal of Supply Chain Management*, and the *Journal of Purchasing and Supply Management*, on the editorial boards of the *Journal of Operations Management* and the *Journal of Management Studies*, and as a frequent ad-hoc reviewer for other leading journals and conferences.



Sustainability and Circular Economy: Paradigm Shift in Polyolefin Markets?

Andreas Leitner

Borealis Polyolefine GmbH, St.-Peter-Strasse 25, 4021 Linz, AUSTRIA

ABSTRACT

Borealis defines sustainability as the ability to understand the consequences of its activities on the Triple bottom line, or “3Ps”: People, Planet and Profit. Applying the “rule of the 3Ps” will ensure that Borealis takes responsible and fact-based decisions, fostering true sustainability and avoiding green-washing. Responsibility has always underpinned how Borealis does business. We recognise our responsibility to protect the health and safety of our employees and to offer them job security, to conduct business ethically, and to ensure production processes and products are safe. But sustainability today is also a business imperative: Businesses can only grow sustainably in a healthy environment and stable society. We must manage the planet’s limited resources while facing their growing demand. We believe that improving Borealis’ sustainability performance will enable the company to be more efficient, reduce costs and mitigate long-term business risks. Moreover, Borealis understands sustainability as a business opportunity: Our products have a positive impact on society by addressing challenges such as climate change and access to energy, water, food and healthcare. Borealis sees clear business opportunities by addressing emerging challenges, such as the need to reduce plastic waste and increase recycling rates and innovation opportunities that ultimately will support the company’s ambition to grow. Borealis’ sustainability strategy focuses on those areas which were defined as being of most relevance to Borealis as well as for external stakeholders. As a result the company has defined the following three focus areas: Circular Economy, Energy & Climate, Health & Safety. For each of these areas, clear deliverables have been defined. For Borealis, sustainability is a process of continuously improving performance. The company does this step by step, focusing on material issues, balancing resources, value and impact, and seeking dialogue with stakeholders, so their needs are reflected in the company’s approach.

BIOGRAPHY OF SPEAKER

Dr. **Andreas Leitner** is Head of New Business Development at Borealis Polyolefins. He joined Borealis in 2010 as Research Manager in the Innovation Headquarter in Linz where he was responsible for the Process Development Department. After that he became Head of Strategic Marketing.

Before joining Borealis, Andreas worked for BASF in Petrochemicals Process R&D in Germany as well as in the Inorgancis Division in USA.



Educating the Mind and the Heart: Why Kindness Matters

Tina Malti

University of Toronto, Toronto, CANADA

ABSTRACT

My talk will provide new insights into research on the development of a child's mind, empathy, and healthy development. I explain the fundamentals of how children become caring and why kindness matters in education. Childhood is a time of transformation and growth, which makes it crucial to promote caring and commitment during this time period, as well as to reduce aggression, victimization, and violence. I describe research findings on how children's thinking and kindness work together, and how they shape learning and healthy development. Lastly, I discuss the implications of this research for a comprehensive view of education and implementation in social policy.

BIOGRAPHY OF SPEAKER

Tina Malti, PhD. Dr. Malti is Professor of Psychology at the University of Toronto. She is a Fellow of the Association for Psychological Science and the American Psychological Association (Division 7, Developmental Psychology). Malti, a developmental and clinical psychologist, is a renowned expert on the development of empathy, aggression, and violence in children. With her research, Malti showed that concern for others can help children reduce anger and decrease their engagement in behaviors that cause harm to others. Based on these findings, she creates and implements intervention strategies to support empathy and social-emotional development, and reduce exposure to violence in children facing multiple forms of adversity.

Malti has published over 140 scientific articles and has received numerous awards for her research. She serves on the editorial board of the journal *Child Development* and is the Membership Secretary of the International Society for the Study of Behavioural Development.



Youth and Terrorism: A Six Step Interdisciplinary Explanation

Wim Meeus

Adolescent Development Utrecht University and Developmental Psychology, Tilburg University, Tilburg, NETHERLANDS

ABSTRACT

I will offer a six step interdisciplinary explanation to clarify the youth character of terrorism. 1. Modern Western societies offer young people a prolonged adolescence. 2. Young people develop a group consciousness which for many of them entails a critical attitude towards parents and adult institutions. 3. At the heart of the anti-adult attitudinal system we observe “No Future” : the expression of youth’s disbelief that they will become a successful citizen. 4. The psychological expression of “No Future” is identity moratorium or diffusion, psychological states young people want to get out. 5. This is where the transition to terrorism or jihadism becomes relevant. This transition can be conceptualized as radical identity change especially when the social network of young people is poor. 6. The new, radical, group offers a new identity and a new social network. I will present empirical evidence for each of the six model steps.

BIOGRAPHY OF SPEAKER

Prof. Dr. **Wim Meeus** is professor of Adolescent Development at Utrecht University and of Developmental Psychology at Tilburg University. He served as chair of the Institute for the Study of Education and Human Development, the Dutch National Research School for the Educational Sciences and Developmental Psychology, and for more than twenty years as chair or council member in various programs of the Netherlands Organisation for Scientific Research. He initiated the research master program Development and Socialization in Childhood and Adolescence (DaSCA) at Utrecht University in 2002. He was President of the European Association for Research on Adolescence (EARA) 2012-2014. He has published over 425 scholarly journal papers or (contributions to) books. His scientific work includes theoretical psychological papers, experimental research into obedience to authority, and numerous longitudinal studies on various aspects of adolescent development. He received the EARA Life Time Achievement Award 2016 for key contributions to the understanding of adolescent development. Currently he is the Principal Investigator of three ongoing longitudinal studies on adolescent development and the Consortium of Individual Development (CID), the gravitation program awarded in 2012 to Utrecht University in conjoint with other Dutch Universities.



Theory and Methodology to Foster Socio-Emotional Development and Thriving in Youth

Gil G. Noam

Harvard University, Massachusetts, USA

ABSTRACT

There is an increased recognition in education that social-emotional skills are associated with academic and life success. Even PISA, the international assessment system, has embraced the idea that measuring academic proficiency is not enough. The problem is that there is no consensus around which skills should be focused on and no clear framework linking them to youth development. This talk will introduce a framework of social-emotional development and describe the Holistic Student Assessment, a measurement tool based on that framework that is used widely in the United States and abroad. This talk will end by sharing an applied developmental approach to how interventions and prevention programs can be selected based on developmentally-sensitive social-emotional data.

BIOGRAPHY OF SPEAKER

Professor **Gil Noam** is the founder and director of The PEAR Institute: Partnerships in Education and Resiliency at McLean Hospital and Harvard University. An Associate Professor at Harvard Medical School and McLean Hospital focusing on prevention and resilience, Dr. Noam trained as a clinical and developmental psychologist and psychoanalyst in both Europe and the United States. Dr. Noam has a strong interest in translating research and innovation to support resilience in youth in educational settings. He served as the Director of the Risk and Prevention program at Harvard, and is the founder of the RALLY prevention Program, an intervention that combines early detection of health, mental health and learning problems in middle school youth, and pioneers a new professional role – “prevention practitioner”.

Dr. Noam has published over 200 papers, articles, and books on topics related to child and adolescent development, and risk and resiliency. He served as the editor-in-chief of the award-winning journal *New Directions in Youth Development: Theory, Practice and Research* and consults nationally and internationally to youth development, education and child mental health organizations, foundations and agencies.



How Education Can Promote Social Progress

Christiane Spiel

Faculty of Psychology, University of Vienna, Vienna, AUSTRIA

ABSTRACT

The presentation gives insights in the chapter on education of the International Panel on Social Progress (IPSP; <https://www.ipsp.org/>). The IPSP initiative aims to rethink the 21st Century. It is based on a belief in the importance of bringing back utopian thinking and long-term prospective analysis of social structures. The aim is to stimulate intellectual and public debate and to contribute to the quest for social justice. The main product of the IPSP will be a report of 22 chapters published by Cambridge University Press in 2018 prepared by about 300 lead social scientists and developed through a process of extensive consultation. The panel has an Honorary Advisory Committee composed of intellectual leaders (several Nobel Prize Winners) led by Amartya Sen.

There are many reasons to believe that increased educational opportunity and achievement lead to social progress. To understand the connection between education and social progress, we distinguish in the IPSP chapter on education among four distinct goals of education: civic, economic, humanistic, and equity promotion. Each of these goals can be understood from an individual and collective perspective. We focus these goals on the micro-level (educators), meso-level (educational institutions) and macro-level (educational governance) taking into account the educational sectors. The presentation gives an overview about IPSP and the chapter on education with a specific focus on educational institutions.

BIOGRAPHY OF SPEAKER

Univ.-Prof. Dr. Dr. **Christiane Spiel** is Professor of Bildung-Psychology and Evaluation at the Faculty of Psychology, University of Vienna. Her research topics are on lifelong learning, bullying und victimization, integration in multicultural schools, evaluation, implementing interventions into public policy, and quality management in the educational system. In various projects Christiane Spiel worked together with Austrian Federal Ministers. She has got several awards as e.g., the Austrian Cross of Honor for Science and Arts first class (2016), the Science Award of the Margarete Lupac foundation of the Austrian Parliament for Parliamentarism and Democracy (2011), and the Grand Decoration of Honor in Silver for Services to the Republic of Austria (2010). She has published more than 250 original papers and headed about 40 third party funded projects. Christiane Spiel was founding dean of the Faculty of Psychology at the University of Vienna and is and has been chair and member of various international advisory and editorial boards.

