

# Handover Communications in Software Operations

Findings from the Field

Chad Todd

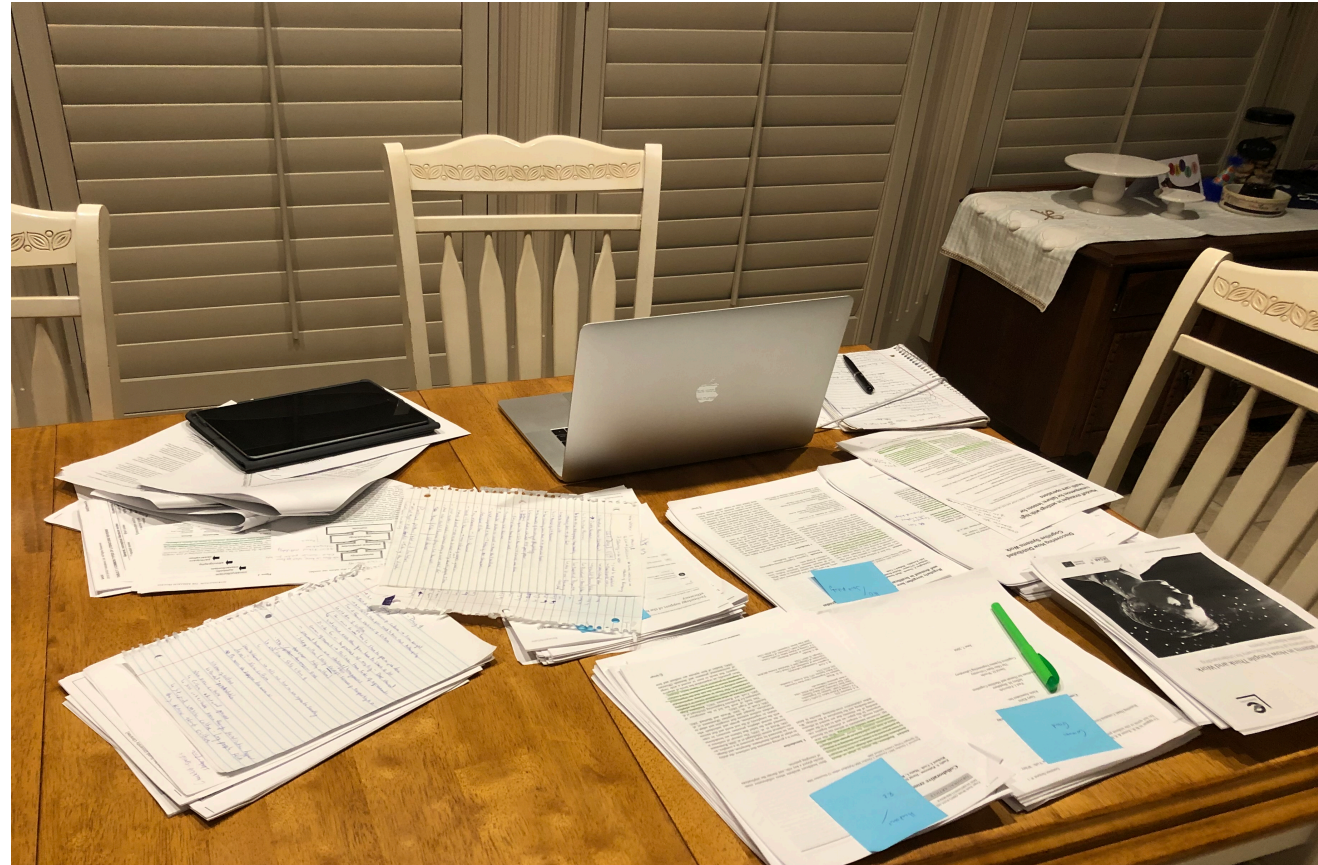
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CrowdStrike

# About Me



# Start of the Journey



# Definition of Handover Communications

*"a transfer and acceptance of responsibility achieved through effective communication. It is a real-time process of passing specific information from one person to another or from one team of persons to another for the purpose of ensuring the continuity and safety of work situation(s)."*

-The Joint Commission, 2017; p. 1

# Handover Communications Research History

- Late 1990's -- NASA
- Further Research
  - Nuclear Power Generation Plants
  - Railroad Dispatchers
  - Ambulance Dispatchers
- Growth in Popularity
  - Health Care
- 2022
  - Software Operations



# Types of Handover Communication

Verbally

Digitally  
Written



# Handover Communications & Confidence

# The Question

*What are the key attributes that contribute to how confident software engineers are with understanding the current state of the system after a handover in software operations is completed?*



