An Introduction to Cognitive Information Processing Theory, Research, and Practice*

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Table of Contents

Clicking on topics in the Table of Contents below will link to related headings in the document. Clicking on headings in the document will link back to this Table of Contents.

Table of Figures

Clicking on titles in the Table of Figures below will link to related figures in the document. Clicking on figure numbers in the document will link back to this Table of Figures.

Introduction

CIP theory applies general principles of cognitive information processing to making and implementing career choices. Originally known as the cognitive information processing approach to career problem solving and decision making (Peterson, Sampson, & Reardon, 1991; Sampson, Reardon, Peterson, & Lenz, 2004; & Sampson, 2008), the theory's name has evolved over time to simply "CIP theory" and includes both a theory of vocational behavior and a theory of career intervention (Sampson, 2017).

The primary purpose of this paper is to introduce essential elements of cognitive information processing (CIP) theory, research, and practice as they existed at the time of this writing. The introduction that follows describes the nature of career choices and career interventions, and the integration of theory, research, and practice. After the introduction, the paper continues with three main sections that include CIP theory related to vocational behavior, research related to vocational behavior and career intervention, and CIP theory related to career interventions. The first main section describes CIP theory, including the evolution of CIP theory, the nature of career problems, theoretical assumptions, the pyramid of information processing domains, the CASVE Cycle, and the use of the pyramid and CASVE cycle. The second main section describes CIP theory-based research in examining vocational behavior and establishing evidence-based practice for CIP theory-based career interventions. The third main section describes CIP theory related to career intervention practice, including theoretical assumptions, readiness for career decision making, readiness for career intervention, the differentiated service delivery model, and critical ingredients of career interventions. The paper concludes with regularly updated sources of information on CIP theory.

The Nature of Career Choices and Career Interventions

Career choices concerning occupations, education, training, and employment involve a series of decisions over a lifetime (Sampson, Reardon, Peterson, & Lenz, 2004) and reflect individuals' vocational behavior. The focus and sequencing of these decisions vary over time and among individuals. For example, an individual may decide to become an accountant (occupational choice), major in accounting in college (educational choice), apply for and obtain a position as an accountant in a manufacturing business (employment choice), and then complete training in international tax regulations to improve her chances for promotion and travel (training choice). Another individual may make an educational choice to major in psychology (educational choice) without a clear occupational goal in mind and then subsequently apply for and obtain a position as a marketing research analysist (occupational choice) in an on-line retail company (employment choice). Another individual may decide to work in the family's home appliance business as a home appliance installer (employment choice and occupational choice) while completing on-the-job training (training choice), followed by completing a part-time Associate degree in business management at a local community college (educational choice), leading to a subsequent position as manager of the appliance business (occupational and employment choice). For most individuals, occupational, educational, and training choices ultimately lead to paid or unpaid employment choices.

Opportunities and the resulting alternatives available to individuals vary considerably. Some persons have seemingly unlimited opportunities and have few barriers to overcome, while

others have limited opportunities and experience many personal or societal barriers to obtaining education, training, and employment. Regardless of the opportunities available, choices ultimately need to be made from among the opportunities that do exist. Time that does not involve paid employment may include time spent in family, leisure, or community activities, and these activities interact with career choices (Sampson et al., 2004). For almost all persons in our society, life entails making a series of decisions that have consequences, which in turn influence future decisions (Sampson, Osborn, & Yowell, in press).

Practitioners offer a wide range of career interventions to assist individuals in making occupational, educational, training, and employment choices. Some individuals receive individual or group-based career interventions to assist them in making decisions from public and private sector service providers. Both self-help and practitioner-supported career interventions typically involve the use of career assessments and information resources. Some of these interventions and resources are provided without cost, while others require paying a fee. Some educational institutions proactively provide career interventions to assist students in making successful transitions through career education and experiential learning programs, while also providing reactive interventions in response to student requests for career services. Employment services provide interventions in response to requests from individuals or as part of requirements to receive public assistance. Some employers proactively provide career interventions to assist employees in selecting positions, education, and training that benefits both the employer and employee. These interventions are often sought or provided at various times of transition, such as when transitioning from one educational level to another, when transitioning from education or training to employment, when transitioning from employment back to education or training, and when transitioning from one employment position to another.

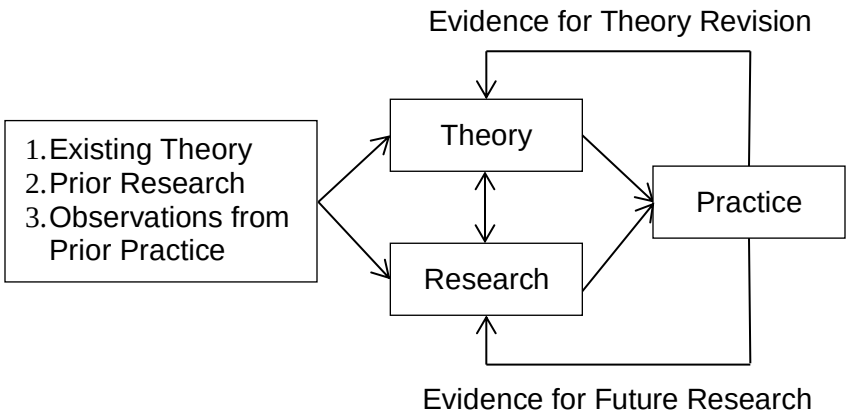
The specific type of career interventions and resources individuals receive are typically influenced by the type of career decision they are making, the type of barriers they are confronted with in making the choice, and the setting where the intervention is provided. Some individuals have more difficulty in making career decisions than others and, as a result, require more assistance from practitioners. Other individuals have less difficulty in making decisions and, as a result, receive little or no assistance from practitioners. Although the effectiveness of career interventions varies by type, setting, and individuals served, career interventions have been generally shown to be effective in helping individuals make career choices (Brown et al., 2003; Brown & Krane, 2000; Sampson, Osborn, & Yowell, in press; Whiston & James, 2012).

When persons receive assistance in making decisions, career interventions are provided by practitioners with titles that fit their training, experience, credentials, and work setting. These practitioners include psychologists, counselors, career counselors, guidance specialists, vocational rehabilitation specialists, career development facilitators, teachers/faculty/academic advisers, career coaches, career advisors, librarians, human resource specialists, and social workers. Persons receiving assistance with a career decision may be referred to as clients, students/advisees, customers, patrons, and employees depending on where they receive career services (Sampson, 2008). In this paper, we refer to persons delivering career interventions as “practitioners,” while persons receiving career interventions are referred to as “clients” when they receive practitioner support and “individuals” if they use a self-help intervention.

The Integration of Theory, Research, and Practice

The development and application of CIP theory is grounded in the integration of theory, research, and practice. Our understanding of individuals' vocational behavior and the efficacy of career interventions benefit from the integration of theory, research, and practice (Sampson et al., 2014). Theory, research, and practice interact in several ways. Theory guides research by suggesting research questions, by offering a basis for creating measures, and by providing a basis for interpreting results (Sampson et al., 2014). Theory guides practice by offering a basis for conceptualizing individuals' concerns, by creating interventions for specific needs, and by providing a foundation for creating assessment, information, and instructional resources. Research supports the revision of current theory and enhances practice by providing an evidence base for determining what works best for which individual needs. In turn, practice contributes to theory revision and the creation of future research questions (Sampson, 2017). Over time, CIP theory has evolved, as depicted in Figure 1. While CIP theory's original conceptualization (Peterson, Sampson, & Reardon, 1991) was based on existing theory, prior research, and observations from practice, subsequent presentations of the theory were based on ongoing research and practice, as discussed in the following section on CIP theory's evolution.

Figure 1
Integrating Theory, Research, and Practice



Adapted from "Annual review: A content analysis of career development theory, research, and practice - 2013," by J. P. Sampson, P. C. Hou, J. Kronholz, C. Dozier, M. C. McClain, M. Buzzetta, E. Pawley, T. Finklea, G. W. Peterson, J. G. Lenz, R. C. Reardon, D. S. Osborn, S. C. W. Hayden, G. P. Colvin, and E. L. Kennelly, 2014, *The Career Development Quarterly*, *62*(4), p. 295. https://doi.org/10.1002/j.2161-0045.2014.00085.x. Copyright 2014 by the National Career Development Association. Adapted with permission.

CIP Theory Related to Vocational Behavior

We define the study of vocational behavior as the examination of individual cognition, affect, and action, which combine with family, social, economic, and organizational factors, to influence the occupational, educational, training, employment, and leisure choices of individuals over a lifetime. This section on CIP theory related to vocational behavior begins with the evolution of the theory and continues with the nature of career problems, theoretical assumptions

about career problem solving and decision making, the pyramid of information processing domains, the CASVE cycle, and the use of the pyramid and the CASVE cycle.

Evolution of CIP Theory

Since its inception in 1989 (Peterson et al., 1991), CIP theory has been used to guide career interventions and promote understanding of vocational behavior. From a CIP theory perspective, problem-solving and decision-making skills are essential for individuals making occupational, educational, training, and employment choices.

