

# TOWARDS SUSTAINABLE INNOVATIONS IN EDUCATION

## THE ROLE OF ENVIRONMENTAL FACTORS FOR TEACHERS' INNOVATIVE WORK BEHAVIOR

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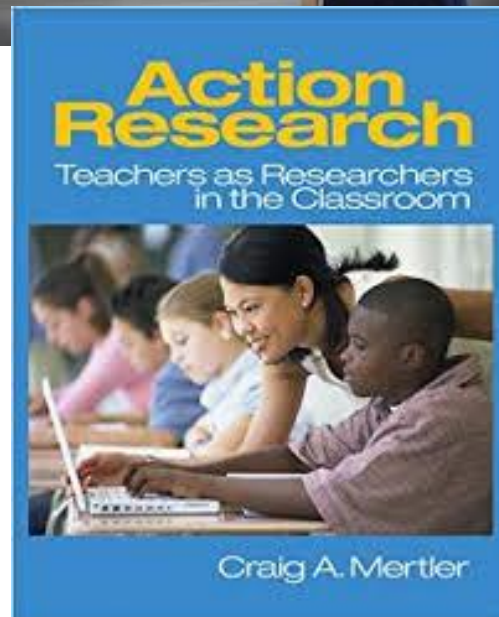
Peggy Lambriex- Schmitz

Marcel van der Klink

Simon Beausaert

Mien Segers

# Introduction



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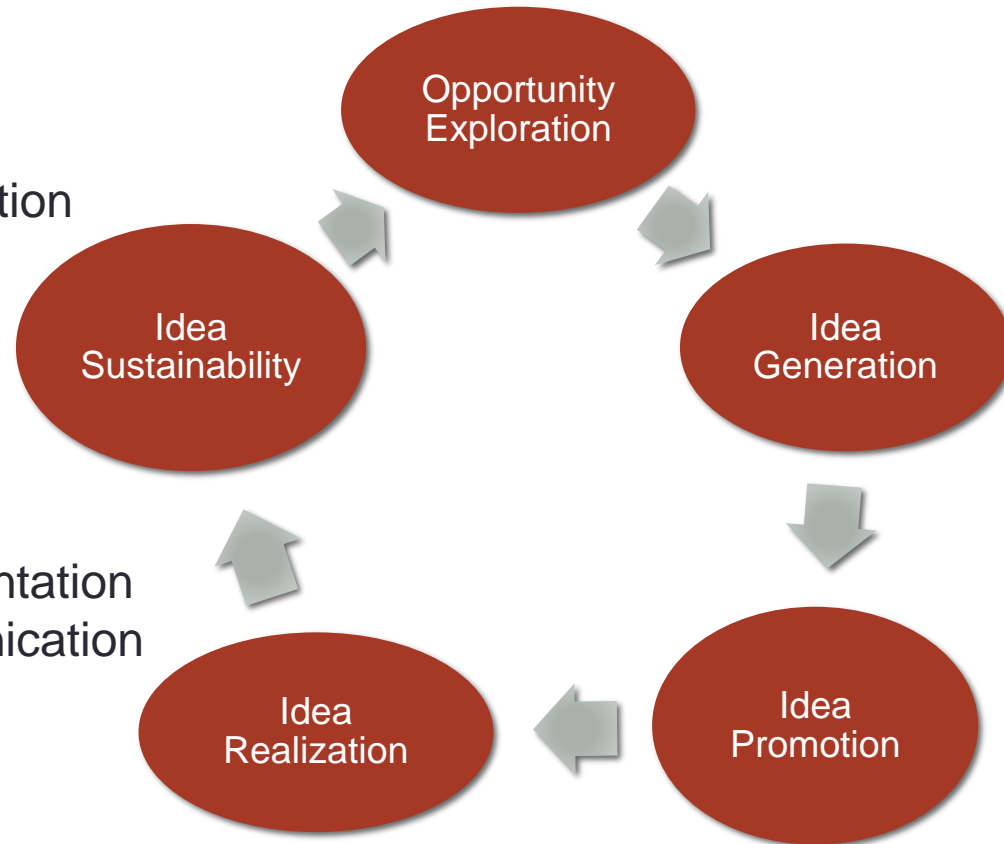


# Innovative Work Behavior (IWB)

Exploring, generating, promoting and realizing new ideas, products or procedures **and embedding the innovation to become a routine part of the organization** in order to benefit role performance, the group or the organization (Scott and Bruce 1994, Janssen, 2000, **Lambriex-Schmitz et al., 2016**)

# Innovative Work Behavior

- 1. Internal Embedding
- 2. External Dissemination



- 1. Criterion Based Implementation
- 2. Learning Based Communication

Opportunity Exploration	Closely observing trends and developments in order to identify problems and opportunities for innovation.
Idea Generation	Generating attention for novel and useful ideas for products, services or processes.
Idea Promotion	Seeking support for the ideas among colleagues and supervisors, keeping them informed about the ongoing process, negotiating with key persons about permissions, funding, and facilitation.
Idea Realization	Differentiates between criterion-based implementation and learning-based communication. Criterion-based implementation emphasizes the assessment of the progress of the innovation, based on criteria. Learning-based communication stresses the importance of information sharing and reflection on innovation development and individuals' professional development.
Idea Sustainability	Differentiates between external dissemination, which focuses on networking and the broader distribution of the innovative idea and internal embedding, where the innovation is anchored in the organizational system.



