Construction Workers' Situational Awareness

An Overlooked Perspective

by

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Research Objective

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Workers On-Site Situation & Role

Literature Review

Research Method Proposal

Avenue for
Future Research

Points of Departure

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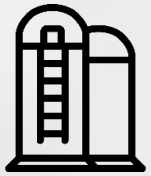
Knowledge based industry
(Amaratunga & Haigh, 2005)

On-going project development
(Dossick & Neff, 2011)



Silo thinking

Unidirectional information flow

Enablers of knowledge sharing are missing to increase labor productivity (Leal et al. 2017)

Points of Departure

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Decentralization

Upstream Variability

Commitment & Trust

Real time data

Inclusion

LPS tackles earlier mentioned issues to a certain level (Ballard, 2000; Priven & Sacks, 2015), but modest involvement of workers (Ann et al. 2011)

Workers' Role

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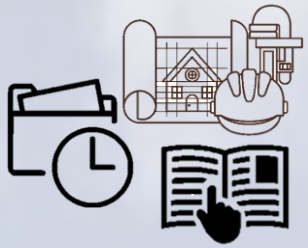
- Limited access to production planning & control plenty of knowledge stays unused in human memories
- Best practices & tacit knowledge move insufficiently utilized from one project to another
- Craftsmen can be seen as information receiver and task executor
- Craftsmen cannot be seen as information sender, task definer, on-site investigator, and task controller

Current understanding does not fit/only partially to transfer and sustain competitive advantage and create on-site SA

Workers' On-Site Situation

- Poor designs & plans as barriers to productivity & lacking support of construction management (Loosemoore, 2014)
- Individual (inter-)disciplinary communication & coordination
- on-boarding situation leads among others to ad-hoc decision making
- Improvisation of work is part of daily routines (Hamzeh et al. 2019)



Lack of on-site situation awareness for profound decision making

Proposed Method

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1. Survey

Systematic Understanding of On-Site Processes

- Questionnaire in Finland with about 1.000 construction workers
- Sharpen focus for further research and data collection

2. Video Tracking

SA & Workflow Visualization

- Video tracking of workflow of construction workers
- Track of specific task delivery of certain workers
- Analysis of video data to classify work by value adding degree

Proposed Method

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3. Best Case Scenario

Understanding of Task Prerequisites

- Ask for task description by tracked worker
- Worker will be confronted with project scenario from tracked video
- Description of prerequisites & execution procedure of task delivery in a best case scenario

4. Qualitative Interviews (GDTA)

Understanding of Decision Making & Improvisation

- Structured Interviews with tracked workers
- Questionnaire on best case scenario
- Comparison of best case scenario & analysed video sequence with workers in interviews

Construction Workers' Situational Awareness –
An Overlooked Perspective

Thank you for your attention!

Any Questions?