

Last planner, everyday learning, shared understanding & rework

Alan Mossman

The Change Business, UK

Prof Dr Shobha Ramalingam

National Institute of Construction Management and Research (NICMAR), Pune, India,

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

Agenda

- Findings — our propositions
- Introduction
- Research question
- How we got there
- What comes next

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

Propositions

Proposition 1: Less rework will be required when performers can develop a shared understanding of the Conditions of Satisfaction (criteria) with those (customers) who will assess their work

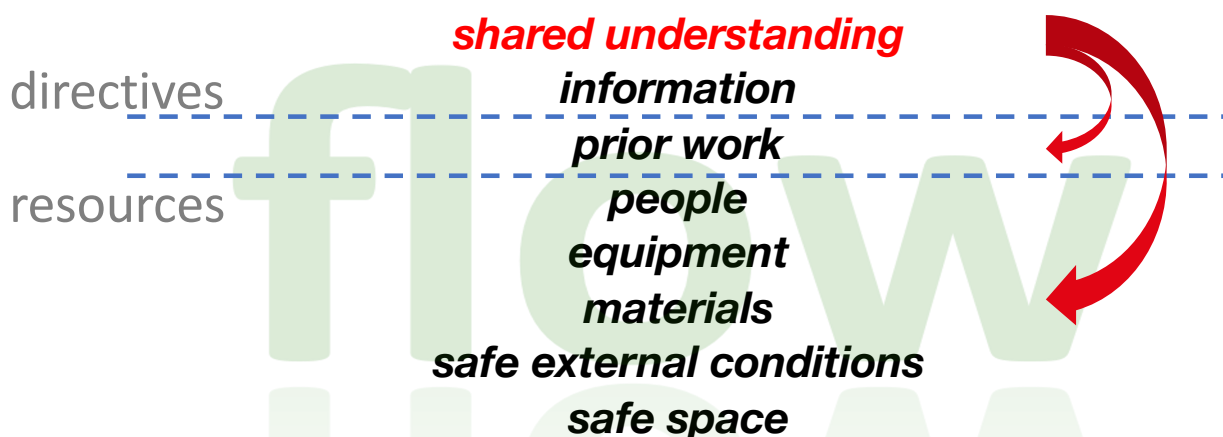
Proposition 2: Shared understanding is most likely when the criteria are explicit

Proposition 3: Everyday learning will help make tacit information more explicit.

Reliable promising, Last Planner® System, Flow, Rework, Everyday learning

Introduction

- *Common understanding* → reduced snagging/punch list [Pasquire 2012]
- *Shared understanding of a project* [Pasquire & Court 2013]



after Koskela 1992

Reliable promising, Last Planner® System, Flow, Rework, Everyday learning

Introduction

- *Common understanding* → reduced snagging/punch list [Pasquire 2012]
- *Shared understanding of a project* [Pasquire & Court 2013]
- *Shared understanding* → communication & collaboration [Koskela *et al* 2016]
- *Shared understanding* underpins flow [Pasquire & Ebbs 2017]
- **Glenn Ballard's discussion in the concluding chapter of his PhD [2000]**
 - Rework 5-10% of project costs (or more)
 - Everyday learning → everyday improvement, building new habits
 - Episodic learning (e.g. middle & end of project *lessons learned*) doesn't work

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

Research Question

RQ = ***how can we reduce rework arising from misunderstanding the Conditions of Satisfaction?***

the customers' criteria

value for customers & next trades in line

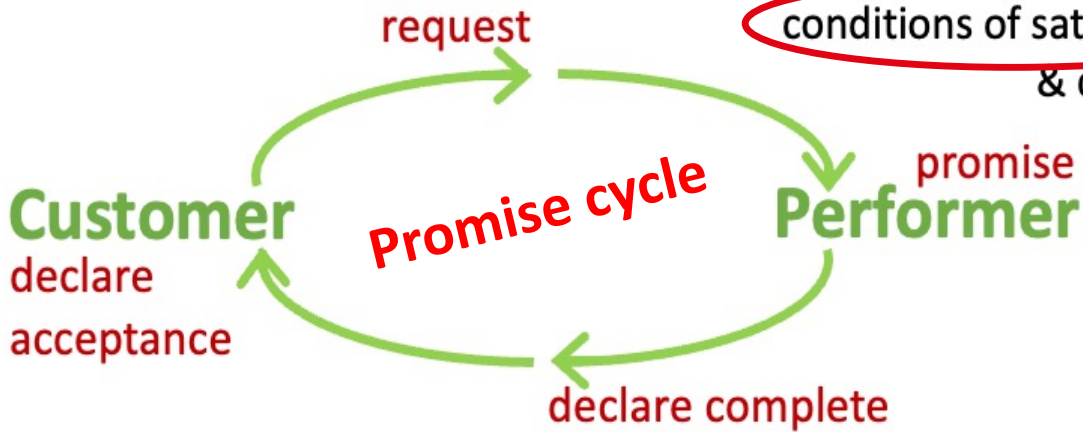
Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

