

Arbejdsulykker i Danmark og Sverige

Arbejds miljøforskningsfondens årskonference
17. januar 2018



Arbejdsmedicinsk Klinik
Hospitalsenheden Vest
Regionshospitalet Herning




**UNIVERSITY OF
GOTHENBURG**

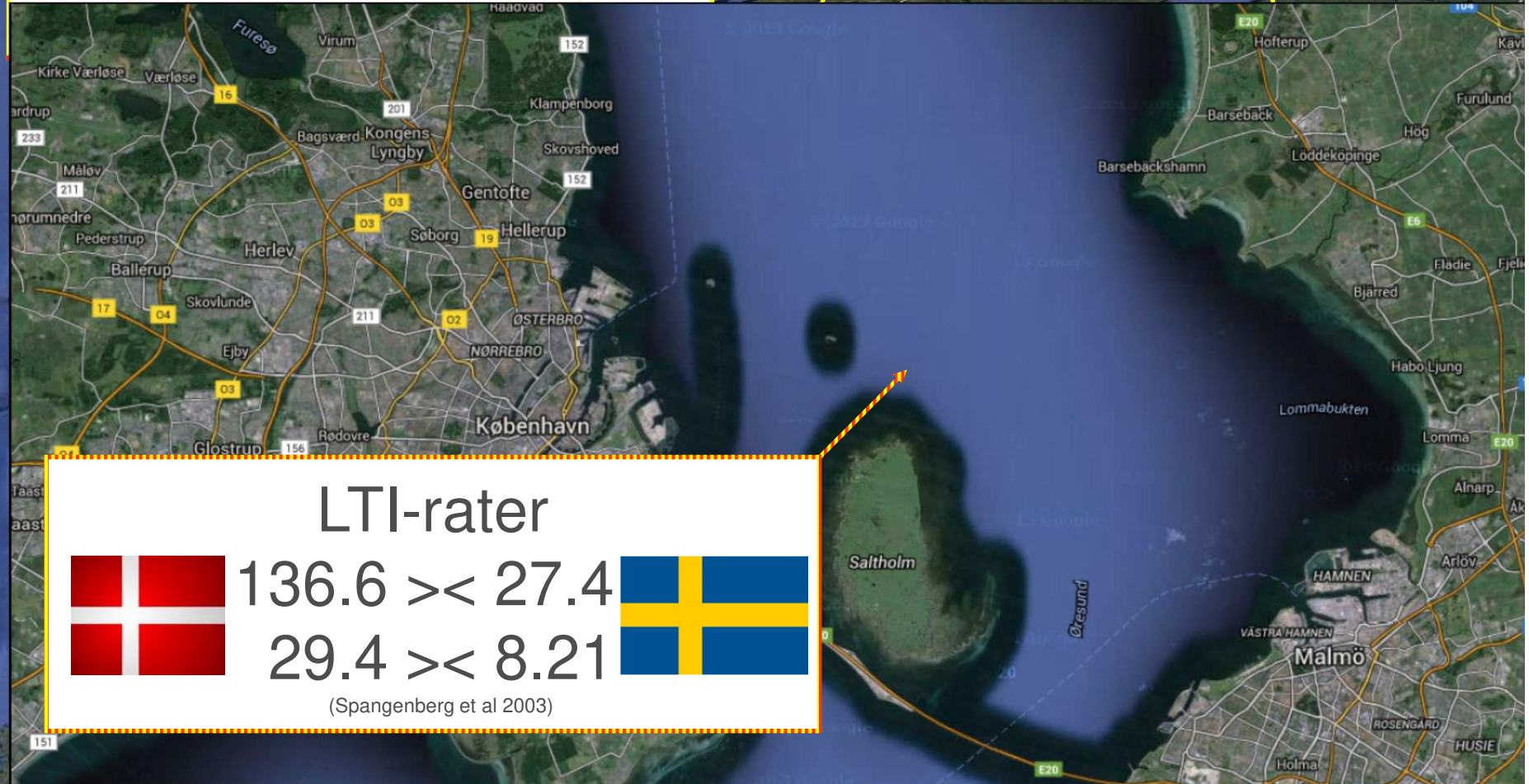


DET NATIONALE FORSKNINGSCENTER
FOR ARBEJDSMILJØ






AALBORG UNIVERSITET

midt
regionmidtjylland

		
Størrelse (km ²)	43.094	450.295
Indbyggere (mio)	5.6	9.6
LTI /1.000 medarbejdere	16	8
Dødsulykker/mio medarbejdere	20.1	15.1