SESSION I

Capacity Building

Petra Gradinger
Katja Hofbauer
Elisabeth Stefanek

Positive Development of Immigrant Youth: Validation of the Holistic Student Assessment

Petra Gradinger^a, Dagmar Strohmeier^a, Angela Ittel^b,
Tina Malti^c & Gil Noam^d

^a FH Upper Austria, Linz, AUSTRIA

^b Technical University Berlin, GERMANY

^c University of Toronto, CANADA

^d Harvard Medical School, Boston, USA

ABSTRACT

Although there is a call to adopt a strength-based conception when studying immigrant youth, there is a lack of developmental theory as well as sound assessments capturing both strengths and risks. The main goal of the present study is to introduce the Holistic Student Assessment and to compare strength and risk profiles between non-immigrant, first and second immigrant boys and girls aged 13-14 years in two national contexts: Austria and Germany.

Based on the Clover Leaf Model (Noam & Malti, 2008), the Holistic Student Assessment captures four key developmental areas of socio-emotional development: Active engagement, assertiveness, belonging and reflection (Noam, Malti & Guhn, 2012).

Data was collected in two national contexts, Austria (N= 666) and Germany (N=565). In sum, 1221 youth (53% girls) aged 12 to 16 (M=13.96, SD = 0.90) participated, 168 youth were first generation immigrants, 396 youth were second generation immigrants and 657 youth were non-immigrants.

To validate the theoretical structure of the HSA a series of CFA's and SEM models have been conducted. To begin with, each scale has been tested for several levels of invariance between non-immigrant and immigrant youth. Secondly, four SEM models have been conducted to empirically validate the theoretical structure of the HSA.

To compare the strength and risk profiles between non-immigrant, first and second generation immigrant youth, four MANOVAs with country, gender and immigrant status as independent variables and the individual scales of the four key developmental areas as dependent variables have been conducted. Even after controlling for perceived discrimination experiences, second generation immigrants in Germany (but not in Austria) emerged as a risk group for positive socio-emotional development in nearly all scales.

The results highlight the importance of conducting cross-national studies to better understand underlying mechanisms hampering the socio-emotional development of some groups of immigrant youth in particular national contexts.

BIOGRAPHY OF SPEAKER

Mag. Dr. **Petra Grading**, studied Actuarial Mathematics at the University of Technology, Vienna, and Psychology at the University of Vienna. After receiving her doctorate in Psychology she became Senior Researcher at the University of Applied Sciences Upper Austria, Linz, Austria. Her main research area is on social relationships (e.g., bullying, cyberbullying, and discriminatory bullying) among adolescents and competencies (e.g., intercultural competencies, self-regulated learning and learning with new media) among university students.

Social Development in Adolescence: The Impact of Family Conditions

Katja Hofbauer, Petra Wagner

FH Upper Austria, Garnisonstr. 21, 4030 Linz, AUSTRIA

ABSTRACT

The development in adolescence is characterized by a lot of changes. Relationships with parents take a different form, the influence of peers become more important. Biological changes trigger a heightened interest in body image. Today's adolescents face demands and expectations, as well as risks and temptations, that appear to be more numerous and complex than those faced by adolescents only a generation ago.

The present study investigated the relation between family conditions and social development in adolescence from the perspective of adolescents in vocational schools. On the one hand, we focused on different variables describing the quality of the relationship between adolescents and parents, like parental engagement, parental support, parental interest in school, and parental pressure to perform. On the other hand, we focused on different risk variables, like attitudes to victimization, violence, delinquency, and harmful substances (cigarettes, alcohol, cannabis, cocaine, etc.), as well as the current consumer behavior of the adolescents. Concretely, we analyzed the question if there is a relationship between family conditions and these risk factors. We expected a substantial correlation between family conditions and risk factors. To investigate this research question a longitudinal study was conducted. We conducted a pre-post-test-design with two measurements (one at the beginning and one at the end of a school term). Data were collected with online questionnaires students filled out during regular school hours. All variables were measured by published scales respectively items. After a matching procedure data from 548 adolescents (290 girls, 258 boys) were available for both measurement points. The participants attended three different vocational schools in 41 different classes. The average age of the students was 17.52 years (SD=1.92). The students' age range between 15 and 23 years. To answer the research question variance analyses with repeated measurements were used. The results support the hypothesis concerning attitudes but not for reported behavior.

Evaluation of the ViSC Program: Fostering Intercultural Friendships

Elisabeth Stefanek^{a,b}, Dagmar Strohmeier^a,
Takuya Yanagida^a

^a FH Upper Austria, Garnisonstr. 21, 4020 Linz, AUSTRIA

^b University of Vienna, Vienna, AUSTRIA

ABSTRACT

The ViSC program (Strohmeier, Hoffmann, Schiller, Stefanek & Spiel, 2012) aims to combat aggressive behaviour and to foster social and intercultural competencies in young adolescents. The theoretical framework of the ViSC program is grounded in concepts of aggression (Card & Little, 2006; Dodge, 1991), bullying (Salmivalli, Lagerpetz, Björkqvist, Österman, & Kaukiainen, 1996), and social information-processing theory (Crick & Dodge, 1994, 1996; Huesmann, 1988), and principles of intergroup contact theory from Allport (1954), i.e. equal status, common goals, cooperation, and authority support. In former studies the ViSC program has been proven its effectiveness to prevent victimization (Yanagida, Strohmeier, & Spiel, 2016).

The aim of the present paper is to examine the effectiveness of the ViSC Program to foster intercultural friendships. In the present study 747 adolescents (66% Intervention, 52% girls, 58% Austrian, 21% Turkish, 21% Serbian students) nominated at two time points their three best friends in the class. Four indicators of same cultural friendships were investigated: Percentage of (1) reciprocal and (2) unilateral friendships. Furthermore, to control for the availability of same cultural peers in the class, the opportunity index developed by Strohmeier (2012) was calculated, i.e. same cultural friendship preferences (3) for reciprocal and (4) unilateral friendships. Finally, as peer nominations are depending on presence of peers at both measurement points we investigated three groups with high, medium and low data quality.

Results of ANOVAS yielded a significant intervention effect in reciprocal friendships in data with medium quality. Turkish students participating in the ViSC program nominated after the intervention less same cultural friends and showed less same cultural friendship preferences compared to Turkish students in the control group. Thus, there are some small effects to foster intercultural friendships but only in one group of immigrants. Concerning age and opportunity, results are in line with previous studies.

BIOGRAPHY OF SPEAKER

Dr. **Elisabeth Stefanek** received her Ph.D in Psychology in 2012 at the University of Vienna, Austria. She holds a position as a research associate at the University of Applied Sciences Upper Austria and a Senior Lecturer position at the Faculty of Psychology, University of Vienna. Between 2007 and 2011 she was a PhD research assistant at the University of Vienna where she worked on her dissertation on mental health and peer relations in children and adolescents. Furthermore, she was mainly responsible for the formative evaluation of the ViSC program. Between 2012 and 2013 she was a Post Doc researcher at the University of Applied Sciences where she worked at the project on

intercultural friendships in schools. Dr. Stefanek publishes her research on intercultural peer relations, violence prevention, and evaluation research in international journals.

SESSION II

Education

Sybille Holz
Jakob Kopczynski
Iswar Chandra Naik

“Minority Teachers“: Approaches for the Bavarian Teacher-Training Program to Utilise their Capabilities for Primary School?

Sybille Holz

University of Passau, Innstraße 40, 94032 Passau, GERMANY
e-mail: Sybille.Holz@uni-passau.de

SYNOPSIS

The presentation aims at pointing out recent hurdles for minority students and teachers of foreign background to become a recognised teacher in a Bavarian primary school classroom. A conceptual analysis of working training programs in foreign countries might have an impact on the reformation of existing programs at Bavarian universities.

ABSTRACT

The Bavarian guidelines for the education of children in primary schools recommend the appearance of multiprofessional teams to ensure educational equality. In reality, the share in teachers with migration background (6,2% in Germany; Georgi 2011), also called “minority teachers”, does not equal the share in primary school children with migration background (32,1%; Datenreport 2013). Edelman’s (2008) and Rotter’s (2014) studies on the self-concept of minority teachers prove their open-minded handling of cultural diversity in schools, even though 70% (Georgi 2011) characterise it as an intuitive one rather than knowledge-based.

This dissertation therefore aims at examining the actual teacher-training program in Bavaria with its organisational and structural hurdles to minority students and teachers with foreign training background. Furthermore, North American and European concepts of teacher-training programs are getting analysed according to their content and structure (conceptual analysis). Qualitative interviews with participants of these programs are planned to enlighten the relevant conditions for them to be able to stimulate their capabilities, e.g. being a “change agent” (Georgi 2011). This theoretical analysis then results in a list of requirements for “minority teacher”-friendly training programs which will be considered under the aspect of feasibility for the current Bavarian teacher-training program. A desired implication would be the inclusion of the results for the next restructuring of the Bavarian training program to increase the number of minority students at Bavarian universities on the one hand and to provide them with tools to use their capabilities in a knowledge-based way.

Keywords: minority teachers, teacher-training, intercultural competence, primary school, Bavaria

Reaching Out and Connecting Learners Via Open Education – the Hamburg Open Online University

Jakob Kopczynski, Ellen Pflaum, Hannah Ramic

HAW Hamburg, Berliner Tor 5, 21033 Hamburg, GERMANY

e-mail: ellen.pflaum@haw-hamburg.de, Hannah.ramic@haw-hamburg.de; Jakob.kopczynski@haw-hamburg.de

SYNOPSIS

The Hamburg Open Online University (HOOU) develops innovative, cooperative digital learning arrangements which will be open to a broad audience. Our goal is to present the crucial political and institutional concepts that allow project-based and interdisciplinary development of digital and open learning arrangements at institutions of higher education. Some concrete examples will complete our presentation.