Three factors have influenced the evolution of CIP theory. First, the Florida State University (FSU) Career Center has provided a laboratory for creating theory and related career interventions, as well as providing students and local community members as research participants for numerous studies (Sampson, 2017). Second, FSU faculty, FSU students, FSU Career Center staff members, and FSU graduates have created a community of practice for CIP theory. This CIP community of practice is based upon: (a) shared interests; (b) joint activities, exchange of information, and mutual support; and (c) shared practice in experiences, tools, and problem solving (Wenger-Trayner & Wenger-Trayner, 2015). Third, CIP theory has benefited from the inclusion of other theory, such as RIASEC theory (Holland, 1997) to promote understanding of vocational behavior and the creation of career interventions (Reardon & Lenz, 2015), theoretical elements from cognitive therapy (Beck, Emery, & Greenberg, 1985) to support the development of the Career Thoughts Inventory (CTI) and CTI Workbook (Sampson, Peterson, Lenz, Reardon, & Saunders, 1998), and a theory of learning and instruction (Gagné, 1985) to support the design of leaning resources used in career interventions.

Although the term “CIP theory” has over time come to identify this perspective, the theory is most accurately described as the application of cognitive information processing theory to career problem solving and decision making (Peterson et al., 1991). Cognitive information processing theory was chosen as a foundation because information processing is key to human learning, and learning is essential in the understanding of self and options required to make occupational, educational, training, and employment choices. Core elements of information processing theory that are included in CIP-based career interventions include: (a) how persons use schemata (knowledge structures) to organize, add to, and revise knowledge they have about themselves and their options; (b) the rational and intuitive processes persons apply to use what they know to arrive at a decision, and (c) the metacognitive processes persons use to manage problem solving (Peterson et al., 1991; Sampson et al., 2004). A CIP-based career intervention should help persons improve the quantity and validity of their knowledge, as well as better understand how and when to use their knowledge to arrive at informed and careful choices.

The Nature of Career Problems

In CIP theory, a problem to be solved is understood as a gap between an existing and desired state of affairs, or between where you are and where you want to be (Sampson et al., 2004). An example could be an overworked and underpaid single parent who is seeking a better paying job with fewer hours to spend more time with their children. Problems are not necessarily bad, as when a person is are offered a promotion at work, and they need to decide if the extra salary is worth the added responsibilities. The aim of a CIP theory-based career intervention is to assist individuals in solving an immediate career problem while also better preparing them to

solve inevitable future career problems by enhancing their understanding of problem solving and decision-making (Sampson et al., 2004). Career choices are ultimately expressed as behaviors as individuals typically must decide each day to show up for class, training, or work. While it is true that some individuals have favorable life circumstances that allow them multiple options to choose from, and others with unfavorable life circumstances may have minimal options to choose from, a decision is still unavoidable. When unplanned events, such as pandemics or natural disasters occur, choices may be extremely limited for all persons. Choosing not to decide (and therefore not take action) is still a decision. Even if limited options are available, learning to become a better career problem solver in making the choice at hand better prepares individuals for a future where more and/or superior options are hopefully available.

Theoretical Assumptions about Career Problem Solving and Decision Making

The career problem solving and decision-making features of CIP theory are based on the following four theoretical assumptions (Peterson et al., 1991; Sampson et al., 2004):

(1) Career choices engage our emotions (affect), thoughts (cognition), and actions (behavior). Despite the term *cognitive* being used in the name of this theory, cognition, affect, and behavior are viewed as inseparable in career choice.
(2) Effective career choices involve both knowledge (the content of choice or what we need to know) and a process for thinking about the knowledge we have gained (the process of choice or what we need to do).
(3) Knowledge of ourselves and the world we live in is constantly evolving and interacting. As we learn from life experience, we organize our knowledge in more complex ways. Career resources and services can help us think about and organize our knowledge, assisting us in sorting through the large amount of information available, and then using the most relevant information in making choices.
(4) Career problem solving and decision making are skills, and similar to any other skill, learning and practice can improve our ability to make choices. Career resources and services can be used to help us learn about and practice the information processing skills needed to become more effective at making career choices.

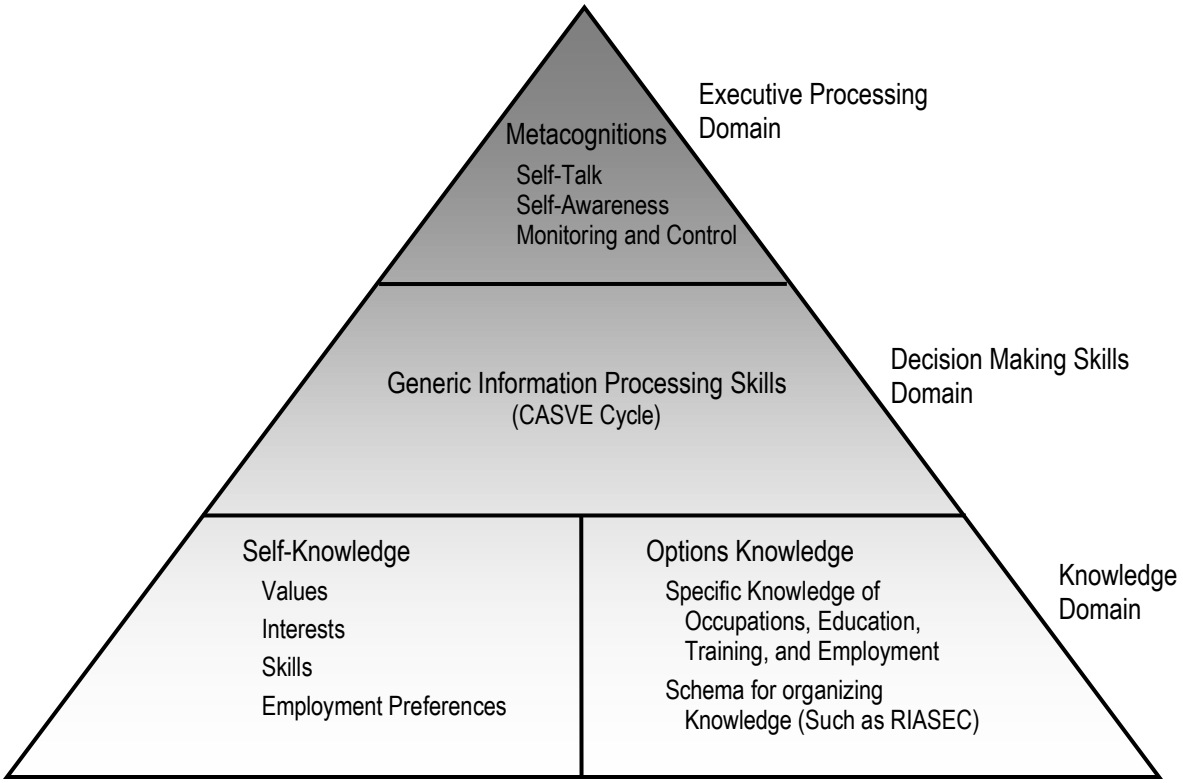
Pyramid of Information Processing Domains

The practitioner version of the pyramid of information processing domains depicted in Figure 2 is concerned with the *content* of career choice. The pyramid is comprised of three domains: (1) self and options knowledge, (2) decision-making skills, and (3) executive processing. The knowledge domain is concerned with self-knowledge, including values (motivates individuals to work), interests (activities or behaviors individuals enjoy), skills (activities or behaviors individuals perform well), and employment preferences (aspects of work individuals want, or want to avoid, such as travel or shift work), as well as options knowledge, including knowledge of specific options (occupations, education, training, and employment) and a schema for organizing this knowledge (such as Holland's RIASEC model , 1997). Knowledge of self is stored in episodic memory and consists of perceptions of past events rather than verifiable facts, and as such, can vary as perceptions of past events change and current emotions change. Knowledge of options are stored in semantic memory and consist of verifiable facts as opposed to personal perceptions, and as such are less susceptible to perceptions of past events and current emotions (Peterson et al., 1991; Sampson et al., 2004).

The decision-making skills domain is concerned with generic information processing skills used in problem solving and decision making, which are evident in the typical strategies that individuals use in making important choices. Examples of typical decision-making strategies include rational, intuitional, dependent, and avoidant. The CASVE cycle, described in the following section, is one example of a rational approach to decision making (Kahneman, 2011). While both rational and intuitive decision-making strategies can be effective (Pretz, 2008; Sampson et al., 2004) and used in career interventions, it is important that adequate information is obtained by individuals and carefully considered. Dependent and avoidant decision-making strategies do not lend themselves to informed and careful choices (Sampson et al., 2013).

The executive processing domain is concerned with metacognitive functions including self-talk (silent observations by individuals regarding their progress in decision making that can be perceived as positive or negative), self-awareness (the extent to which individuals are aware of themselves as decision makers, including the potential impact of self-talk), and monitoring and control (the extent to which individuals are able to monitor their progress in decision making and control the impact of negative self-talk). Domains higher up in the pyramid can have a positive or negative impact on lower domains (Peterson et al., 1991; Sampson et al., 2004). For example, negative self-talk can lead to more dependent or avoidant decision-making strategies, as well as negative self-perceptions of interests and skills and poor motivation to extend the effort necessary to gain options knowledge. Dependent or avoidant decision-making strategies can lead to a lack of engagement in considering self and options knowledge. Negative self-talk in the executive processing domain can contribute to anxiety and depression in individuals that creates subsequent problems in career decision making. An individual's lack of perceived progress in decision making can also contribute to anxiety and depression.