We need these superhero's

How can we make them fly even higher?

Innovations will succeed if teachers experience a stimulating climate and if they possess sufficient competencies to work on innovations (Fullan, 2007)



# Research question

How does the learning climate influence the innovative behavior of teachers in vocational education?

Learning climate in which teachers are provided with space and opportunities to learn in the context of innovation

## -> Learning Climate

- supportive learning environment
- management support
- exposure to innovation

individual characteristics (gender, age, level of education, organizational tenure, working hours, type of education)

# Dimensions

## Supportive learning environment

Promotes the feeling of being enabled to learn  
builds on psychological safety, appreciation of differences,  
openness to new ideas and time for reflection  
(Garvin, Edmondson and Gino, 2008)

## Management support

- encouragement for showing innovative behaviour
- facilitate innovations (time, money) (Scott and Bruce, 1994)

Support from manager effects teachers IWB positively  
(Hammond et al, 2011)

# Dimensions

## Exposure to innovation

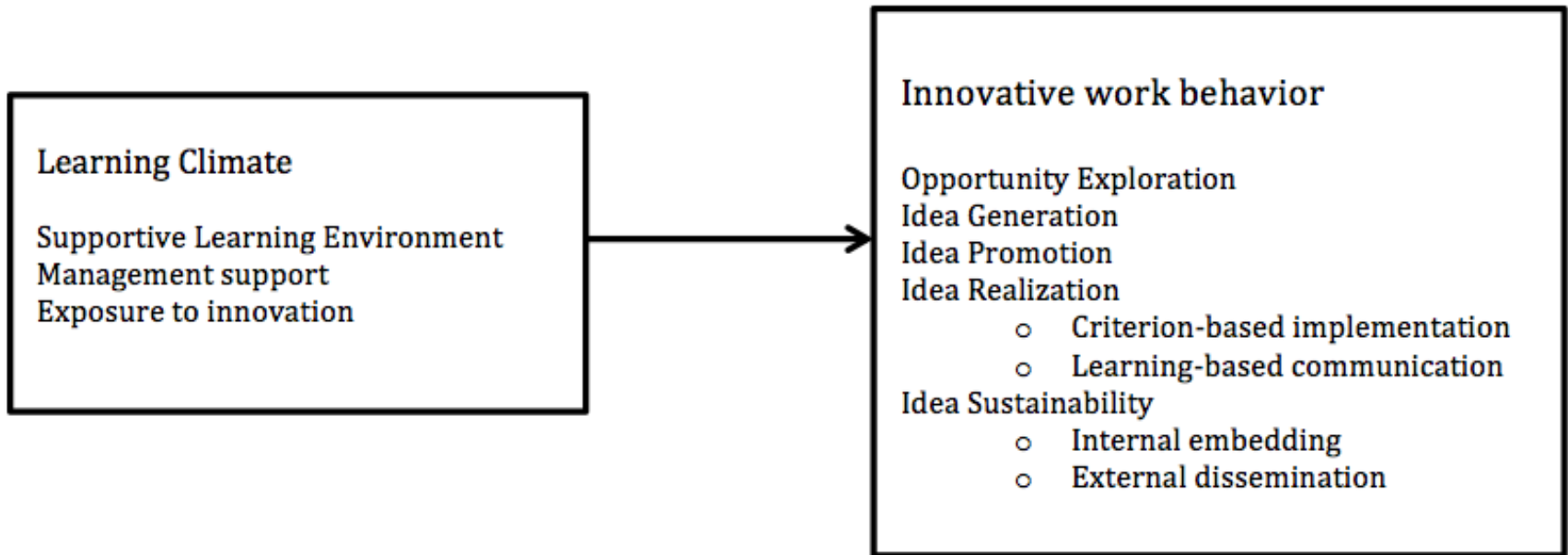
The need for opportunities to experience and learn

- Exposure to new ideas (Fullan, 2007)
- Involvement in innovations (Mulder and Ten Cate, 2006)
- The believes that an employee is capable to fulfil an active role in the innovation process (Dörner, 2012)

Teachers experience stimulating climate -> more successful innovations (Fullan, 2007)

Teachers are influenced by colleagues to apply innovations (Bourgonjon et al., 2013)