# Department Backgrounds

## Network Operations Center

- Operates around the clock
- Performs incident resolution and communications
- Pre-Pandemic
  - verbal handovers (in person)
- Pandemic (Current)
  - Digitally written via Slack workflow



# Department Backgrounds



## Customer Support Center

- Operates around the clock
- Resolves customer-facing questions and application problems
- Informal handovers initially
- Formal digitally written handovers via DMs
  - (Current)

# Methodology & Methods

Inspired by Phenomenology

Semi-Structured Interviews





Photo by [iArchitectures](#)

# The Framework

# Concepts

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**Joint Activity**

**Common Ground**

**Adaptive Capacity**

**Confidence**

# What is Joint Activity?

*To achieve joint activity, it depends on **interpredictability** of the participants attitudes and actions. As part of a joint activity, there needs to be what is called “**The Basic Compact**”. The basic compact between participants is an agreement set forth that both parties will participate in the joint activity and will carry out the responsibilities as part of **coordinating work** and **communication**.*

-Klein et al., 2005

# What is Common Ground?

According to Klein et al. (2005) **common ground** supports *interdependent actions* through participants having mutual set of beliefs, assumptions, and knowledge, which are important to *establish* common ground.

## **common ground breakdown**

Klein et al. (2005) describes this troublesome situation:

- *it is when a party defects from the joint activity, however, the other party's belief is that the basic compact is still intact with the understanding that common ground is still established.*

# What is Adaptive Capacity?

According to Woods (2019; p. 53) the definition of **adaptive capacity** is the *potential* for adjusting patterns of activities to handle *future* changes in kinds of events, opportunities and disruptions experienced, therefore, adaptive capacities exist *before* changes and disruptions call upon those capacities.