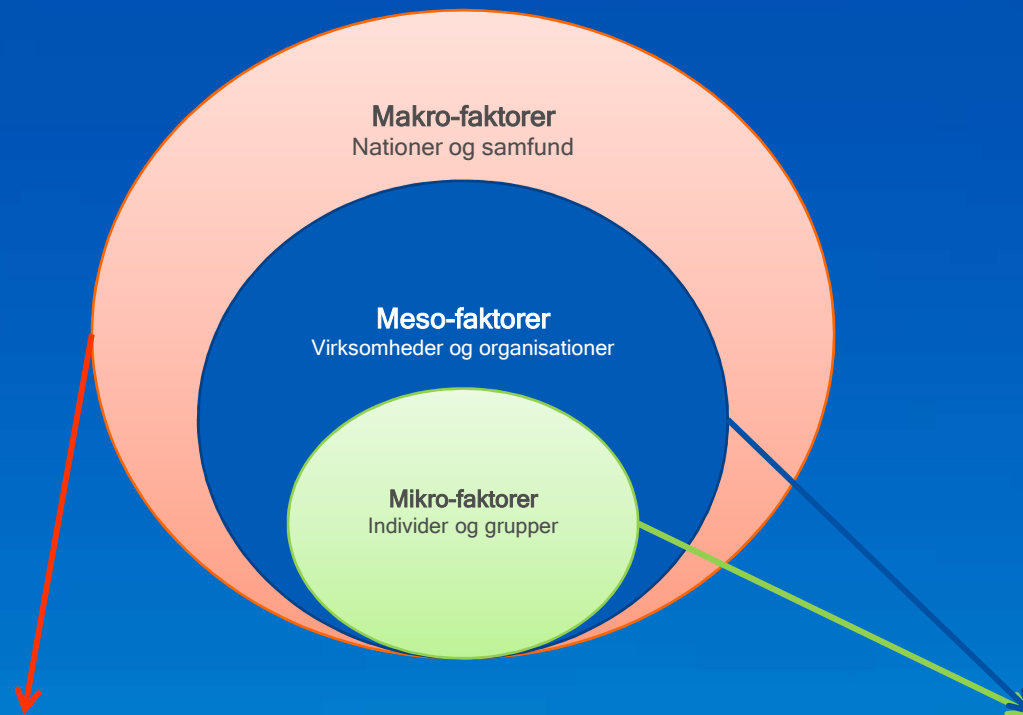


LTI-rater

	136.6	><	27.4	
	29.4	><	8.21	

(Spangenberg et al 2003)

Kan forskellen forklares ud fra *makro-*, *meso* -og *mikro*faktorer?



Tre overordnede delundersøgelser

- Registerundersøgelse af arbejdsulykker
- Forskelle i AM-lovgivning
- Forsikringssystemet

Tre BA-specifikke delundersøgelser

- Folk der har arbejdet i begge lande
- Uddannelsessystemet (7 skoler, ca. 2.000 elever)
- Byggepladser (84 pladser, 823 håndværkere)

Fravalgte elementer

- Virksomheder
- Fagforeninger
- De regionale arbejdsmiljørepræsentanter
- Påvirkninger før erhvervsfaglig uddannelse



Faktorer af betydning

Makrofaktorer	Mesofaktorer	Mikrofaktorer
Virksomhedsstørrelser	Ledelsesstil	Samarbejde og godt kollegaskab
Andelen af faglærte	Planlægning og involvering	Alkoholadfærd
Forsikringssystemet	Ansættelsesvilkår	Fremtidsorientering
Implementering af AM-loven	Skolernes indflydelse på elever og virksomheder	



Læs mere.....

2017

Afløsningsrapport til Arbejdsmiljøforskningsfonden (projekt nr. 01-2012-09) Marts 2017

Arbejdsulykker i Danmark og Sverige

Identificering af virkemidler og strategier, der kan overføres fra Sverige til Danmark.



