

How Learners Struggle with Theory

- Outside Influence**
 - Expert Opinion**
 - Based on Expert Opinion
 - Less Blind Acceptance of Experts
 - Question Experts
 - Expert Guidance
 - Look Beyond Experts Opinion
 - Seek Expert Guidance
 - Others' Perspectives**
 - Alternate Perspectives
 - External Perception of Self
 - Instructor Feedback
 - Learn from Peers
 - New Perspectives
 - Peer Feedback
 - Peer Guidance
 - Peer Influence
 - Peer Input
 - Previously not Considered
 - Theory Justifies (Your) Role
 - Resources**
 - Additional Resources
 - External Sources
 - Outside Influences
 - Outside References
 - References
 - Review References
 - Validation through Readings

- Sources of Struggle**
 - Abstractness**
 - Conceptual
 - Dynamic
 - Fuzziness
 - Disequilibrium
 - Skill Boundaries
 - Off Balance**

- Cognitive Growth**
 - New Ideas**
 - Accommodation
 - Assimilation
 - Avoid Memorization
 - Avoid Role Recall
 - Reflection**
 - Reflect on New Ideas
 - Reflection
 - Struggle**
 - Controlled Struggle
 - Coping with Struggle
 - Do not Avoid Struggle
 - Evolution of Struggle
 - Intensity of Struggle Lessened
 - Lead to Struggle
 - Overcome Resistance
 - Struggle Aids Understanding
 - Struggle Helpful
 - Struggle Needed for Understanding
 - Struggle not New
 - Varying Impact of Struggle

- Understanding**
 - Ability to Gauge Understanding
 - Evolution of Understanding
 - ID Gaps in Knowledge
 - ID Gaps in Understanding
 - Implicit Guidance
 - Implicit Understanding
 - Increased Understanding Yields Increased Questions
 - Incompleted Understanding
 - Know What is not Known
 - Localized Understanding
 - Localized Understanding Improved
 - Personal Interpretations
 - Personal Understanding
 - Questions Own Understanding
 - Self-Understanding
 - Situational
 - Superficial Understanding
 - Superficial Analysis
 - Superficial Understanding
 - Superficial vs. Deep Understanding
 - Understand through Application
 - Understand through Explanation to Others
 - Willing to Question one's Knowledge

- Motivation**
 - Did not Hinder Learning
 - Emotional Influences
 - External Constraints
 - Extrinsic Demotivation
 - Extrinsic Motivation
 - Generated Motivation
 - Hinders Engagement
 - Inhibited by Direct Instruction
 - Intrinsic Motivation
 - Lack of Intrinsic Motivation
 - Self-Motivation

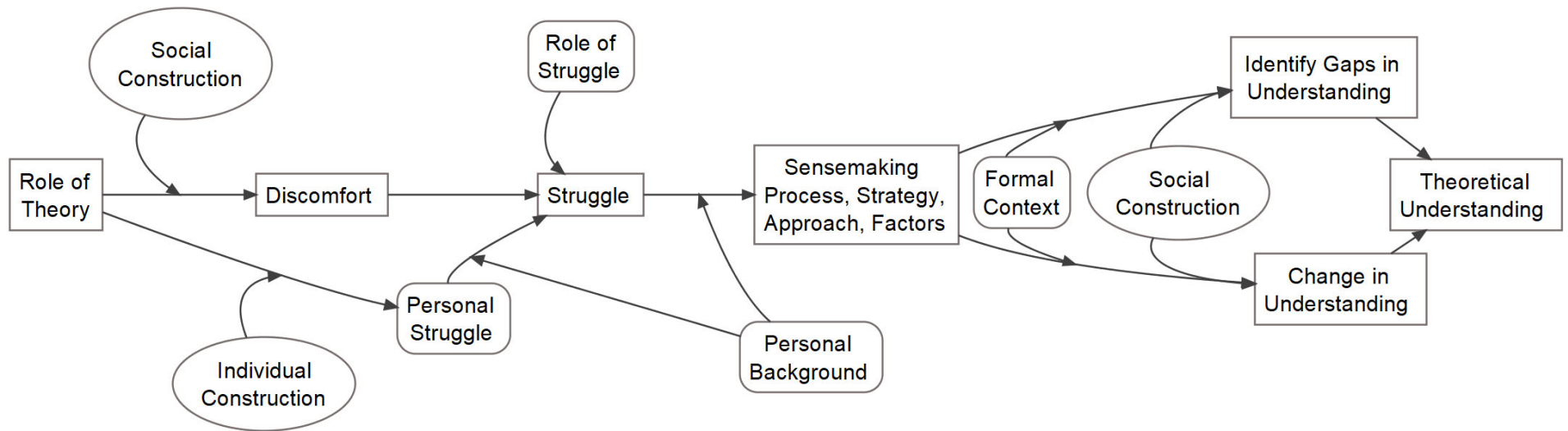
- Lack of Clarity**
 - Ambiguity**
 - Contradictions
 - Disagreement OK
 - Minimize Inconsistencies
 - Ambiguity in Terms
 - Lack of Consensus
 - Lack of Unity
 - Difficulty in Communication
 - Expert Disagreement
 - Lack of Clear Distinctions
 - Ambiguity
 - Differentiation**
 - Differentiate from Others
 - Difficulty Differentiating
 - Distinctions**
 - Distinguish from Not
 - Unclear Distinctions