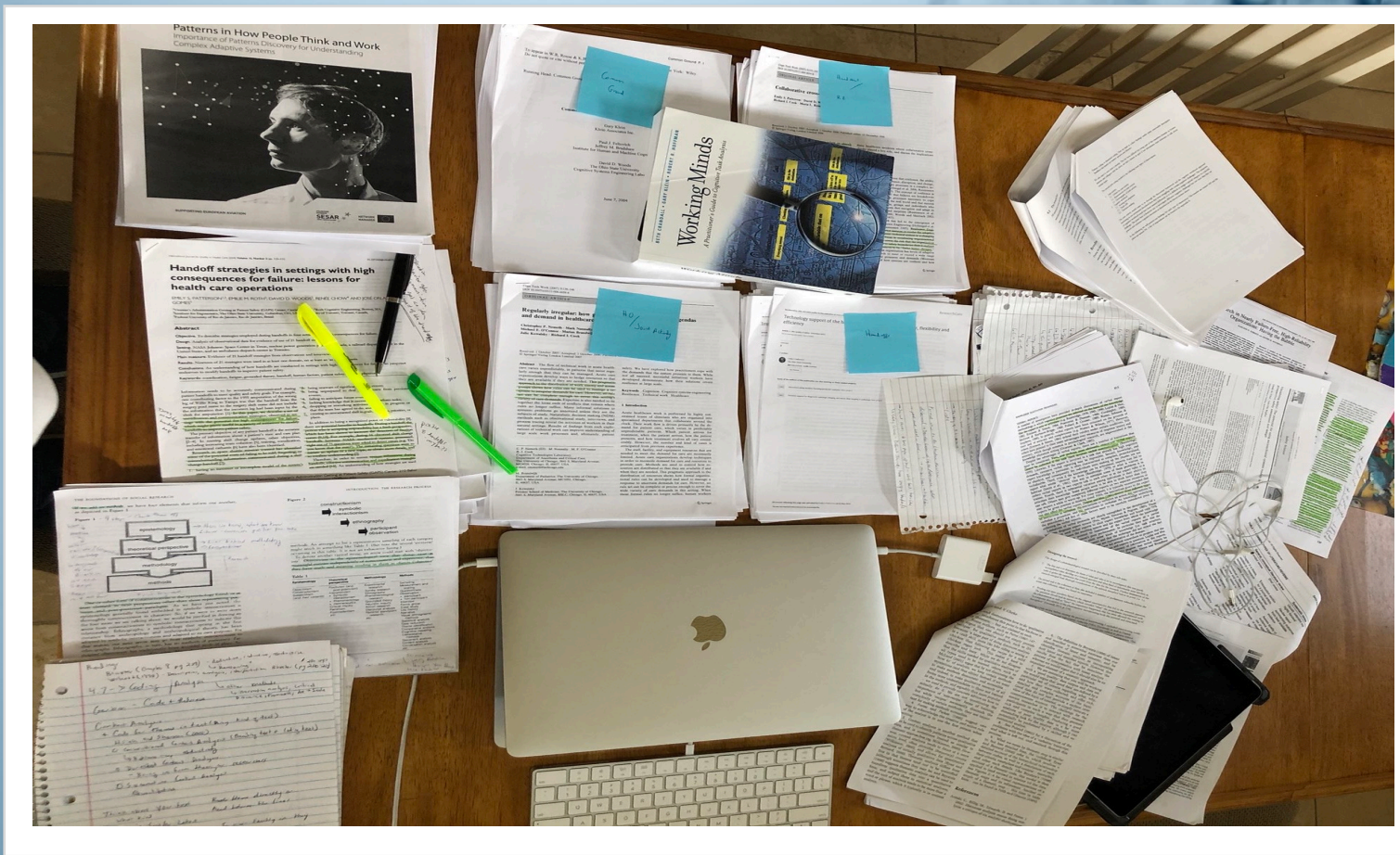


# What is Confidence?

**Confidence** is described as the *belief and feeling about the abilities or qualities of somebody or something*. Confidence is a **skill** that can be **acquired** and **improved** over time.

Confidence is **not** all encompassing and in one area there can be **increased** confidence but in other areas there can be **decreased** confidence.

# The Journey Continues





# Themes

# Organizational Context of Handover Communications

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Engineers' Experiences with Different Types of Handovers

Reports of Inconsistent Communications

# Organizational Context of Handover Communications (cont'd)

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[Engineer 2]: *From the experience I have, [...] I think, even as bubble gum and toothpick built as our hand-offs are, it's still a lot more solid than hand-offs that I've seen in the other departments mainly because they appear to be inconsistent. For example, inconsistent hand-offs exist when transitioning from one commander to another and I don't know who the new commander I'll be working with as the communications lead.*

# Evolving Handover Communications

**Continuous  
Improvement**

# Information Exchange

A background network diagram consisting of numerous blue nodes connected by thin lines, creating a complex web-like structure. The nodes are semi-transparent and the lines are thin and light blue. The overall aesthetic is clean and modern, typical of a corporate or technical presentation.

Coming up to Speed

Verbose vs Brevity

# Information Exchange (cont'd)

[Engineer 2]: *It would be the brevity of it would be the biggest summary of what makes the handover lousy. Basically, when it's missing what the customer impact is and what I need to be keeping an eye out for it.*



# Preparedness for Handover

Balancing Blended Responsibilities with High-  
Workload Demand

Informal Artifact Gathering

# Preparedness for Handover (cont'd)

*[Engineer 2]: As for every incident, I have a set of virtual desktops. I basically have four full monitors dedicated to it, [...] One of the windows I have dedicated on each of those is that form that I just keep filled out and up to date of this handoff. So, as the day goes on, if there's major changes in it, if I do any postings, I fill it out, I update it and I delete the parts that are no longer relevant.*

# Guidance for Handover Communications

Formal Handover Templates

Limited Processes and Requirements

# Closing the Loop

Acknowledgement of the Handover

Availability after the Handover

## Closing the Loop (cont'd)

[Engineer 2]: *It's so close to the end of shift for posting this out and then okay I'm out, and I do this myself, but you don't even have that opportunity to ask them any questions. So, it's more the lack of an opportunity to follow up and to poke and prod. I don't necessarily think we need a lot of time [...] even 5 or 10 minutes before heading out, I think that would probably give you time to yes acknowledge it, am I missing anything [...]*

# Theme Recap

- **Organizational Context of Handover Communications**
- **Evolving Handover Communications**
- **Information Exchange**
- **Preparedness for Handover**
- **Guidance for Handover Communications**
- **Closing the Loop**



# Putting It Together

# What Can Decrease Confidence

- **Inconsistency** among the departments of what information is needed
- **No Availability** after the handover to ask questions or gain more context
- **Balancing** responsibilities while preparing for the handover may result in reduced information
- **Formal Templates** can lack vital information
- **Further Exploration** for information right after the handover



# What Can Increase Confidence

- **Verbal** handovers need to be in support of digitally written handovers
- **Detailed** handovers whether verbal or digitally written are of the utmost importance
- **Creating** an embedded workflow or process for the handover can help reduce context switching
- **Guidance** about what information to supply for each handover needs to be consistent across all departments
- **Acknowledging** the handover is a *MUST*

# Final Thoughts



# The Journey Concludes



# Quick Bits

- Follow Lund HFSS on Twitter

- [@lund\\_hfss](https://twitter.com/lund_hfss)

- Chad's Thesis

- <http://lup.lub.lu.se/student-papers/record/9076274>

Handover Communications in  
Software Operations

A Qualitative Study

Chad Todd | LUND UNIVERSITY





# Questions

# Photo Sources

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