How we got there

1. prepare

2. negotiate

conditions of satisfaction
& due date



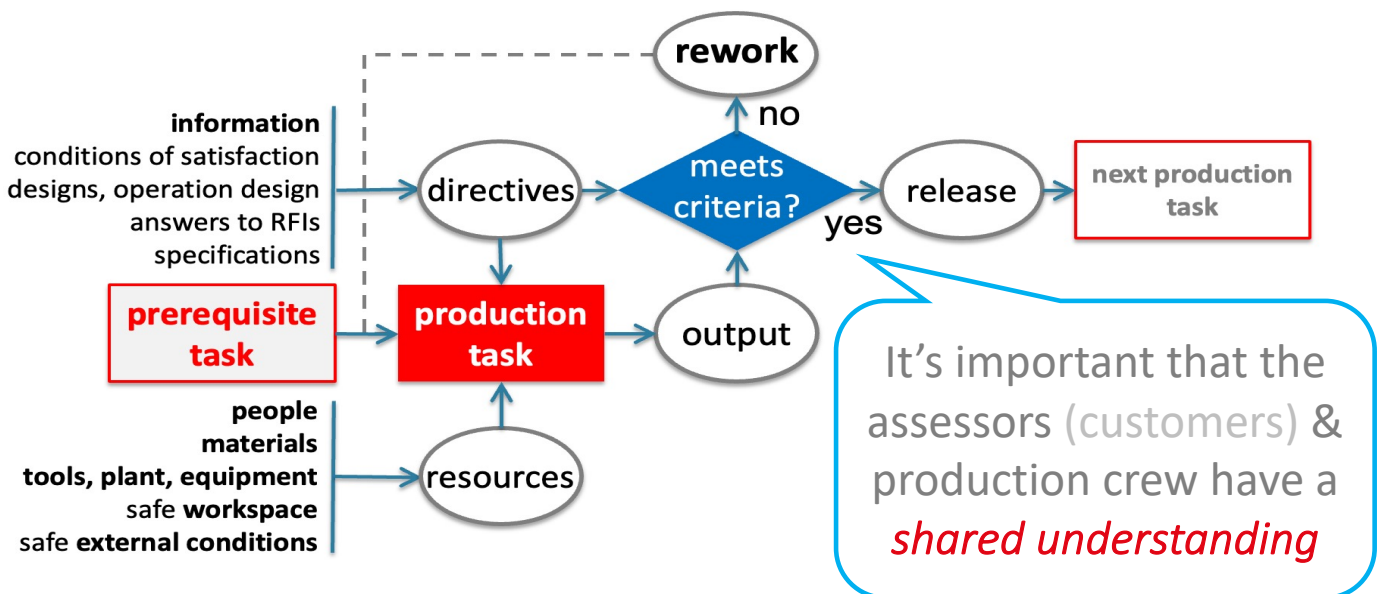
4. assess

after Fernando Flores 2013

3. perform

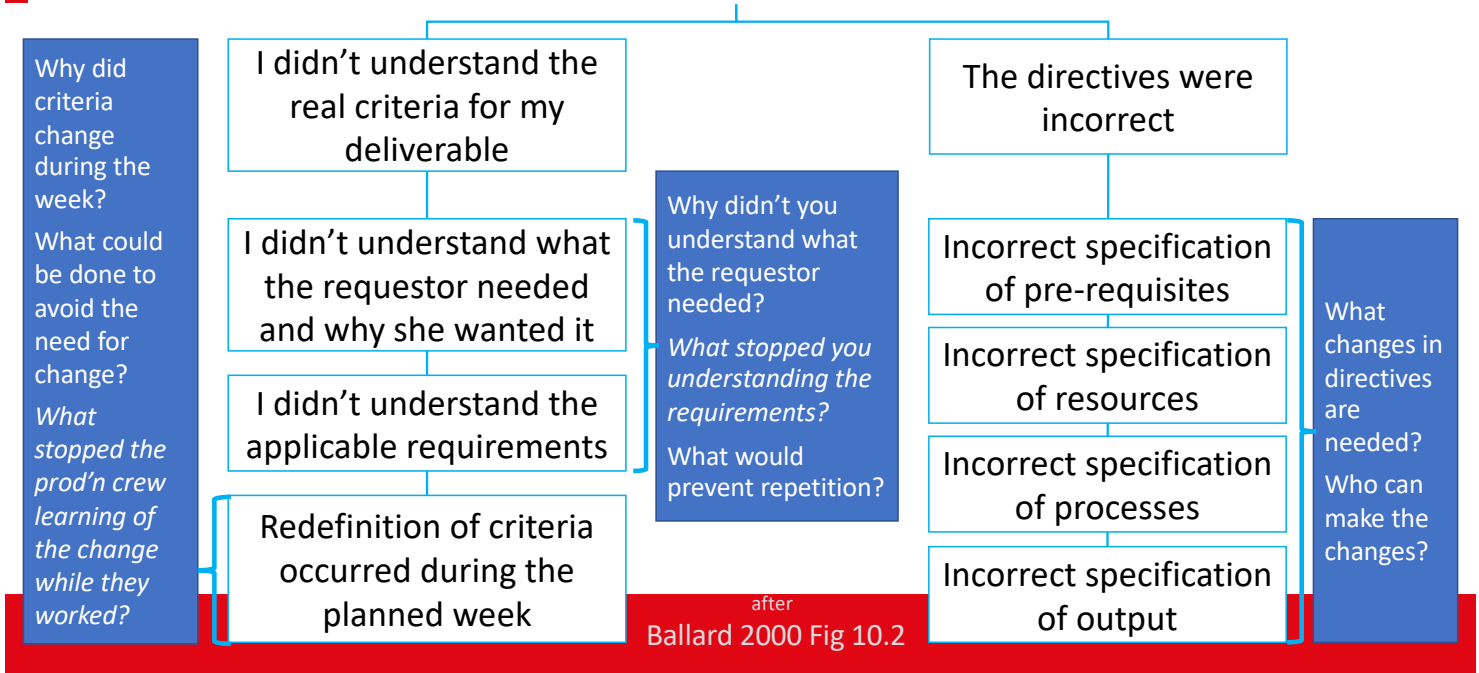
Reliable promising, Last Planner® System, Flow, Rework, Everyday learning