Figure 2
Practitioner Version of the Pyramid of Information Processing Domains



Adapted from *Career development and services: A cognitive approach* (p. 28), by G. W. Peterson, J. P. Sampson, and R. C. Reardon, Copyright 1991 by Brooks/Cole. Adapted with permission.

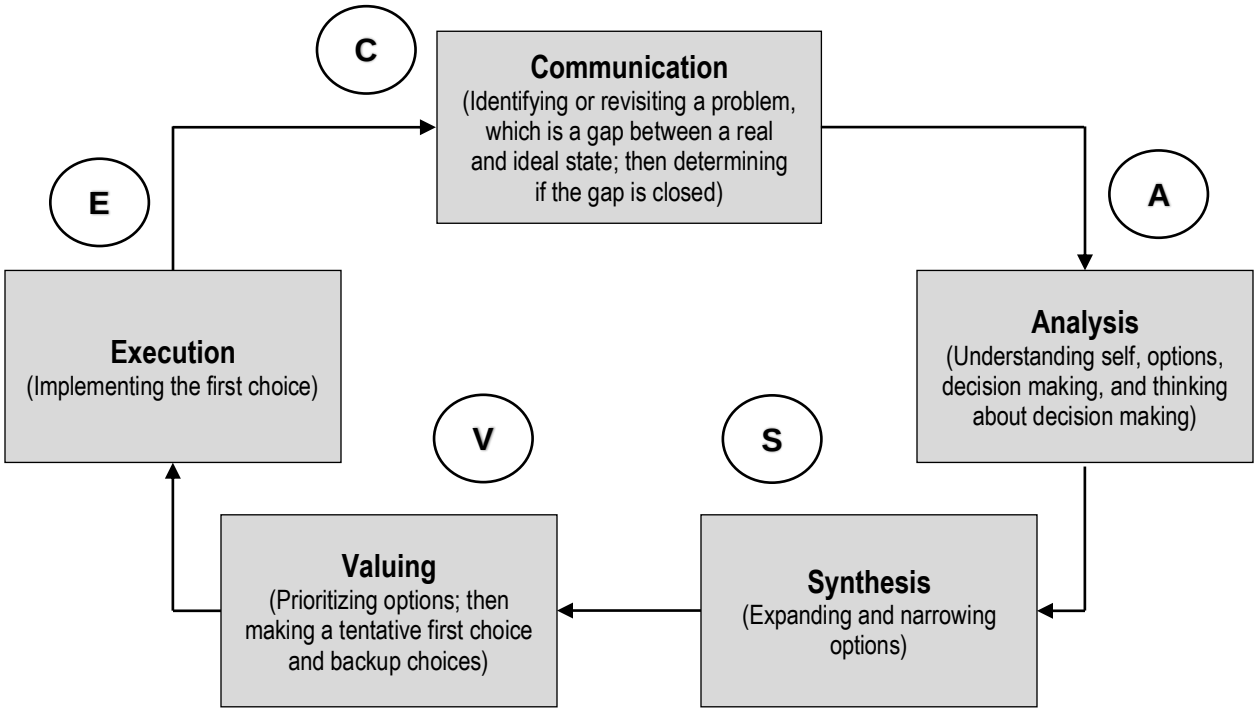
CASVE Cycle

The practitioner version of the CASVE cycle, depicted in Figure 3, is concerned with the *process* of career choice. The CASVE cycle is comprised of five phases: (1) **C**ommunication, (2) **A**nalysis, (3) **S**ynthesis, (4) **V**aluing, and (5) **E**xecution, followed by a return to the communication phase. Each phase builds upon the phase which preceded it. The *communication* phase is concerned with identifying that a gap exists between an existing and desired state as a result of external cues (events or input from significant others) or internal cues (negative emotions, avoidance behavior, or physiological changes). Significant others include persons, such as family, friends, and adults, with the capacity to influence individuals' cognition, affect, and behavior. The *analysis* phase is concerned with a recursive clarification and enhancement of individuals' understanding of the elements of the pyramid of information processing domains using career assessments and information (such as relating self-knowledge with options knowledge to better understand themselves in relation to the alternatives they are considering) with periods of time for reflection that lead to more complex mental models of self and options. The *synthesis* phase is concerned with using career assessments and information to expand the options individuals are considering by using divergent thinking (elaboration) and then eliminating options that are inappropriate with their knowledge of self by using convergent

thinking (crystallization), with the goal of avoiding missing alternatives while not becoming overwhelmed with options. The *valuing* phase is concerned with individuals' evaluating the costs and benefits of three to five options to themselves, as well as significant others, their cultural group, community, and/or society, leading to a prioritization of options and an identification of tentative primary and secondary choices. The *execution* phase is concerned with creating and committing to a plan of action to implement a first choice that may include a preparation program if needed, followed by reality testing if time and resources are available, and then seeking paid or unpaid employment (including volunteer work or carework). Returning to the communication phase involves determining if the gap between the original existing and desired state has been resolved (Peterson et al., 1991; Sampson et al., 2004).

Individuals may progress through the cycle once or multiple times. Repeating the cycle may occur as a result of (a) having difficulty in completing a later phase because persons need to repeat a prior phase, such as lacking adequate information in the valuing phase which necessitates a return to the analysis phase; (b) subsequently deciding that a particular choice is inappropriate because a gap still exists; (c) the need to make a new decision that follows on from implementing a choice, such as deciding where to live after accepting a job offer; (d) changes in external events or personal circumstances, such as commitment to a new relationship or health problems; (e) chance factors that may eliminate options or make new options available that require new analysis, such as a new source of funding that makes additional educational opportunities possible; or (f) having not identified or explored all the personal, social, and affective elements of the career problem in the communication phase, thus rendering a first choice inconclusive (Peterson et al., 1991; Sampson et al., 2004).

Figure 3
Practitioner Version of the CASVE Cycle



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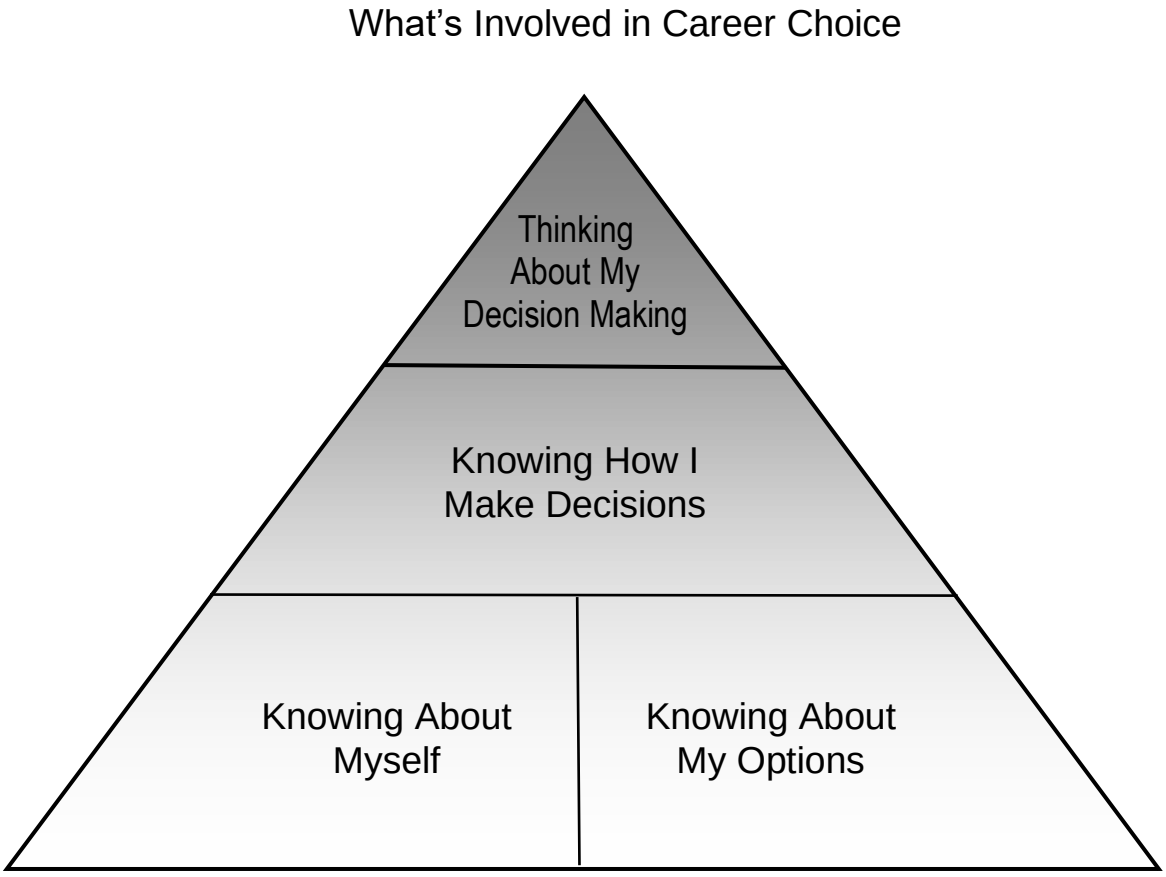
Use of the Pyramid and the CASVE Cycle

The Pyramid and the CASVE cycle are mutually used by clients and practitioners to guide both career choices and career interventions. The first, and most basic, schema presented to clients in CIP theory is, "In making a career choice, there are things you need to *know* and things you need to *do*." This simple schema is intended to provide an easy and less threatening starting point for clients who may be overwhelmed with the often complex and high stakes nature of career choices. With this higher-order schema as a foundation, clients are then introduced to the lower-order schema of the Pyramid (what clients need to know to make a career choice) with its subordinate elements, and then the CASVE cycle (what clients need to do to make a career choice) with its subordinate elements. Figures depicting client versions of the Pyramid (Figure 4) and CASVE cycle (Figure 5) are used as handouts during career interventions to organize the experience for clients, to begin the process of identifying potentially helpful career resources and services, and to monitor their progress in future sessions. These same figures are used in self-help interventions for individuals. The final schema presented to clients is that the intended result of a career intervention is an informed and careful choice which again reinforces the knowing and doing schema introduced at the beginning of the intervention.

