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CLOSING THE GAP IN CAREER SELECTION PATHWAYS: FACTORS THAT
INFLUENCE CAREER INDECISION OF HIGH SCHOOL STUDENTS IN THE US

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by

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To: Dean William Hardin
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This dissertation, written by Juan Carlos Rey and entitled Closing the Gap in Career Selection Pathways: Factors that Influence Career Indecision of High School Students in the US, having been approved in respect of style and intellectual content, is referred to you for judgement.

We have read this dissertation and recommend that it be approved.

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Florida International University, 2022

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DEDICATION

I dedicate this dissertation to my family. First, I would like to thank my parents for showing me the way to the light. Furthermore, I would like to dedicate this work to my wife for traveling with me across and out of the cave and still making the journey a blast. I would also like to dedicate this paper to my kids for making me immortal. Dad, Mom, Ivette, Carlos, and Sophia; you make life a beautiful thing. You are my reasons and my circumstances. I love you.

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ABSTRACT OF THE DISSERTATION

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by

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Based on Donald Super's Developmental Self-Concept theory, Osipow's theory of career development, Crite's career maturity theory, and Bandura's social cognitive theory; this study observes the impact of Self-Efficacy (specifically Career Decision Self-Efficacy) on Career Indecision in high school students of the United States by applying the Career Decision Self Efficacy scale (CDSE) (Taylor & Betz, 1983), and the Career Decision Scale (CDS) (Osipow, 1987) to a sample of 250 high school students. A comprehensive study of the major theories related to career development is performed as well as an analysis of relevant factors that impact career decision. When applied in educational and psychological contexts, the findings of this study provide several additions to the extensive body of research related to Career Decision Self-Efficacy and Career Indecision. Furthermore, data analysis performed sustains that Career Decision Self Efficacy scales should be taken as a whole unit and that there is a significant difference in the impact of Self-Efficacy Planning on Career Indecision in female

students over male students. Recommendations for further research as well as observations are included accordingly.

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ABBREVIATIONS AND ACRONYMS

AVE	Analysis of Variance
CDS	Career Decision Scale
CDSE	Career Decision Self Efficacy
CDSE - SF	Career Decision Self Efficacy Short Form
CI	Career Indecision
CMI	Career Maturity Inventory
CR	Composite Reliability
EFA	Exploratory factor analysis
ESEA	Elementary and Secondary Education Act
ESSA	Every Student Succeeds Act
FA	Factor Analysis
FrLunch	Free / Reduced Lunch
GoalSel	Goal Selection
IEP	Individualized Educational Plan
KMO	Kayer Mayer-Olkin
MDCPS	Miami Dade County Public Schools
Oclnf	Occupational Information
Plann	Planning
ProbS	Problem Solving
SCA	Supervising Contact Agency
SelfA	Self-Appraisal

STEAM	Science, Technology, Engineering, Arts, and Mathematics
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STEM	Science, Technology, Engineering, and Mathematics
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I. INTRODUCTION

Problem Statement

There is an alarming number of senior high school students who are disoriented when selecting their college career of choice. Furthermore, research shows that a significant number of students do not know what career path to take, are misinformed about the career opportunities available, select a career based on poor information, or choose careers that are not fit to their individual differences. Throughout this study, the author observes career choice, and offers a comprehensive study of the factors that affect career choice for high school students in the United States. Of particular importance, this study also aims to observe constructs that impact career selection indecision of high school students in the United States, specifically Career Decision Self Efficacy.

For a high school student, choosing a career path is an activity of paramount importance: Career decisions are among the most important decisions that individuals will make in their entire life (Amir & Gati, 2006; Bimrose & Mulvey, 2015; Gati et al., 2019; Krass & Hughey, 1999), and involve complex processes related to personal, environmental, and social constructs that shape the career journey and evolution of the individual (Rossier et al., 2017). Moreover, it has been established that the process of career selection affects the career satisfaction of the professional that the student will become, well-being of the individual, as well as standard of living (Kulcsár et al., 2020).

According to The National Center for Education Statistics, out of the 23,300 high schools in the United States with approximately 15.4 million students, 3.7 million will be graduating from public high school (National Center for Education Statistics, n.d.). They also state that every year, for the last school year calendars; approximately 16.7 million students enroll in undergraduate programs in the college and university systems. While in high school, mainly junior and senior high school students engage actively in the exploration, analysis, and further decision on what career to study. This decision directly impacts several industries, such as universities and colleges, test prep courses and career interventions businesses, counseling firms, and ultimately it will impact every industry in which the students will be enrolled by the time they finish their career in college (Kulcsár et al., 2020). The colleges and universities sector receives \$580.7BN every year, with \$64.5BN profit, about 2,015 businesses related to it, while providing employment to more than 3 million people -just in the United States (Le, 2021). The tutoring and test Preparation franchises provide employment to 29,402 employees and receive \$1.2BN in revenue and \$90.3M profit (Le, 2020). Job training and career counseling is another critical industry impacted by career selection, with \$16.2BN of revenue, \$420.7M profit, and 305,000 employment (Guirguis, 2021). It is precisely within this sector that businesses will benefit the most as they are in charge of developing intervention tools aimed to guide students throughout the process of selecting a career and eventually increase confidence in career selection. These interventions come in a variety of forms and content. For example, online apps that match personality

traits and other personal characteristics of the individual with careers and majors and career orientation courses.

Understanding the factors that directly impact the students' career choices will help to increase the quality of these interventions, hence impacting positively all the industries mentioned before from an economic perspective. Numerous studies have highlighted the importance of career orientation, such as (Suryadi et al., 2018), (Cooper & others, 1983), (Barrett & Tinsley, 1977), (D. Brown, 2002), among others. However, the problem persists in understanding the nature of career indecisiveness in students and measuring its levels for adequate intervention and orientation. i.e., "Career development theories provide useful ideas for understanding career indecision, but neglect of a measurement of career indecisiveness has caused confusion" (Cooper & others, 1983, p.1). Career maturity is a continuous process. Furthermore, while the concept of Self-Efficacy has been widely studied, the impact of Career Decision Self-Efficacy on Career Indecision, as revealed by previous studies, needs to be revisited, aiming to observe the reliability of the findings of such studies.

Contribution to Business

By observing the relationship between Career Decision Self Efficacy and Career Indecision for High School Students in the United States, this study contributes to the body of research related to career orientation, highlighting the importance of applying educational interventions to influence desired changes in the subscales of Career Decision Self Efficacy (CDSE): Self-Appraisal,

Occupation Information, Goal Selection, Planning, and Problem Solving while impacting Career Indecision. Several studies have observed the relationship between Career Decision Self Efficacy and Career Indecision, but in other settings, with different units of analysis, different scope, outdated, or with sample sizes compromising the validity of study findings. For example (N. E. Betz & Vuyten, 1997; P. A. Creed & Patton, 2003; Gati et al., 1996; McNeill, 1992; Taylor & Betz, 1983a). Thus, while the validities of the instruments used in this research were established several years ago and by several studies; this research contributes to observing their reliabilities.

Furthermore, by observing aspects related to career orientation of the individual and Career Orientation Self efficacy; this study (through its theoretical framework, observation of relationships between constructs, and review of current literature) covers topics of interest to industries related to the careers that students will be pursuing in college. This allows consultants, researchers, and authorities of such industries, to better prepare for economic changes, trace human resources strategies, and better prepare to satisfy market demands.

II. RESEARCH QUESTIONS

- 1- What are the factors that affect career indecision of high school students in the United States?
- 2- What are the effects of career decision self-efficacy on career indecision of high school students in the United States?

III. LITERATURE REVIEW

"Cogito, ergo sum"

R. Descartes

Problems associated with the lack of orientation of undergraduate and high school students have been documented by a large number of researchers and widely reported by counselors, school administrators, and educational researchers while describing the difficulties related to assisting students in career planning (Ireh, 1999). Furthermore, the high school period is when students make important career decisions which are accompanied by pressure caused by expectations and peer pressure, causing anxieties (Noeth et al., 1984). Young people become aware of their career opportunities and choices as they become exposed to friends and people around them, parents' occupations, role models, television programs, school programs and counseling, church and community activities, and other instances. (Krumboltz, 1994; Noeth et al., 1984). Because these exposures become broader and deeper throughout high school, it is almost impossible for students not to be overwhelmed by the many occupations and choices around them. In fact, after high school, temporary and transitional occupations are often chosen with continued adjustments throughout the life span for better career satisfaction (Noeth et al., 1984; Sharf, 1997).

The concept of career as well as the theories related to career development have changed over the years. Mulhall (2014) reunites most of the definitions of career. Of particular significance is the definition provided by Sullivan and Baruch (2009):

A career is defined as an individual's work-related and other significant experiences, both in and out of organizations, establishing a singular structure over the course of the individual's life. This term encompasses physical movement understanding of career events, possibilities, and consequences. Careers develop from numerous contextual influences and personal characteristics.

There are several types of career orientation such as the Protean Career Orientation, Boundaryless Career Concept, Next Generation of Career Concepts (Integrative Frameworks, Traditional Careers Redux, Hybrid Careers, Kaleidoscope Career Model) (S. E. Sullivan & Baruch, 2009), among others.

According to the Bureau of Labor Statistics, there are 821 occupations in the United States. Colleges and Universities reunite approximately 37 fields of degree such as agriculture, architecture, and biology, among others; and 25 Occupation groups such as education, training and library, healthcare, legal, and the like. Employment is projected to grow from 162.8 million jobs to 168.8 million jobs from 2019 to 2029 (Labor, 2021).