ABSTRACT

Hamburg Open Online University is an initiative by the first mayor of the city of Hamburg Olaf Scholz and all Hamburg state universities together with our universities multimedia service office and the Hamburg authority for education.

Our mission is to combine knowledge, research and experiences of all project partners to develop innovative and cooperative digital learning arrangements and open them for people inside and outside our universities, not only in Hamburg but world-wide.

One of our most important challenges – and biggest opportunity at once – is the fact that for the first time in Hamburgs academic tradition all universities work together towards a common vision: free and open education for everyone. The HOOU project reunites universities with different academic traditions, like universities of applied sciences, technical universities, arts and traditional research-oriented universities around different topics:

Questions like „how can we clean our oceans from waste“ do not only include environmental or maritime sciences but also other disciplines, e.g. when it comes to convincing people that there is a need to stop certain behaviors or changing logistics and business processes.

The best way to solve this kind of questions is to bring people together - people with different national, academic, professional backgrounds. And this is what HOOU is all about: connecting people, offering learning opportunities and opening academics across disciplines, educational levels, countries and personal backgrounds.

Political and institutional Concept of Hamburg Open Online University

- Vision and Mission
- Openness and organizational structure
- The HOOU Brand Values

Project-based and interdisciplinary development of learning arrangements

- How to develop digital, educational projects – an exemplary process
- Our didactic principles: competency-oriented learning, simplicity, participation...
- Examples: Projects, Media and Methods

Keywords: Openness, HOOU, Online Learning, Digitalization, Collaboration

BIOGRAPHY OF SPEAKER

Jakob Kopczynski received his degree as a graduate engineer in media technology at the University of Applied Sciences Hamburg in 2007. Since then he worked on various educational and media-pedagogical projects always following the basic question, how new technologies are able to influence and change our learning culture and how may one benefit from it. In this context he is one of the initiators of the „Initiative Creative Gaming“, that deals with games culture and its potentials in education. Apart from that he gives teachings on design, media production and conception at the University of Applied Sciences Hamburg. Since 2015 he works on the project Hamburg Open Online University, that was initialized by the first mayor of the city of Hamburg. Together with all Hamburg state universities, the universities multimedia service office and the Hamburg authority for education Jakob Kopczynski is part of the Development of open, innovative and cooperative digital learning arrangements. In this regard his expertise lies in the delivery of comprehensive advice and realization of productions of media and applications concerning open educational resources. He is focused on the benefits and chances of openness, collaboration, community building and new creative ideas with a deep interest in the enrichment of education by using digital methods.

Poverty Eradication and Social Inclusion through Education with Special Reference to Indigenous People in India: a Case Study of Kalinga Institute of Social Sciences (KISS)

Iswar Chandra Naik^a, Kadey Soren^b

^a School of Humanities, KIIT University, Bhubaneswar, Odisha, INDIA

^b KIIT University, Bhubaneswar, Odisha, INDIA

SYNOPSIS

The Rights of Indigenous Peoples, which applies the right to education to the specific historical, cultural, economic and social circumstances of indigenous peoples. Eradication of poverty, ignorance, and inequality and providing a better and higher quality of life will be possible only through quality education to all, particularly Indigenous people.

ABSTRACT

Education is the most important driving force for the development and progress of a nation which acts to be the key component of human development and human empowerment. Education is an essential for every individual and people of society. It helps people to know the world beyond their own surroundings and transforms them to become rationalist and humanist in outlook and world views. Education is an effort of the senior people to transfer their knowledge to the younger members of society.

This paper is based on the case study of 'Kalinga Institute of Social Sciences' is a non-profit and non government organization registered under the Society Registration Act-1860 which a residential educational institute founded by Dr. Achyuta Samanta. KISS has been working relentlessly for the upliftment of indigenous and empowering them through education. At present 25000 tribal children are provided with food, accommodation, vocational training, and healthcare absolutely free to pursue their education from KG to PG.

This paper is arguing that, due to increase in Private Investment on education it is becomes a place of Production and consumption, as a results the indigenous people in India are not able to access to education, which actually they are excluded from the mainstream society and living with poverty which creates inequality in society. The author believed that the injustice of poverty, illiteracy and inequality demands a people-centric educational policies and practical response to address both its causes and its impact on peoples' lives. The objective of the paper is to analyzed Poverty Eradication and Social Inclusion through Education to Indigenous People in India. It was found in this research that through practice intervention of the Kalinga Institute of Social Sciences (KISS). However, education is the important instrument for eradication of poverty which leads to social inclusion.

BIOGRAPHY OF SPEAKER

Dr. **Iswar Chandra Naik**, born on 12th April 1978, is currently working as Deputy Director at the KIIT University in India. In 2003 he mastered Arts of Sociology from J.N.U, New Delhi. His further educational Qualifications include M. Phil. in Social Anthropology from Delhi University (2003- 2004), Ph.D. in Sociology from J.N.U. New Delhi (2005-2010) and he qualified UGC, NET (National Eligibility Test) examination in 2006. Mr. Naik has also several book publications, and participates in conference and project organizations in his country.

SESSION III

Sustainability

Nureen Faiza Anisha
Tserendorj Davaakhuu
Abass Gibrilla
Eva Jung
Rendani Humphrey Khwidzhili
Matthias Neubauer
Marcus Pajones
Jan Zenisek

Collective Impact of Climate Change and Rapid Urban Development on Peripheral Rivers: A Case of Halda River in Chittagong, Bangladesh

Nureen Faiza Anisha, Ibrat Sharif

Centre for Climate Change and Environmental Research, BRAC University, Dhaka, PEOPLE'S REPUBLIC OF BANGLADESH, e-mail: nureen.faiza.anisha@gmail.com, ibrat.sharif03@gmail.com

SYNOPSIS

The unplanned rapid urban growth of Chittagong city in Bangladesh imposes high degree of environmental threat upon the water resources, which eventually, combined with the impacts of climate change, undermines the sustainable growth of the city.

ABSTRACT

Chittagong, situated in the southeastern coast of Bangladesh, is one of the fastest growing urban areas in Bangladesh, both in the perspective of industrial growth and population growth. Unplanned urbanization has put extreme stress on water supply, habitat, transport, drainage and many other urban facilities. As of year 2015, there was a huge imbalance in demand and supply of water in the city. The city's water supply is dependent on Halda river and ground water sources. With increased demand of water supply, the extraction of water from Halda has increased too. But the exclusivity of Halda river is that it is the only river in Bangladesh where major Indian carps spawn naturally which makes this river a unique heritage of this country. This stress of higher demand of water has resulted in increased water withdrawal which eventually causes siltation in the river that hinders the natural flow of Halda. It is also observed that in the process of urbanization, the physical features of Chittagong is gradually changing as open spaces

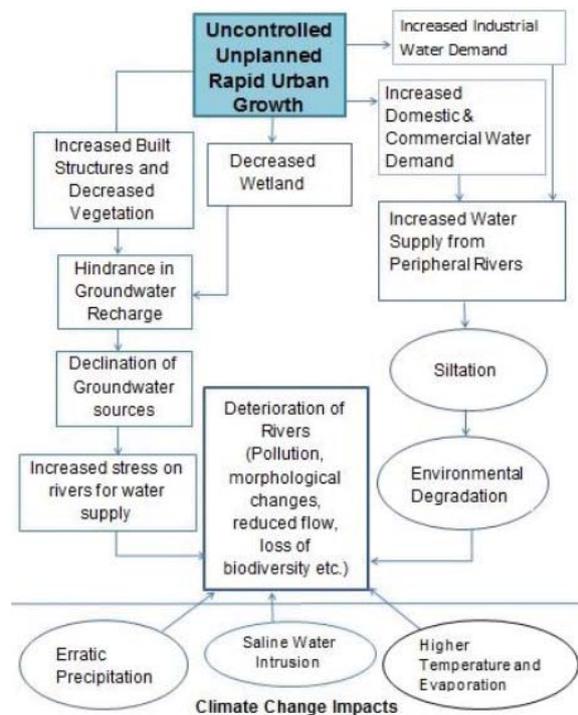


Figure 1: Impact of uncontrolled unplanned rapid urban growth and climate change on deterioration of peripheral rivers

are being transformed into paved areas with decrease in vegetation and all these are hindering the ground water recharge process. With declination in ground water table, water supply stress on Halda would increase even more which shall cause more deterioration of Halda. On top of that, the coastal region of Bangladesh is highly vulnerable to climate change due to saline water intrusion, erratic rainfall and sea level rise. Hence, in addition to the threats imposed by rapid unplanned urban growth of Chittagong, Halda, as a coastal river, is vulnerable to climate change. Based on existing interdisciplinary literature, this paper studies the urban growth-water supply-climate change nexus for Chittagong city and Halda and identifies the multifaceted vulnerability of river Halda linked with urban growth of Chittagong.

Keywords: Urbanization, River, Water Supply, Sustainability, Climate Change.

BIOGRAPHY OF SPEAKER

Nureen Faiza Anisha is a researcher and activist in the field of climate change and water resources based in Bangladesh. Currently working as a Research Associate in the Centre for Climate Change and Environmental Research (C3ER) in BRAC University in Dhaka, Bangladesh, her work closely relates to the human dimension of climate change and water security. She did her BSc in Water Resources Engineering and her MS in Climate Change and Development. She has worked with climate vulnerable communities at the grassroots level in remote areas of Bangladesh and specializes on impacts of climate change on water sector. Her research projects range from impact of climate change on surface water quality to water governance in climate stressed coastal villages of Bangladesh. Though she started her research career focusing on geospatial aspects of climate change and water resources, her research now broadly focuses on gender dimensions, socio-cultural and political dynamics of climate change, and sustainability. Apart from her profession as an environmental researcher, Nureen is also a TV show host and her TV show 'Projonmo Agami', which advocates for social awareness regarding religious tolerance, communal harmony, civic responsibility and other contemporary social and environmental issues among the youth, has finished airing its 3rd season on national television. Nureen has also been a national level award winning public speaker and holds REX Kamraveer Global Fellowship 2016 and Asia Foundation Development Fellowship 2017.