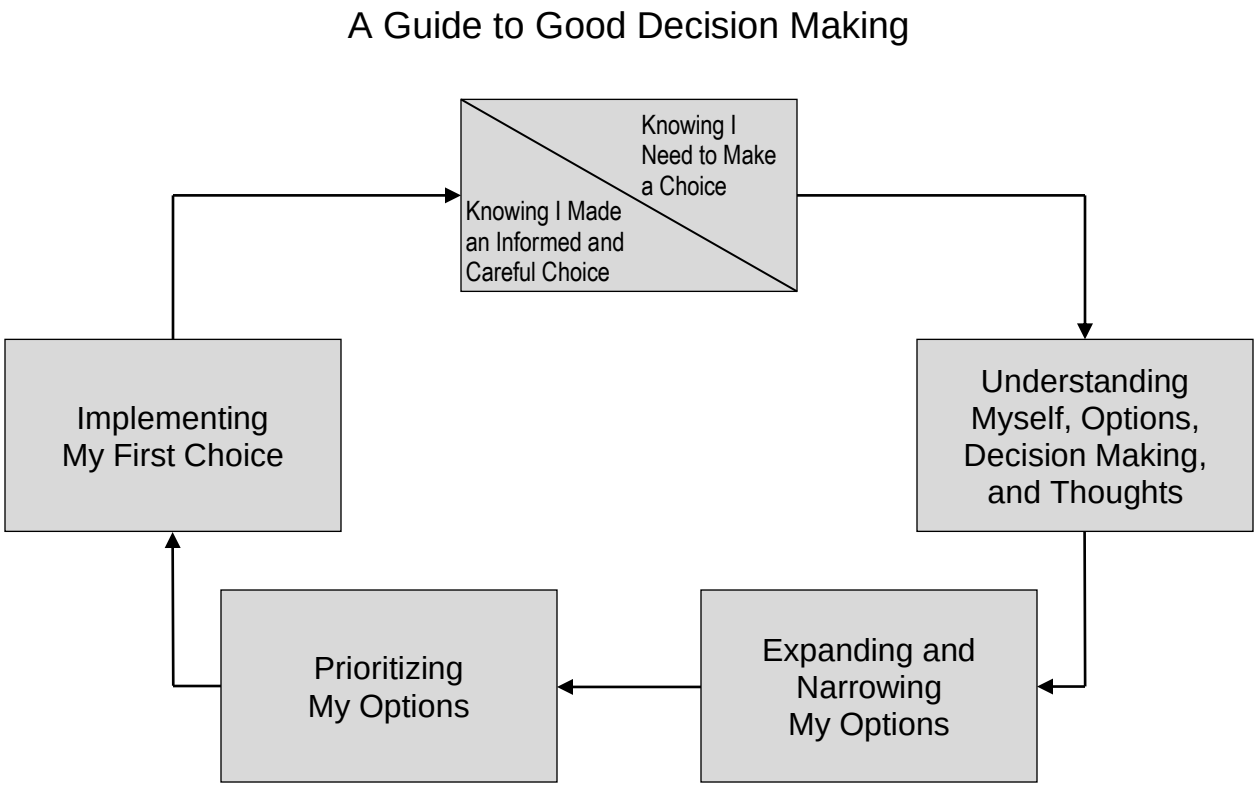
Figure 4
Client Version of the Pyramid of Information Processing Domains



What you need to *know* to make an *informed* and *careful* career choice

Adapted from "A cognitive approach to career services: Translating concepts into practice," by J. P. Sampson, G. W. Peterson, J. G. Lenz, and R. C. Reardon, 1992, *The Career Development Quarterly*, *41*(1), p. 70. https://doi.org/10.1002/j.2161-0045.1992.tb00360.x. Copyright 1992 by the National Career Development Association. Adapted with permission.

Figure 5
Client Version of the CASVE Cycle



Adapted from "A cognitive approach to career services: Translating concepts into practice," by J. P. Sampson, G. W. Peterson, J. G. Lenz, and R. C. Reardon, 1992, *The Career Development Quarterly*, *41*(1), p. 70. https://doi.org/10.1002/j.2161-0045.1992.tb00360.x. Copyright 1992 by the National Career Development Association. Adapted with permission.

Research Related to Vocational Behavior and Career Intervention

Research has shaped the evolution of CIP theory in three ways. The original formulation of the theory was influenced by the existing research in cognitive science, memory, and information processing, as shown in Figure 1. This literature is cited in Peterson et al. (1991), Peterson, Sampson, Reardon, and Lenz, (1996) and Sampson et al., (2004). Similarly, research on factors that supported and hindered career choice influenced the original formulation of the readiness for career decision-making model (Sampson, Peterson, Reardon, & Lenz, 2000). Research conducted since the original formulation of the theory has continued to influence the theory and has focused on studies related to vocational behavior and studies related to career intervention and is discussed in the following sections.

Research Related to Vocational Behavior

The availability of the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a), which measures negative thoughts related to the Pyramid and CASVE cycle, has led to a preponderance of vocational behavior studies that examine relationships among variables that make decision making more difficult. Examples of such studies include relationships among depression, dysfunctional career thinking, and career indecision (Saunders, Peterson, Sampson, & Reardon, 2000) and relationships among negative career thoughts, depression, and hopelessness (Dieringer, Lenz, Hayden, & Peterson, 2017). Other studies have provided evidence for the validity of the Pyramid (Osborn, Sides, & Brown, 2020) and the CASVE Cycle (Osborn, Sides, & Brown, 2020; Werner, 2019). A new research measure, the CASVE-CQ, will support additional research on the validity of the CASVE cycle. Data from the Career Thoughts Inventory (Sampson et al., 1996a), the Career State Inventory (CSI; Leierer, Peterson, Reardon, & Osborn, 2020), and the Decision Space Worksheet (DSW; Peterson, Leasure, Carr, & Lenz, 2010; Peterson, Lenz, & Osborn, 2016) support the two-dimensional model of readiness for career decision making. For additional research studies on vocational behavior and CIP theory, see the CIP and Research in Vocational Behavior section of the CIP Bibliography (Sampson et al., 2020). A spreadsheet is also available online that provides a summary of vocational behavior research using the Career Thoughts Inventory.

Research Related to Career Intervention

The most robust evidence-based practice for CIP theory exists for the FSU career course (Brown, 2015; Reardon & Lenz, 2018). Numerous studies have shown the efficacy of this course for various career decision-making outcomes. Evidence also exists for the efficacy of self-help interventions (Kronholz, 2015; Reardon, 2017) and brief staff-assisted interventions (Osborn, Hayden, Peterson, & Sampson, 2016). For additional research studies on evidence-based practice for CIP theory, see the CIP Theory and Evidence-Based Practice section of the CIP Bibliography (Sampson et al., 2020). A spreadsheet is also available online that provides a summary of research studies on evidence-based practice for career interventions using CIP theory.

CIP Theory Related to Career Intervention Practice

Career intervention practice involves the delivery of career resources and services designed to help individuals make informed and careful career choices (Sampson, 2008). This section begins with theoretical assumptions about career intervention and continues with readiness for career decision making, readiness to benefit from career interventions, differentiated service delivery, critical ingredients of career intervention and CIP theory, and examples of CIP theory application in practice.

Theoretical Assumptions about Career Intervention

The career intervention features of CIP theory are based on the following four theoretical assumptions (Peterson et al., 1991; Sampson & Reardon, 1998; Sampson et al., 2000, Sampson et al., 2004, Sampson, 2008; Sampson et al., 2013):

(1) The affective, cognitive, and behavioral factors that influence informed and careful career problem solving and decision making also influence the efficacy of career interventions. In particular, career interventions are more effective when they address the affective,

cognitive, and behavioral aspects of decision making and when individuals understand the goals, functioning, and potential outcomes of career interventions.

