Applying Cognitive Information Processing Theory to Career Problem Solving & Decision Making

Casey Dozier, Janet Lenz, Debra Osborn, Gary Peterson, Bob Reardon, Jim Sampson

The Center for the Study of Technology in Counseling and Career Development at The Florida State University
Serving career development practitioners, researchers, students, policy makers, and system developers since 1986.
Tech Center Team

Co-Directors:
Dr. Debra Osborn    Dr. Jim Sampson

Senior Research Associates:
Dr. Gary Peterson    Dr. Bob Reardon

FSU Research Associates:
Dr. Casey Dozier    Dr. Janet Lenz
CIP Origins*

Gary Peterson

- Native Californian, arrived at FSU 1972 in research position; identified generic undergraduate problem solving skills (CASVE) and developed CIP Pyramid based on cognitive information processing theory.
- In 1986 convened colleagues in meetings to produce a text on the CIP system.
- "Kookie inventor" and dreamer; wrote Part I of 1991 text.

Jim Sampson

- Wisconsin native, arrived at FSU from Georgia Tech in 1982; assistant professor of counseling.
- Wrote Part II of 1991 text and created client versions of CIP materials.
- Focused on implementation of CIP with development of Individual Learning Plan and 7-step service delivery.

CIP Origins*

Bob Reardon

- Native Texan, arrived at FSU in 1963 for graduate school; accepted dual appointment in Student and Academic Affairs in 1968
- Helped write Part III of 1991 text; developed peer-based career services featuring self-help and the SDS in 1972
- Drew upon instructional systems design in creating career materials
Key Concepts: Cognitive Information Processing (CIP)

**Antecedents**

1) **Frank Parsons** (1909): “True Reasoning”
   - Self knowledge + Occupational knowledge → appropriate choices

2) **Career decision-making theories** (Gelatt; Janis & Mann; Katz; Miller-Tiedman)
   - Define problem
   - Understand causes
   - Formulate options
   - Prioritize alternatives
   - Implement solution and evaluate

3) **Cognitive theories**
   - Problem solving (Newel & Simon)
   - Hierarchical components (Sternberg)
   - Semantic and episodic memory (Tulving)
   - Generic processing skills (Woditsh)
   - Executive processing (Meichenbaum)
Pyramid of Information Processing

- EXECUTIVE PROCESSING
- SELF-KNOWLEDGE
- OPTIONS KNOWLEDGE
- META-COGNITION
- DECISION-MAKING SKILLS
- KNOWLEDGE DOMAINS

- Data files
- Program files
- JCL

CASVE CYCLE
CASVE Cycle: Phases of Decision Making
CIP Theory Definitions

• Career Problem: *Gap* between existing state and desired state of decidedness

• Career Decision Making: Cognitive processes involved in removing the gap including a *commitment* and a *plan*

• Career Decision State: *Conscious awareness of self* regarding one’s career goals and aspirations

• Career Decision Space: All *contextual elements* associated with a career problem

• Readiness for Career Decision Making: *Capability* to manage the *complexity* of a career problem
CIP Theory Assumptions

• Career decision making involves both cognitive and affective processes

• Career decision making entails effortful and deliberate thought

• All individuals are capable of making informed and careful career decisions
CIP Theory Proposition

The *aim* of CIP interventions: enhance one’s *capability* as a *career problem solver* and *decision maker*
Operations within CIP Theory

- CASVE cycle (cognitive strategy)
- Assessments
  1) Career Thoughts Inventory (CTI)
  2) Decision Space Worksheet (DSW)
  3) Career Decision State Survey (CDSS)
  4) Vocational Card Sort as a measure of occupational knowledge
- Workbook to reframe negative thoughts
- Career practitioner training
- The CIP learning environment
- Differentiated service delivery
Use of Assessments in CIP

• Readiness
• Self assessments
• Assessing option knowledge
• Decision-making state
Readiness Assessment

Screening instruments

Career Thoughts Inventory (CTI)
Decision Space Worksheet (DSW)
Career Decision State Survey

help determine readiness for career choice and level of assistance needed
CTI

Self-administered, objectively scored, 48 item measure of negative career thoughts

Identify individual negative thoughts that impair, impede, or block information processing in career decision making (item level)

