Leader-based Intervention in Construction contractors safety priority

Participants in project:
The National Research Centre for the Working Environment:
- Johnny Dyreborg
- Pete Kines
- Belina H. Pedersen
- Harald Hanmer
- Karen Winding
- Søren Spangenberg

Technion - Israel Institute of Technology
- Dov Zohar

COWI Consult:
- Igor Zorko (Independent safety measures)

Johnny Dyreborg, Senior researcher, ph.d.

30th ICOH Conference
CANCUN 2012

Previous research

Previous research in the field has shown:
- Increased communication about safety in the daily interactions between leader and worker, has a clear and positive effect on the level of on-site safety
- Safety level (index) is a proximal indicator for on-site accidents
- Increased interaction about safety does not weaken the focus on production and quality

Johnny Dyreborg, Senior researcher, ph.d.

THEORETICAL BACKGROUND

1. Interactions:

A safety norm acquires meaning and structure through social interactions. These interactions allow collective constructs to emerge and to be sustained. It is this interaction that exerts influence on organizational members. (e.g., a safety norm)

We can study interactions (Experience sampling method)

Johnny Dyreborg, Senior researcher, ph.d.

LBS intervention

Leader-member interactions

- Daily leader-member interaction is the root of safety leadership
  - The content of daily exchanges reveal:
    - True priority of competing demands (safety vs. Speed)
    - Which behaviors are better rewarded (positive feedback)
    - Walk-the-talk test (correspondence between what leaders say, and what they do)

Johnny Dyreborg, Senior researcher, ph.d.

LBS intervention

Basic Principles

- When (frontline) management by word and in practice show that safety has high priority (= change interactions)
- Then the level of unsafe behavior will decrease
- (and eventually the number of accidents will be reduced)

Intervention Goal: Increase the frequency of safety oriented exchanges across management levels and between leaders and workers.

Johnny Dyreborg, Senior researcher, ph.d.

Project design and organizational structure
What does European Laws say?

Directive 92/57/EEC - temporary or mobile construction sites

Safety Coordinator

- The client or project supervisor nominates person(s) responsible for the coordination of health and safety at sites where several firms are present. (The client remains responsible for safety and health.)

- The client or project supervisor also ensures that, before work starts at the site, a health and safety plan is drawn up and a safety and health coordinator is appointed.

Objective

- Objective is to test a leader-based safety intervention for construction sites.

- The intervention consists of encouraging safety coordinators to provide feedback on work safety to the client and line management.

- The intention is to increase communication and interactions regarding safety within the line management and between the client and the senior management.

- It is hypothesised that this, in turn, will lead to increased communication and interaction about safety between management and coworkers as well as an increased on-site safety level.

LBS intervention design

Measures:

- Safety related social interaction between managers and workers (communication index)
- Safety and behavior on site (safety index)

Increase safety related social interaction:

- We coach safety coordinator

Evaluation:

- Repeat measures (and expect improvements)

Safety Measures

- Safety communication
  \[ \text{Safety Talks Index} = \frac{n \text{(safety exchanges)}}{N \text{(all exchanges)}} \]

- Safety observation
  \[ \text{Safety Walks Index} = \frac{n \text{(safe observations)}}{N \text{(all observations)}} \]

Random Talks (communication)

When was your most recently contact with your nearest leader

It was about two hours ago, when we discussed how to mount the windows
**Safety Communications (on site)**

<table>
<thead>
<tr>
<th>Competing aspects of work</th>
<th>Priority provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Productivity/schedule</td>
<td>no ← little ← moderate ← high</td>
</tr>
<tr>
<td>• Quality</td>
<td>no ← little ← moderate ← high</td>
</tr>
<tr>
<td>• Worksafety</td>
<td>no ← little ← moderate ← high</td>
</tr>
<tr>
<td>• Welfare/ well being</td>
<td>no ← little ← moderate ← high</td>
</tr>
<tr>
<td>• Others</td>
<td>no ← little ← moderate ← high</td>
</tr>
</tbody>
</table>

**Safety Level (index)**

<table>
<thead>
<tr>
<th>Priority Provided</th>
<th>Connect</th>
<th>Not Connect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work habits</td>
<td>100</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>Scaffoldings</td>
<td>100</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>Machines etc</td>
<td>100</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>Fall protection</td>
<td>100</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>Light, electr.</td>
<td>100</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Order &amp; tidiness.</td>
<td>100</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td><strong>TR index</strong></td>
<td>100</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>


**Before launch the protocol was published in the journal "Injury Prevention"**

**Design, method and result**

Design: Group-randomized and double-blinded intervention

- **Randomization**
  - Before measures
  - 3 intervention sites → Follow-up
  - 3 control sites → Follow-up

- **Outcome**
  - Safety communications
    - OOR: 1.25, 0.76, 1.06, 1.18
    - 95% CI: [0.53; 2.63]
  - Safety index
    - OOR: 0.76, 0.78, 0.97
    - 95% CI: [0.81; 1.16]

**Conclusion**

Could we encourage the safety coordinators to provide feedback on work safety to the client and line management, and thus to increase leader-worker on-site safety communications? NO!!

1. Safety coordinators have difficulties in separating their role as safety coordinator and their role as being member of the local management.

2. One safety coordinator who where not part of the local management, but directly employed by the client, seems to obtain better results.

3. The study questions the (independent) role of the safety coordinator.

**Thank you**

www.nrcwe.dk
jdy@nrcwe.dk

Publicering: