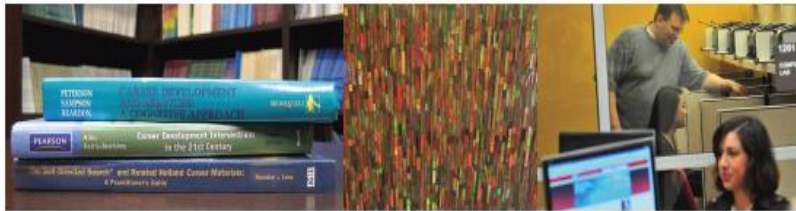


Applying Cognitive Information Processing Theory to Career Problem Solving & Decision Making

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.

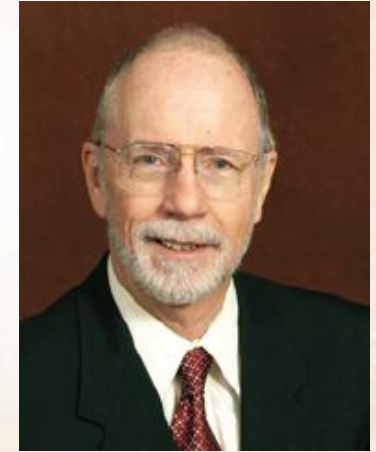


Tech Center Team



Co-Directors:

Dr. Debra Osborn Dr. Jim Sampson



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Dr. Gary
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Dr. Casey
Dozier

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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

*Lenz, J. L., Sampson, J. P., Jr., Peterson, G. W., & Reardon, R. C. (1992). Introduction, in *Instructor's manual for career development & services: A cognitive approach* (pp. 1-8). Pacific Grove, CA: Brooks/Cole Publishing.

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 (Meichenbaun)