(2) Readiness for career problem solving and decision making and readiness for career intervention varies among individuals and can be measured. By matching the level of readiness (high, medium, and low) to the respective level of career intervention (self-help, brief staff-assisted, and individual case-managed), career intervention efficacy can be improved.

(3) In brief staff-assisted and individual case-managed career interventions, the efficacy of career interventions is enhanced by practitioner skills in relationship development, screening, assessment, diagnosis, goal setting, intervention planning, intervention, information, and instruction.

(4) Diversity and social justice factors that influence the effectiveness of an individual's career problem solving and decision making, also influence the effectiveness career interventions and need to be taken into account in the design and delivery of career resources and services.

Readiness for Career Decision Making

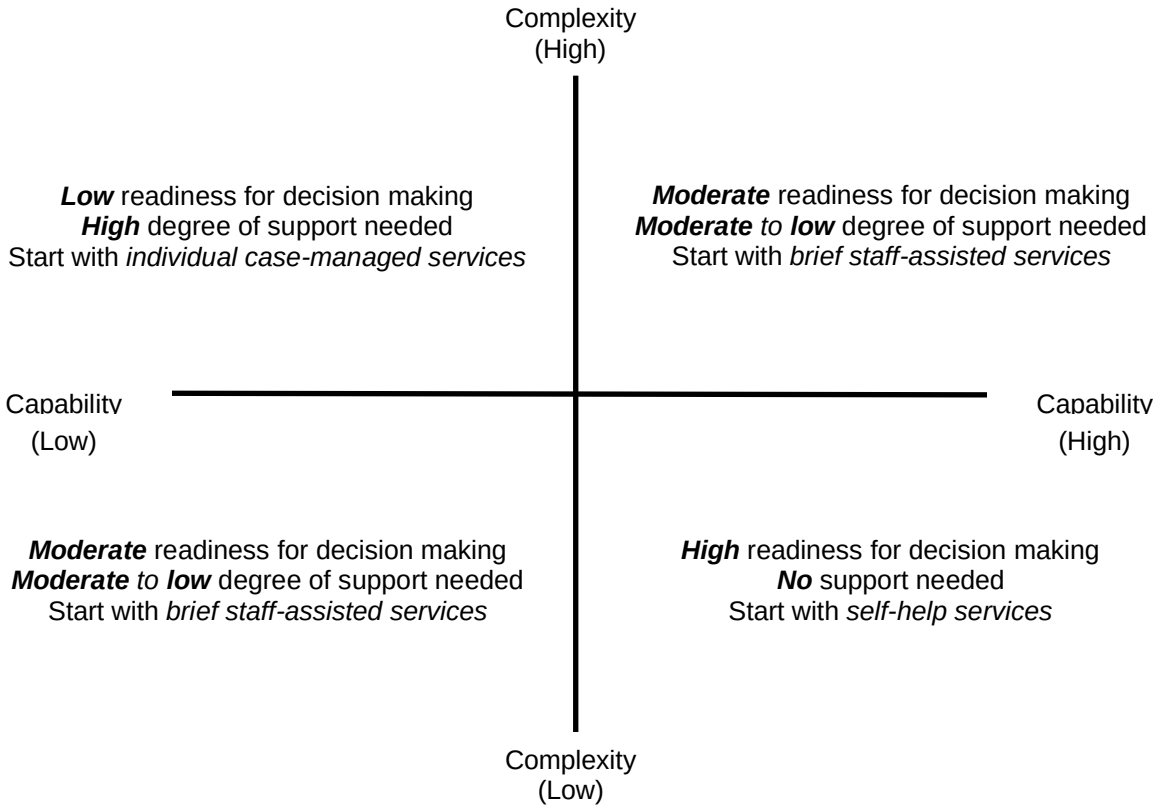
At the most basic level, readiness concerns an individual's cognitive, affective, and social state with respect to undertaking the task of solving a career problem. Specifically, readiness for career decision making reflects a person's preparation for engaging in the learning activities necessary to explore and decide among options (Sampson, McClain, Musch, & Reardon, 2013). As shown in Figure 6, readiness for career decision making concerns the capability of individuals to make informed and careful choices in light of the complexity of the family, social, economic, and organizational factors that impact their choices (Sampson, Peterson, Reardon, & Lenz, 2000). Capability concerns internal factors that make it more or less challenging to solve problems and make decisions. Specific aspects that contribute to higher capability include: (a) honesty in self-exploration, (b) motivation to explore options, (c) thinking clearly, (d) accepting responsibility for choice, (e) awareness of negative self-talk, (f) willingness to get help when needed, and (g) awareness of progress in choosing. Individuals with a high level of capability can fully engage all aspects of the Pyramid of Information Processing Domains, while individuals with low capability need support to engage in the learning necessary to explore and choose among options.

Complexity concerns external factors that make it more or less challenging to solve problems and make decisions, including family, society, economic, and organizational (for employed persons). For example, the family can provide encouragement (positive) or provide dysfunctional input (negative); society can provide mentoring opportunities (positive) or provide discrimination (negative), (c) the economy can provide adequate financial resources (positive) or inadequate resources due to poor labor market conditions (negative), and (d) organizations (when persons are employed) can provide support for employee career development (positive) or can fail to support employee career development (negative). Sampson et al. (2004) provided additional examples for these factors. External factors can be conceptualized as providing supports that make choice easier or barriers that can make career choice more difficult or unobtainable. As the influence of negative factors increases, the complexity of choice typically increases. The complexity of career choice further increases as families, society, the economy,

and organizations attempt to cope with the high levels of stress and disruption associated with events such as pandemics, natural disasters, social unrest, and armed conflict.

As a construct, readiness for career choice is not static and can improve over time with increases in capability and decreases in complexity (Sampson et al., 2000). From a CIP perspective, one outcome of a career intervention is improved readiness for career choice. Readiness for career decision making can also be measured. Examples of specific readiness constructs include career maturity, career decidedness, vocational identity, career decision-making difficulties, career decision state, and negative career thoughts (Sampson et al., 2013). Sampson, et al., (2015) identified forty-eight measures that can be used in readiness assessment. Several specific readiness constructs have been shown to correlate with anxiety and depression (Osborn, Belle, Gonzalez, & McCain, 2016) providing evidence of the link between career and mental health concerns. In relation to diagnostic taxonomies, individuals with low readiness for career decision making are more likely to be categorized as indecisive or chronically undecided. "The two ultimate consequences of low readiness for career decision making include making a poor choice when an absolute time limit is reached (often selecting by default the only option that remains) and failing to select a good occupational, educational/ training or employment option when it was available" (Sampson et al., 2013, p. 105).

Figure 6
A Two-Dimensional Model of Decision-Making Readiness for Selecting Initial Career Interventions



Adapted from "Using readiness assessment to improve career services: A cognitive information processing approach," by J. P. Sampson, G. W. Peterson, R. C. Reardon, and J. G. Lenz, 2000, *The Career Development Quarterly*, *49*(2), p. 161. https://doi.org/10.1002/j.2161-0045.2000.tb00556.x. Copyright 2000 by the National Career Development Association. Adapted with permission.

Readiness to Benefit from Career Interventions

Readiness to benefit from career interventions reflects a person's preparation for engaging in the learning activities necessary to successfully use assessment, information, and instructional resources in career decision making. Sampson et al. (2000) noted that potential negative consequences of low readiness for career choice include inadequate engagement in career interventions and compromised use of assessments and information due to negative self-talk. Building upon the Sampson et al. (2000) readiness for career choice model, Sampson et al. (2013) identified variables that potentially contribute to low readiness to benefit from career interventions, including: (a) personal characteristics (acute and/or chronic negative thoughts and feelings, limited verbal aptitude, limited language proficiency, and limited computer literacy); (b) personal circumstances (acute or chronic external barriers related to disabling family, social, economic, or organizational variables); (c) limited knowledge of self, options and decision making (limited life experience, limited inclination to reflect on self-knowledge gained from life

experience, limited knowledge of occupations, educational providers, or employers, and limited knowledge about the decision-making process); and (d) prior experience with career interventions (limited prior experience with career resources, inappropriate expectations about career choice and career services, and negative prior experience with career interventions). Potential negative consequences of low readiness for career interventions include premature disengagement, negative perception of skills, negative perception of interests, selective acquisition of incomplete information, premature choice foreclosure, protracted exploration, dependent decision-making style, and poor evaluation of options (Sampson et al., 2013). Other negative consequences of low readiness can include persons feeling "immobile or frozen, dissatisfied, and confused" (Leierer, Peterson, Reardon, & Osborn, 2020, p. 3).

Differentiated Service Delivery Model

This section begins with the nature of career interventions and continues with complementary models for differentiated service delivery, service delivery tools, CIP diagnostic taxonomy, accountability, and social justice issues.

