

Facilitating Conceptual Change in Healthcare Through the Application of the Single to Double-Loop Learning Model

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Agenda

1. Introduction to research area
2. Rationale for research
3. Overview of proposed model
4. Next steps

Lean

- Elimination of waste
- Many success stories
90% reduction in lead time, doubled product output, 70% increase in on-time shipping (*Womack & Jones, 2003*)
- Fewer than 25% of lean implementation attempts are successful

Failures often occur due to organization culture issues (*Mirdad, 2014; Choothian, 2014*)
- Lean is a methodology based on culture (*Womack & Jones, 2003*)
Largely applied as a tool-based approach (*Radnor, Holweg, and Waring, 2012*)

Lean in Healthcare

- Research emphasis on lean in healthcare
≈50% of public sector research publications focused on lean, with 35% studying healthcare (*Radnor, Holweg, and Waring, 2012*)
- Lean in healthcare shows promise
50% reduction in appointment waiting times, 30% reduction in patient death rate, \$500k savings in ICU, £3.1m direct savings (*Radnor, Holweg, Waring, 2012*)
- Challenges:
 - Lean may be too “industrial” (*Young & McClean, 2009*)
 - Resource allocation is different in healthcare and manufacturing
 - Healthcare is capacity-driven and demand is difficult to influence (*Radnor, Holweg, & Waring, 2012*)
- Cultural and attitudinal barriers to improvement (*Mazur et al., 2012*)

Rationale

- Triple Aim: experience, outcomes, and cost
- U.S. health care system continues to lag behind other countries

Last in access, efficiency, equity, and healthy lives (*Davis, Stremikis, Squires, & Schoen, 2014*)

- U.S. has lagged behind for many years, but little has improved

2003 → 2014: LAST in overall health care compared to other developed countries (*The Commonwealth Fund, 2003; Davis et al., 2014*)

- Perceived failures adversely impact patient experience
≈ 50,000 deaths per year due to preventable errors (*Naveh, Katz-Navon, & Stern, 2005*)

Comparing Single and Double-Loop Learners

(Argyris, 1976)

Single-Loop Learners

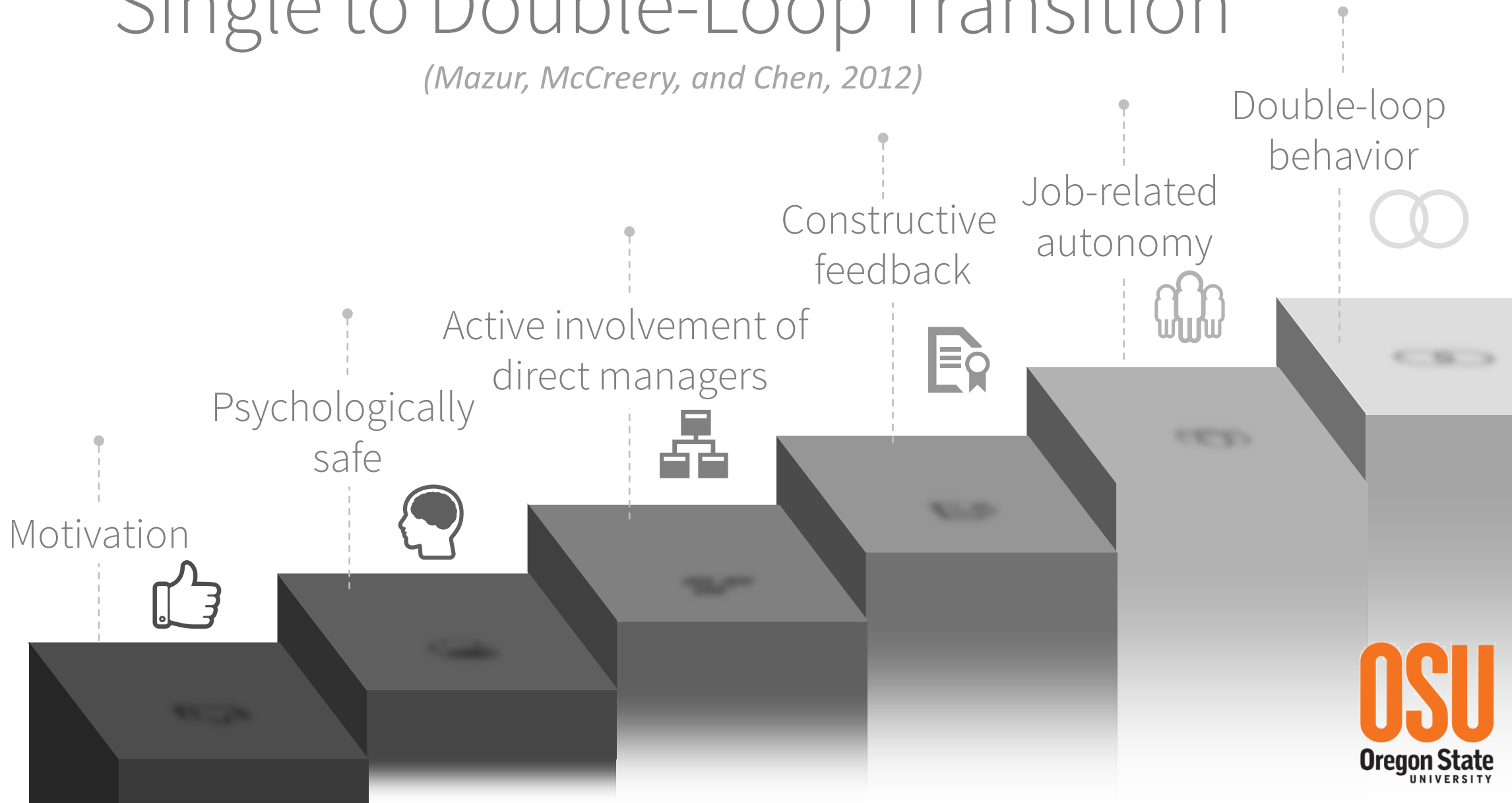
- Behavior based on protecting oneself
- Defensiveness
- Minimal feedback
- Quick-fixes
- Reduced problem solving effectiveness