Pyramid of Information Processing

JCL

**EXECUTIVE PROCESSING
DOMAIN**

**META-
COGNITION**

Program files

**DECISION-MAKING
SKILLS DOMAIN**

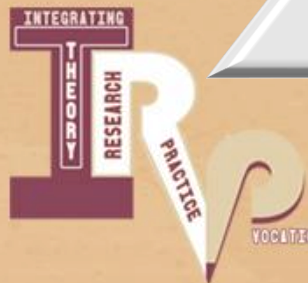
CASVE CYCLE

Data files

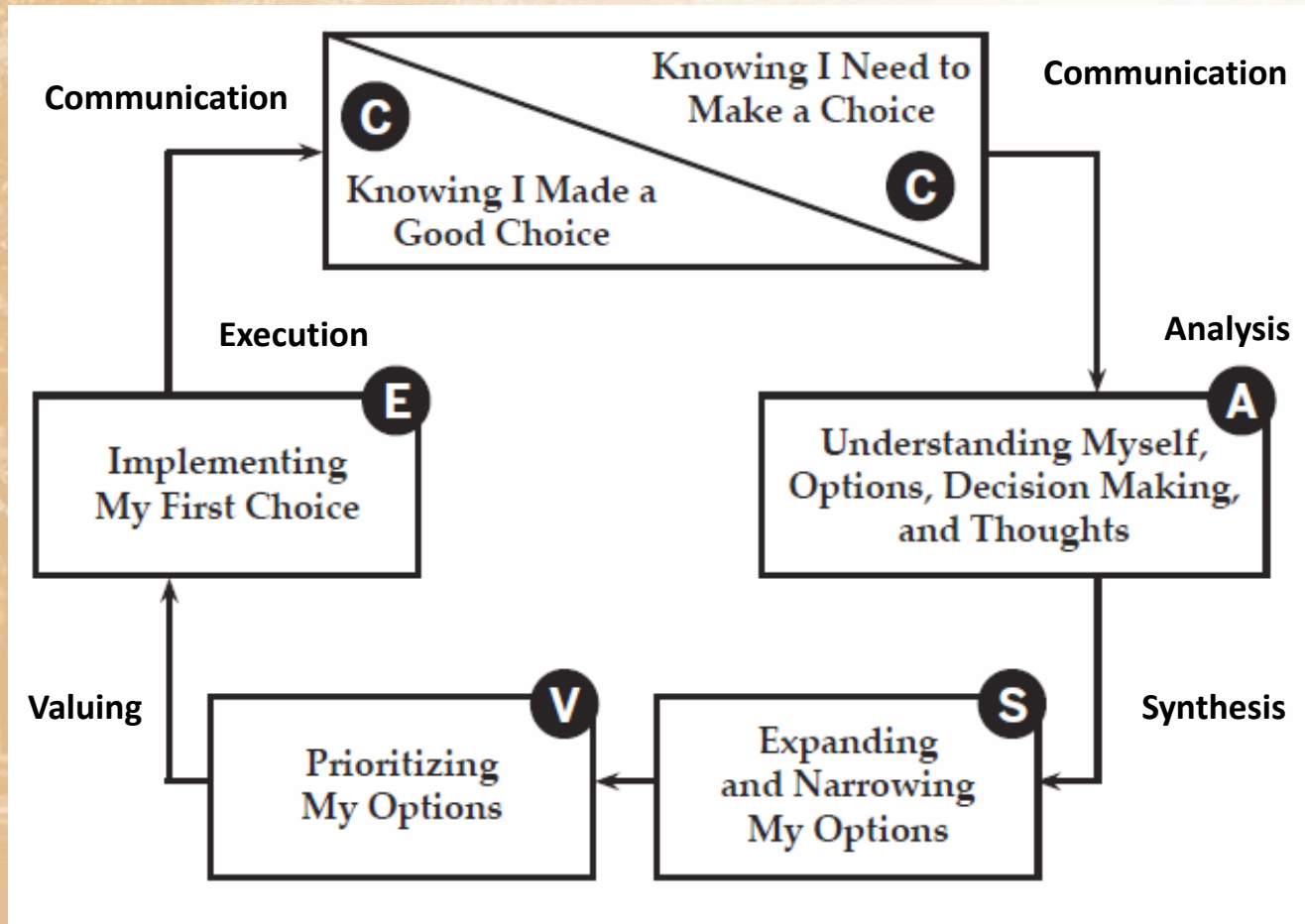
**KNOWLEDGE
DOMAIN**

**SELF-
KNOWLEDGE**

**OPTIONS
KNOWLEDGE**



CASVE Cycle: Phases of Decision Making



CIP Theory Definitions

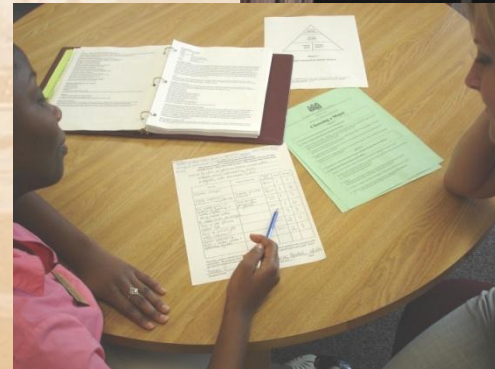
- **Career Problem:** *Gap* between existing state and desired state of decidedness
- **Career Decision Making:** Cognitive processes involved in removing the gap including a *commitment* and a *plan*
- **Career Decision State:** *Conscious awareness of self* regarding one's career goals and aspirations
- **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



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**)

T score	Raw scores				%ile
	CTI Total	DMC	CA	EC	
80	109-114	33-42	29-30	10-15	>99
79	107-108				>99
78	105-106	32	28		>99
77	103-104	31			>99
76	101-102	30	27	9	>99
75	99-100	29			99
74	97-98	28	26		99
73	95-96	28	25		99
72	93-94	27		8	99
71	90-91	26	24		98
70	88-89				98
69	86-87	25	23		97
68	84-85	24			96
67	82-83	23	22	7	96
66	80-81				95
65	78-79	22	21		93
64	76-77	21			92
63	74-75	20			90
62	72-73	19	19	6	88
61	69-71	18			86
60	67-69	18			84
59	65-66	17	17	5	82
58	63-64	16			79
57	61-62	16	16		76
56	59-60	15	15		73
55	57-58	14	15		69
54	55-56	14	15	4	66
53	53-54	13			62
52	51-52	12	14		58
51	49-50				54
50	46-48	11	13		50
49	44-45	10		3	46
48	42-43	9	12		42
47	40-41				38
46	38-39	8	11		34
45	36-37	7	10		31
44	34-35	6		2	27
43	32-33		9		24
42	30-31	5			21
41	28-29	4	8		18
40	26-27	3		1	16
39	23-25		7		14
38	21-22	2			12
37	19-20	1	6		10
36	17-18				8
35	15-16	0	5	0	7
34	13-14				5
33	11-12		4		4
32	9-10				4
31	7-8		3		3
30	5-6		2		2
29	3-4				2
28	1-2		1		1
27	0				1