Career Choice and Career Development Theories

The theoretical body of research related to career development theory is rich, and it dates its origins at the beginning of the previous century. Parsons, one of the pioneers in career development theory, pointed out the main factors related to the formation of the vocation of the individual: a clear understanding of the individual and knowledge of what is needed to become successful (Parsons, 1909). Much has changed throughout the years in the field of education and society; thus, a vast number of studies and theories have evolved ever since. As Brown (2002) portrayed, table 1 shows the most prevalent and representative theories related to career choice and development.

Table 1: Summary of Theories Related to Career Choice and Development*

Theoretical Foundation	Author	Year published	Description
Psychologically Based	Parsons	1909	The importance of the active role of the individual in vocation formation. Trait and Factor Theory
Psychologically Based	Holland	1985, 1997	Trait and Factor Theory based.
Psychologically Based	Dawis and Lofquist	1984	Trait and Factor Theory based.
Psychologically Based	Carl Rogers	1942, 1951	Client-centered counseling and therapy
Psychologically Based	E.G. Williamson	1939	Theory of counseling
Psychologically Based	Ginzberg, Ginsburg, Axelrad, and Herma	1951	Career development as a life-long process.
Psychologically Based	Ginzberg	1972	Career development theory. Developmental Theory.

Psychologically Based	Donald Super	1953	Theory of Career Choice and Development
Psychologically Based	Kelley	1955	Self-Concepts and Sociological Theory
Psychologically Based	Anne Roe	1956	The Psychology of Occupations
Psychologically Based	John Holland	1959	Comprehensive trait-oriented explanation of vocational choice. Most influential model of vocational choice making
Psychologically Based	Bordin, Nachmann, and Segal	1963	Career development theory based on psychodynamic thought.
Psychologically Based	Lofquist and Dawis	1969	Work Adjustment Theory
Psychologically Based	Krumboltz	1979	Social learning theory of Career Decision Making.
Psychologically Based	Gottfredson	1981	Developmental theory of occupational aspirations

Psychologically Based	Peterson, Sampson, and Reardon	1991	Theory of career development based on cognitive theory
Psychologically Based	Lent, Brown, and Hackett	1994	Model of Career Decision Making
Psychologically Based	Brown and Crace	1986	Values based model of Career Decision Making
Sociologically Based Theories	Hollingshead	1949	Study of psychological constructs related to career choice and occupational achievement
Sociologically Based Theories	Reissman	1953	
Sociologically Based Theories	Sewell, Haller, and Strauss	1957	
Sociologically Based Theories	Musgrave	1967	Sociologically based theories of occupational choice
Sociologically Based Theories	Blau and Duncan	1967	Status attainment model

* *Brown (2012).*

Most relevant theories related to career choice, career orientation, and career development converge in several factors, all related to matching aspects of the individual's personality with specific vocations and career paths. The prevailing theories are Holland's theory of personality and vocational choices (1997), Krumboltz's social learning theory (1979), Mitchell and Krumboltz's (1990), Super's developmental theory (1990), and Dawis and Lofquist's work adjustment theory (1984). Furthermore, these theories are either based on logical positivism or social constructivism (D. Brown, 2002).

The Developmental Self-Concept Theory was originally developed by Donald Super in the 1950s, defining the self-concept idea as the set of attributes (traits) that the individual considered relevant. These traits were initially inventoried in several groups that the scientist denominated as meta-dimensions. The Developmental Self-Concept Theory is intrinsically related to Bandura's concept of Self-Efficacy as well as to the social cognitive theory. Hence, these theories altogether constituted the bases for Osipow's Theory of Career Development.

Table 2: Super's Developmental Self-Concept Theory. Life Career Stages.

Stage	Ages	Characteristics	Developmental Tasks
Growth	Birth to 14 or 15	Self-concept formation and development, abilities, attitudes, interests, and requirements, as well as a broad awareness of the work universe.	Being concerned about the future, gaining personal control over one's own life, persuading oneself to succeed in school and at work, and establishing competent work habits and attitudes.
Exploratory	15-24	Exploring through education, professional experience, activities, and the development of associated skills.	Crystallization, specification, and implementation of a career preference.
Establishment	25-44	Work experience allows for the development and stabilization of entry-level skills.	Stabilizing or securing position in the organization, consolidating position in the organization, and obtaining advancement to

			new levels of responsibility.
Maintenance	45-64	Position is improved through a continuous adjusting process.	Holding on, keeping up, and innovating.
Decline	65+	Prepare for retirement by reducing performance and production.	Deceleration, retirement planning, and retirement living.

Many studies observe college and career readiness at several educational levels, but the most significant one is Super's Developmental Self-Concept Theory, including Life career stages (table 2). For example, from a singular theoretical framework and an extensive review of relevant literature, Pulliam and Bartek (2018) defend why it is necessary to begin with the process of career orientation as early as in elementary education levels. Here, the authors mention three focus areas for early career orientation: self-knowledge, educational and occupational exploration, and career planning; through a series of best practices oriented to K-6. At this age, the student adopts personal career paths, and the process of career crystallization begins.

Vocational Self-Concept Crystallization is the degree to which one's self-perception is clear and confident concerning vocation-relevant attitudes, values, interests, needs, and talents (Barrett & Tinsley, 1977). Career crystallization

continues to increase with age. There are several developmental stages based on Donald's Super Developmental Self-Concept: Growth, Exploration, Establishment, Maintenance, and Decline. The exploration stage develops between the ages of 15 and 24 years, Where the individual learns more about vocational opportunities in the early adolescence while finding desired opportunities in early adulthood. (D. E. Super, 1980). This process typically begins while students are in high school and, as postulated by Bandura's Social Cognitive Theory (Bandura, 2009), takes place in a social context, with the person, environment, and behavior having to interact in a dynamic and interrelated manner as depicted in figure 1.

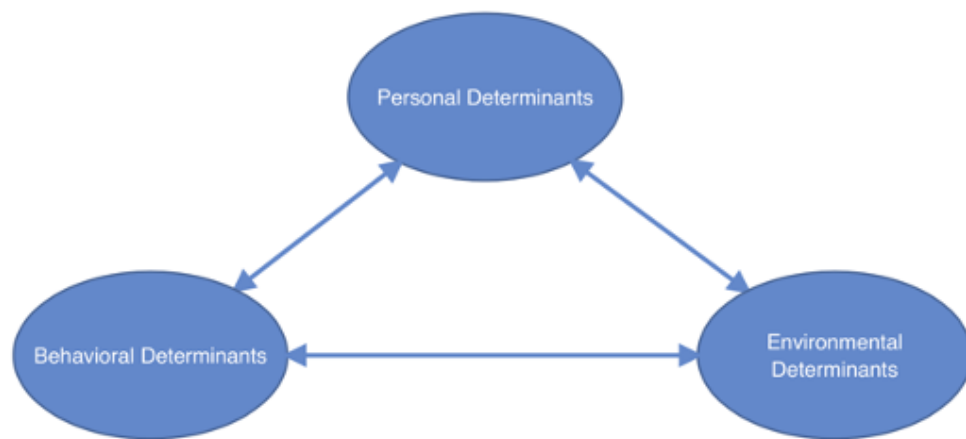


Figure 1: Schematization of triadic reciprocal causation in the causal model of social cognitive theory (Bandura, 2009).

The high school student body is multicultural and is reflective of the students' individualities. Therefore, career selection choices vary depending on these individualities. Not all students are certain about which career to pursue, as some have higher career uncertainty than others (Gutman & Schoon, 2012; Komarraju et al., 2014; Welsh & Schmitt-Wilson, 2013); and it has been documented that when subjects make career decisions, they experience uncertainty. Career uncertainty is detrimental to career development and personal growth and usually has a negative impact on psychological and physical adjustment (Daniels et al., 2011). While some students are trying to obtain their first job, others have a solid decision on what they want to study in college, and others show different shades of confidence in their decision. As the world evolves to become a complex technological and globalized one, the process of career selection also becomes a complex task.

Consequently, students make decisions about their future careers with a preconceived idea of the world based on their current realities and committing to one, sometimes, without an idea of whether they can handle the required subjects, whether they have the required talents or particular aptitudes, what the training is actually like, and whether the day-to-day work is compatible with their chosen field (Stone III & Wang, 1990). Many students take courses from various curricula areas without any idea of where such courses lead, career-wise. As a result, they graduate without adequate preparation necessary to fit into the world of work, into higher education, or into the military. Undoubtedly, such graduates contribute significantly to the gap between school and the real world of work.

Factors that Affect Career Selection

The main theories related to career orientation and development are Trait and factor theory, Ginsberg's general theory of occupational choice, Holland's personality theory of vocational choice, Roe's early determinants of vocational choice, Tiedeman's and O'Hara's model of occupational decision-making, Krumboltz's social learning theory, and conceptual framework of occupational choice. (Ireh, 1999)

Theories serve as a starting point for every new practitioner from which to create and test new ideas and practices. By correctly understanding and applying career development concepts to their career counseling activities, high school counselors may be better able to help students make informed decisions about their careers and future, particularly those about committing to careers or college majors.

A relatively recent study performed in 2018 (Akosah-Twumasi et al., 2018) reunited the most relevant factors that impact career choice as described in table 3.