Nature of Career Interventions in the Differentiated Service Delivery Model

The differentiated service delivery model aims to maximize the cost-effectiveness of career interventions by optimizing the level of staff support in relation to individual needs, thus allowing a larger number of individuals to be served by the practitioners available (Sampson et al., 2004). This cost-effective approach is accomplished by relating the level of readiness for career decision making to a level of support needed as shown in Figure 6. Low readiness for career decision making (resulting from low capability and high complexity) requires the high degree of support afforded by individual case-managed services. Moderate readiness for career choice (resulting from low capability and low complexity or high capability and high complexity) requires the moderate to low degree of support afforded by brief staff-assisted services. High readiness for career choice (resulting from high capability and low complexity) typically does not require practitioner support and self-help services are appropriate. Screening prior to service delivery is essential in ensuring the cost-effectiveness of career interventions. "If screening is not completed prior to receiving career services, clients with low readiness for decision making may be underserved by staff who are unaware of their substantial need for help, and high-readiness clients may be overserved by staff who deliver costly individualized interventions when less expensive approaches would likely be as effective (Sampson et al., 2004, p. 76). Readiness assessment and various service delivery tools are essential to the differentiated service delivery model. While numerous readiness assessment measures can be used (see Sampson et al., 2015), CIP theory-based readiness for career choice measures include the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a), the Career State Inventory (CSI; Leierer et al., 2020), and the Decision Space Worksheet (DSW; Peterson et al., 2010; Peterson et al., 2016).

Career interventions using CIP theory vary considerably in terms of the amount and type of assistance provided to the client based upon readiness assessment completed in brief and comprehensive screening. Figure 7 depicts the service delivery process from initial contact in a reception area through the use of various interventions. After answering an initial brief screening question, individuals proceed to either self-help services or to more comprehensive screening that includes a diagnostic interview and varying combinations of readiness assessment measures

(i.e., CTI, CSI, and/or DSW) depending on their needs. If it then appears that clients have moderate readiness for decision making, they are offered brief staff-assisted services. Alternatively, if it appears that clients have low readiness for choice, they are offered individual case-managed services.

Potential modifications to career interventions shown in the feedback loops in Figure 7 are based on response to intervention as it becomes clear that clients are having difficulties in learning or difficulties in completing agreed-upon tasks and need more, or a different type of, assistance. Spokane and Nguyen (2016) recommended using a response to intervention (RTI) model in career interventions in a manner similar to educational and school psychology. RTI involves the following sequence: (1) provide assistance that is generally effective, (2) monitor progress, (3) provide something more or something else for individuals having difficulty, and (4) continue monitoring and make intervention changes as needed (adapted from Fuchs, Mock, Morgan, & Young, 2003).

Self-help services involve individuals guiding their own use of assessment, information, and instructional resources in a library, resource center, or on a website, where follow-up support from practitioners are available, and resources are designed for independent use. [See Reardon (2017) for additional details on the design and efficacy of self-help career services.]

Brief staff-assisted services involve practitioners guiding client use of assessment, information, and instructional resources via drop-in services, career courses with large group interaction, short-term group counseling, and workshops. For drop-in services, no appointments are required, clients take as much or as little time as they need for assistance, and clients may be served by more than one practitioner. This approach requires common and ongoing staff training, as well as teamwork (Sampson, 2008; Osborn, et al., 2016).

Individual case-managed services involve practitioners guiding clients' use of assessment, information, and instructional resources on a scheduled appointment basis via individual counseling, career courses with small-group interaction, and long-term group counseling (Sampson et al., 2004). Individual and long-term group counseling is generally reserved for clients with low readiness for choice and practitioners need to be qualified to integrate career, mental health, and family issues that may be present.

A vital practitioner role in brief and individualized interventions is to help clients select, sequence, and pace the use of career assessments and information, as well as follow-up their use of resources (Sampson, 2008) as part of monitoring response to intervention. A resource used in individual case-managed interventions to address negative self-talk, as well as anxiety and depression, is the CTI Workbook (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b), a cognitive restructuring and decision-making instructional resource. The differentiated service delivery model incorporates the recommendations of Spokane and Nguyen (2016) for inclusion of client goals and use of tailored treatment strategies.

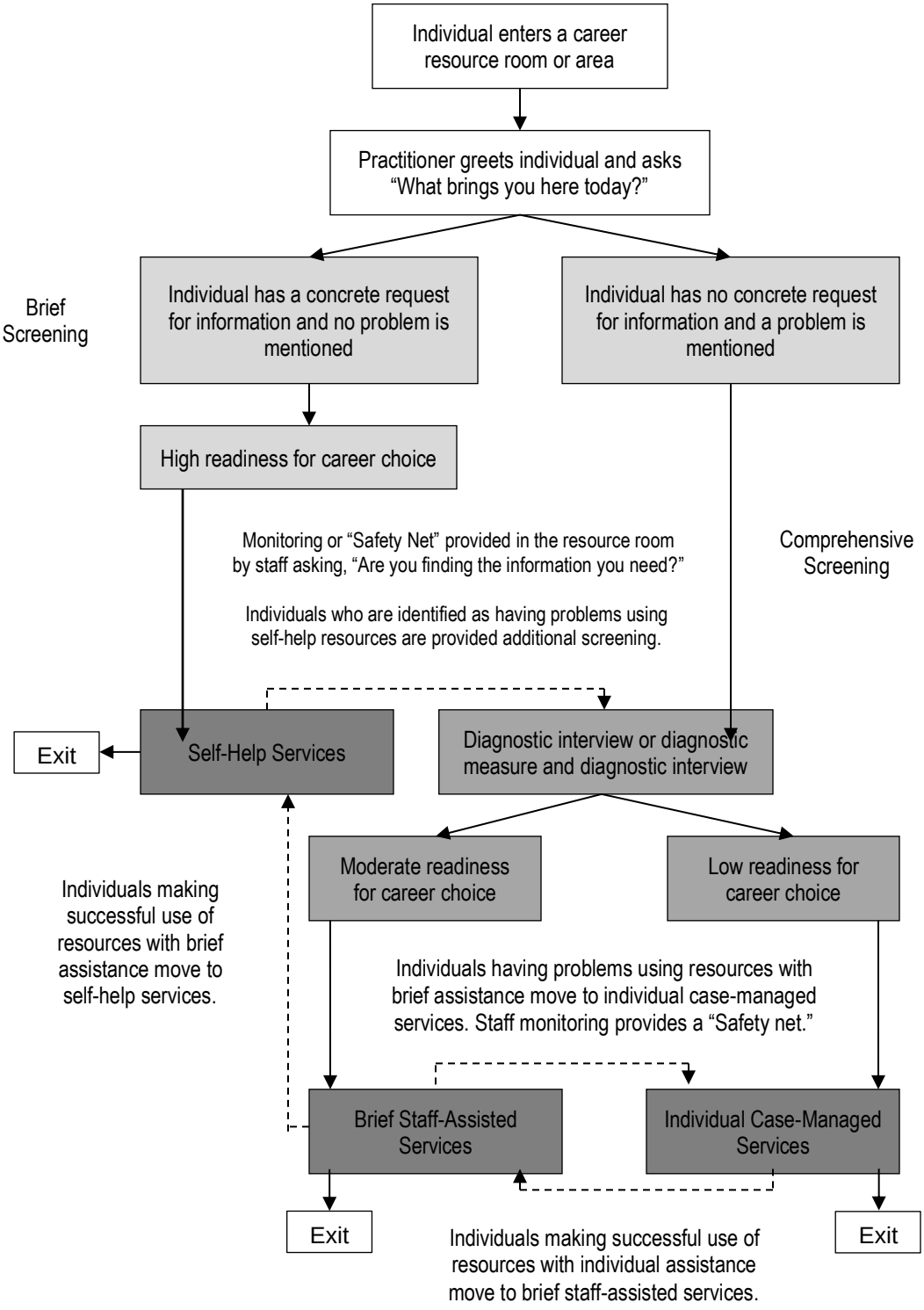
The differentiated service delivery model can be provided in a face-to-face mode, a virtual mode, or a combination of both. Self-help services can be delivered in a career center library or career resource room where face-to-face practitioner assistance is available if needed

or delivered in a virtual mode via a career center website, also with practitioner assistance available when needed. Brief staff-assisted services, such as drop-in services, are delivered in a career center library or career resource room with face-to-face practitioner support or delivered virtually via a link on the career center website with practitioner support provided using secure web-based conferencing technology with document sharing capabilities. Sessions are typically 20-30 minutes in length and provided on a first-come first served basis for both face-to-face and virtual services. Individual case-managed services, such as individual counseling, are delivered in an individual counseling office with face-to-face practitioner support or delivered virtually via a link on the career center website with practitioner support provided using secure web-based conferencing technology with document sharing capabilities. Sessions are typically 50 minutes in length and provided on a scheduled basis for both face-to-face and virtual services (Osborn, Dikel, & Sampson, 2011; Sampson, 2008).

Complementary Models for Differentiated Service Delivery

The 'RightServicing' approach developed by the IBM Cúram Research Institute (Duggan, 2013; Lee-Archer, 2012; O'Riordan & Duggan, 2014) provides an alternative differentiated service delivery model for organizations providing social, welfare, and workforce services within the public sector. The goal of 'RightServicing' is to deliver the 'right' level of public services to achieve a desired outcome where clients are neither over-served nor under-served (Toh & Sampson, 2019). This is very similar to the goal of the CIP differentiated service-delivery model, which is, "to provide the right *resource*, used by the right *person*, with the right level of *support*, at the lowest possible cost" thus avoiding overserving and underserving clients in relation to their needs (Sampson, 2008, p. 6). Another similarity between the two models is that each have three levels of service delivery, with CIP having self-help, brief staff-assisted, and individual case-managed services, and 'RightServicing' having self-managed, facilitated, and managed services. Additional similarities include: (a) placing client needs assessment early in the service delivery process; (b) allocating the duration of practitioner time spent with clients in relation to the extensiveness of client problems faced and barriers encountered, which is essential in providing the substantial time needed to address the complex needs of some clients; (c) moving between levels of service delivery as client needs change; (d) using information and communication technology (ICT) to optimize the capabilities of practitioners and technology in meeting demand for assistance; and (e) using paper-based and electronic service delivery tools to improve the accessibility of resources to clients (Toh & Sampson, 2019).