Grill et al. *Empirical Research in Vocational Education and Training* 2017, 10:1184-1196 | DOI:10.1186/s13127-017-0046-3

Empirical Research in Vocational Education and Training

RESEARCH

Open Access

Supervisors and teachers' influence on expectations on empowering leadership among students in vocational education and training

Martin Grill¹, Anders Pousette¹, Kent Nielsen¹, Regine Grytnes² and Marianne Törner³

Background: Empowering leadership practice among leaders in the construction industry contributes to improve occupational safety, by stimulating participative safety behaviour among construction workers. Socialization into working life in the construction industry begins during vocational education and training (VET). It is therefore important to understand how VET influence young peoples' expectations on empowering leadership, in their explicit leadership theories (ELT). The aim of the present study was to assess if empowering ELT of students change during VET, and if students' empowering ELT are influenced by the empowering leadership practice of teachers and workplace supervisors that the students interact with during VET.

Methods: Questionnaire data were gathered from students ($n = 1907$) at seven construction VET schools in Sweden and Denmark at two occasions, 1 year apart. Accelerated longitudinal design was employed and data were analysed using mixed method growth curve modelling.

Results: The empowering ELT of the VET-students was found to increase during VET. The leadership of supervisors but not of teachers was found to be positively related to the empowering ELT of the VET-students.

Conclusions: VET-students, in the beginning of their professional life, appear to alter their beliefs and assumptions about the characteristics of effective leaders. The ELT of VET-students may thus be regarded as dynamic and responsive, inclined to change as the students socialize into working life.

Keywords: Implicit leadership theory, Empowering leadership, Safety leadership, Construction industry, VET, Socialization, Occupational safety

Background: Empowering leadership and occupational safety. Globally, the number of fatal occupational accidents in 2003 were estimated to 360,000 (Hansson et al. 2008). The construction industry is one of the worst affected occupational sectors among European construction workers 4.8% reported one or more accidental injuries in 2007 (Torstott 2010). Traditionally, occupational safety has been managed through physical barriers and implementation of rules and regulations

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Original article

Saund J. *Work Environ Health*. 2017;43(4):376-384. doi:10.5271/wheh.3660

Safety leadership at construction sites: the importance of rule-oriented and participative leadership

by Martin Grill, MPh¹, Anders Pousette, PhD¹, Kent Nielsen, PhD¹, Regine Grytnes, PhD², Marianne Törner, DPhSci³

Grill M, Pousette A, Nielsen K, Grytnes R, Törner M. Safety leadership at construction sites: the importance of rule-oriented and participative leadership. *Scand J Work Environ Health*. 2017;43(4):376-384. doi:10.5271/wheh.3660

Objective: The construction industry accounted for 10% of all fatal occupational accidents in Europe in 2014. Leadership is an essential antecedent to occupational safety. The aim of the present study was to assess the influence of transformational, active transactional, rule-oriented, participative, and laissez-faire leadership on safety climate, safety behaviour, and accidents in the Swedish and Danish construction industry. Sweden and Denmark are similar countries but have a large difference in occupational accidents rates.

Methods: A questionnaire study was conducted among a random sample of construction workers in both countries. All construction workers from 81 sites responded, resulting in use and individual response rates of 73% and 64%, respectively.

Results: The results indicated that transformational, active transactional, rule-oriented and participative leadership predict positive safety outcomes, and laissez-faire leadership predict negative safety outcomes. For example, rule-oriented leadership predicts a superior safety climate ($\beta = 0.20$), enhanced safety behaviour ($\beta = 0.12$, $P < 0.001$), and fewer accidents (beta ratio (OR) 0.71, 95% confidence interval (95% CI) 0.62-0.80). The effect of rule-oriented leadership on workers' safety behaviour was mediated by the level of participative leadership ($\beta = 0.10$, $P < 0.001$), suggesting that when rules and plans are established in a collaborative manner, workers' motivation to comply with safety regulations and participate in proactive safety activities is elevated. The influence of leadership behaviors on safety outcomes were largely similar in Sweden and Denmark. Rule-oriented and participative leadership were more common in the Swedish than Danish construction industry, which may partly explain the difference in occupational accident rates.

Conclusions: Applying less laissez-faire leadership and more transformational, active transactional, rule-oriented and participative leadership appears to be an effective way for construction site managers to improve occupational safety in the industry.

Key terms: accident, evoked leadership, construction industry, construction site manager, leadership behavior, occupational safety, positive leadership, safety behavior, safety climate, transactional leadership, transformational leadership.