Raw scores 68 20 18 1

Mental health constructs directly correlated with dysfunctional career thoughts

- indecision
- neuroticism
- anxiety
- angry hostility

- depression
- self-consciousness
- impulsivity
- vulnerability

Sampson, J. P., Jr., Peterson, G. W., Lenz, J. G., Reardon, R. C., & Saunders, D. E. (1996). *Career Thoughts Inventory: Professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Decision Space Worksheet

Decision Space Worksheet (DSW)

Name _____ Date _____

The career decision you are considering _____

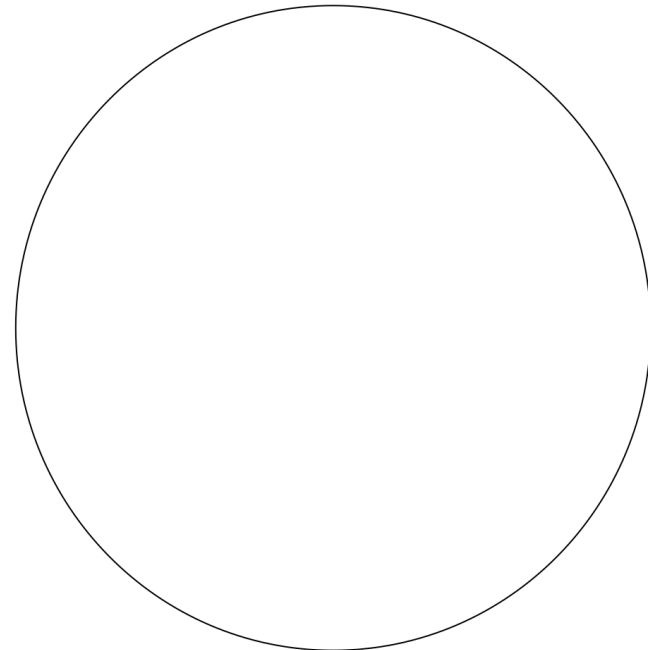
List all thoughts, feelings, circumstances, people, or events that bear on the career decision you are making. Then, for each factor indicate whether it has a specific negative, positive, or neutral impact on your decision by circling the corresponding symbol at the end of each line.

1. _____	Negative	Neutral	Positive
	--	0	+
2. _____	Negative	Neutral	Positive
	--	0	+
3. _____	Negative	Neutral	Positive
	--	0	+
4. _____	Negative	Neutral	Positive
	--	0	+
5. _____	Negative	Neutral	Positive
	--	0	+
6. _____	Negative	Neutral	Positive
	--	0	+
7. _____	Negative	Neutral	Positive
	--	0	+
8. _____	Negative	Neutral	Positive
	--	0	+
9. _____	Negative	Neutral	Positive
	--	0	+
10. _____	Negative	Neutral	Positive
	--	0	+

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.