Table 3: Summary of Career Choice Factors and Factor Types

Factor	Factor Type
Personal characteristics (such as skills, competencies, and abilities)	Intrinsic
Desire for Benefits	Extrinsic
Financial Rewards	Extrinsic
Social Recognition	Extrinsic
Job Security	Extrinsic
Vocational / Job Interest	Intrinsic
Personal Interest	Intrinsic
Family influence	Interpersonal
Job Accessibility	Extrinsic
Job Reputation (Prestigious Jobs)	Extrinsic
Cultural Background and Ethnicity	Extrinsic
Individual wants to do better than parents	Interpersonal
Influence of significant others (parents, teachers, siblings, etc.)	Interpersonal
Individually Motivated Achievement	Intrinsic
Job Prospect	Extrinsic
Personality Traits	Intrinsic
Opinion of Others	Intrinsic
Income	Extrinsic

Consulting with Others	Extrinsic
Desire to Please Others	Extrinsic
Willingness to Compromise	Extrinsic
Dependence on Others	Extrinsic
Procrastination	Extrinsic
Cultural Dimensions	Extrinsic
Self-Efficacy	Intrinsic
Outcome Expectations	Intrinsic
Family Support	Interpersonal
Goal Setting Orientation	Interpersonal
Motivation	Interpersonal
Social Support	Interpersonal
Career Maturity	Intrinsic
Confidence	Intrinsic
Independence	Intrinsic
Social Comparison	Interpersonal
Family Expectations	Interpersonal
Societal Expectations	Interpersonal
Locus of Control	Intrinsic
Sense of obligation to parents	Interpersonal
Perceived career congruence with parents	Interpersonal
Mastery approach	Intrinsic

Optimism	Intrinsic
Financial stability	Extrinsic
Income	Extrinsic
Job security	Extrinsic

In this study, the author groups all the factors mentioned above into three different groups: Extrinsic, Intrinsic, and Interpersonal. The extrinsic factors are those for which the individual has no control. In contrast, the intrinsic factors are embedded as personality aspects or those for which the individual has control and belongs to self. Interpersonal characteristics are those associated with the relations of the individual with other members of society. Besides offering comprehensive research showing all relevant and contemporary studies about factors that impact career selection and the role of cultural background, this study shows these studies' major findings and theoretical contributions.

Furthermore, research shows that the most relevant intrinsic factors are personal interests, Self-Efficacy, outcome expectations, and professional development opportunities. On the other hand, the most relevant Interpersonal Factors are the influence of family members, the influence of teachers and educators, peer influence, and social responsibilities. For Extrinsic Factors, the most relevant factors are financial remuneration, professional prestige, job accessibility, and job security.

This factor type classification (Intrinsic, Extrinsic, and Interpersonal) of career choice factors offered by Akosa and Twumasi (2018) has some similarities to the one offered originally by Bandura. For instance, in the schematization of triadic reciprocal causation in the causal model (Bandura, 2009), intrinsic factors (Akosa and Twumasi) are Bandura's personal determinants. Nevertheless, extrinsic and interpersonal factors oscillate between the behavioral and environmental determinants described by Bandura.

Furthermore, Krumboltz (Krumboltz et al., 1976) describes factors that influence the nature of Career Decision Making grouped into four categories: Genetic endowment and special abilities, Environmental conditions and events, Learning experiences, and Task approach skills.

Self-Efficacy and Career Decision Self-Efficacy

Career Maturity and Self-Efficacy are the main intrinsic factors that affect career selection. Albert Bandura was primarily responsible for developing Self-Efficacy as a concept. Self-Efficacy is an individual's belief about whether he or she can arrange and implement an action (or series of actions) to complete the desired result in a particular situation (Bandura, 1977, 1982; Bandura et al., 1999). This outcome substantially impacts an individual approach to aspirations, plans, and goals. (Yancey, 2019). Self-Efficacy expectations are mediators between behavior and behavior change and can be used to understand and predict behavior (N. Betz & Taylor, 2012). There are several sources of information from which Self-Efficacy can be learned and modified: performance

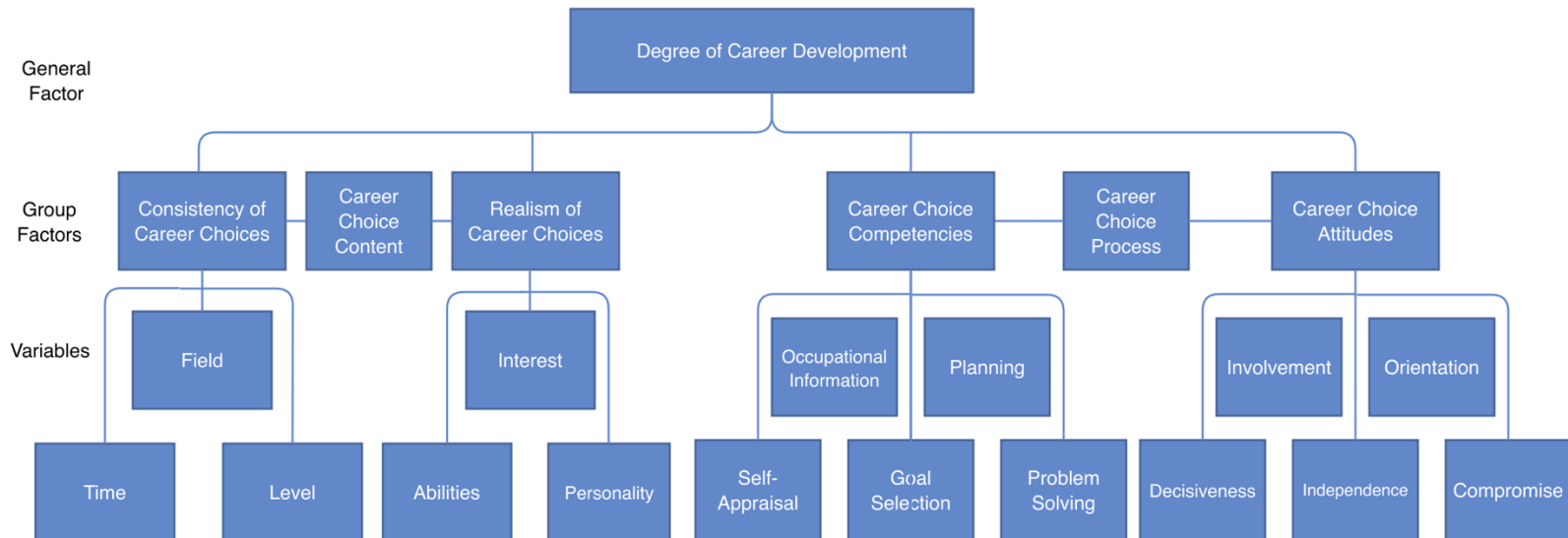
accomplishments, vicarious learning or modeling, verbal persuasion, and emotional arousal. (Bandura, 1977) as cited by (N. Betz & Taylor, 2012). Several researchers have extended the concept of Self-Efficacy to the study of career-related areas (as cited by (N. Betz & Taylor, 2012): (N. E. Betz, Harmon, et al., 1996; N. E. Betz & Hackett, 1981; Hackett et al., 1992; Hackett & Betz, 1981; Lent et al., 1984, 1986; Taylor & Betz, 1983a). The theoretical body formed by and from the Self-Efficacy theories brought consequently the basis for the career maturity model developed by John O. Crites (Crites, 1978). This model established five competencies related to career choice processes and the variability of the matureness level of the individual.

These competencies are accurate self-appraisal, gathering occupational information, goal selection, planning for the future, and problem-solving. These competencies are the basis for the Career Decision Self Efficacy model, which is part of the instrument used in this research.

For Crites, selecting an occupation is a process that occurs several times in a subject's life; however, this process attains high levels of activity in the period that spans from early adolescence to late adolescence. During this period, the young individual goes through different phases of reflection and deliberation, forming a psychological relation between personal needs and occupational reality (Crites, 1978). This influential theorist offers a comprehensive model of career maturity in adolescence (see figure 2). Based on this model, the degree of career development lies on a group of factors: Consistency of career choices, realism of career choices, career choice competencies, and career choice attitudes. These

factors are affected by several variables as follows: Consistency of career choices by field, time, and level; Realism of career choices by interests, abilities, and personality of the individual; Career choice competencies by occupational information, planning, self-appraisal, goal selection, and problem-solving; while career choice attitudes are affected by involvement, orientation, decisiveness, independence, and compromise. Furthermore, Crites' career maturity inventory (CMI) offers an attitude scale (for screening and counseling) and a competence test that is based on the career choice competencies mentioned above. It is important to note that the CMI evolves from the works of Super and other theorists.

Figure 2: Model of Career Maturity in Adolescence (Crites, 1976)



Self-Appraisal

Crites describes the Self-Appraisal construct as related to the *phrase Knowing Yourself*. This construct reflects how the individual assesses his or her capabilities related to career selection and has its origins in Parson's model of vocational counseling (Parsons, 1909). Whereas it is extended by Super when connecting the process of selecting a career with the overall self-concept of the individual (D. Super, 1957), Self-Appraisal as the rest of the subscales of Career Decision Self-Efficacy is widely present in behavioral sciences, psychology, and social science-related papers (Gianakos, 1999; Makransky et al., 2015; Niles & Sowa, 1992). Crites (Crites, 1978) defines *self-concept* as particular and personal perceptions of attitudes, interests, and personality characteristics.