Sustainable Development and Sustainable City

Tserendorj Davaakhuu^a, T. Navchaa^b

^a School of Tourism and Land management, Mongolian National University, MONGOLIA
dvkhuu@gmail.com

^b School of Business, University of the Humanities

ABSTRACT

Climate change, rapid economic and population growth, the sharp increase consumption and services, and resources depletion are the greatest global challenges that pose a risk for the earth's subsistence (1). Based on an estimation of ecological footprint, two Earth's will be required by 2030 as current consumption and production patterns continued (1). Sustainability has been widely debated in the construction industry in recent years. Through various assessments have previously been developed to help improving sustainability of city projects, those base networks for construction, transportation and usage of people. Therefore, Smart city/Green city is approach is most important others to becoming a sustainability. This study reveals to study for international green city index and after compare and analyzing Mongolian case before studying and implementation. Methodology processes begin with data and information collection by using international papers distribution to the expertise which involve in green city development and also green issues. After that, analyzing the Mongolian green city development and implementation. To find correct way of how to develop or to reach a smart city which problems have in Mongolian? Also to study what way is the best to improve it? After all, result can show Mongolian green city definitions which are waste management, transportation and construction are analyzed this paper.

Keywords: Sustainable city, Environment, Development, Ecology

BIOGRAPHY OF SPEAKER

Major: Environmental Science, Natural Resource

Location: Ulaanbaatar, Mongolia

Davaakhuu Tserendorj is a full time teacher of Environmental Science which lectures are related for sustainable development, soil, water, natural resources in Mongolian national university, Ulaanbaatar, Mongolia. She has five years of working experience and has been working at the University for four years. She has a Bachelor degree in Environmental and Natural resources management/with professional English and a Masters degree in Environmental Science, International.

Tracking Nitrate Sources in Groundwater and Associated Health Risk for Rural Communities in the White Volta River Basin of Ghana Using Isotopic Approach

Abass Gibrilla^{a,b}, Geophrey Anornu^a, Dickson Adomako^b

^a Department of Civil Engineering, Kwame Nkrumah University of Science and Technology (KNUST), Private Mail Bag University Post Office, Kumasi, GHANA, e-mail: gibrilla2abass@yahoo.co.uk; anoprof@hotmail.com

^b Nuclear Chemistry and Environmental Research Center, National Nuclear Research Institute, GAEC, Box LG 80, Legon-Accra, GHANA, e-mail; gibrilla2abass@yahoo.co.uk; d.adomako@gaecgh.org

SYNOPSIS

Groundwater is an important source of drinking water in Ghana. In this study, we present a historical trend of nitrate contamination and a pioneering work on the use of integrated hydro-chemical and isotopic technique to trace the sources of nitrate contamination for a sustainable management of the groundwater resources.

ABSTRACT

In this study, we present a pioneering work on the use of integrated hydro-chemical and isotopic technique to trace the sources of groundwater nitrate contamination in the Upper East Region of Ghana to aid the sustainable management of this vital resource. The objectives of the study are (1) assess the present status and spatial distribution of the nitrate contamination (2) identify and distinguish the most likely sources of nitrate, and (3) ascertain the potential human risk from exposure to nitrate contamination. The results showed that, nitrate concentrations varied from 0.42 to 431.17, 0.83 to 143.94, 0.03 to 28.94 mg/l with mean values of 36.09, 21.54 and 5.01 mg/l for groundwater, hand dug wells and the surface water respectively. These values showed that, about 95% of groundwater and hand dug wells and 45% of the surface water have nitrate above the baseline nitrate concentration in the area. The NO₃⁻/Cl⁻ ratio showed that, 98.4%, 95% and 64% of the NO₃⁻ in the groundwater, hand dug wells and the surface water are from anthropogenic activities. The δ¹⁵N-NO₃⁻ and δ¹⁸O-NO₃⁻ data confirmed that NO₃⁻ in the samples was predominantly derived from manure (human and animal waste) and denitrification is the primary NO₃⁻ removal process. The isotopic data further affirms the hydro-chemical interpretation that, chemical fertilizer and atmospheric deposition are unlikely sources of NO₃⁻ in the entire samples. The relationship between δ²H and NO₃⁻ concentrations showed that, higher NO₃⁻ values are associated with younger waters. Assessment non carcinogenic health risk for adults and children posed by oral ingestion of the NO₃ contaminated water revealed some degree of health risk, especially to children whose risk is about 72% higher. The study provides a conceptual

model of the NO₃- dynamics and highlighted the need for proactive measures to protect drinking water sources in the area.

Keywords: Groundwater, nitrate contamination, hydrochemistry, $\delta^{15}\text{N-NO}_3$ and $\delta^{18}\text{O-NO}_3$, Upper East Region, Ghana

BIOGRAPHY OF THE SPEAKER

Gibrilla Abass is a research scientist born on 12th of June, 1979. He finished his education with a degree in Nuclear and Radiochemistry (Isotope Hydrology). His research interest is based on subsurface hydrology, isotope hydrology, water quality and hydrogeochemistry. Until now, Gibrilla Abass published one book chapter and twenty peer review articles. Currently he is working as a Research Scientist for the Ghana Atomic Energy Commission.

The Influence of Business Models and Development Trends in the Field of Logistics to Promote Eco-Friendly Transport

Eva Jung, Alexandra Haller, Lisa-Maria Putz

FH Upper Austria, Wehrgrabengasse 1-3 4400 Steyr, AUSTRIA

e-mail: eva.jung@fh-steyr.at, alexandra.haller@fh-steyr.at, lisa-maria.putz@fh-steyr.at

SYNOPSIS

In this paper the impact of business models and development trends in the field of logistics will be evaluated in terms of promoting an increased use of eco-friendly transport modes such with special focus on inland waterways.

ABSTRACT

In recent years, economy has a strong interest in sustainability issues. This may derive from governmental regulations or an increasing demand for eco-friendly products by consumers. The field of logistics can be identified as an area which is highly affected by these developments. Within the field of logistics, freight transport can be named as the area of highest potential to reduce greenhouse gas emissions. Companies tend to design their logistical operations more sustainable by an increased use of eco-friendly transport modes such as inland waterways to meet the needs of society. As a result, various new business models have emerged in the field of logistics in recent years which aim to green the supply chain. Nevertheless, inland waterway transport has still the lowest share in the European modal split.

The aim of this paper is to identify the impact of business models in the field of logistics to promote an increased use of eco-friendly transport modes in the future with special focus on inland waterways. As a first step, an extensive literature review and workshops with experts from the logistics sector will be conducted to identify relevant development trends and business models with special focus on inland waterway transport. Afterwards, a SWOT-analysis will be carried out to evaluate the impact of defined business models and development trends in terms of promoting an increased use of eco-friendly transport modes such as inland waterways.

We expect to identify opportunities and challenges of business models and development trends to promote an increased use of eco-friendly transport modes such as inland waterways. Besides a theoretical contribution, this paper will also give practical recommendations for promoting an increased use of inland waterway.

Keywords: business models, eco-friendly transport, inland waterway transport

BIOGRAPHY OF THE SPEAKER

Eva Jung is a research associate at the University of Applied Sciences Upper Austria in the department of transport logistics and mobility. After obtaining her bachelor's degree in business administration at the University of Economics and Business in Vienna, she completed the master program "Supply Chain Management" at the University of Applied Sciences Upper Austria, Campus Steyr. She is an expert on sustainable freight transport with a special focus on inland waterway transport. Her research interests lie in the areas of sustainable transport/ logistics, inland waterway transport, ports as logistic hubs, innovative transport concepts such as the Physical Internet, logistics education and innovative teaching methods. In her research studies, she is involved in various projects on European and national level. Her current projects focus on creating awareness for eco-friendly freight transport among logistics students and logisticians as well as integrating inland ports in sustainable transport networks.

The Sustainable Agriculture Imperative: Implications for South African Agricultural Extension

Rendani Humphrey Khwidzhili^a, Steve Worth^b

^a Agricultural Extension and Rural Resource Management, University of Mpumalanga, P/ Bag x 11283, Nelspruit, 1200. SOUTH AFRICA, Tel. 013 002 0144, e-mail: humphrey.khwidzhili@ump.ac.za.

^b Agricultural Extension and Rural Resource Management, School of Agriculture, Earth and Environmental Sciences. University of Kwa-Zulu Natal, P/Bag x01, Scottsville, 3209. SOUTH AFRICA, Tel. 033 260 5811, e-mail: worth@ukzn.ac.za

SYNOPSIS

This paper explores in detail why it has become imperative, during the last decade, to focus on the sustainable agricultural practices. Existing literature on sustainability mostly emphasizes on three pillars of sustainable agriculture namely; environment, social and economic aspects. This paper puts emphasis on five pillars of sustainable agriculture.