# Research model



# Method

**Study design** explorative cross sectional study

## Setting and procedure

Teachers (n = 206) in Dutch secondary vocational education (*MBO*)  
Online questionnaire

## Sample

Female (57.8%), Mean age 49.3 year, 17.3 year tenure

Wide range of professional domains

(ICT, Healthcare, hospitality, wellness, education and management)



# Instruments

*IWB* measured with 44 item *IWB* Instrument (Lambriex-Schmitz et al., 2016)

Learning Climate:

*Supportive Learning environment* 7 items ( $\alpha$  .88)

*Management support* 2 items ( $\alpha$  .70)

*Exposure to innovation* 3 items ( $\alpha$  .72)

## Analyses

Hierarchical regression analyses in 2 steps

step 1: control variables

step 2: learning climate

# Results

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Opportunity Exploration	5.08	.64										
2. Idea Generation	5.05	.62	.74**									
3. Idea Promotion	5.04	.60	.55**	.76**								
4. Idea Realization (criterion-based implementation)	3.67	.95	.39**	.51**	.65**							
5. Idea Realization (learning-based communication)	4.10	.66	.43**	.50**	.64**	.73**						
6. Idea sustainability (external dissemination)	3.60	.66	.20**	.24**	.38**	.51**	.54**					
7. Idea sustainability (internal embedding)	3.95	.61	.31**	.38**	.52**	.65**	.65**	.75**				
8. Supportive Learning Environment (scale 1-7)	4.69	1.15	.43**	.37**	.26**	.18**	.17*	.08	.22**			
9. Management Support (scale 1-6)	4.26	.88	.30**	.37**	.36**	.39**	.39**	.33**	.40**	.36**		
10. Exposure to Innovation (scale 1-10)	6.12	1.35	.33**	.44**	.49**	.43**	.41**	.32**	.45**	.31**	.46**	

Note: \*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$

Cronbachs Alpha between brackets

Innovative Work Behavior (variable 1-7) measured with 6 point Likert

<b>Dimension</b>	Opportunity Exploration	Idea Generation	Idea Promotion	Idea Realization Criterion Based Implementation	Idea Realization Learning Based Communication	Idea Sustainability External Dissemination	Idea Sustainability Internal Embedding
<b>Predictors</b>							
<b>Step 1: Control Variables</b>							
Gender	0.172*	0.164*	0.067	0.044	0.081	0.030	-0.007
Age	0.255*	0.339***	0.125	0.121	0.078	-0.147	-0.058
Highest Degree	0.003	0.058	0.009	0.083	-0.001	0.050	0.032
Tenure	-0.201*	-0.166	0.062	0.013	0.084	0.108	0.118
Working hours	0.119	0.037	0.090	0.004	0.013	0.161*	0.126
<b>Step 2: Environmental Characteristics</b>							
Supportive Learning Climate	0.351***	0.188*	0.069	-0.019	-0.027	-0.020	0.044
Management support	0.103	0.199**	0.165*	0.293***	0.289***	0.204*	0.240**
Exposure to Innovations	0.130	0.265***	0.377***	0.286***	0.269***	0.225**	0.297***
R <sup>2</sup> model 1	0.054	0.069*	0.038	0.018	0.027	0.065*	0.040
R <sup>2</sup> model 2	0.270***	0.318***	0.291***	0.249***	0.238 ***	0.191***	0.265***

Note: \*\*\*  $p < .001$  \*\*  $p < .01$  \*  $p < .05$  <sup>a</sup>= Standardized regression coefficients (Beta)



# Conclusion

The learning climate matters for stimulating superhero's!

For the creativity phases a **supportive learning environment** is important (feeling safe, openness to ideas, appreciation for differences and time for reflection)

For IWB in general (generation, promotion, realization and sustainability) **management support** (encouragement and facilitation) and **exposure to innovation** (exposure, involvement and stimulating believes) play an important role

Take into account personal characteristics (age and tenure)

# Practical implications

*Stimulating* teachers in different stages of change

Supportive learning environment (safety, openness for ideas)

Management support (encouragement and facilitation)

Exposure to innovations (exposure, involvement and stimulating believes)

*Selecting*

Creative phases -> include older teachers, woman and side-entrants



# Limitations and further research

- Use of self-reports
- Generalization to other school types
- Addition research on predictive factors in the creativity phases

# What's next ?

Gaining insight into the phases of an innovation in education and the corresponding teachers behaviour

1. Are the different phases (found in a previous study) clearly distinguishable in an innovation process?
2. What concrete behaviour do teachers exhibit in the different phases?
3. Can we recognize characteristics for sustainable innovations in previously found studies in this innovation process?

# Contact



Lectoraat Professionalisering van het Onderwijs  
Zuyd hogeschool, Heerlen,  
Email: [Peggy.lambriex@zuyd.nl](mailto:Peggy.lambriex@zuyd.nl)