From a philosophical perspective, Self-Appraisal is a collection of knowledge, feelings, and attitudes. These constitute the pillars of individual scientific, artistic, and moral systems built through logic, aesthetics, and ethics. Components of the Self-Appraisal construct are the premises to elements of the personality such as needs, interests, motivations, and the like. Psychological components of the personality determine behavioral factors.

From a psychologic standpoint, the complexity of the self lies in personal needs -physiological, safety, belonging, love, esteem, cognitive, and aesthetics (Maslow, 1943)- allowing the formation and retro alimentation of the self-actualization process for transcendence, sense-making, and learning. Regarding the association of this construct with career-related variables, contemporarily

Self-Appraisal is explained as accurate self-assessment of the individual's accuracy in making career decisions (Török et al., 2017). Career development is a lifelong process (Ginzberg et al., 1951), where Self-Appraisal is a variable that actualizes itself from various channels of communication as well as data collection from internal and external factors. Education, counseling, and participation within career-oriented intervention programs permit the enrichment of career self-appraisal (Holland, 1959; Roe, 1956; D. E. Super, 1953, 1980). Self-appraisal allows the development of other self-efficacy subscales (Planning, Goal Selection, Occupational Information, Problem Solving) (E. L. Betz, 1982; N. E. Betz, Klein, et al., 1996a; N. E. Betz & Luzzo, 1996; N. E. Betz & Voyten, 1997; Hackett & Betz, 1981; Presti et al., 2013; Taylor & Betz, 1983a).

Goal Selection

Goal Selection is about *choosing a job*, and it is related to the career maturity of the individual. According to Crites (1978), Goal Selection Self-Efficacy is a construct that combines attributes of other Career Self-Efficacy constructs. The more vocationally mature individuals go beyond understanding themselves (Self-Appraisal), inserting data and information about careers and occupations (Self-Efficacy Occupational Information), and incorporating them into a landscape of tactics and strategies (Planning), while overcoming obstacles and barriers and integrating personal traits, and external factors.

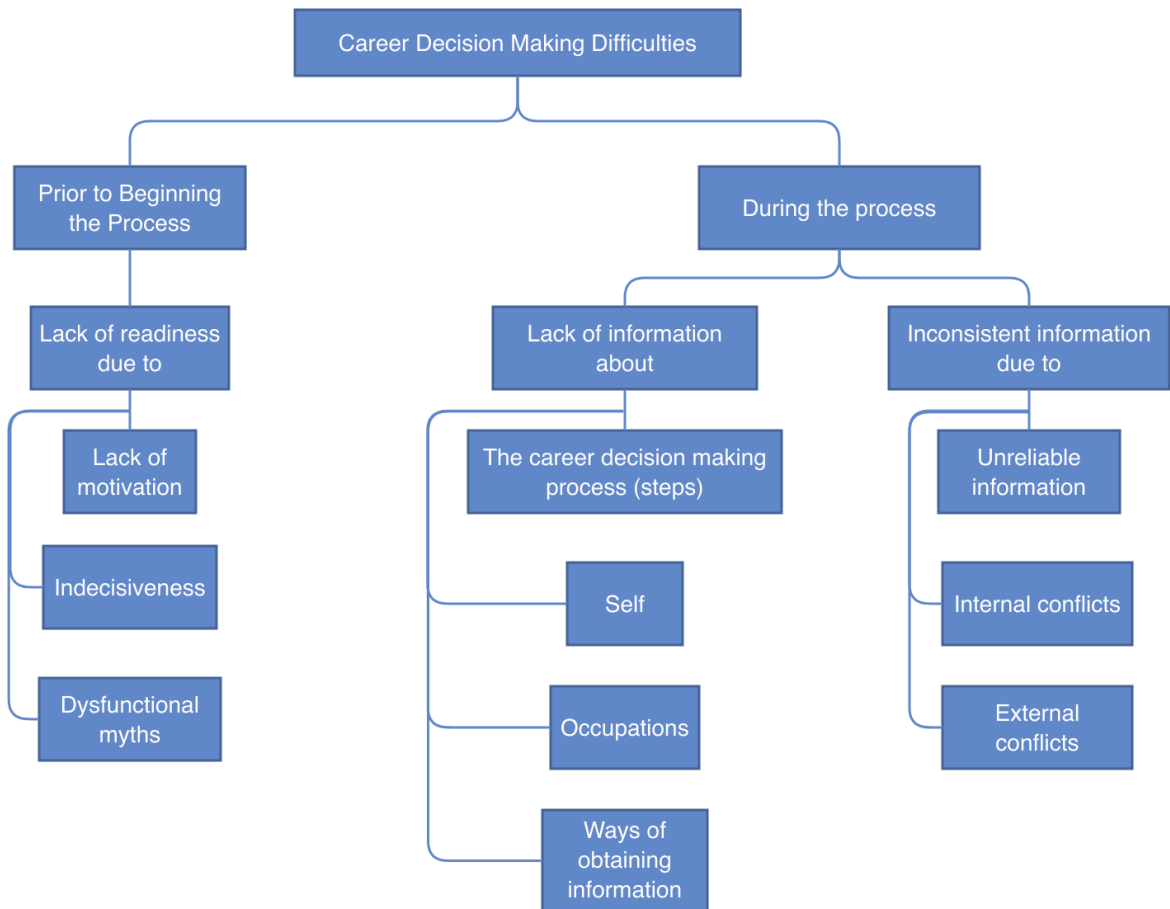
Goal Selection is the process of matching individual characteristics -such as self-assessment and personal traits- with an occupation or career. In this process, intervene needs of the individual (Maslow, 1943), motivations, aspirations, and goals. In other words, an individual with a high maturity level should be able to choose goals that are related to his or her career capabilities (Crites, 1978). The process of goal selection interacts directly with Planning and establishes a symbiosis with this construct (E. L. Betz, 1984; N. E. Betz, Harmon, et al., 1996; N. E. Betz & Hackett, 1981; Crites, 1978).

Problem Solving

Given that problems and specific barriers arise during the students' career selection process, *what they should do* when these problems or obstacles occur, defines Problem Solving. Gati, Krausz, and Osipow (1996) offered a comprehensive taxonomy of difficulties for career decision-making. These difficulties are divided into two main groups, separated by a priory process and during the process of career decision. Among prior difficulties: Lack of readiness due to lack of motivation, indecisiveness, and dysfunctional myths. Difficulties during the process of career selection: Lack of information about the process of selection (steps), lack of information about self, lack of information about occupations, lack of information about ways to obtain them, inconsistent information due to unreliable information, inconsistent information due to internal conflicts, and inconsistent information due to external conflicts. These difficulties

are summarized in figure 3. For Crites (1978), as the career maturity level increases, the subject will overcome these obstacles gradually.

Figure 3: Revised Theoretical Taxonomy of Career Decision-Making Difficulties. (Gati, Krausz, and Osipow, 1996)



Occupational Information

Knowing about jobs -as Occupational Information is presented by Crites (1978), is a central piece of competency in the process of selecting a career as it is closely related to Self-Appraisal and other subscales of Career Decision Self-Efficacy such as Goal Selection and Planning. Occupational Information has

been defined as the capacity of the individual to observe and research information related to available careers and occupations (Gianakos, 1999). This definition has been extended beyond knowledge about careers and occupations to the knowledge of labor markets, colleges, and university programs (Török et al., 2017). In terms of Crite's Career maturity inventory (Crites, 1978), Occupational Information is a construct where not only individuals build an inventory of careers and occupations available for them in the society but also explore those areas that match their personalities, interests, motivations, needs, and type of intelligence. In combination, Self-Appraisal and Occupational information provide the What in terms of personality and careers, settings the foundations for the How: Goal Selection and Planning (N. E. Betz et al., 2005a; Hackett & Betz, 1981; Presti et al., 2013; Taylor & Betz, 1983a).

Occupational information can be observed from different perspectives, such as employment opportunities and occupational roles, and is affected by other activities and variables (i.e., playing games for concept acquisition, perceptions of social class, and monetary meanings).

The inventory of available careers and occupations, as well as information related to them, vary with social characteristics such as evolution, geopolitics, and changes in institutions. The process of acquisition of occupational information involves the use of technology (Hsieh & Huang, 2014) (i.e., browsing to explore career and occupational information). There is a plethora of factors (internal and external) that affect the gathering and processing of Occupational Information, as depicted in table 3. Family provides direct and early influence on

the first pieces of occupational information (Hargrove et al., 2002; Mao et al., 2017). Educational institutions, fairs, seminars, and intervention courses are other sources for gathering occupational information (Gu et al., 2020; Spurk et al., 2015; K. R. Sullivan & Mahalik, 2000).

Planning

Crites (1978) defines *Planning* as *Looking ahead* while relating it to Career Maturity. After a career goal has been established, then it is necessary to define what is needed to reach the destination; that is the essence of Planning: combining Self-Appraisal, Occupational Information, to achieve career-oriented goals (Goal Selection) (Morasky, 1977) while overcoming obstacles (Problem Solving). For the individual, Planning is like a career map where all philosophic, psychologic, and educational elements of the persona interact. Intelligence plays an essential role in this process (Gardner, 2011; Shearer, 1997) according to the individual's career needs. As with the other Career Decision Self Efficacy scales, the process of Planning is affected by internal (self-assessment) and external factors: culture (Flores et al., 2006), gender issues (Jiang, 2014; Shin et al., 2019; K. R. Sullivan & Mahalik, 2000), geographic location (Sidiropoulou-Dimakakou et al., 2012), the influence of family (Mao et al., 2017), among others. A list of the barriers that the individual can face along the process of career selection is depicted in figure 3.