Rework: when the production crew misunderstand what's wanted

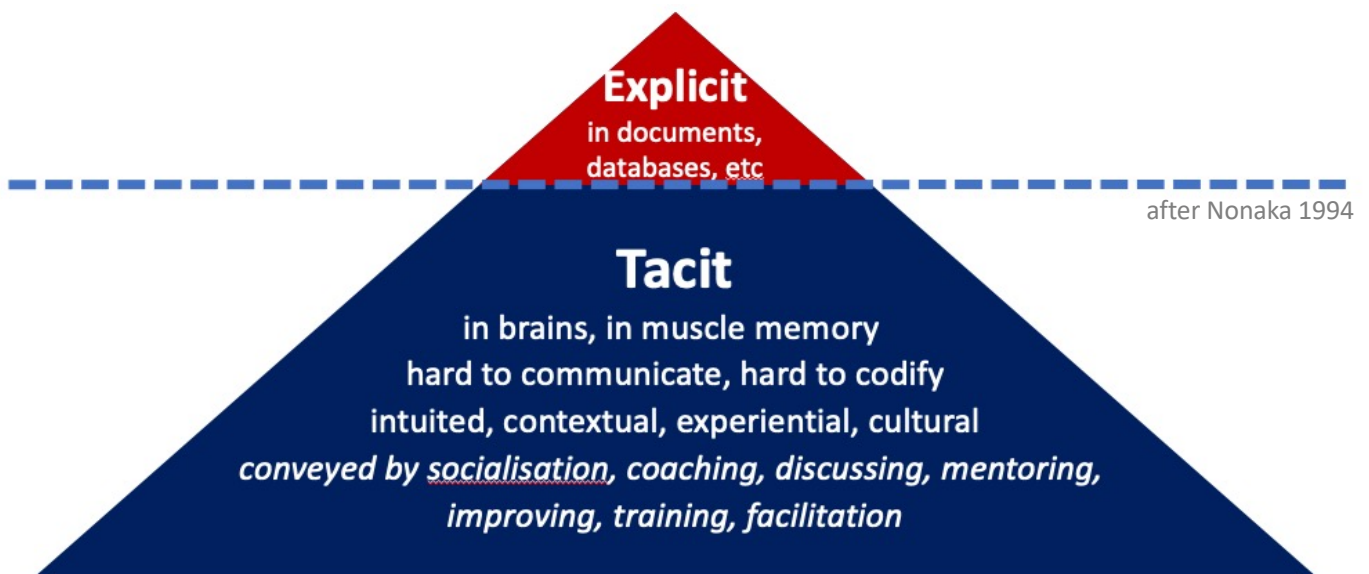


Reliable promising, Last Planner® System, Flow, Rework, Everyday learning

Directives related plan failures

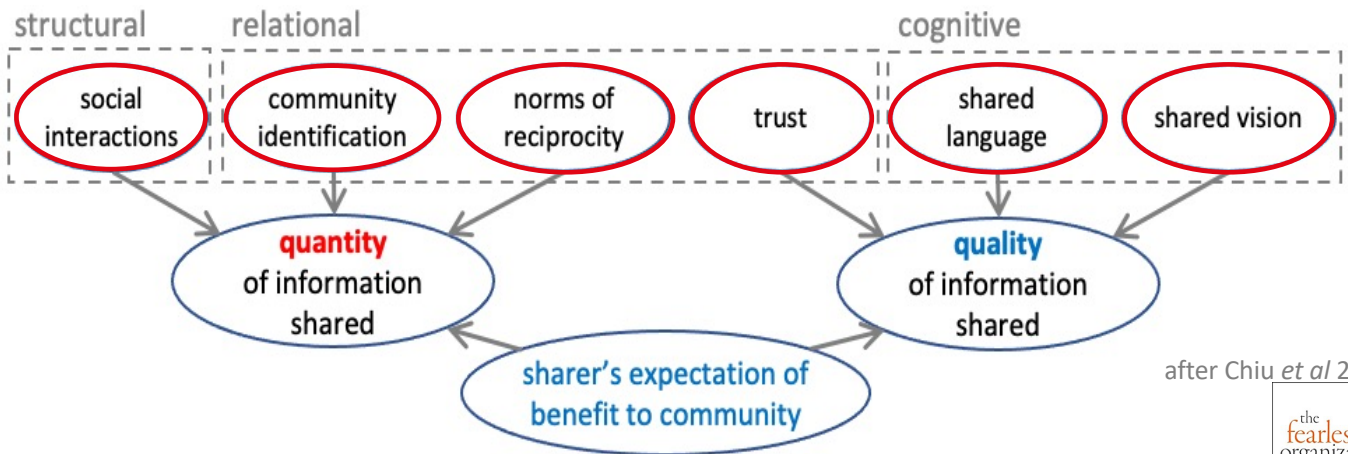


Most construction knowledge is Tacit

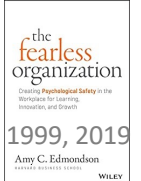


Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

What helps people feel safe to share information?



after Chiu *et al* 2006



e.g. Edmondson 1999, 2019

psychological safety

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

8 structured planning conversations in LPS

learn	did	8. learning & improving	Learn from & act on reasons for late (& early) delivery
produce	doing	7. Production management	monitor completions & reasons for late delivery
promise	will do	6. Commitment Plan	promise
plan	can do	4. Look Ahead Plan	Making work ready in the Look Ahead window
plan	should do	3. Phase Plan	agree handovers
plan	should do	2. Milestone Plan	sets milestones
plan	be aware	1. Risk Plan http://bit.ly/ebbs-risk-pdf	systematic risk review <i>with team</i> http://bit.ly/ebbs-risk-mp4

5. Design of Operations
plan experiment improve

What comes next?

- Rigorously observe what happens in the field;
- Root cause analysis of rework to establish if lack of shared understanding of *the directives* created the need for rework;
- What makes it easier/more difficult to share understanding of the *Conditions of Satisfaction/criteria* in a construction project – in design, in off-site fabrication, in assembly?
- How can we make it easier for project stakeholders to share *tacit* knowledge online and to recognise the importance of sharing *implicit* knowledge to mitigate risk?
- What makes it easier for workers to stop and correct defective work?

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning

Thank you!

Alan Mossman alanmossman@mac.com +44 7968485627

Prof Dr Shobha Ramalingam sramalingam@nicmar.ac.in,

Reliable promising, Last Planner[®] System, Flow, Rework, Everyday learning