ABSTRACT

This paper draws on relevant published (review) papers to argue that extension is well positioned to promote sustainable agriculture through five pillars of sustainability. Agriculture is not only greatly influenced by the environment in which it operates, but in recent decades it has become increasingly apparent that some modern farming practices may harm the natural environment. In fact in most countries of the Southern Africa, severe environmental problems are direct results of modern farming practices. As a result of the ever growing human population in South Africa, farmers are forced to resort to farming practices that will increase productivity, but compromising the natural environment, in order to meet food security. Thus the need for establishing frameworks, methods and processes that support viable and attractive sustainable agriculture is imperative. This is particularly true in South Africa's context with its primacy on transforming the agricultural sector where, in the efforts to redress issues of the past, it runs the danger of replicating the inefficient, unsustainable practices of that same past. Ultimately, this has significant implications for South African agricultural extension, which need to be able to help the nation balance the increasing and often conflicting demand for more efficient production, greater inclusion of marginalised smallholder farmers, and creating wealth in impoverished rural communities. The paper concludes by presenting some philosophical recommendations that agricultural extension can utilize in promoting sustainable agriculture.

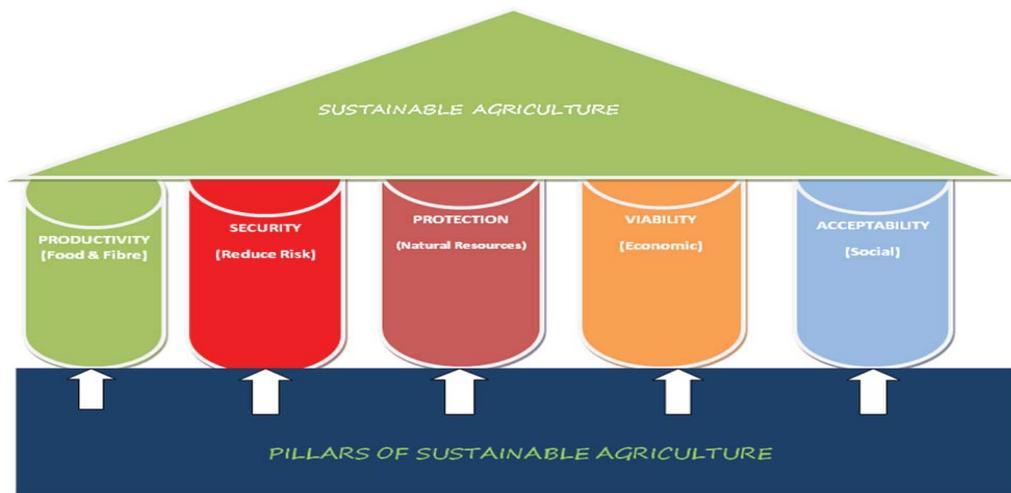


Figure 1: Five pillars of sustainable agriculture (adapted from Khwidzhili, 2012)

Keywords: Environment, food security, farming practices, Sustainable agriculture, agricultural extension

BIOGRAPHY OF SPEAKER

Mr. **Rendani Humphrey Khwidzhili** is a lecturer for Agricultural Extension at the newly established University of Mpumalanga in South Africa. He has been a junior lecturer at Ehlanzeni Further Education and Training for more than five years. He holds a National Diploma in Rural Development and Agricultural Extension from Thswane University of Technology, Bachelor of Technology in Agricultural Management from Central University of Technology and a Masters Degree in Sustainable Agriculture from University of Free State. He is currently registered for a PhD in Agricultural Extension and Rural Resource Management at the University of Kwazulu-Natal. He is a registered Agricultural Extension Scientist by South African Council for Natural Science Professions. He is also a board member of South African Society for Agricultural Extension. Mr Khwidzhili also possess a number of short courses in agriculture and other fields.

Subject-oriented Supply Chain Design and Execution

Matthias Neubauer

JKU – Department of Business Information Systems – Communications Engineering,
Altenbergerstraße 69, 4040 Linz, AUSTRIA, e-mail: Matthias.Neubauer@jku.at

SYNOPSIS

The presentation discusses the capabilities of the emerging concept 'Subject-Oriented Business Process Management' (S-BPM) with respect to supply chain design and execution support.

ABSTRACT

Supply chains are an integral part of today's global market place. As such, supply chains are considered integrated systems that synchronize series of business processes in order to create customer value. A vital ingredient of supply chains is the flow of information. Timely, relevant and accurate information exchange between supply chain partners is key for implementing successful supply chains. In this context, organisations increasingly rely on IT to improve supply chain processes, e.g. in terms of higher efficiency, timely delivery, or supply chain transparency.

Recent studies investigate the relationship between supply chain collaboration and Business Process Management (BPM). These studies reveal that BPM supports inter-organizational supply chain activities regarding information sharing and communication, joint activities, sharing common goals, and sharing costs, risks and benefits. Furthermore, BPM may improve intra-organizational supply chains, e.g. through people involvement, process-orientation and continuous improvement, or IT-support.

This contribution discusses the emerging concept of Subject-oriented Business Process Management (S-BPM) and its capabilities regarding supply chain design and execution support. S-BPM represents a generic approach towards modeling, executing and improving business processes. Thereby, S-BPM puts emphasis on process actors (i.e., subjects), their interaction, and their internal behavior. S-BPM has been applied in various projects, reaching from traditional BPM projects to research projects targeting Industry 4.0 developments. In the context of Industry 4.0, S-BPM has been investigated as enabler for process integration among different levels of control in the production industry - from ERP Systems to Manufacturing Execution Systems to Supervisory Control Systems. Additionally, the horizontal integration across different system participants, for example suppliers and production companies, has been considered. Thereby, S-BPM acts as middleware exhibiting the communication model between different system participants. Aside to enabling technological support, S-BPM may serve to represent and automate work practices in a bottom-up manner. The involvement of domain experts and users is vital when empowering people to become active workplace re-designers and tailoring solutions to dedicated workplace requirements

Keywords: Supply Chain Design, Information Flow, Subject-oriented Business Process Management

BIOGRAPHY OF SPEAKER

Matthias Neubauer is a lecturer at Johannes Kepler University Linz and a research professor at the University of Applied Sciences Upper Austria. His research interests cover smart hyperconnected logistics systems, human-computer interaction, digital supply chains, intelligent transportation systems and autonomous driving. He received his Ph.D. in Business Information Systems in 2013. He teaches in the fields of BPM, distributed systems, and knowledge management, and is involved in international and national research projects.

Development of an Evaluation Method for the Selection of a Sustainable Business Location

Markus Pajones, Theresa Steiner, Christian Haider

LOGISTIKUM Steyr, FH Upper Austria, AUSTRIA, e-mail: markus.pajones@fh-steyr.at, theresa.steiner@fh-steyr.at, christian.haider@fh-steyr.at

SYNOPSIS

The selection of business locations is an essential factor for the economic success of companies. The development of a business location can be related to considerable negative effects for the eco system. The aim of the paper is to show essential steps for developing a methodological approach to evaluate business locations under aspects of sustainability.

ABSTRACT

Selecting a business location is vital for companies because it's an essential factor for the economic success of companies. The development of a business location can be related to considerable negative effects for the eco system such as sealing the surface, wrecking of biodiversity, or Co2 and noise emissions generated by traffic. The increasing importance of sustainability (World Climate Conference Paris 2016) demands for taking an informed decision when selecting a business location for the future. Sustainability considers economic, ecologic and social aspects (World Climate Conference Paris 2016) which should be equally considered in the process of location search.

The aim of the paper is to show essential steps for developing a methodological approach to evaluate business locations under aspects of sustainability. Therefore a so called location-factor-matrix gives an overview about the substantial factors and whether they have an impact on the economical-, ecological- or social dimension of sustainability, or a combination of these. The location-factor matrix was one output of an organized workshop, where experts in freight logistics, spatial planning, traffic planning and sustainability came together for having a discussion about the essential location factors and how to combine them to develop an evaluation and planning system for sustainable business locations. The other findings of the workshop were recorded into a guiding concept which describes the further steps for developing the methodological approach.

In consolidation of strategies in business economics, key objectives in spatial development and spatial over-come, a sustainable business location should be generated. These developments take place within several years during the so called research project "NaLaBISta" which stands for "sustainability map for business- and industrial areas". The previous findings will finally result in a location-factors-based evaluation and planning system, which classifies business locations regarding the aspect of sustainability.

Keywords: business location, location search, sustainability, location factors, business selection method

Predictive Maintenance for Transport Systems – Employing Model Ensembles for Online State Detection

Jan Zenisek^{a,b}, Michael Affenzeller^{a,b}, Christoph Sievi^a,
Mathias Silmbroth^a, Josef Wolfartsberger^a

^a Institute for Smart Production, FH Upper Austria, Campus Hagenberg, Steyr, Wels, AUSTRIA, e-mail: jan.zenisek@fh-hagenberg.at

^b Institute for Formal Models and Verification, Johannes Kepler University Linz, Altenberger Straße 69, 4040 Linz, AUSTRIA

SYNOPSIS

Predictive Maintenance (PdM) plays an important role in detecting potential problems and preventing unexpected equipment failures in the industrial area. Transport systems represent another application domain where PdM could lead to higher availability and lower maintenance costs. In this paper, we propose a machine learning approach to predict the Remaining Useful Life (RUL) of turbofan units in aircraft.

ABSTRACT

In the wake of the recent hype regarding the “Fourth Industrial Revolution” – also known by the German term “Industrie 4.0” – method research for Predictive Maintenance (PdM) is of broad and current interest, especially in the area of industrial applications [1]. PdM refers to condition-based scheduling of maintenance operations instead of following fixed intervals, mostly for production plants. In contrast to preventive maintenance, PdM uses real-time monitoring data to predict future outages, with the goals of preventing such breakdowns, early recognition of quality loss and increase of productivity. As for production plants, the application of PdM for modern transport systems is a promising and emergent concept since maintenance of any vehicle is a crucial factor regarding availability as well as time and costs for replacing wear parts. PdM has already been applied in several transport related use cases, such as air pressure systems in heavy trucks [2], void detection underneath railway tracks(1), or prospectively the condition-based replacement of cars’ cambelts(2).