Double-Loop Learners

- Equalization of power
- Focus on positive teamwork
- Open communication
- Root cause investigation
- Commitment to problem solving

Single to Double-Loop Transition

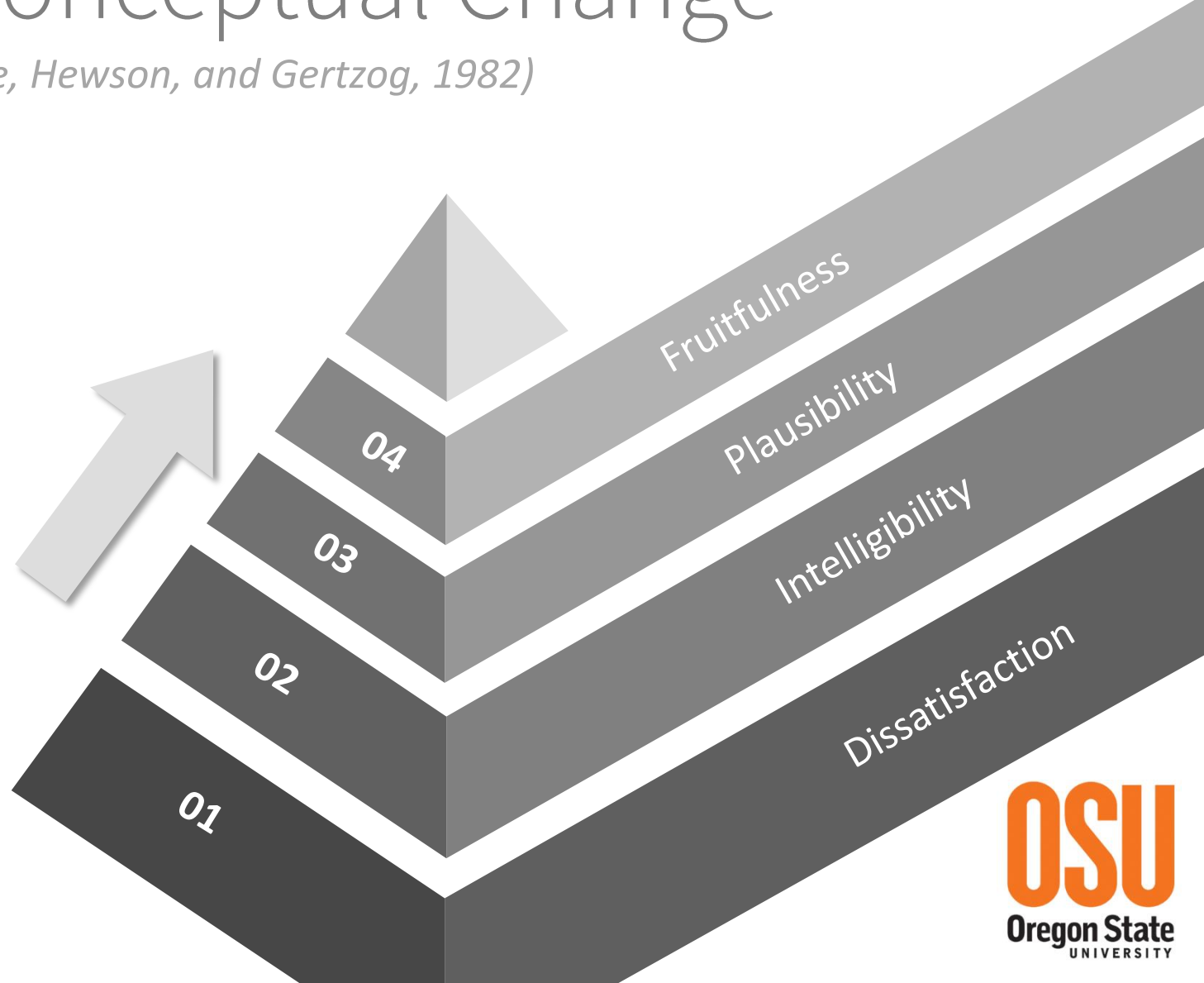
(Mazur, McCreery, and Chen, 2012)