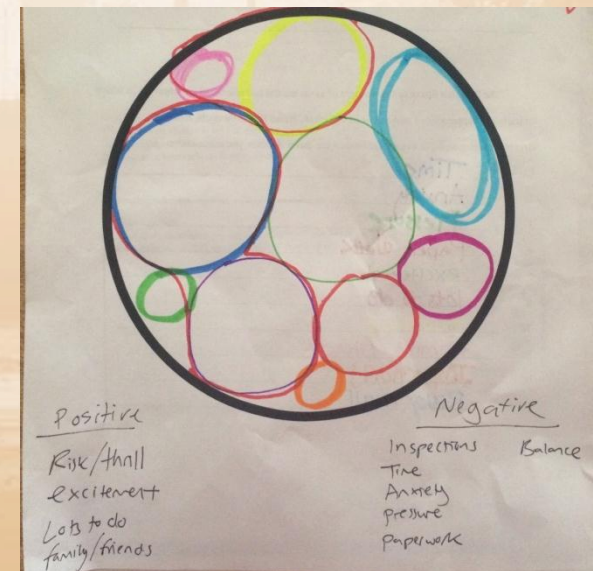
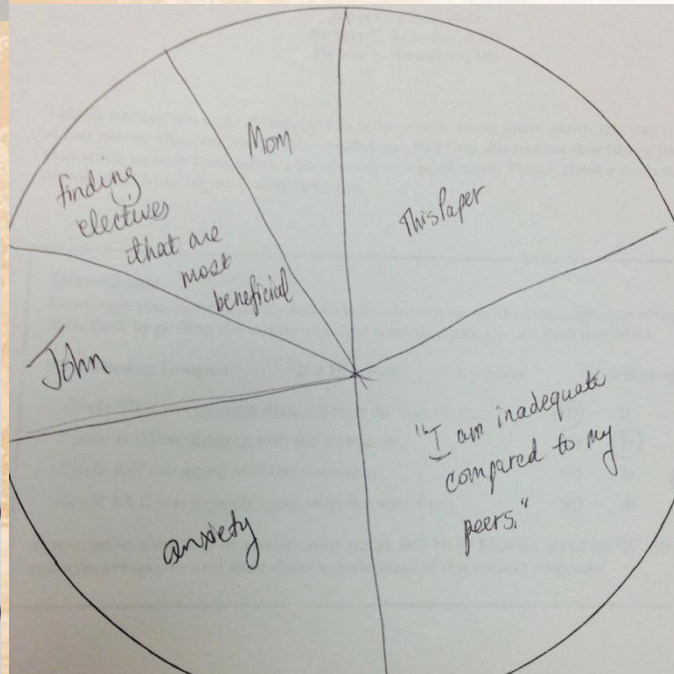
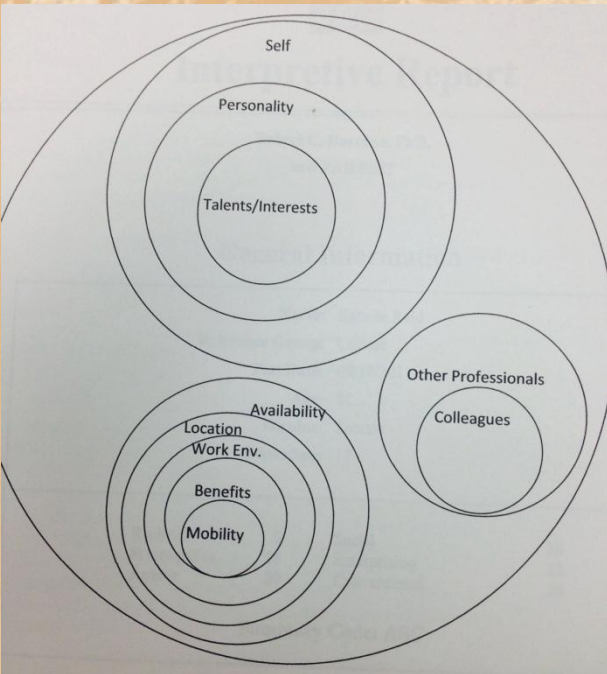
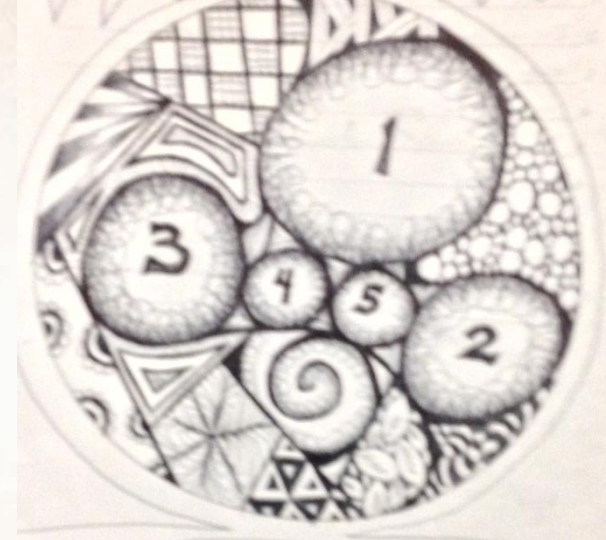
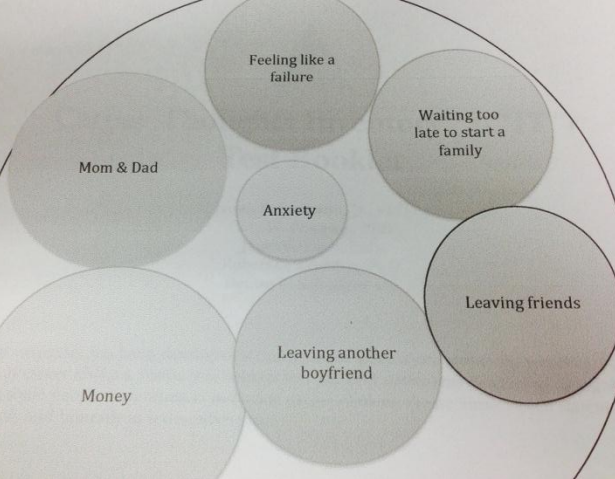