Figure 7
Service Delivery Sequence for Drop-In Career Services



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Service Delivery Tools

Service delivery tools help individuals make more effective use of career resources in relation to their needs. These tools include individual learning plans, resource guides, information handouts, websites, and distance counseling, enabling the full implementation of CIP theory in self-help, brief staff-assisted, and individual case-managed career interventions (Sampson, 2008).

Individual Learning Plans. Individual learning plans (ILPs) are collaboratively used by practitioners and clients to establish goals, identify and sequence resources and services, and monitor progress towards attaining goals (https://career.fsu.edu/sites/g/files/upcbnu746/files/Individual%20Career%20Learning%20Plan.pdf). Whiston and James (2012) noted the importance of active client participation in the counseling process and clients perceiving the counselor as a guide to the process rather than an authority figure providing answers. Use of collaboratively developed ILPs actively encourages client participation and investment in the service delivery process.

Resource Guides. Resource guides (referred to as "quick guides" or "modules" on the FSU website) identify and sequence career resources and services that are related to specific career decision-making needs (https://career.fsu.edu/resources/module-sheets). Resource guides and access to the associated information are required for self-help services using CIP theory.

Information Handouts. Information handouts (Referred to as career guides on the FSU website) provide brief and easily used sources of information that can be obtained in a career library or disseminated as document files on a website (https://career.fsu.edu/resources/career-guides).

Websites. Websites can be used to increase access to assessment, information, and instructional resources (https://career.fsu.edu/).

Service Delivery at a Distance. Service delivery at a distance can be used to increase access to practitioners (Sampson, 2008; Sampson & Osborn, 2014) (https://career.fsu.edu/info).

See Sampson (2008) for examples of these tools and information on their design and use.

CIP Diagnostic Taxonomy and the Differentiated Service Delivery Model

The CIP theory-based diagnostic taxonomy links readiness for career decision making, needs, and potential interventions. The three higher-order constructs and related subcomponents of the taxonomy include *decided* individuals (confirmation, implementation, and conflict avoidance), *undecided* individuals (deferred choice, developmental, and multipotential), and *indecisive* individuals. Decided individuals have committed to a choice and seek to confirm or implement the choice and are typically served with self-help or brief staff-assisted interventions. Decided individuals who have publicly stated a choice in order to avoid conflict with significant others are actually more similar to undecided or indecisive persons and are typically served with brief staff-assisted or individual-case managed interventions. Undecided individuals have not committed to a choice and either delay because no immediate choice is needed, or they need to

choose and have a lack of knowledge necessary for choosing. Both are typically served with self-help or brief staff-assisted interventions. Undecided individuals who are multipotential may be overwhelmed with a wide range of talents, opportunities, and expectations from significant others and need more substantial assistance. Indecisive individuals have not committed to a choice due to a lack of knowledge, and a general maladaptive approach to problem solving accompanied by a high level of anxiety and are typically served by individual case-managed services (Sampson et al., 2004).

Accountability and the Differentiated Service-Delivery Model

In a CIP theory-based service delivery model, accountability involves providing senior managers and policy makers with evidence that the funding provided for delivery career resources and services to individuals and clients has been used in a responsible and cost-effective manner (Sampson et al., 2004; Sampson, 2008). Peterson and Burke (1982) described a human service accountability model that can be applied to differentiated service delivery in the following sequential steps: (1) diagnosis, (2) prescription, (3) process, (4) outputs, and (5) outcomes. These steps are described below using examples that incorporate the differentiated service delivery model and evaluation of those services.

1. *Diagnosis* – Ensuring that an accurate diagnosis of clients' needs has occurred prior to recommending the use of specific career resources and services. Evidence of appropriate diagnoses can be provided by interviewing practitioners during staff supervision regarding their judgment about the needs of clients based upon interview data and the results of readiness assessment.
2. *Prescription* – Ensuring that recommended career resources and services fit clients' needs. Evidence of appropriate prescription can be provided by linking client goals and recommended career resources and services from individual learning plans with client needs identified in diagnosis.
3. *Process* – Ensuring that recommended career resources and services were actually provided and used by clients. (This step relates to intervention fidelity discussed later in this paper as a critical ingredient of career intervention.) Evidence of appropriate process can be provided by having practitioners verify through observation that the resources and services identified on ILPs were actually completed by clients.
4. *Outputs* – Ensuring that the career interventions delivered to individuals and clients resulted in the acquisition of skills, knowledge, and attitudes that adequately addressed needs identified in the diagnosis step. Evidence of appropriate outputs would be assessment of gains in self-knowledge, options knowledge, and problem-solving and decision-making skills, as well as strengthening of executive processing in career decision making.
5. *Outcomes* – Ensuring that the skills, knowledge, and attitudes gained from career interventions helped individuals and clients to reach the goals identified during diagnosis, as well as narrowing the gap identified in the communication phase of the CASVE cycle. Examples of evidence of appropriate outcomes would include successful completion of education or training and sustained employment, as well as increased job satisfaction, self-confidence, career decision state, self-efficacy, goal stability, and vocational identity (Sampson, 2008).

Social Justice Issues and Differentiated Service Delivery

A final goal of the differentiated model is to promote social justice in terms of persons' access to career interventions (Lenz & Osborn, 2017). The supply of career services is insufficient in meeting current demand and this is unlikely to improve anytime soon. The differentiated model serves 60 to 63 percent more clients than traditional appointment-based individual career counseling modalities (Sampson, McClain, Musch, & Reardon, 2017). Relying on appointment-based individual counseling models to deliver career interventions may create unintentional social injustice as a result of the limited number of people that can be served, especially among traditionally marginalized populations (Sampson, Dozier, & Colvin, 2011).

Critical Ingredients of Career Intervention and CIP Theory

Meta-analyses by Brown and Krane (2000) and Whiston et al. (2017) showed some overlap and differences in critical ingredients of career intervention, with differences likely caused by variation in method and studies examined. Brown and Krane found written exercises, individualized interpretations and feedback, information on the world-of-work, modeling, and attention to building support as critical ingredients. Whiston et al. (2017) found critical ingredients that included, counselor support, values clarification, psychoeducation on the steps at arriving at a career choice, workbooks, self-report inventories, counselor dialogue or individual feedback, and provision of world-of-work information. In order to reconcile these differences in meta-analytic results, and to provide a common structure for examining the potential effectiveness of CIP theory-based career interventions, the meta-analytic-based critical ingredients of career intervention have been synthesized and adapted as follows:

- *Support* - Providing support from practitioners (based on the therapeutic alliance) and encouraging support from significant others (including family, teachers, advisors, and mentors).
- *Assessment* – Practitioner provision of individualized interpretation of self-report assessments, including values clarification.
- *Information* - Provision of career information.
- *Psychoeducation* - Psychoeducation on the steps involved in arriving at a career choice and feedback on client career plans and decision-making strategies.
- *Writing* – Completion of workbooks and written exercises.
- *Modeling* - Modeling of career development in terms of how various individuals make choices and how individuals identify, obtain, and use career assessments and information.

Additional evidence of the relevance of support, assessment, information, psychoeducation, writing, and modeling in career interventions is reflected in: (a) numerous career development and learning theories, and (b) consensus expert judgment contained in professional standards for practitioner competencies and professional standards for accreditation of practitioner preparation programs.

We have also added two additional ingredients of successful career intervention based on the literature:

- *Dosage* – the amount of treatment necessary to produce a positive outcome (Whiston & James, 2012).
- *Intervention fidelity* – the extent to which a career intervention provided in multiple settings is delivered as designed (Spokane & Nguyen, 2016).

In the following sections, the eight critical ingredients of career intervention are linked to elements of CIP theory, research, and practice.