In Europe, 3739 workers were reported deceased due to occupational accidents in 2014 (1). The construction industry was the economic sector most affected by fatal occupational accidents, accounting for more than 20% of such fatalities. By international standards, occupational accident rates in the Scandinavian construction industry are relatively low (2). However, considerable differences in accident rates exist between Scandinavian countries. Sweden and Denmark have much in common regarding

history, social and economic systems, language, culture, and laws regarding occupational safety. Yet, in the period 2002-2008, a 39% higher fatal occupational accident rate was reported in the Danish compared to the Swedish construction industry (2). A comparative study of leadership between two countries where many factors that influence safety are similar, but which differ largely in accident rates, offers unique possibilities to assess novel features of occupational safety in the construction industry.

¹ Occupational and Environmental Medicine, Department of Public Health and Community Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

² Department of Occupational Medicine, Regional Hospital West Jutland, University Research Clinic and Danish Ramazzini Centre, Herning, Denmark

³ Correspondence to: Martin Grill, Occupational and Environmental Medicine, Department of Public Health and Community Medicine, Sahlgrenska Academy, University of Gothenburg, SE-413 45 Gothenburg, Sweden. E-mail: martin.grill@sam.umu.se

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A comparison of inspection practices within the construction industry between the Danish and Swedish Work Environment Authorities

Kent Jacobs Nielsen

Danish Ramazzini Centre, Department of Occupational Medicine, Herning Regional Hospital, Herning, Denmark

ABSTRACT Denmark has a 20% higher rate of fatal occupational injuries within construction than Sweden. Although these are very pronounced differences in work environment legislation between the countries, there may be differences in how the legislation is enforced. The aim of the study was to describe and compare the inspection practices within the construction industry between the Danish and Swedish Work Environment Authorities. A mixed method approach was employed combining observations of inspection practices with interviews and questionnaires regarding perceived leadership. The primary role of both Danish and Swedish inspectors was as controllers. A minor role was as experts. A third role of being a sounding board was only identified in a few instances in Sweden. Authority-related barriers were employed more regularly in Sweden, while respect-based barriers were underemployed in Denmark. Negative behaviour on behalf of the inspected party was also more widespread in Denmark, while positive behaviour was more widespread in Sweden. Questionnaire data revealed that the inspected Swedish companies had a significantly more positive perception of the inspection and the benefits of the inspections. There were differences in the enforcement practices of the Danish and Swedish inspectors, which may lead to greater adherence to health and safety regulations in Sweden.

Introduction Denmark and Sweden are neighbouring countries in Scandinavia that are generally considered culturally, historically and politically similar societies. There are only minor differences between the countries in the legislation concerning work environment and labour inspection, as both have ratified most of the ILO Conventions and EU directives and regulations concerning working conditions and labour inspection within their national legal systems (Rogvaldsdottir et al. 2011). Given these similarities it is somewhat surprising that the general Danish occupational injury rate is approx. twice the rate of Sweden, and that Denmark has a 33% higher rate of general fatal occupational injuries and a 39% higher rate within construction (Torstott et al. 2011). A similar difference in occupational injury rates was identified between Danish and Swedish construction workers in a retrospective study of the construction of the Øresund bridge connecting Denmark and Sweden, where the Danish workers had 3-4 times higher incidence rates than the Swedish, although performing similar tasks and working sites by Sjøgaard et al. (2003). The underlying causes of these national differences

in occupational injury rates between otherwise very similar countries are unknown. A possible contributing factor could be the existence of differences between the countries in how the legislation is enforced by the respective national Work Environment Authorities. Work Environment Authorities use workplace inspections to control and facilitate adherence to occupational health and safety regulations. The scientific evidence for the effectiveness of such inspections is however not clear-cut. A systematic review found limited evidence for inspectors being associated with a reduction in frequency or severity of injuries, while there was strong evidence for an association between actually being cited or penalised and a reduction in injury frequency or severity (Simp et al. 2007). Likewise, the tentative conclusion of a recent Cochrone review was that inspection acts as an enforcement tool but have no clear effects on the short-term but do decrease injury rates after more than three years follow-up (Wheeler et al. 2013). However, nothing could be concluded on magnitude of the effect, just as the effect of fines and penalties was uncertain. Furthermore, it is unclear precisely how the inspectors work and how they affect injury rates, although given the differences in