Locate blocks in CASVE cycle--construct scales
  • Decision-Making Confusion (DMC)
  • Commitment Anxiety (CA)
  • External Conflict (EC)

Measure general state of indecision or confusion (CTI total score)
Mental health constructs **directly correlated** with dysfunctional career thoughts

- indecision
- neuroticism
- anxiety
- angry hostility
- depression
- self-consciousness
- impulsivity
- vulnerability

# Decision Space Worksheet

**Decision Space Worksheet (DSW)**

Name: __________________________    Date: ____________

The career decision you are considering __________________________

List all thoughts, feelings, circumstances, people, or events that bear on the career decision you are making. Then, for each factor indicate whether it has a specific negative, positive, or neutral impact on your decision by circling the corresponding symbol at the end of each line.

<table>
<thead>
<tr>
<th></th>
<th>Negative • Neutral • Positive</th>
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**The Decision Space**

**Directions:**

- The large circle below represents the total decision space of your career decision.
- Draw circles within the large circle to represent each item on your list. **Use the size** of the circles you draw to represent the relative importance of each item to your career decision.
- Be sure to label each circle according to the corresponding item number from the list you made on the previous page.
Purpose of Decision Space Worksheet (DSW)

- Cognitive mapping task
- Helps clients reveal thoughts, feelings, persons, circumstances, etc. associated with the career decision
- Helps clients prioritize importance of contextual influences
- Can be used with middle school through college level students and adults
- Typical issues revealed include cognitive distortions, family, finances, education, interests, self-doubt, employment, quality of life
Sample DSWs
Career Decision State Survey

- Research Instrument
- Certainty, Satisfaction, Clarity

Career Decision State Survey (CDSS)
Florida State University©

Stephan J. Lefever, PhD; Gary W. Peterson, PhD; Robert C. Reardon, PhD

Name ___________________________ Date ______________

1. List all occupations you are considering right now.

_____________________________
_____________________________
_____________________________

Which occupation is your first choice? If undecided, write “undecided.”

2. How well satisfied are you with your first choice? Place a check next to the appropriate statement below:

- Well satisfied
- Satisfied but have a few doubts
- Not sure
- Dissatisfied and intend to remain
- Very dissatisfied and intend to change
- Undecided about my future career

3. Please circle True (T) or False (F) to the statements below.
   a. T F If I had to make an occupational choice right now, I’m afraid I would make a bad choice.
   b. T F Making up my mind about a career has been a long and difficult problem for me.
   c. T F I am confused about the whole problem of deciding on a career.
Self-Directed Search

- Identification of interests/personality
- Secondary constructs
- Positively correlated w/openness, conscientiousness, extroversion
- Negatively correlated w/neuroticism
- Profile elevation r’d w/openness & conscientiousness
Readiness for Decision Making

• The likelihood of delivering an effective career intervention increases when the readiness of the individual is congruent with the type and amount of assistance provided.

• **Readiness** for career decision making reflects an individual's preparation for engaging in the learning processes necessary to explore and decide among various options.

• Factors that influence readiness for learning also influence readiness for decision making.
Readiness for Decision Making

• Readiness is the capability of an individual to make informed and careful career choices taking into account the complexity of family, social, economic, and organizational factors that influence career development

• Readiness also includes possessing adequate language skills and literacy skills for communication and learning
Two-Dimensional Readiness Model

**Complexity (high)**

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<th>Low readiness</th>
<th>Moderate readiness</th>
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<td>High degree of support needed</td>
<td>Moderate to low degree of support needed</td>
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<tr>
<td><strong>(Individual Case-Managed Services)</strong></td>
<td><strong>(Brief Staff-Assisted Services)</strong></td>
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| Capability (low) | | | Capability (high) |
|------------------|--|------------------|
| Moderate readiness | High readiness | No support needed |
| Moderate to low degree of support needed | | (Self-Help mode) |
Intervention Strategies

• Instead of one service level for all, three levels of service are used to meet individual needs:

  • **Self-help services** for individuals with **high** readiness for decision making

  • **Brief staff-assisted services** for individuals with **moderate** readiness for decision making