Support

In CIP theory the therapeutic alliance is a key aspect of providing effective support to the client. Mutual establishment of client goals, collaborating on strategies to reach the goals, and developing a bond with the client (Bordin, 1979) are included in initial and continuing CIP theory-based practitioner training. Communication and relationship development skills are essential in establishing goals, collaborating on strategies, and developing a bond. The ILP is used to facilitate the therapeutic alliance for individual case-managed and brief staff-assisted services through collaboration on client goals and the resources needed to achieve those goals. Since the development of a therapeutic alliance may be more difficult for clients with more career decision-making difficulties (Whiston, Rossier, & Baron, 2016), a larger number of counseling sessions are allocated in individual case managed services. Having clients work with multiple practitioners over a several hour period of time or working with multiple practitioners over several days or months creates some specific relationship and continuity challenges for practitioners in delivering brief staff-assisted drop-in services (Sampson, 2008). The brief nature of drop-in services requires practitioners to have particularly well-developed relationship skills since several hour-long counseling sessions are not available to establish the relationship. Practitioners providing drop-in services need to use similar language in describing goals and resources on the ILP to provide continuity and avoid client confusion that might compromise the therapeutic alliance. Whiston, Rossier, and Baron (2016) recommended frequent revising of goals to maximize the therapeutic alliance. We contend that adding additional goals, as appropriate to the client situation, also enhances the therapeutic alliance. In self-help services, the goal setting and resource selection aspect of the therapeutic alliance is carried out via resource guides. In terms of client support from significant others, the Decision Space Worksheet, the External Conflict scale of the Career Thoughts Inventory, the Career Thoughts Inventory Workbook, and career course content focus on positive and negative aspects of interaction with significant others, including strategies for garnering support. Even if none of the above resources are used, the ILP can be used to identify key support persons which may include family, teachers, advisors, and mentors.

Assessment

When career assessments are used to promote insight (self-knowledge) and generate potentially appropriate options (synthesis-elaboration), the amount and content of the individualized interpretation and feedback provided to clients is influenced by the level of the intervention. With individual case-managed interventions (individual counseling and career courses with small group interaction) more time is provided for discussion and the content is more likely to include the interaction of career, mental health, and family issues. With brief staff-assisted interventions, such as drop-in services or workshops, the interpretation of assessments are shorter in length and are more likely to focus on career issues with less integration of mental health and family issues. Assessments selected for self-help interventions, such as the Self-Directed Search (Holland, 1997), have been validated for self-help use and the interpretation is incorporated into the assessment materials themselves.

Information

When career information resources are used to promote learning (options knowledge), the selection and sequencing of information is collaboratively decided by the client and practitioner and recorded on the ILP in individual case-managed and brief staff-assisted services. The level of intervention influences the pacing of information use. Clients with low readiness for decision making, learning disabilities, limited literacy, poor language proficiency, or mental health problems who are receiving individual case-managed services typically need more support and a slower pace of information use to avoid being overwhelmed. Clients receiving brief staff-assisted services need less support in information use and can proceed at a faster pace. With practitioners' monitoring of response to intervention, pacing can be increased or decreased as needed. In self-help interventions, the selection, sequencing, and pacing of information use is at the discretion of the individual with support provided by resource guides (Sampson, 2008). Osborn (in press) identified ICT-based information resources related to each aspect of the Pyramid that can be used in-session or as homework.

Psychoeducation

CIP theory-based schemata identified in the previous section entitled, "Use of the Pyramid and the CASVE cycle" provides the foundation for the CIP theory-based psychoeducational interventions delivered in self-help, brief staff-assisted, and individual case-managed modes. Print and web-based instructional resources in the form of handouts, as well as the resources identified in the "writing" section that follows, are used during sessions and as homework assignments between sessions, with the ILP indicating the purpose, sequencing, and related client goals for each resource. Resource guides link resources to specific needs for individuals receiving self-help interventions. The FSU career course uses a text based on CIP theory (Reardon, Lenz, Peterson, & Sampson, 2019) and provides the most structured and comprehensive CIP-based intervention. Instructors provide extensive feedback on client career plans and strategies (Reardon & Lenz, 2018). Given the centrality of learning in cognitive information processing theory, psychoeducation is a critical ingredient in CIP-based career interventions.

Writing

Several opportunities exist for clients and individuals to complete workbooks and written exercises. The *Guide to Good Decision-Making Exercise* (https://career.fsu.edu/students/plan-your-career/guide-to-good-decision-making) allows clients and individuals to personalize elements of the CASVE cycle to provide structure in decision making (Adapted from Sampson, Peterson, Lenz, & Reardon, 1992). The *Career Thoughts Inventory Workbook* provides psychoeducation on decision making and a cognitive restructuring exercise on negative career thinking (Sampson et al., 1996b) linked to the Career Thoughts Inventory (Sampson et al, 1996a). Written assignments in the FSU career course allow students to reflect on information they have gained about themselves through career assessments and information gained on their options from various data sources and information interviews of employed persons (based on the Pyramid), as well as a creating and receiving feedback on a strategic career plan (based on the CASVE cycle) (Reardon et al., 2019).

Modeling

In CIP-based interventions, practitioners model information-seeking behavior by showing clients how to use computer indexes and signage to locate information instead of more quickly locating information for the client (Sampson, 2008). Practitioners are encouraged in training and supervision to make judicious use of self-disclosure regarding positive and negative aspects of their own career exploration when this is directly related to an aspect of clients' career exploration (Sampson et al., 2004). By using self-disclosure, the practitioner is facilitating relationship development and further contributing to the therapeutic alliance with the client. In the CIP-based career course, the small groups led by co-instructors provide opportunities for modeling where students learn from observation and discussion (Reardon & Lenz, 2018). Students who viewed a video-based model engaged in information seeking behavior increased the type and frequency of career information seeking in comparison with students in a control group (Fisher, Reardon, & Burck, 1976; McHugh, Lenz, Reardon, & Peterson, 2012).

Dosage

Since most career services in the CIP differentiated service delivery model are delivered in brief staff-assisted and self-help modes, practitioner time is available for increased dosage in individual case-managed services. Having more time available for scheduled individual counseling appointments allows more sessions to deal with more complex career problems (Sampson et., 2017). Also, since drop-in services are not appointment based, clients determine dosage in the amount of time they choose to interact with practitioners. Readiness assessment and response to intervention are crucial in determining the appropriate dosage in relation to client needs (Sampson, et al., in press).

Intervention Fidelity

As we stated earlier, intervention fidelity is the extent to which a career intervention provided in multiple settings is delivered as designed (Spokane & Nguyen, 2016). With the application of CIP theory in the FSU Career Center, intervention fidelity is primarily maintained through training and supervision. After completing an initial training experience, where new practitioners demonstrate basic competencies, most staff members attend weekly training sessions where new career resources and counseling strategies are reviewed, as well as changes in policy and procedures are discussed. While less explicit than a strict manualized treatment, CIP theory is explicit in the type and amount of service provided for various career problems. Monitoring of intervention fidelity occurs in supervision that is required of all practitioners offering services to clients in the Career Center resource room (Sampson, et al., in press).

Examples of the Application of CIP Theory in Practice

Numerous descriptions exist of the use of CIP theory in delivering career interventions to young people, adults, persons with disabilities, persons of diverse cultural, racial, and ethnic identities, academic advisees, unemployed persons, offenders transitioning from incarceration, and veterans. These CIP theory-based applications occurred in various settings, including secondary schools, higher education, government agencies, and organizations, in the United States and other countries. In addition, case studies of CIP applications are provided by Kronholz (2015), Leierer, Peterson, Reardon, & Osborn (2020), Sampson et al., (2004), and Watson, Lenz, and Melvin (2013). Osborn (2020) provides a wide variety of applications of CIP theory in an international context. Examples of the integration of CIP theory with RIASEC theory are

provided by Reardon and Lenz (2015), Hayden (2018), and Reardon and Wright (1999). For additional examples, see the CIP Bibliography sections (Sampson et al., 2020) that are devoted to CIP applications and CIP-Based Assessments.

Regularly Updated Sources of Information on CIP Theory

Another purpose of this paper is to provide links to additional information for researchers conducting studies and practitioners designing career interventions. Our goal is to update this paper at least annually as CIP theory evolves and as links change. Other sources of information on CIP theory that are annually updated include the following:

CIP Bibliography

The CIP bibliography (Sampson et al., 2020) includes citations organized into the following sections: (a) overview of CIP theory, research, and practice, (b) general principles, (c) foundations of CIP theory, (d) CIP theory and research in vocational behavior, (e) CIP theory and evidence-based practice, (f) CIP applications, (g) CIP-based assessments, (h) resources for client use, (i) reviews of CIP theory, and (j) reviews of CIP-based assessments.

Summary of Vocational Behavior Research using the Career Thoughts Inventory

A spreadsheet is available online that provides a summary of research studies using the Career Thoughts Inventory. For each publication, information is included on author, year, publication type, variables of interest or title, comparison group (or control group), measures, design/analyses, sample size, and findings. Complete references for the publications on this spreadsheet are available on the CIP Bibliography described above. A link to this spreadsheet is also provided on the CIP Bibliography.

Summary of Evidence-Based Practice Research on Career Interventions using CIP Theory

A second spreadsheet is available online that provides a summary of research studies on evidence-based practice on career interventions using CIP theory. For each publication, information is included on author(s), year, publication type, title, intervention, variables of interest, instrumentation, sample, sample demographics, design and/or analyses, and findings. Complete references for the publications on this spreadsheet are available on the CIP Bibliography described above. A link to this spreadsheet is also provided on the CIP Bibliography.

Tech Center Website

The Tech Center website includes content on CIP theory, RIASEC theory, and ICT applications in counseling and career interventions, including bibliographies, career course resources, presentations, career intervention handouts and assessments (service delivery tools), technical reports, and staff training resources.

We welcome your feedback on this theory, results of any CIP-related research that you conduct, and documentation of CIP-based career interventions that you create.

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