Career Indecision

Choosing a career is a lifetime decision, making a positive impact on the happiness of the individual (Sears, 1982). Several researchers have found that there is a significant positive correlation between lower self-esteem and career indecision. (P. Creed et al., 2005). On the other hand, a meta-analytic study showed that a self-concept variable -such as Bandura's career decision-making self-efficacy, among other variables, has a significant effect on Career Decision Self-Efficacy. Furthermore, self-esteem has been found to discriminate certainty of career choice (Resnick et al., 1970), vocational self-concept crystallization (Barrett & Tinsley, 1977), and career-choice anxiety (Chartrand et al., 1990)

Gati, Krausz, & Osipow (Gati et al., 1990) performed a study that offered an inventory of all the problems associated with a career decision. This inventory of difficulties was grouped as follows: Lack of readiness, lack of information, and inconsistent information. On the other hand, (Germeijs & De Boeck, 2002) offered a similar approach when describing three theoretical sources of indecision during this process: (a) lack of information, (b) valuation problems (relating to unclear goals and lack of clarity about a person's values), and (c) uncertainty about the outcomes.

Other authors have found that perceived career barriers and Career Decision Self-Efficacy are major influencers on the career decision-making process of high school students emphasizing the moderating effects of certain cultural characteristics such as race, gender, and college generational status (Pulliam et al., 2017). Nevertheless, Career Indecision is a complex construct

related to psychological variables such as anxiety, external attribution, and identity (Fuqua et al., 1988). Several studies have been done examining the relationship between trait indecisiveness, vocational uncertainty, and interpersonal characteristics, suggesting that in order to assuage career indecision, it is necessary a treatment -such as a career intervention course- given the complexity of this construct. Career Indecision is related to career decision-making self-efficacy, the concept developed originally by Bandura (Bandura et al., 1999).

Study constructs and Western Philosophy

For Career Indecision, Self-Efficacy, Career Decision, Career Decision Self-Efficacy, and Career Decision Self-Efficacy subscales (Self-Efficacy, Occupational Information, Goal Selection, Planning, and Problem Solving) are intrinsically affiliated to self-concept, the following sections are included in our study. The study of self and its relationship with the external world can be traced back to the origins of philosophy. While some of the central inquiries in philosophy are oriented to the study of inner ethos -e.g., *Who am I? Where am I going?* Others are related to studying the surrounding world -e.g., *What is the universe?* Foremost, the link between the self and the surrounding world leads to the main question: *What is my purpose in the universe?* This philosophical triad (nature-self-society) purports to answer a meta-existential question: *What will I do for the rest of my life?* Evolving to a question directly related to our study: ***What occupation will I profess?*** During the ancient period, thinkers were

initially absorbed with the composition of nature -thus called naturalists (e.g., Thales, Empedocles, Democritus). Afterward, the Sophists -concerned with the individual's place within society, paved the way for the most impactful sages of western civilization: Socrates, Plato, and Aristotle. At this point, deep reflections on the conception of happiness, soul, justice, virtuosity, beauty, wisdom, and so forth linked man with their position in the world and society. In this epoch, Plato identified parts of man: *body*, *soul* (e.g., reason, will, appetite), and *virtue* (e.g., wisdom, courage, and temperance) with the state. *The state* included what is nowadays considered occupations: laborers, rulers, painters, masons, fishers, and the like. An equilibrium of body, soul, and state will contribute to the achievement of happiness – and to what Descartes later called the immortality of the soul (Descartes, 1850); this is -in our opinion- the genesis of the career orientation discipline and studies. Linking the parts of man and occupation with happiness (Neumann, 1973) and the reminiscence of the soul (Plato et al., 1997) set the bases for the importance of reducing the innate disorientation of the individual towards a place in society -*Tabula Rasa*- (Shields & others, 2016); suggesting the genesis of theories related to occupation decision and occupation indecision.

As society evolved, new occupations surfaced. Despite the darkness and dogma of the Middle Ages, the Renaissance emerged, bringing the scientific method and the development of sciences and human-centered disciplines -i.e., Humanism. This period of rebirth of Greek and Roman philosophy matured during the Age of Enlightenment, where the mere existence of the individual was

matched to its capacity to think. When sentencing “*Cogito, ergo sum*” (“*I think; therefore I exist*”), Descartes (Descartes, 1850, p.1) clearly illustrated the Enlightenment era, opening the doors to Modern Philosophy. Here, Existentialism expanded even more with observations of man-centered theories. In addition to the relation between identity and thinking -brought to us by rationalists during the Enlightenment- modern philosophers incorporated circumstances -“*I am myself and my circumstances*”- (y Gasset, 2000), which are the nexus between self-perception and self-efficacy: Not only we are what we believe we are, but also what we believe we can do.

For some philosophers, not understanding the meaning of life -or not participating in the search for Enlightenment- leads to profound disorientation, pondering, ruminating, and despair (Camus, 1989; De Unamuno, 1977; Dostoyevsky, 2017; Kierkegaard, 2004; Nietzsche & Hollingdale, 2020; Sartre, 2015). From a philosophical perspective, self-efficacy fills the human intellect’s pristine *tabula rasa* – a clean or blank state from Latin (Hicks, 2015; Hume, 1896; Locke, 1847), and gradually crystallizes a sense of purpose through knowledge and empiricism (observation and experience). This finding allows the man to decide what role to take in society and other aspects in the form of occupations. The more you know yourself, the closer you are to finding your professional role in society.

Realization and happiness become attainable through certainty, burgeoning from personal decisions. Hence the importance of reducing states of disorientation and indecision. All self-efficacy subscales (self-appraisal,

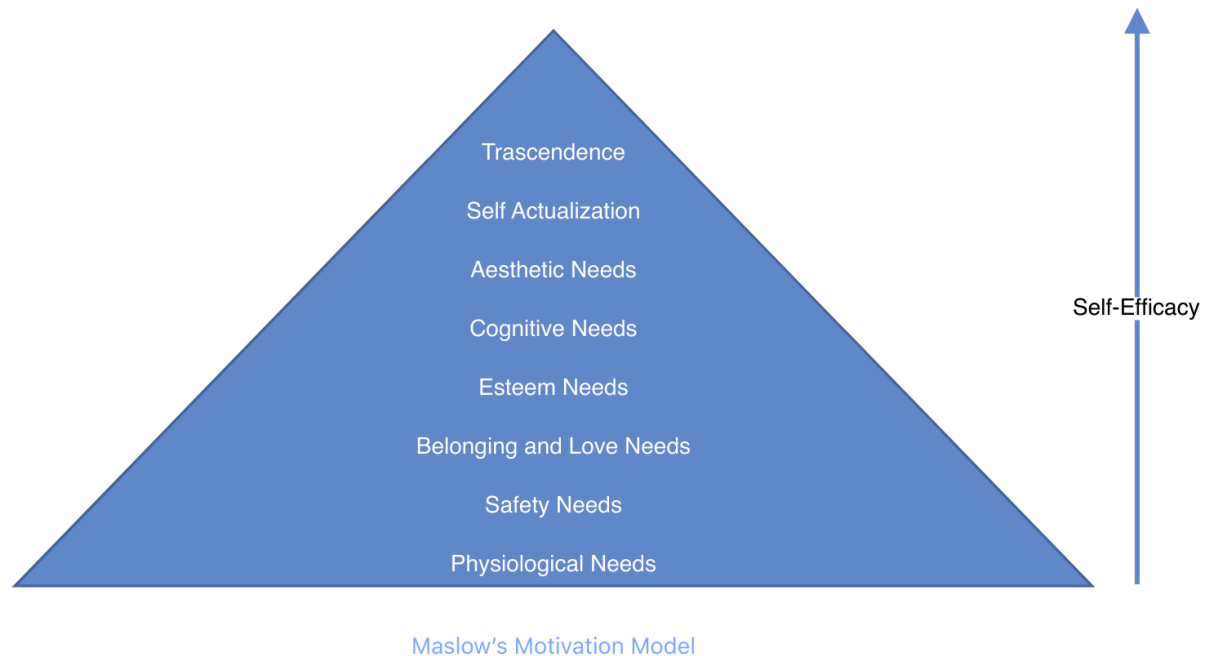
occupational information, goal selection, planning, and problem-solving) borrow from philosophy the overall judgment or evaluation of the individual on them: Self-Appraisal about how much they know about themselves (Coliva, 2012; Descartes, 1850; Hume, 1896), Occupational Information about the plethora of roles to be assumed (Applebaum, 1992), Goal Selection on the ability to decide what path to take (Brunstein & Gollwitzer, 1996; Morasky, 1977), Planning on designing strategies, and finally problem solving on the power of overcoming obstacles along the way. Career decision-related self-efficacy is one of the different types of self-efficacy -science-related self-efficacy, arts-related self-efficacy, physical activities self-efficacy, and others.- (Ritchie & Williamon, 2011; Yaakobi, 2018). Furthermore, Career Decision Self efficacy (CDSE) subscales (Self-Appraisal, Occupational Information, Goal Selection, and Planning) participate in the formation of the self-concept.