In this work we present a machine learning based approach for applying PdM on a benchmark data set generated by a simulation of turbofan units in aircraft [3]. The simulation covers asset monitoring of typical run-to-failure situations where a broad range of sensors keeps track of an asset’s degrading condition over a certain period and thereby produces a reasonable amount of data. The aim of this benchmark test is to give a reasonable prognosis of the Remaining Useful Life (RUL) for the monitored units. In order to make such a prediction possible we use the recorded time series to train ensembles of models, each representing typical correct and erroneous system runs, by employing sliding window symbolic regression [4] in a first, supervised step. For the aimed prognosis, the data stream is subsequently evaluated “online” by using the trained ensembles in a sliding window fashion (Figure 1). By this means, only the most recent

subset of data is used to predict the Remaining Useful Life, which makes the prognosis more reactive to recent developments and accelerates evaluation.

This work focuses on the creation of simple and robust models for the detection of maintenance needs in transport systems. In this regard, our approach is suitable since symbolic regression has its strengths in the creation of simple, interpretable models, describing mechanics- or nature-related processes [4]. Furthermore, ensemble modeling enables to increase confidence in the resulting predictions by including a variety of models rather than using just one for evaluation. First tests on the given benchmark data have shown promising results and support the expectations regarding our approach.

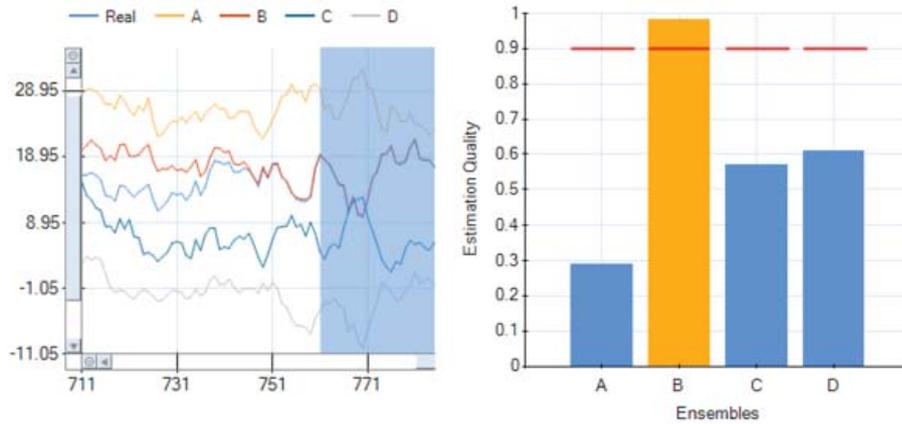


Figure 1: Comparison of sliding window based (left, light blue) evaluation of different state representing model ensembles (right, A - D).

The stated approach has been implemented and tested using the optimization environment HeuristicLab(3). For future work, interleaving training and test phase as well as employing alternative regression methods are considered.

Keywords: Predictive Maintenance, Datastream Analysis, Sliding Window, Symbolic Regression, Ensemble Modeling

Acknowledgements

The work described in this paper was done within the project “Smart Factory Lab” which is funded by the European Fund for regional development (EFRE) as part of the program “Investing in Growth and Jobs 2014-2020”.

References

- [1] F. Cartella, J. Lemeire, L. Dimiccoli, and H. Sahli, “Hidden semi-markov models for predictive maintenance,” *Math. Probl. Eng.*, vol. 2015, 2015.
 - [2] V. Cerqueira, F. Pinto, C. Sá, and C. Soares, “Combining Boosted Trees with Metafeature Engineering for Predictive Maintenance,” in *International Symposium on Intelligent Data Analysis*, 2016, pp. 393–397.
 - [3] A. Saxena, K. Goebel, D. Simon, and N. Eklund, “Damage propagation modeling for aircraft engine run-to-failure simulation,” in *International Conference on Prognostics and Health Management (PHM)*, 2008, pp. 1–9.
 - [4] S. M. Winkler, M. Affenzeller, G. Kronberger, M. Kommenda, B. Burlacu, and S. Wagner, “Sliding Window Symbolic Regression for Detecting Changes of System Dynamics,” in *Genetic Programming Theory and Practice XII*, Springer, 2015, pp. 91–107.
- (1) <http://www.railtechnologymagazine.com/Comment/improving-safety-through-early-track-void-detection>, retrieved 14 February 2017

(2) <http://blog.cambridgeconsultants.com/getting-smart-at-the-edge-predictive-machine-maintenance/>, retrieved 14 February 2017

(3) <http://dev.heuristiclab.com/>, retrieved 14 February 2017

BIOGRAPHY OF SPEAKER

Jan Zenisek is working as a research associate.

Since 2016: PhD student at the Johannes Kepler University Linz, Austria

Since 2016: Research Associate, Research Center of the University of Applied Sciences Upper Austria, Austria; Member of Michael Affenzeller's research group „Heuristic and Evolutionary Algorithms Laboratory (HEAL)“

September 2016: MSc in Engineering (with distinction)

2014 - 2016: Studies in Software Engineering (Master's Degree Program) at the University of Applied Sciences Upper Austria, Austria

July 2014: BSc in Engineering (with distinction)

2012 - 2014: Studies in Software Engineering (Bachelor's Degree Program) at the University of Applied Sciences Upper Austria, Austria

2012: Military Service at the brigade command of the 4. Panzergrenadierbrigade in Linz-Ebelsberg, Austria

2006 - 2011: Technical High School, Department for Informatics and Software Engineering in Leonding, Austria

2002 - 2006: Secondary School in Enns, Austria

1998 - 2002: Primary School in Asten, Austria

1991: born in Linz, Austria

SESSION IV

Peace and Conflict Resolution & UN Impact

Ezekiel Mbitha Mwenzwa
Andrea Nechtelberger

Nomadic Children in Kenya: Understanding the Conflict, Livelihood and Vulnerability Interface

Ezekiel Mbitha Mwenzwa

Karatina University, P. O. Box 1957 10101, Karatina, KENYA

e-mail: emwenzwa@yahoo.com, emwenzwa@gmail.com

ABSTRACT

Nomads in Kenya occupy the drylands of the country that make up roughly 80% of the total land area. The defining attributes of these areas are soil moisture deficiency, ethnic conflict, human and food insecurity and generally marginalization. Nomadic pastoralism, the backbone of the local economy comes with many environmental stressors which are compounded by anthropogenic activities leaving livelihood on a precipice. Tellingly, the crosspollination of environmental vagrancy, conflict and nomadic pastoralism results into vulnerability condemning children to perennial mobility in the rangelands and hence hard-to-reach with social services. Children are therefore bequeathed a blurred and precarious future. This chapter uses secondary data and attempts to understand the nexus between conflict, livelihood and vulnerability and its impact on children in a nomadic set-up. The interface of the factors and resultant consequences are explained using both the Structural Strain and Relative Deprivation frameworks. The guiding argument in this chapter is that the crosspollination of conflict and precarious livelihood in the form of nomadic pastoralism that necessitates continuous migration across the rangelands increases the vulnerability of nomadic children. This is through exposing them to conditions that are counterproductive to their growth and development. Due to such migration, it is argued that these children are unable to access quality social services including water, health, education, food and security among others. Such is the scenario that increases their vulnerability to different shocks due to the relative deprivation that is elicited by the social and natural environment. Therefore, it is concluded that conflict and nomadic pastoralism adversely affects the nomads, which in turn exposes children to both anthropogenic and natural vulnerabilities. Henceforth, recommendations are made to moderate children vulnerability and augment their welfare.

Keywords: children, conflict, livelihood, pastoralism, vulnerability

The Ten Basic Principles of the United Nations Academic Impact Initiative (UNAI): Can Personal Endorsement be Predicted from Value Orientations and Globalization? Findings from Austria, China, Cyprus, India, Nigeria, and Slovakia

Andrea Nechtelberger^a, Walter Renner^b, Maria Hadjimarkou^c, Martin Nechtelberger^d, Chino Offurum^e, Panch. Ramalingam^f, Kylie Redfern^g & Soňa Supeková^h

^a Head, Austrian Academy of Psychology, Vienna, AUSTRIA

^b Full Professor, Pan-European University, Faculty of Psychology, Bratislava, SLOVAK REPUBLIC

^c Assistant Professor, University of Nicosia, Nicosia, CYPRUS

^d Head, Austrian Academy of Psychology and Adjunct Lecturer, University of Nicosia, CYPRUS

^e Whelan Research Academy, Owerri, NIGERIA. Faculty of Psychology, University of Innsbruck, AUSTRIA. Psychotherapist, Imst, AUSTRIA

^f Professor, Pondicherry University, Pondicherry, INDIA

^g Associate Professor, UTS Business School, University of Technology, Sydney, AUSTRALIA

^h Vice Dean of Studies, Pan-European University, Faculty of Economics and Business, Bratislava, SLOVAK REPUBLIC

INTRODUCTION

The United Nations Academic Impact Initiative (UNAI) is a worldwide network of higher education and research institutions who have agreed to promote ten basic principles committed to human rights, equal chances, sustainability, global citizenship, and intercultural dialogue as expressed in Chapter 1 of the Charter of the United Nations (United Nations, 2015a).

The UNAI was formally launched on November 18, 2010 at the UN headquarters in New York. By now, more than 116 countries with 1.000 institutions have joined the initiative (UNAI 2015b). The membership is open to all institutions of higher education as well as research bodies. Students are welcome to the ASPIRE (Action by Students to Promote Innovation and Reform through Education) initiative.