Theory of Conceptual Change

(Posner, Strike, Hewson, and Gertzog, 1982)

- ◎ **Dissatisfaction**
Current concept is inadequate
- ◎ **Intelligibility**
Concept can be understood
- ◎ **Plausibility**
Concept is reasonable
- ◎ **Fruitfulness**
Concept has potential to solve future problems

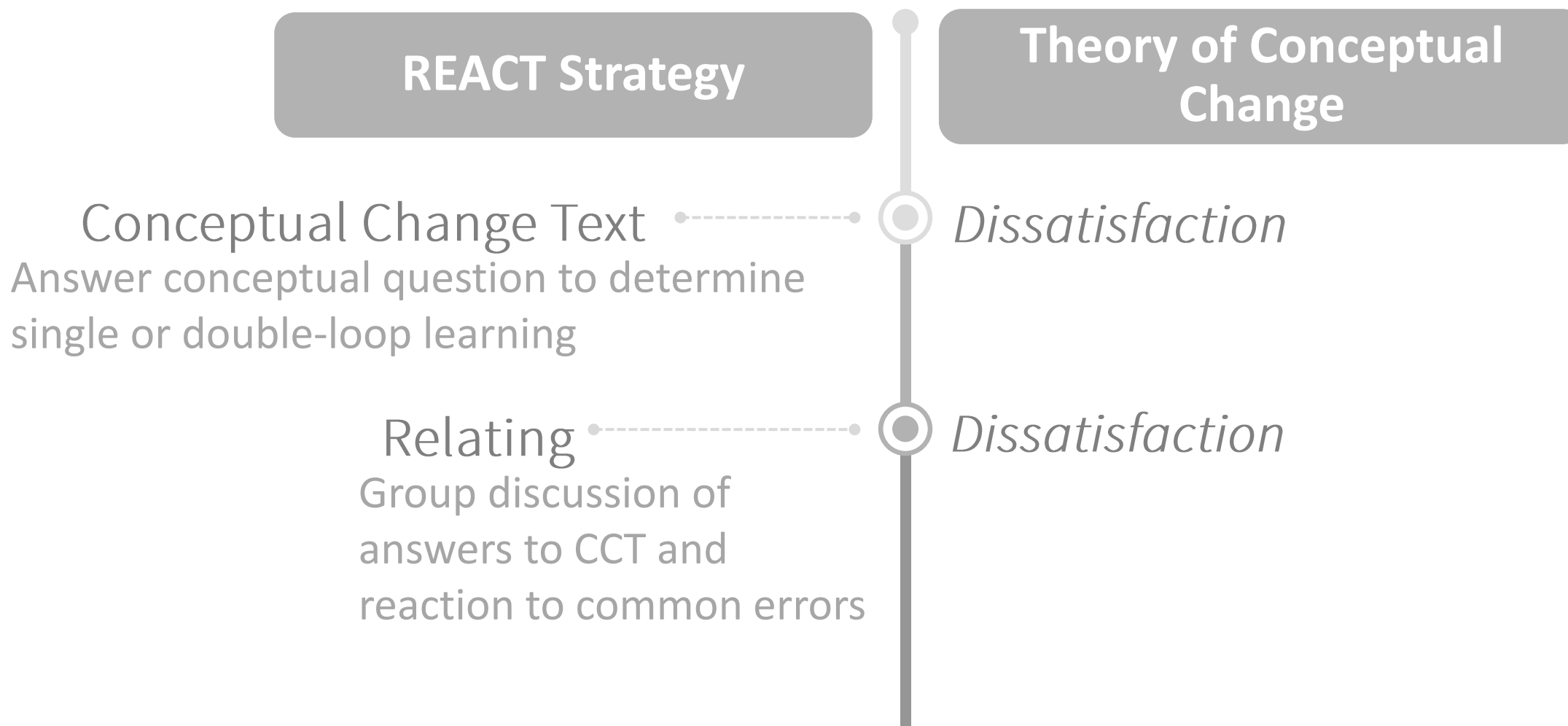


Application in Education

(Ültay, Durukan, and Ültay, 2015)

- Focus on conceptual change
Concept of force in physics, homogeneous solutions in chemistry, etc.
- REACT Strategy to achieve Theory of Conceptual Change steps
- Effective transition from alternative conception
Students were highly motivated. Strategy is effective for larger groups.