Study constructs and Psychology

The concept of Self-Efficacy has roots in psychology. The introduction of the concept of Self Efficacy by Bandura (2009) has had implications in clinical, counseling, and social psychology (Maddux & Stanley, 1986). While Motivation and Self-Actualization processes are involved in the essence of self-efficacy - what individuals believe about their capacity to perform an activity or reach specific outcomes (Bandura, 1977), it is essential to outline its relationship with Maslow's hierarchy of needs. From this theory, we understand that high values of personal development interact with different needs: physiological needs, safety

needs, love, belonging needs, esteem needs, cognitive needs, aesthetics needs, self-actualization, and transcendence. Maslow arranged these needs or “sets of goals” in a hierarchical fashion, often depicted in the form of a pyramid where the first level is represented by physiological needs, followed by the rest (Maslow, 1943). The highest levels of this motivation model have been related to several types of self-efficacy (and other motivation theories): self-efficacy and expectancy center, self-efficacy and engagement reasons, self-efficacy integrated with expectancy-value constructs, and cognition-motivation self-efficacy (P. R. Brown et al., 2015; Cerino, 2014; Eccles et al., 1997; Linnenbrink & Pintrich, 2002) as observed in (Neto, 2015). Furthermore, Maslow’s hierarchy of needs and motivation models have been observed to be concurrent with career orientation and vocational behavior constructs (E. L. Betz, 1982, 1984; N. E. Betz & Hackett, 1981; N. E. Betz & Luzzo, 1996; Merchant Jr, 2010; Parvaiz & Ahmed, 2016; Taylor & Betz, 1983a).

Figure 4: Maslow's Motivation Model and Self-Efficacy.



Pre-Bandura theories of career development were examined by Osipow (1968): Personality theory (Roe, 1956), Career typology theory (Holland, 1959), Ginzberg et al. theory (Ginzberg et al., 1951), psychoanalytic conceptions theory, developmental self-concept theory (D. E. Super, 1953), and social system theories. Nevertheless, Super's developmental self-concept theory was the most prominent, leading to Bandura's self-efficacy theories. Contemporarily, several studies have found connections between Career Decision Self-Efficacy and psychological variables such as global self-esteem, internal locus of control (Houle & Kluck, 2015; Taylor & Popma, 1990; as observed in Thompson et al., 2019), self-esteem (Thompson et al., 2019), identity and maturity (Houle & Kluck,

2015), career cognitive (Sugiharto & Sunawan, 2019), career psychological states (Jiang, 2017), among others. By the same token, career indecision has also been observed from a psychological perspective (Fuqua et al., 1988; Hartman & Fuqua, 1983; Robbins, 1987; Saunders et al., 2000; Sepich, 1987; Slaney, 1980).

Study constructs and Education Theories

Self-efficacy is associated with several learning and educational theories. Some of the significant theories linked to self-efficacy are Bloom's Taxonomy, Gardner's Theory of Multiple Intelligences, and other approaches based on the main pillars of learning theories: behaviorism, cognitivism, and constructivism.

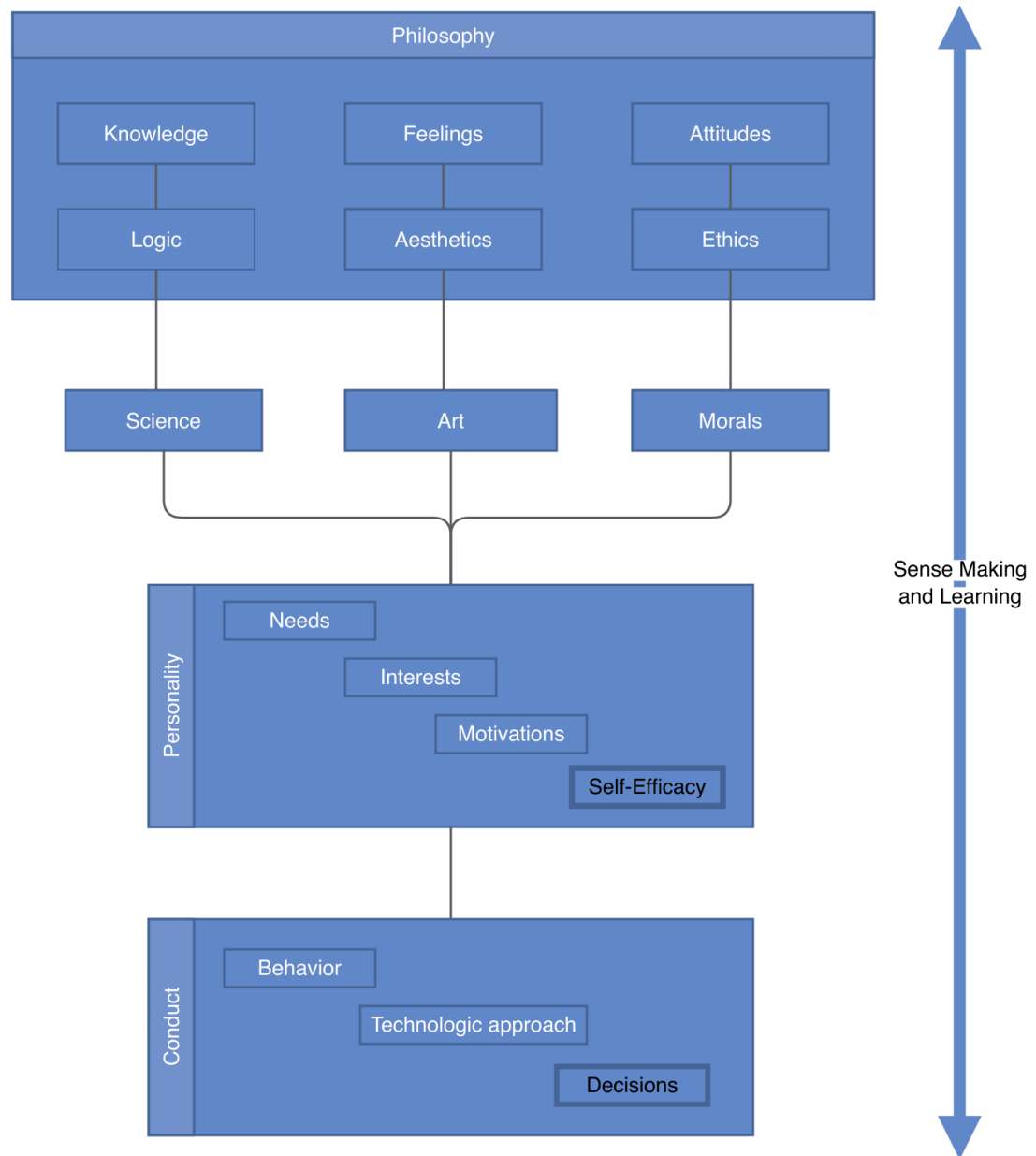
Aiming to classify educational goals, Bloom's Taxonomy postulates three models -organized hierarchically into three domains: cognitive, affective, and psychomotor domains. The levels in the cognitive domain are knowledge, comprehension, application, analysis, synthesis, and evaluation. In the affective domain, the levels are based on emotions: receiving, valuing, organizing, and characterizing. Furthermore, in the psychomotor domain, the levels are based on actions: perception, set, guided response, mechanism, complex overt response, adaptation, and origination (Bloom, 1956). Prisma et al. (2018) observed Bloom's Taxonomy from the perspective of self-efficacy. Tsai et al. (2021) and Kumar (2015) included artificial intelligence, Bloom's Taxonomy, and self-efficacy in their studies. Other studies merge Knowledge acquisition and Bloom's Taxonomy (Akhu-Zaheya et al., 2013; Eveleth et al., 2020). Other examples of

research where Bloom's Taxonomy and self-efficacy interact: (Crowe et al., 2008; Hasan et al., 2015; Isa et al., 2013; Knaggs & Sondergeld, 2015; Maxwell, 1998).

Gardner's theory of multiple intelligences comprehends several different types of intelligence and defends that education should be centered on them by educational authorities. These abilities or types of intelligence are "Musical-rhythmic and harmonic, visual-spatial, linguistic-verbal, logical-mathematics, bodily-kinesthetic, interpersonal, intrapersonal, naturalistic, existential" (Gardner, 2011, p.3). Gardner's theory relates to Career Decision Self-Efficacy (CDSE) as each of the subscales of CDSE (Self-Appraisal, Goal Selection, Occupational Information, Planning, and Problem Solving) are present in more than one of the multiple intelligences. Shore (Shore, 2001) found that the inclusion of multiple intelligences in academic activities affects self-efficacy. Other studies have found similar results: (Ahmadian & Ghasemi, 2017; Chan, 2003; Khosravi & Saidi, 2014; Koura & Al-Hebaishi, 2014; Murphy, 2001). The theory of multiple intelligences also impacts career orientation and Career Indecision (Hadi et al., 2021; Jerabek, 2000; Shearer, 1997; Shearer & Luzzo, 2009; Wu, 2004).

Figure 5 summarizes some of the relations, explained in previous sections, between the constructs of this study, philosophy, psychology, and learning theories.

Figure 5: Novalian Model of Wisdom (De la Noval, 1999).