For each of the UNAI's ten principles a corresponding global hub has been created. The purpose was to seek expression of interest for each theme, the sharing of best practices and activities and to develop a database of academic experts (Nasser, 2011).

The first author has transformed the ten statements of the UNAI initiative into ten items of a questionnaire, measuring an individual's endorsement of the ten basic principles. The present study aimed at predicting the scores on this newly developed „UNAI ques-

tionnaire“ (i.e., the attitude towards the UNAI Basic Principles) by moral and ethical values and by the personal degree of globalization.

BIOGRAPHY OF SPEAKER

Andrea Nechtelberger, MEd MBA, AAP works at the Austrian Academy of Psychology, as Managing Director. She is born on the 29th of August, 1973 in Austria.

Work Experience:

since 12/2005 Management Director of AAP - Austrian Academy of Psychology

1999 to 2005 office worker at Magna Steyr Engineering

1995 to 1999 office worker at Austrian Energy and Environment

Studies:

2012 Master of Business Administration, Josef Schumpeter Institute

2017 MAster of Educational Leadership, University of Nicosia

Education and Training:

2013: Graduate Adult Educator

SESSION V

Risk & Resilience

Alireza Faraz
Patrick Freinberger
Michael Herburger
Ila Manuj
Antonio Padovano

Monitoring discrepancies in a Buyer-Supplier Relationship

Alireza Faraz^a, Z. Zacharia^b, Markus Gerschberger^a

^a Logistikum, FH Upper Austria, Steyr, AUSTRIA

e-mail: alireza.faraz@fh-steyr.at, Markus.Gerschberger@fh-steyr.at

^b Department of Management, Lehigh University, PA 18015, USA

e-mail: zgz208@lehigh.edu

SYNOPSIS

Monitoring Buyer-Supplier Relationships

ABSTRACT

Buyer-supplier relationships play an important role in achieving successful business outcomes (see, [1]-[4]). Companies typically focus on developing a strong partnership with their most important buyers and suppliers. A strong partnership creates opportunities to increase the synergistic business performance in each firm combined than the two firms separate. Reference [5] noted managing buyer-supplier relationships is essential to the success of supply chains, however, the focus should be on strategic relationships where the relationships are important for both suppliers and buyers. Furthermore, there are many studies that show successful management of strategic relationships improves the firm's performance in the supply chain. See e.g., [6]-[10].

A relationship between a buyer and a supplier is composed of many attributes called relationship attributes. Many researchers have identified various critical relationship attributes (classified into different dimensions) and studied how these characteristics make an impact on the buyer-supplier relationships. For example, [11] classified twenty four relationship attributes into four dimensions. It is important that both partners have a similar level of understanding in the relationship. The performance of a supply chain may become poor if the differences in buyer's and supplier's view point (discrepancies) are significant.

The procedure measures the natural or the expected variation in surveys and their likert scores it models the amount of variation that will naturally occur in successive buyer-supplier relationship surveys. This allows the practitioners to detect any unwanted special causes that result in unexpected variation due to any unwanted changes (usually poor changes) in the levels of a buyer-seller relationship.

The paper models a dyadic relationship between suppliers and buyers as a multivariate process. We then developed the multivariate T2 control chart to monitor the discrepancies over time. We also show that how the present approach can be extended in an ERP system for the purpose of monitoring multiple strategic buyer-supplier relationships. Finally through a case study we illustrates the advantages of the proposed model.

Keywords: Buyer-Supplier relationship, Hotelling's T2 control chart, Kernel distribution function

References

- [1] G. S. Day, "The Capabilities of Market-Driven Organizations," *Journal of Marketing*, vol.58, no.4, pp.37–52, 1994.
- [2] K. Lai, "Linking Exchange Governance With Supplier Cooperation And Commitment: A Case Of Container Terminal Operations," *Journal of Business Logistics*, vol. 30, no.1, pp. 243-263, 2009.
- [3] G. N. Nyaga, J. M. Whipple, "Relationship Quality and Performance Outcomes: Achieving a Sustainable Competitive Advantage," *Journal of Business Logistics*, vol. 32, no.4, pp. 345–360, 2011.
- [4] C. W. Autry, B. D. Williams, S. Golicic, "Relational and Process Multiplexity in Vertical Supply Chain Triads: An Exploration in the U.S. Restaurant Industry," *Journal of Business Logistics*, Vol.35, no.1, pp.52–70, 2014.
- [5] Z. G. Zacharia, N. W. Nix, R. F. Lusch, "Capabilities that Enhance Outcomes of an Episodic Supply Chain Collaboration," *Journal of Operations Management* vol. 29, no.6, pp.591-603, 2011.
- [6] I. J. Chen, A. Paulraj, A. A. Lado, "Strategic Purchasing, Supply Management, and Firm Performance," *Journal of Operations Management*, Vol.22, pp.505-523, 2004.
- [7] K. C. Tan, V. R. Kannan, R. B. Handfield, S. Ghosh, "Supply Chain Management: An Empirical Study of Its Impact on Performance," *International Journal of Operations & Production Management*, vol.19, no.10, pp.1034-52, 1999.
- [8] R. M. Morgan, S. D. Hunt, "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, vol.58, no.3, pp.20-38, 1994.
- [9] D. Narayandas, V. K. Rangan, "Building and Sustaining Buyer–Seller Relationships in Mature Industrial Markets," *Journal of Marketing*, vol.68, no.3, pp.63-77, 2004.
- [10] J. H. Dyer, H. Singh, "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage," *Academy of Management Review* vol.23, no.4, pp.660-679, 1998.
- [11] B. R. Barnes, P. Naudé, P. Michell, "Perceptual Gaps and Similarities in Buyer-Seller Dyadic Relationships," *Industrial Marketing Management* Vol.36, no.5, pp.662-675, 2007.

The Role of Supply Chain Complexity for Implementing Global Risk Management Strategies

Patrick Freinberger

FH Upper Austria, Wehrgrabengasse 1-3, 4400 Steyr, AUSTRIA

e-mail: patrick.freinberger@fh-steyr.at

SYNOPSIS

Based on findings from the literature the presentation will investigate important relationships between concepts in the field of risk management. Therefore, it will contribute to the field by addressing managerial and theoretical aspects and come up with potential areas/ideas for future research.

ABSTRACT

Global operating companies are exposed to risks along their entire supply chain. Risks can arise from different parts of the supply chain and have the potential to severely impact supply chain performance. That is why it is important for companies to implement supply chain risk management. When doing so, one important aspect to consider is to implement appropriate risk management strategies, such as postponement, speculation, and hedging, to handle different types of risks (e.g. supply risks, demand risks, and operational risks) to decrease the potential negative effects of supply chain risks on supply chain outcomes. For the deployment of appropriate risk management strategies several factors play a key role and furthermore increase or decrease (=moderating effect) the relationship between the selection of risk management strategies and supply chain outcomes. One such moderator is supply chain complexity as it influences confusion about ownership of inventory, bullwhip effect, and inertia.

The purpose of this study is to propose the moderating effect of supply chain complexity components, such as upstream supply chain complexity, downstream supply chain complexity, and manufacturing supply chain complexity on the relationship between risk management strategies and selected supply chain outcomes.

The study is based on an extensive literature review. The goal of the literature review is to develop propositions on the relationship between risk management strategies and supply chain outcomes and the moderating effect of supply chain complexity. One theoretical contribution is to reveal the relationships between the constructs mentioned above, which is a basis for future testing them (e.g., conducting a quantitative survey). A managerial contribution is to assist managers on designing supply chains (e.g., structure of the supply chain) in accordance to their selected risk management strategy.

Keywords: risk management strategy implementation, supply chain complexity, supply chain outcomes

BIOGRAPHY OF SPEAKER

Patrick Freinberger B.A. M.A. particular research interests are supply chain complexity, supply chain design, and supply chain segmentation.

Academia:

Since Sep 2015 Research Associate, Research Group “Supply Chain Management”, Logistikum – University of Applied Sciences Upper Austria

Jun 2012 – Sep 2015: Research Assistant, Research Field “Supply Chain Design”, Logistikum – University of Applied Sciences Upper Austria

Industrial Experience:

Mar 2013 – Jul 2013: voestalpine Steel Service Center, Linz, Austria, Internship, Customer segmentation

Jan 2012 – Feb 2012: Mondi Neusiedler GmbH, Hausmending, Austria, Internship, Production planning

Jan 2010 – Sep 2010: Bene AG, Waidhofen an der Ybbs, Austria, Sales Assistant (Asia/Pacific and Eastern Europe)

Education:

Sep 2015: M.A. in Business “Supply Chain Management”, University of Applied Sciences Upper Austria

Sep 2013: B.A. in Business “International Logistics Management”, University of Applied Sciences Upper Austria

A Grounded Theory Approach to Understand Supply, Operations and Logistics Resilience in Supply Chains

Michael Herburger^a, Ila Manuj^b, Markus Gerschberger^a

^a FH Upper Austria, Logistikum Steyr, Wehrgrabengasse 1-3, 4400 Steyr, AUSTRIA

e-mail: michael.herburger@fh-steyr.at, markus.gerschberger@fh-steyr.at

^b University of North Texas, College of Business, 1307 West Highland Street, Denton Texas 76201, USA, e-mail: ila.manuj@unt.edu

SYNOPSIS

The purpose of this presentation is to introduce our investigation of supply, operations and logistics resilience in supply chains using Grounded Theory. Our findings comprise three main categories of factors that enable supply chain resilience. These categories are planning and executing, managing information and organizing human resources.