Purpose of Decision Space Worksheet (DSW)

- 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©

Stephen J. Leierer, 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



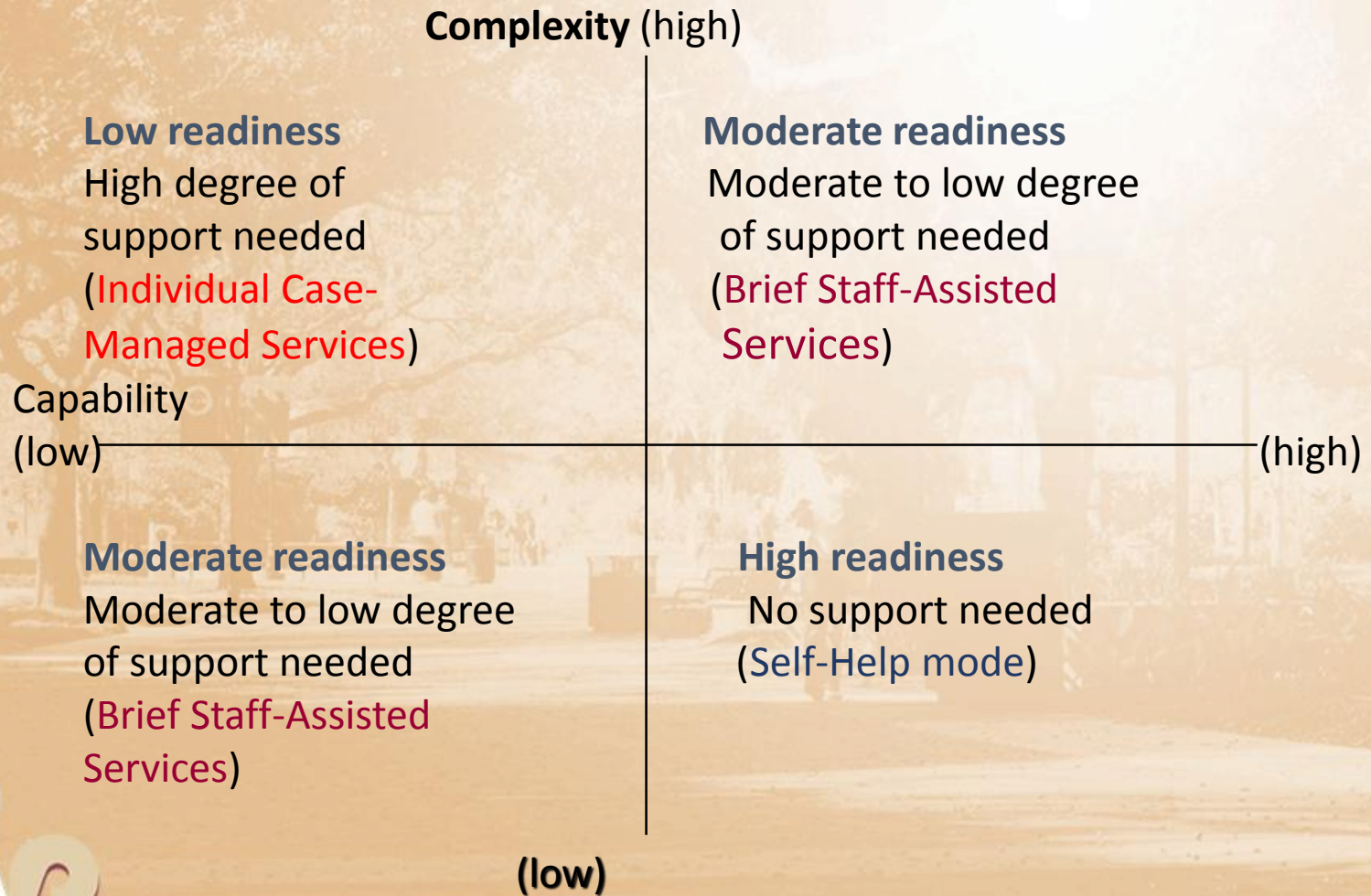
Readiness for Decision Making

- 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

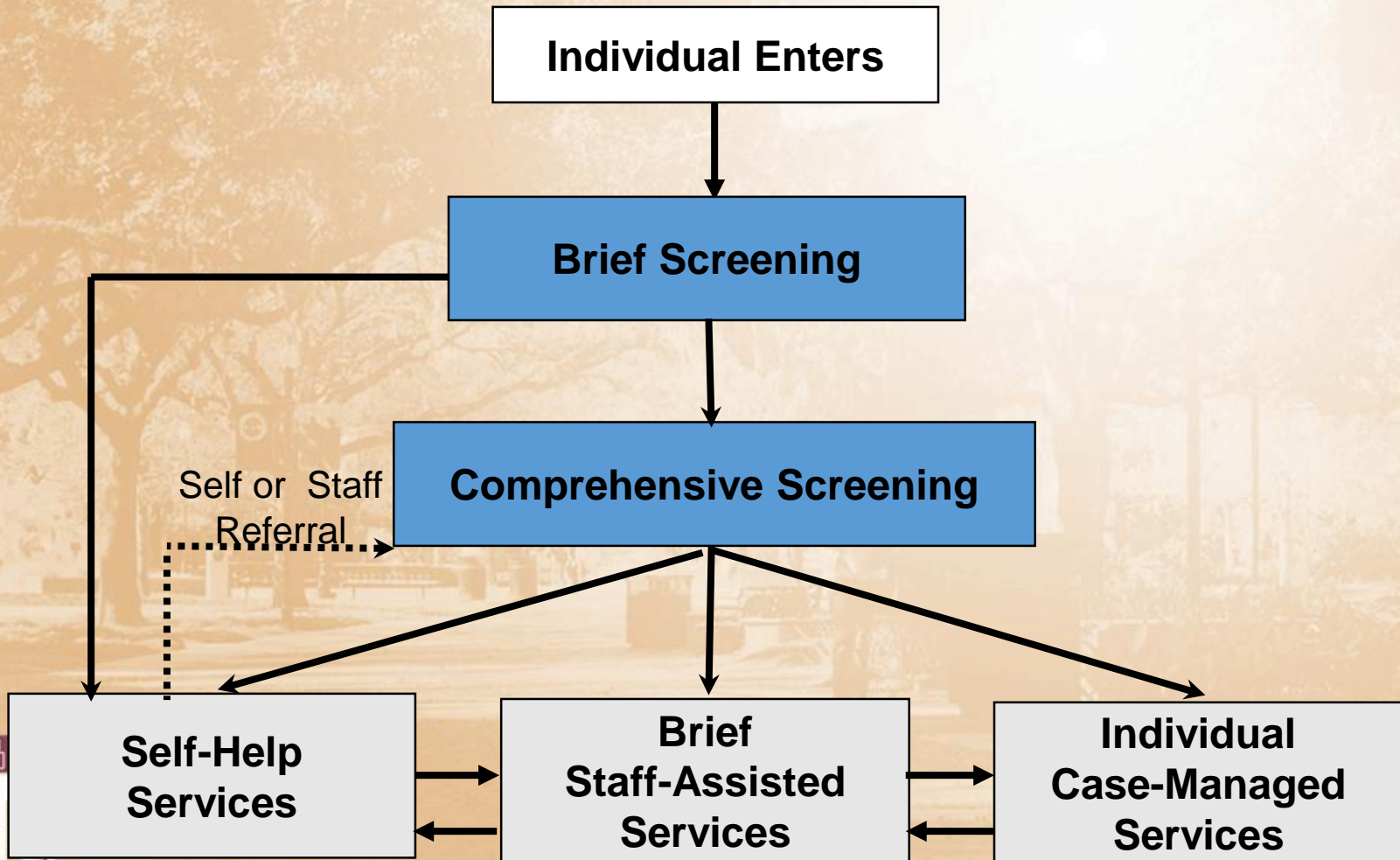
Two-Dimensional Readiness Model



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



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

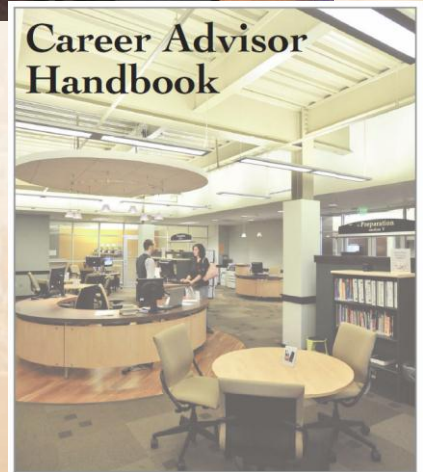


Aims of the Differentiated Service-Delivery Model

- 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



The Career Center
linking futures

Supervision

- Weekly individual supervision
- Group supervision
- Supervision documents