Other Constructs related to Career Decision Self Efficacy and Career Indecision

Out of the factors affecting career choice (Table 3) and framed within the theories related to career choice and development (Table 1), several constructs interact with Career Decision Self Efficacy and Career Indecision in different life career stages (Table 2), particularly during the growth and exploratory stages. Prevalent constructs related to intrinsic factors are gender and gender issues (Jiang, 2014; Shin et al., 2019); ethnicity, nationality, and culture (Chiesa et al., 2016; Sidiropoulou-Dimakakou et al., 2012); personality traits (Penn & Lent, 2019); outcome expectations (Gushue, 2006), career maturity (Crites, 1978), career crystallization (Gadassi et al., 2015); confidence, independence, locus of control (Taylor & Popma, 1990b); optimism and life satisfaction (Wright et al., 2017). Among the Constructs related to extrinsic factors are benefits, financial rewards, income (Hsieh & Huang, 2014), dependence on others (Hargrove et al., 2002), inter alia. They are furthermore associated with interpersonal related factors: family influence, perceived career congruence with parents (Whiston, 1996), social support, and social comparison (Hou et al., 2019), among others. Other factors affecting career selection are geographic location (for example, rural areas, suburbs, and main cities.), factors related to technology, STEM and STEAM courses offered in educational institutions (Mau et al., 2016), type of education (private, public, charter), funds allocated to schools, and institutional integration (Kunnen, 2013; Taylor & Popma, 1990a).

IV. RESEARCH MODEL AND HYPOTHESES

Research Model

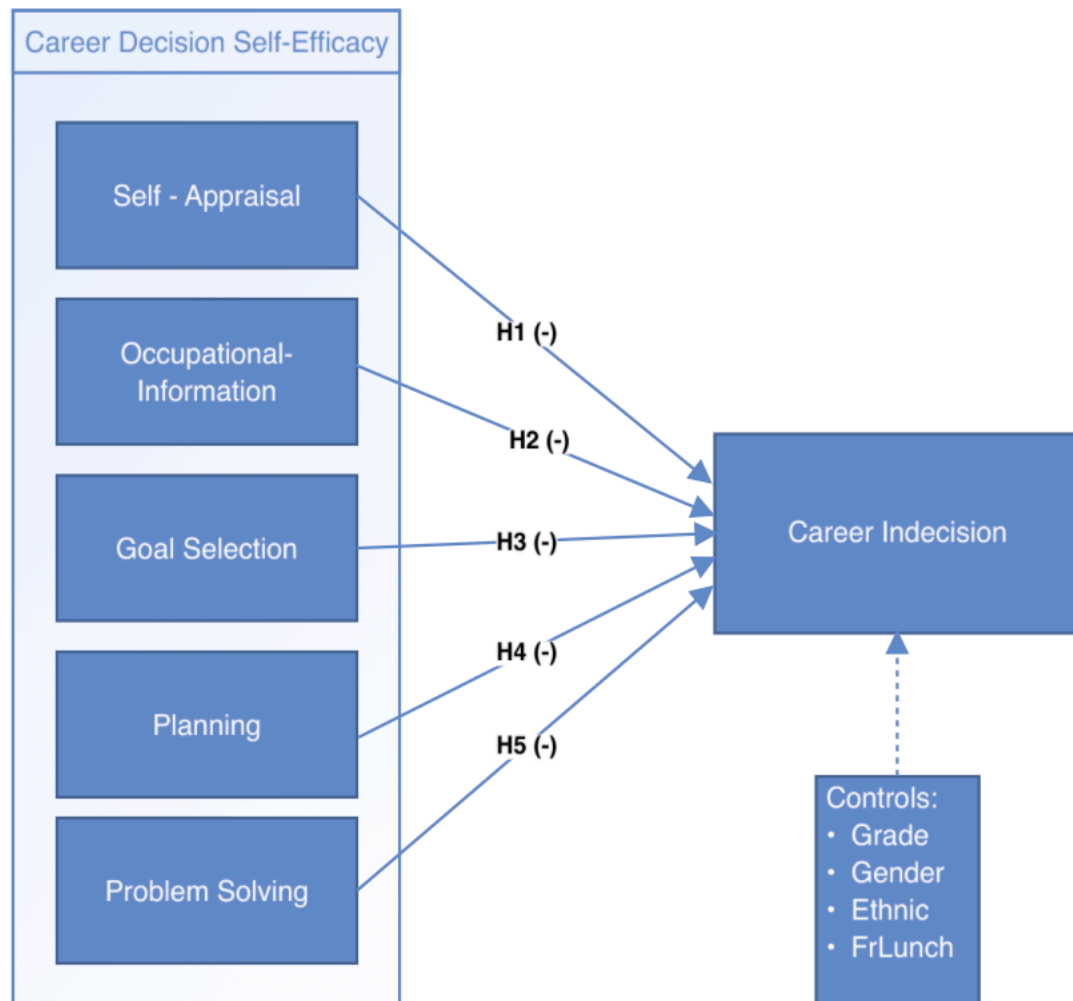
From Bandura's broad works on Self-Efficacy, it has been established that Career Decision Self Efficacy is "the confidence a young person has in their capacity to carry out tasks associated with career exploration and selection" (P. Creed et al., 2006, p.4) this concept has also been defined in other works such as by Solberg et al. (1994). Moreover, career decision-related self-efficacy is a causal antecedent to making a Career Decision (P. Creed et al., 2006a); and is associated with Career Indecision (Taylor & Betz, 1983a) as well as with Career Maturity (Patton & Creed, 2001). It is important to note that the instrument used to measure Career Indecision in this study is the *Career Decision Scale* (S. H. Osipow, 1987). On the other hand, Career indecision has been observed to have a negative impact on several variables such as self-efficacy beliefs, identity status, knowledge of occupations, self-knowledge, and structure of thinking, among others (P. Creed et al., 2006a).

Whereas the relationship between Career Decision Self-Efficacy and Career Indecision have been extensively studied (N. E. Betz & Vuyten, 1997; P. A. Creed & Patton, 2003; Gati et al., 1996; Rojewski, 1994; Taylor & Betz, 1983a), and that Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving are part of the Career Selection Self Efficacy; the hypotheses of this study revolve around the impact of these constructs on Career Indecision.

Furthermore, the total score of the Career Decision Self Efficacy scale is strongly and negatively related to Career Indecision (N. E. Betz et al., 2005; N. E. Betz, Klein, et al., 1996; Harlow & Bowman, 2016; Komarraju et al., 2014; Mao et al., 2017, among others.).

Figure 6 reflects the research model of this study. Thereafter, an analysis and description of the proposed hypotheses are offered.

Figure 6: Research Model



Note: FrLunch indicates free / reduced lunch status.

Hypotheses

The assessment or judgment of the subject associated with the process of career selection and career decision is what Crites (1978) describes as *Knowing yourself* and Al-Bahrani (Al-Bahrani et al., 2021) as Self-Efficacy to accomplish accurate self-appraisals. Self-Appraisal is a rich construct related to several concepts that converge on the global idea of the self, such as self-evaluation, self-perception, and self-reflection, among others.

Due to its intrinsic nature as a construct, Self-Appraisal is related to several inherent career choice factors mentioned in the literature review section. Some of the intrinsic career choice factors related to Self-Appraisal are personality traits, career decidedness, self-clarity, career maturity, confidence, independence, and optimism. Qonitatin and Kustanti (2021) observed the relationship between Self-Appraisal in career decision-making and maturity. Cheung and Arnold (2014) described the relationship between career exploration, self-clarity, self-efficacy, self-appraisal, and career decidedness. Gu et al. (2020) termed similar relations by observing the impact of a career intervention instrument on both career-related self-efficacy: career decision and career maturity. Hou et al. (2019) showed Self Appraisal in a longitudinal study (as part of career decision-related self-efficacy) as a predecessor of career adaptability. Other studies confirm the link between CDSE and constructs related to career indecision (P. Creed et al., 2006a; Fairbrother, 1994; Grier-Reed & Skaar, 2010; M. Lam & Santos, 2018; Xu & Tracey, 2017), among many others.

From a broader perspective, Super (D. E. Super, 1951) argues that the process of selecting a career contributes to the development of the self-concept.

Correspondingly, the appraisal of self is a process that gains clarity over time as the individual incorporates and develops knowledge, emotions, and attitudes (science, arts, and ethics). Hence, as students grow intellectually, their capacity to assess themselves grows as well. This intellectual capacity for self-evaluation contributes to a natural self-direction and exploration first toward vocations and later to careers, gravitating towards groups of careers of interest and ultimately increasing career decidedness. In addition to consistency of career choices, career choice content, realism of career choices, and career choice attitudes, Crites (1978) includes Self-Appraisal as one of the variables that interact in the adolescent career maturity model and a crucial variable to it.

As posited before, many studies about Self Efficacy and its impact on career maturity show that this relationship is positive. Since career indecision is inversely proportional to career decisiveness; the higher the opinion of individuals about their own capabilities to perform specific tasks (in this case, career selection) should result in a lower the indecision of the student about what career path to take, and ultimately resulting in lower career indecision. Consequently, presenting the basis for the first hypothesis of this study:

H1- Self-Appraisal negatively influences Career Indecision.

Understanding the universe of careers and occupations is vital to the student. Occupational Information is the construct that Crites (1978) described as Knowing about jobs.