CONTACT Kent Jacobs Nielsen kj@ramm.umu.se
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ORIGINAL PAPER

Apprentice or Student? The Structures of Construction Industry Vocational Education and Training in Denmark and Sweden and their Possible Consequences for Safety Learning

Regine Grytnes¹, Martin Grill², Anders Pousette¹, Marianne Törner³, Kent J. Nielsen¹

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Abstract There is a notable difference in occupational injury rates in the two Scandinavian countries, Sweden and Denmark, with the latter having a 40% higher rate of fatal occupational injuries in the construction industry. This study explored differences in the vocational education and training (VET) systems between Sweden and Denmark that may be important for students' safety learning and practice during VET. In both countries, students participate in full-time education, and the curriculum includes school-based as well as company-based training. However, during company-based training Swedish students remain their student status, whereas Danish students are employed as apprentices. From a perspective of viewing safety as a social practice developed through interactions of different social and institutional bodies, the analysis points to this difference in employment status as important for their safety practices and

¹ Regine Grytnes, regine.grytnes@vst.umu.se
Martin Grill, martin.grill@sam.umu.se
Anders Pousette, anders.pousette@fpu.umu.se
Marianne Törner, marianne.torner@sam.umu.se
Kent J. Nielsen, kenne@oh.dk

² Danish Ramazzini Centre, Department of Occupational Medicine, Regional Hospital West Jutland - University Research Clinic, GL Landevej 74, 7400 Herning, Denmark
³ Occupational and Environmental Medicine, Public Health and Community Medicine, Academy of Sahlgrenska, University of Gothenburg, Gothenburg, Sweden

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APPROACHING SAFETY IN THE SWEDISH AND DANISH CONSTRUCTION INDUSTRY: PROFESSIONALS' PERCEPTIONS OF SAFETY CULTURE DIFFERENCES

MARTIN GRILL
Department of Occupational Medicine, Public Health and Community Medicine, Academy of Sahlgrenska, University of Gothenburg P.O. Box 414, SE-405 30 Gothenburg, Sweden. Phone: +46 (0)31 763678, E-mail address: martin.grill@sam.umu.se (Corresponding author)

REGINE GRYTNES
Department of Occupational Medicine, Regional Hospital West Jutland - University Research Clinic and Danish Ramazzini Centre, Postal address: GL Landevej 74, 7400 Herning, Denmark. E-mail address: regine.grytnes@vst.umu.se

MARIANNE TÖRNER
Department of Public Health and Community Medicine, Occupational and Environmental Medicine, Academy of Sahlgrenska, University of Gothenburg, PO Box 480, SE-405 30 Gothenburg, Sweden. E-mail address: marianne.torner@sam.umu.se (M. Törner)

ABSTRACT

Background: Previous high accident rates in the construction industry motivate research to improve the understanding of underlying factors affecting safety behaviour and safety outcomes. The Scandinavian countries of Sweden and Denmark are culturally similar but with a considerable difference in accident rates, especially in construction, and as such offer an opportunity to explore organisational and managerial issues related to safety outcomes.

Method: Semi-structured interviews were carried out with five construction managers and four construction workers in Danish and Swedish construction industry. The transcripts were analysed using thematic domain analysis.

Results: Seven safety related themes were distinguished concerning safety culture differences between Swedish and Danish construction industry concerning participatory or directive management, challenge or safety compliance or non-compliance, cooperation or conflict, control or guidance, planning management, and employment security. Interactions between the thematic areas revealed patterns of interaction between managers and employees, interpreted in process analysis of participatory and directive safety cultures.

Conclusion: This study identifies seven factors perceived by the professionals as related to lower occupational accident rates in the construction industry. Insights in participatory management, proactive long-term planning and long-term concerns, encouragement, communication and compliance to rules as well as challenging incidents, were described in connection to occupational safety management. These factors may guide further research in the field, as well as safety managers and officials' emphasis in decreasing accident rates in the construction industry in Scandinavian and elsewhere.

DOCTORAL THESIS SAHLGRENSKA ACADEMY

Safety leadership in the construction industry

Managing safety at Swedish and Danish construction sites

Martin Grill

SAHLGRENSKA ACADEMY INSTITUTE OF MEDICINE