- Integration of theory into supervision



Supervisor Training

- Supervisor training manual
- Supervisor training checklist

SUPERVISION MANUAL

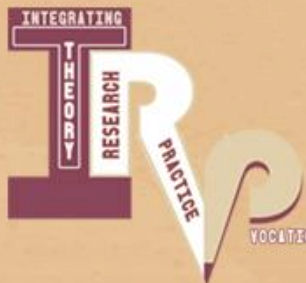


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VOCATIONAL PSYCHOLOGY

Evidence Related to Vocational Behavior and Career Interventions



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Center for the Study of Technology in Counseling and Career Development (the Tech Center)



About Us

The Tech Center was established to improve the design and use of information technology in counseling and career development, as well as to assist in improving the cost-effectiveness of career services.



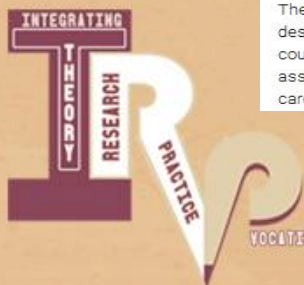
Topics

Browse Career Theory, Research, and Practice topics in addition to Information and Communication Technology topics.



Resources

Browse Bibliographies, Course Resources, Presentations, Service Delivery Handouts, Technical Reports and Training Resources.

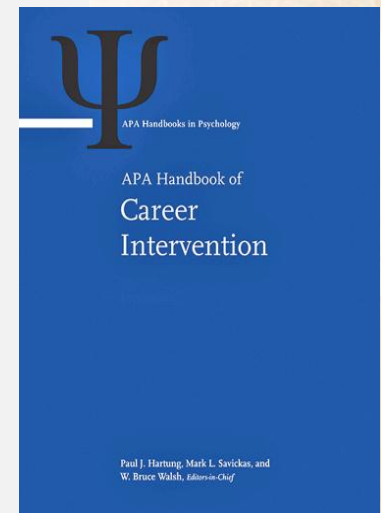


Research on CIP theory-based interventions

“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”



Brown, S. (2015). Career intervention efficacy: Making a difference in people's lives. *APA handbook of career interventions, Vol 1.*



Types of Media to Disseminate Knowledge

	1970 - 1999	2000 - 2009	2010 - 2016	TOTAL
1) Articles	24	58	56	138
2) Books, Handbooks, and Manuals	6	20	10	36
3) Book Chapters	5	14	9	28
4) Dissertations and Theses	10	30	16	56
5) Technical Reports	7	7	5	19
TOTAL WORKS	52	129	96	277