Transition to Healthcare and Lean



REACT Strategy

Theory of Conceptual Change

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Experiencing

Discuss simple examples from healthcare (e.g. 5S results, visual workplace)

Applying

Kaizen event in department

Cooperating

Discuss/highlight impact on other areas

Transferring

- Application in day-to-day job
- Identify team members/ambassadors to contribute to projects in other departments

Intelligibility

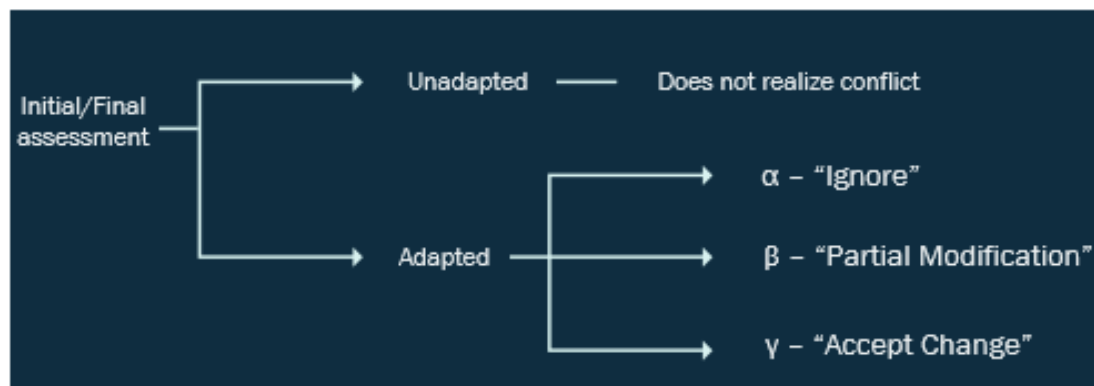
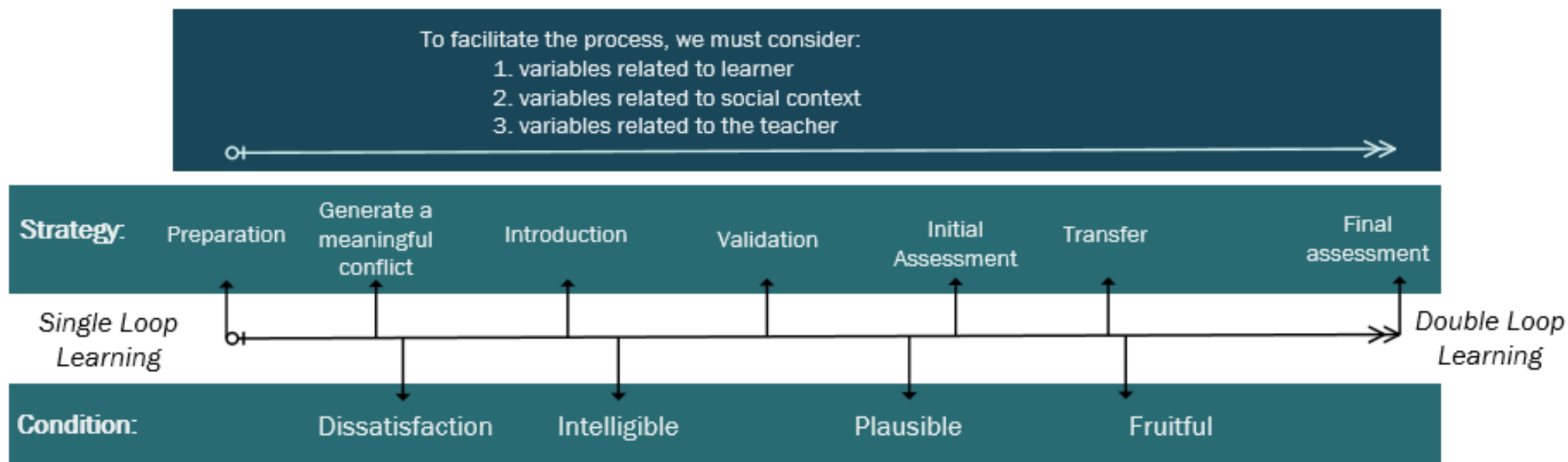
Plausibility

Plausibility

Fruitfulness

New Concept Acceptance

Conceptual Change Model



Next Steps

- Identify prospective health care organizations interested in conceptualization research in:
 - **OR “timeout” checklist compliance**
 - **Technology adoption**
 - **Lean, CUSP, or other culture change initiatives**
- Engage in light-footprint investigation to identify “best practices”
- Disseminate preliminary best practices and partner with participating organizations for further continuous improvement funds

Questions?



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