- Internal Influence**
 - Personal Views**
 - Avoid Preconceptions
 - Avoid Pre-Judging New Info
 - Avoid Premature Decisions
 - Bias (Personal Influence)
 - Narrow vs. Broad Focus
 - Personal Ideas
 - Personal Relevance
 - Personal Viewpoint
 - Preconceptions
 - Reduce Preconceptions
 - Schema vs. Preconceptions
 - Undue Focus on Characteristics

- Usability**
 - Usefulness**
 - Application vs. Concept
 - Framed around Practical Use
 - Identify Use is Harder
 - Is it Necessary
 - Model vs. Theory
 - Must be Useful
 - Must have Value
 - Situational Usefulness
 - Theory as Useful
 - Theory Derives from Practice
 - Too Abstract for Practice
 - Understand Value
 - Relateable**
 - Something Relateable

- Cognitive Process**
 - Decomposition**
 - Break into parts
 - Define the Parts
 - Differentiate the Parts
 - Essential elements
 - New Ideas**
 - Accommodation
 - Assimilation
 - Fit to Current Ideas
 - Prefer Assimilation
 - Question Value if not Assimilated
 - Resist Accommodation
 - Resist New Ideas
 - Reflection**
 - Reflect and Share
 - Reflect on Experiences
 - Reflection
 - Visualization**
 - Visualize Concepts

- Role of Theory**
 - As Theory Relates to Practice
 - Binds Cross Discipline
 - Disconnected from Application
 - Helps Maintain Fidelity
 - How and Whys
 - Interpreted Rigidity
 - Less Biased than Implementations
 - Theory as Communicative
 - Theory as Useful
 - Theory Describes
 - Theory Explains
 - Theory Guides
 - Theory Informs
 - Theory Inspires
 - Theory Integrates
 - Theory Interprets
 - Theory is Situational
 - Theory is Subconscious
 - Theory Prescribes
 - Theory Should not Direct



- Themes

- Role of Theory
 - Why is theory important? What values are assigned by the individual and the design/research community? How does this conflict with personal views and expectations?
- Discomfort
 - How do differing or conflicting aspects of theory impact the individual? Individual response to contrasting personal and community goals or values.
- Struggle
 - What is the impact of struggle on the individual? How do personal experiences impact struggle and how does struggle affect the learning process?
- Sensemaking
 - Approaches and strategies of sensemaking process and factors that may impact this process. How do personal and community experiences impact an individual's approach to sensemaking?
- Evolution of Understanding
 - Processes leading to realization of deficiencies and ongoing improvement of understanding related to theory.
- Theoretical Understanding
 - Goal of thorough and deep understanding of theory and its implications and impacts on research and practice.