[CIP Bibliography](#)



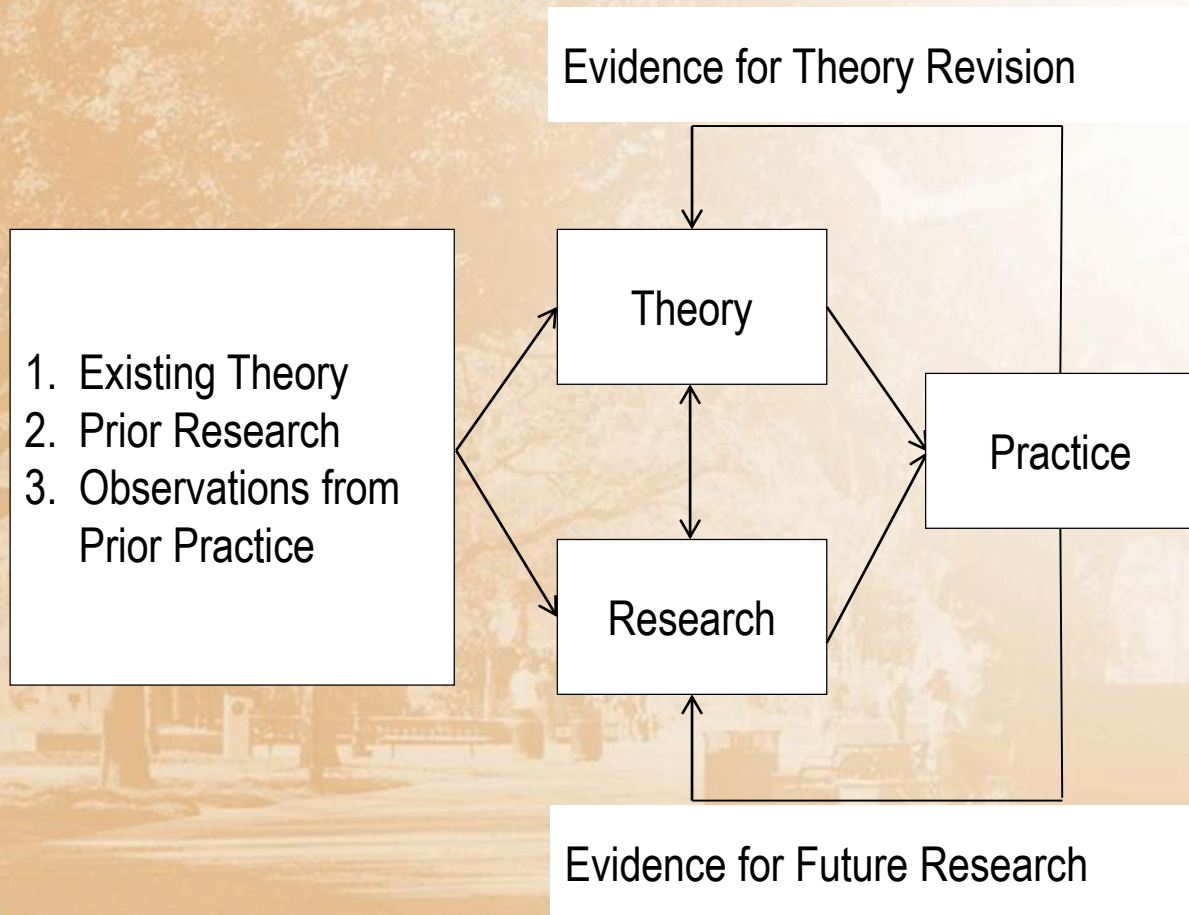
Refereed Article Dissemination

	1970 - 1999	2000 - 2009	2010 - 2016	TOTAL
1) FSU	16	24	20	60
2) National Authors	3	22	25	50
3) International Authors	0	13	9	22
TOTAL WORKS	19	59	54	132

Studies of Evidence-Based Practice

	1970 - 1999	2000 - 2009	2010 - 2016	TOTAL
1) Outcome, Pre/Post	2	14	9	25
2) Process/Application	3	14	15	32
3) Validity of Measures	11	51	39	101
TOTAL WORKS	16	79	63	158

Importance of Integrating Theory, Research, and 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>