ABSTRACT

Theoretical Background

Supply chain resilience has become one of the rapidly growing topics in supply chain management during the last decade. The number of publications in this field is increasing with most focusing on organizational or supply chain resilience. In this study we want to specifically understand which factors enable supply, operations and logistics resilience in supply chains.

Research aims

The aim of this research is to investigate supply chain resilience with a focus on the upstream supply chain. We conducted a qualitative study to explore the supply, operations and logistics resilience in supply chains. Additionally, the essential factors, properties and dimensions, which enable upstream supply chain resilience, were identified.

Methodology

To provide rich descriptions of the different factors of supply, operations and logistics resilience, we adopted the Grounded Theory Approach. The data collection took place between June 2013 and September 2014 and consisted in 39 interviews (conducted and transcribed by a team of researchers) lasting between 60 and 90 minutes with interviewees of the top and middle management of four companies. To ensure a high sample variety we have selected four companies from different industries and of different sizes, and interviewed employees across hierarchical levels.

Results

Data analysis with open and selective coding revealed three main categories of factors that are important for companies in case of disruptions: planning and executing, managing information and organizing human resources. For each category different properties

and dimensions, such as process capabilities, process transparency and trust between staff and managers, were identified.

Implications

This research gives first insights into factors, properties and dimensions that enable supply chain resilience in the upstream supply chain. Deeper and broader research is necessary including the development and provision of a theoretical model to support practitioners and researchers.

Keywords: Supply Chain Management, Supply Chain Resilience, Grounded Theory

BIOGRAPHY OF THE SPEAKER

Mag. **Michael Herburger**, BAMA is research project manager at the University of Applied Sciences Upper Austria, Logistikum Steyr at the department of Supply Chain Management. He is the head of the research field "Supply Chain Risk and Resilience" and his research interests are in the areas of risk management in global supply chains, especially cyber risks in supply chains and supply chain resilience. Michael graduated from the JKU University Linz in Austria (law) and University of Applied Sciences Upper Austria in Steyr (International Logistics Management and Supply Chain Management). Michael teaches classes in business law. He is a frequently invited speaker at both business and research conferences and has published several articles in conferences and journals. Michael is a member of the Council of Supply Chain Management Professionals (CSCMP), European Operations Management Association (EurOMA) and Verein Netzwerk Logistik (VNL). Michael Herburger is the corresponding author and can be contacted at: michael.herburger@fh-steyr.at

Supply, Operations and Logistics Resilience in Global Supply Chains: Contextual Conditions and Strategies

Ila Manuj

University of North Texas, Denton, TX, USA, e-mail: ila.manuj@unt.edu

SYNOPSIS

With growing volatility and uncertainty in supply chains, research in supply chain resilience (SCRES) has gained widespread attention. The purpose of this paper is to further understand SCRES by exploring the capabilities specific to supply, operations, and inbound and outbound logistics management that increase SCRES.

ABSTRACT

While multiple definitions of supply chain resilience (SCRES) exist, the basic elements remain the same, namely (a) the ability to proactively prepare for unexpected disruptive (negative) events, (b) respond to disruptions while maintaining continuity of operations and control over structure and function, (c) restore a robust state of operations, possibly better than before the event occurred.

Within the field of supply chain, this research focusses specifically on supply, operations, and inbound and outbound logistics. The overarching question driving this research is: how and which specific supply-, operations-, and logistics- related actions contribute to creating and improving SCRES capabilities?

The case research approach for the selection of companies and data collection and the grounded theory methodology for data analysis is employed to answer the research question. A theoretical framework including three core categories, three contextual factors and three strategies emerged that extends our understanding of resilience in supply, operations and logistics in supply chains.

The three core categories are planning and executing, information management, and employee characteristics. The contextual conditions are focal firm characteristics, partner characteristics, and firm-partner interaction characteristics. The strategies are investment strategies, balance strategies, and competitive strategies. This paper focusses primarily on the contextual conditions and strategies that surround the three core categories and help explain the variation in SCRES of different organizations.

Overall, the theoretical framework describes how the multidimensional process of resilience in supply chains is embedded within the contextual factors. It provides strategies for managers to support decision-making related to supply, operations, and logistics resilience.

Keywords: Supply chain resilience, resilience strategies, resilience contextual conditions, grounded theory methodology.

BIOGRAPHY OF SPEAKER

Ila Manuj is an associate professor of logistics at the University of North Texas, Denton, USA. She holds a PhD in Business Administration with a major in Logistics from the University of Tennessee, Knoxville, USA. She has published in Journal of Business Logistics, Transportation Journal, International Journal of Physical Distribution and Logistics Management, and International Journal of Logistics Management among others. She had written several book chapters. Her areas of interest are supply chain risk and complexity management, and inter-organizational learning. She has worked with multiple companies on a variety of research projects. Prior to joining academia, she worked for CARE-India in the areas of supply chain auditing and mapping, and forecasting and distribution of food commodities and disaster-relief supplies.

Education and Training Solutions for Disasters and Emergencies Management in Industrial Plants

Antonio Padovano

Adres University of Calabria, Ponte Pietro Bucci, Cubo 45C, ITALY

e-mail: antonio.padovano@unical.it

SYNOPSIS

Lessons learned from the previous industrial disasters have proved the need of training non-technical skills to manage emergencies. Taking inspiration from the military distributed training systems, a collaborative decision-centered training system for industrial disaster and emergency preparedness has been designed and developed.

ABSTRACT

Modeling and foreseeing unpredictability is the next horizon in the analysis of complex systems. The recent groundbreaking development of virtual reality technologies and serious games as Experiential Learning tools has given rise to a new human-computer interaction technology that allows actual users to experience a high sense of perception and immersion and to deal with uncertain events.

The research rationale is the need, in the area of investigation, of the design and development of a state-of-the-art collaborative decision-centered training solution for industrial disaster and emergency preparedness.

From a methodological point of view, the problem related to the industrial risk management and industrial disaster and emergency preparedness has been extensively investigated in terms of legislation, organizational procedures and best practices.

Human behavior models (developed as combination of knowledge based systems, agent-based models and stress-driven behavior of people inside the plant facilities) as well as disaster dynamic evolution models (a multi-layered fire dynamic evolution model) have been developed into the training environment. The models ensure high scalability, configurability, flexibility and reusability of the scenario.

On the technological side, a groundbreaking multi-technologies (VR, AR, HMD, motion trackers, biometrical sensors) training system has been developed. It is devoted to practice decision-making and other “non-technical” skills of the emergency manager, to increase participants’ comfortability in their role and to assist them to build up the repertoire of patterns, which should be quickly recognized and acted upon during real-world emergency situations. The figure 1.A shows one of the configuration GUIs of the training simulator, figure 1.B represents the emergency manager control panel from where he/she can task the members of his/her virtual team, figure 1.C shows an operator wearing an HMD while using the system during a simple training session.

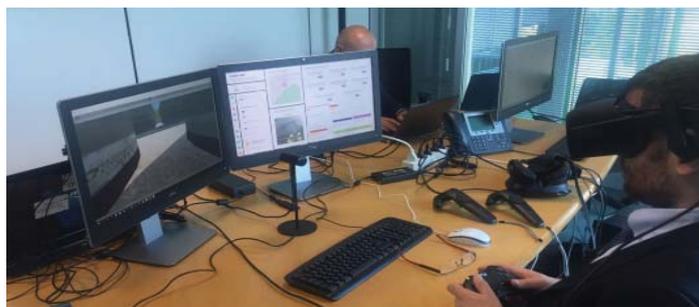
After repeated experimentation and exposure to the training sessions, the emergency

response personnel has revealed greater stress and time management skills as well as distributed situation awareness.



(A)

(B)



(C)

Figure 1: (A) Scenario configuration interface, (B) Emergency Manager Control Panel, (C) Operator using HMD during the training experience

Keywords: Disaster Management, Virtual Environments, Safety Training, Industry 4.0, Human Behavior Modeling

Index of Authors

Young Scientists Conference 2017

Nureen Faiza Anisha	37	Ila Manuj	67
Martyn Barrett	11	Wim Meeus	15
Christoph Bode	12	Ezekiel Mbitha Mwenzwa	55
Tserendorj Davaakhuu	39	Iswar Chandra Naik	32
Alireza Faraz	61	Andrea Nechtelberger	56
Patrick Freinberger	63	Matthias Neubauer	46
Abass Gibrilla	40	Gil G. Noam	16
Petra Gradinger	21	Antonio Padovano	69
Michael Herburger	65	Marcus Pajones	48
Katja Hofbauer	23	Christiane Spiel	17
Sybille Holz	29	Elisabeth Stefanek	24
Eva Jung	42	Jan Zenisek	49
Rendani Humphrey Khwidzhili	44		
Jakob Kopczynski	30		
Andreas Leitner	13		
Tina Malti	14		

Supporters



UNIVERSITY
OF APPLIED SCIENCES
UPPER AUSTRIA



OBERÖSTERREICH

bmwfw

Bundesministerium für
Wissenschaft, Forschung und Wirtschaft



კავკასიის უნივერსიტეტი
CAUCASUS UNIVERSITY



Club Alpbach Oberösterreich

OÖ Touristik GmbH
www.touristik.at

ANTON BRUCKNER
PRIVATUNIVERSITÄT



OBERÖSTERREICH

ALUMNI CLUB
FH OÖ

Einmal studieren. Immer Alumni

MEDIA PARTNER

derStandard.at



Young Scientists Sponsors

PLATINUM+ SPONSOR



Keep Discovering

GOLD SPONSOR

Innovation in Motion



SILVER SPONSORS

RUBIG
DRIVING SUCCESS

bet-at-home
.com

KEBA
Automation by innovation.