

## Drivers of Interdisciplinary Research & Education

- Complexity
- Exploring Interdisciplinary Problems
- Solving Social Problems
- Need for Creativity!

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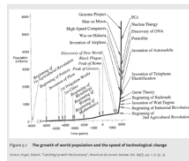
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## The World is Changing

- Rapidly and dramatically!
- Becoming more complex
- Requiring more knowledge
  - Which requires more training



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## Did You Know?: Shift Happens

- Complexity can cause a variety of social problems
  - This also drives interdisciplinary thinking



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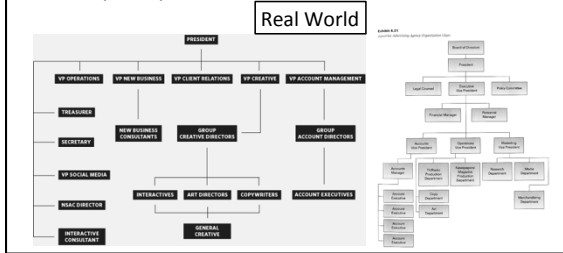
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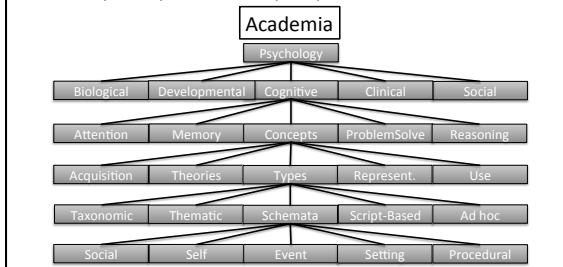
## Increasing Complexity

- Increase complexity => Increase knowledge => Increase education and training => Increase disciplinary focus



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Specialization blinds practitioners to the larger context

- Important and practical issues of life
- Greater specialization
- Greater need for interdisciplinarity

**Abstract**  
 The abstract level provides the theoretical framework for understanding the phenomena. An empirical study is required to test this theory.

**Methodology**  
 The methodology section describes the research design, data collection, and analysis procedures.

**Results**  
 The results section presents the findings of the study, including statistical analyses and interpretations.

**Conclusions**  
 The conclusions section summarizes the main findings and discusses their implications for theory and practice.



### Exploring Interdisciplinary Problems

- “Interdisciplinarity fills gaps in knowledge created by inattention from disciplines” (Repko, p.35)
  - Interdisciplinary spaces and new knowledge are generated
- Discipline specialization
  - Tunnel vision
  - Lack of respect for other discipline perspectives
- Example – creativity, music, cognition

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### Creativity, Music, Cognition

- Creative cognition
  - Examine how knowledge is used to generate new ideas
  - Paradigms
    - Conceptual expansion
      - “Imagine animal on an alien planet”
    - Conformity effect
      - “Draw as many aliens as possible in 20 minutes. Do not copy examples”
    - Analogical problem solving
      - “List 3 similarities and 3 differences between parking at OU to Darwin’s Theory of Evolution. Provide a solution to the parking problem for each similarity and difference”
    - Conceptual combination
      - “What is an “apple pear?” What is a “motorcycle harp?””
  - Identify the constraints; Figure out how to free people from them




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### Creativity, Music, Cognition

- Graduate training
  - Focus on knowledge structures, creative cognition, conceptual combination
- Post doc training
  - “Creativity is a dead end” “So is conceptual combination”
  - Focus on classic category learning research
    - Paradigms, analysis, literature
- Publication difficulties
- Advanced experimental design class
  - Conformity effect – add music component

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### Creativity, Music, Cognition

- Literature review to look for research and paradigms
  - Very little found in PsycInfo on creativity, cognition and music
    - Novel research? Keywords? Wrong database?
  - Some success
    - Marketing/consumer behavior
    - Film soundtracks
    - Emotion and music
- Adapted creative cognition paradigms to computer testing
  - Pilot tested music and associated knowledge
  - Had people write a story about “My Adventure on an Alien Planet”
  - Looked for features of knowledge associated with music in the stories
- Success with paradigm
  - Started presenting at conferences (APS, Cognitive Science)
- Connecting with researchers in Music Department
  - Phyllis White & Jenine Brown

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### Increased need for Creativity

- Complexity of problems facing us
  - Increased need for creativity
    - Revolutionary/transformational insights
      - Need creative, analytical, and practical intelligences
    - Generative technologies
      - Can transform technologies and how we interact with each other and the world
- Interdisciplinary studies
  - Integrative thinking
  - Conceptual combination
  - Flexibility

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