  • **Individual case-managed services** for individuals with **low** readiness for decision making
Differentiated Service Delivery Model for Delivering Career Resources & Services

Individual Enters

Brief Screening

Comprehensive Screening

Self or Staff Referral

Self-Help Services

Brief Staff-Assisted Services

Individual Case-Managed Services
Moving Between Levels of Service

• Readiness for career decision making can improve over time

• Persons can move between levels of service delivery

• Or, some individuals have difficulty in using resources and need more help, and move to a higher level of service
Components of Career Interventions

- Service Delivery Tools
  - Diagnostic assessments
  - Resource guides
  - Individual Learning Plans
- Delivery of Career Resources (includes career assessments and information)
  - Resource room (or resource area)
  - Web sites
  - Information handouts
Aims of the Differentiated Service-Delivery Model

• Maximize the cost-effectiveness of career interventions by not overserving or underserving individuals
• Focus staff resources on individuals most in need
• Provide the right resource, used by the right individual, with the right level of support, at the lowest possible cost
• Avoid contributing to social injustice by limiting number of individuals who can be served with individual appointment-based interventions
Training

• Career Advisors (CA) & new Career Center staff complete Career Advising Training checklists
• CIP theory and materials integrated into training content
• CAs participate in role plays and observe on desk to learn the application of CIP theory in practice
• Access to training resources via Tech Center website
• Ongoing training through staff development meetings and supervision
Supervision

• Weekly individual supervision
• Group supervision
• Supervision documents
• Integration of theory into supervision
Supervisor Training

- Supervisor training manual
- Supervisor training checklist
Evidence Related to Vocational Behavior and Career Interventions
Research on CIP theory-based interventions

“probably the most widely studied career interventions have been those developed by Reardon, Lenz, Sampson, & Peterson (2000) cognitive information processing theory...”

“also provides the template and necessary resources and training materials for counselors to implement CIP-based counseling in their practice”

“...Studies in Iceland and Switzerland provide added empirical support for the efficacy of CIP-based interventions”

## Types of Media to Disseminate Knowledge

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CIP Bibliography
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### Studies of Evidence-Based Practice

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Importance of Integrating Theory, Research, and Practice

1. Existing Theory
2. Prior Research
3. Observations from Prior Practice

- Evidence for Theory Revision
- Evidence for Future Research

- Theory
- Research
- Practice
Challenges in Integrating Theory, Research, and Practice

• Differences in Perspectives among Theorists, Researchers, and Practitioners (interests, language, personality, & training)

• Relevance of Research to Practice

• Limited Availability of Information Needed to Facilitate Integration
Opportunities for Integrating Theory, Research, and Practice

- Collaboration among Theorists, Researchers, and Practitioners
- Creation of Laboratories for Theory, Research, and Practice
- Creation of Theory-Based Learning and Assessment Resources
- Modification of Refereed Journal Editorial Policy
- Dissemination of Information Necessary for Integration
Communities of Practice: Key Characteristics

• Shared domain of interest

• Engagement in joint activities, information exchange, and mutual support

• Shared practice in terms of experiences, tools, and approaches to problem solving (Wenger-Trayner & Wenger-Trayner, 2015)
Creation of Laboratories for Theory, Research, and Practice

• Beginning with Holland’s theory, and later with CIP, FSU Career Center provided laboratory for integrating theory, research, and practice

• Faculty members involved in intervention development, research, counselor training given offices that provided easy and regular access to staff members, graduate students, and clients

• Working in same laboratory over time adds element of stability that allows for development of:
  • more collaborative relationships with service-delivery staff
  • better access to clients and archival data collected over years
Recommendations for the Future

1. Creating and Supporting Communities of Practice
2. Establishing Laboratories in Career & Counseling Centers in Academic Institutions
3. Co-Creating Theory-Based Learning & Assessment Resources
4. Reviewing Editorial Policy Regarding Integration of Theory, Research, and Practice
5. Using Websites & Social Media to Disseminate Bibliographies, Documents, and Presentations
6. Using Grant Funding to Stimulate Improved Integration of Theory, Research, and Practice
7. Explicitly Documenting Theory and Research Used In Creation of Career Resources
Thank you!

• For more information, visit:
  http://www.career.fsu.edu/Tech-Center