Occupational Information includes information about the universe of vocations, occupations, as well as available careers; and their connections with other career-related variables: labor market, personal interest, family expectations, personal traits, personal interests, social expectations, social contribution, monetary compensation, intellectual/professional development, and such. Parsons (1909), one of the pioneers of career exploration studies and career exploration counseling, proposed in his outline for the method of the vocation counselor an outlook in the vocational field; where the individual builds an inventory of industries and vocations, pre-conditions for successful accomplishment and achievements in occupational sectors, and required qualifications while highlighting the importance of understanding the conditions of efficiency and success among industries. Later on, Crites (1978) includes Occupational Information in his Career Maturity Inventory, considering Occupational Information a construct that goes hand to hand with Self-Appraisal. Moreover, Occupational Information contributes significantly to one's self-appraisal (See N. E. Betz & Luzzo (1996)).

Some of the career choice factors related to Occupational Information are Vocational interest (Tao et al., 2018), Job interest (Yamashita et al., 1999), outcome expectations (Lent et al., 2010), and others. All these factors have an impact on career maturity and career adoption. Other studies attest to the

relationship between Occupational Information and Career decisiveness. Lent et al. (2010). observe the occupational interest of high school students and its relation to Occupational Information. Kunnen (Kunnen, 2013) describes the impact of career intervention on self-perceived occupational information and career exploration. Gunkel et al. (2013) highlight the effect of national culture on the acquisition of Occupational Information and career maturity.

Since occupational information is part of Career Decision Self Efficacy and Career Decision Self Efficacy is related to career maturity and career crystallization, our second hypothesis emerges:

H2- Occupational Information negatively influences Career Indecision.

Knowing what you want is paramount to accomplishing any task. In the career selection process, understanding what you would like to obtain from your future profession is what Parson (1909) considered one of the hallmarks of career maturity. In this sense, as the career maturity level of adolescents increases, they should be able to select goals that are consistent with the appraisal of their own capabilities to choose a career (Self-Appraisal) and incorporate the information obtained from the career market (Occupational Information).

Furthermore, there are several career choice factors related to Goal Selection: Personal Interest (Lent et al., 1994; Li et al., 2015), Individually motivated achievement (Bojuwoye & Mbanjwa, 2006), Locus of control (Guan et al., 2015), and Perceived career congruence with parents (Sawitri et al., 2014),

among others. These factors are related to career maturity, thus associated with career decisiveness and career indecision as well. Other studies reflect on the relationship of the process of defining goals toward a career decision: (N. E. Betz et al., 2005a; B. Y. Choi et al., 2012; Prideaux & Creed, 2001; Taylor & Betz, 1983a; Taylor & Popma, 1990a), among others.

Choosing a career is a significant milestone in a student's life. In this sense, Goal Selection is a construct that refers to *Choosing a job*, and it is highly correlated to the maturity level of the individuals. Higher levels of career maturity imply managing more information about the self, acquiring knowledge about the careers available, establishing relations with this information, and becoming familiar with the universe of different professions available. Crites and other researchers have shown this to impact the levels of Career Maturity. As the student answers questions such as *What would I like to do in the future? What professions would I like to practice? What is the compensation related to this career? If I study this career in college, will I be able to find a job in the future? How long would it take to earn a degree?* What are the possibilities for continuous professional development?; the student is defining and redefining goals in the short, medium, and long terms. Along this process, career decisiveness flourishes, and naturally, career indecision decreases. Hence, our third hypothesis is

H3- Goal Selection negatively influences Career Indecision.

Once a certain level of maturity related to career selection has been reached - *crystallization*, it is time to define what path to take. That is, as the individual understands his or her abilities and personal traits (Self-Appraisal), comprehends the university of possibilities in terms of available careers as well as their characteristics (Occupational Information), and traces goals aligned to his or her individual differences (Goal Selection); it is time for planning to reach career-oriented goals. Planning is the Career Decision Self Efficacy subscale described, as observed before, as *Looking ahead* by Crites (1978). Planning involves considering self-efficacy problem solving as well, as the individual must design the path to career selection considering barriers that might arise on the way.

As reflected in the literature review section, several Career Choice factors are related to Planning: mastery approach (Sawitri et al., 2014), career maturity, and locus of control (Guan et al., 2015; Polenova et al., 2018), among others. These factors have been shown to impact career maturity positively. Therefore, affecting career decisiveness and career crystallization while lowering career indecision. Several other studies unveil the relationship between the planning process toward a career decision: (Reardon et al., 2000; Spurk et al., 2015; D. E. Super & Hall, 1978). Following these factors, this study proposes our fourth hypothesis:

H4- Planning negatively influences Career Indecision.

Crites (1978) describes Problem-solving as *what the students should do*. Nevertheless, Self-Efficacy for Problem Solving is also explained as the sureness for handling barriers (Lindley, 2005). The process of selecting a career is part of a long and winding road that begins at early educational stages, such as early infancy in elementary school. Along this road, the student will encounter specific difficulties and barriers to gaining career crystallization, career maturity, and career decisions.

Research unveils many perceptions of career development, such as gender differences (Lindley, 2005; Luzzo, 1993a) and ethnic differences (Luzzo, 1993b). Swanson et al. (1996, p.225) offered an inventory of career-related barriers: sex discrimination, lack of confidence, multiple role conflict, conflict between children and career demands, racial discrimination, inadequate preparation, disapproval by significant others, decision-making difficulties, dissatisfaction with career, discouraged from choosing nontraditional careers, disability/health concerns, job market constraints, problems with networking/socialization. McLennan and Arthur (1999) extend this list: lack of professional opportunities, lack of support, harassment, and life-work balance, among others (McLennan & Arthur, 1999). Nevertheless, there are types of other barriers to overcome: when one's career of interest is not available in local universities, existent economic problems, social instability, and the like. The list could go on and on as societies and institutions evolve, bringing an infinite number of possible barriers due to the combinatory natural professional inclinations of the individual and the perceived reality of the individual's environment.

Career Choice factors related to Problem Solving: Personality traits, Outcome expectations, Confidence, and Locus of control.

Problem-solving skills grow as an individual overcomes obstacles and problems, inching closer to professional crystallization and maturity. With this ability to overcome barriers (career-related barriers), other subscales of Career Decision Self Efficacy will benefit from it forming a symbiosis that positively impacts career maturity and career crystallization. As in the case for each of the subscales of Career Decision Self Efficacy, research shows that Problem Solving is a predecessor for career decision, career maturity, and career crystallization (Charokopaki & Argyropoulou, 2019; P. Creed et al., 2006b; Taylor & Betz, 1983a). Studies performed under different circumstances have found that the relation between Problem Solving with Career Indecision and career outcome is negative (B. Y. Choi et al., 2012; Grier-Reed & Skaar, 2010; Lindley, 2005; Stărică, 2012), among others. Thus, the last hypothesis is formalized:

H5- Problem Solving negatively influences Career Indecision.

Altogether, this study proposes the following hypotheses:

- H1- Self-Appraisal negatively influences Career Indecision.
- H2- Occupational Information negatively influences Career Indecision.
- H3- Goal Selection negatively influences Career Indecision.
- H4- Planning negatively influences Career Indecision.
- H5- Problem Solving negatively influences Career Indecision.

These hypotheses are consistent with the findings of other studies.

Nevertheless, this study covers the following research gaps: 1- Most research studies analyze Career Decision Self Efficacy as a whole, not observing each of the subscales individually (e.g., Miller et al., 2009; Peterson & Delmas, 1998; Presti et al., 2013; Taylor & Popma, 1990; Watson et al., 2001); 2- There is a significant number of outdated studies about Career Decision Self Efficacy and Career Indecision (N. E. Betz & Vuyten, 1997; Gati et al., 1996; Taylor & Betz, 1983a); 3- A limited number of respondents/subjects in previous studies could compromise study findings, e.g., 33 subjects (McNeill, 1992), 82 subjects (Grier-Reed & Skaar, 2010), 85 respondents (Patel et al., 2008); 4- Studies about the impact of Career Decision Self Efficacy have been performed in different locations -other than the United States. For instance, Australia: (P. A. Creed & Patton, 2003; Gati et al., 1996), Greece (Sidiropoulou-Dimakakou et al., 2012), Italy (Chiesa et al., 2016), among others; 5- Studies about the impact of Career Decision Self Efficacy have been performed with subjects of different school levels. For example (N. E. Betz & Vuyten, 1997; Taylor & Betz, 1983b).

V. METHODOLOGY

Construct Measures

In our research model, the independent variables are the following constructs related to career Self-Efficacy: Self Appraisal, Goal Selection, Problem Solving, Occupational Information, and Planning, while the dependent construct is Career Indecision. The instrument used to measure the independent variables is Taylor and Betz's Career Decision Self Efficacy (Taylor & Betz, 1983a), while the instrument used to measure Career Indecision is Osipow's Career Decision Scale (S. H. Osipow, 1987). For both, pilot and main studies, the significance value level was adjusted from 0.05 to 0.10 in observance of recommendations made for studies with limited size and initial / lower iterations by Deeks et al. (Deeks et al., 2005) as cited in (B. Y. Choi et al., 2012) and others (Drachman, 2012; Feise, 2002; Westfall et al., 1993).

The Career Decision Self Efficacy scale is an instrument created by Nancy E. Betz and Karen Taylor in 1983 (Taylor & Betz, 1983a). This instrument evolved from the concept of Self-Efficacy expectations formulated by Albert Bandura (Bandura, 1977, 1982, 1986; Bandura et al., 1999) and the theoretical contributions to career psychology and counseling by Hackett and Betz (Hackett et al., 1992; Hackett & Betz, 1981). The Career Decision Self Efficacy scale contains five subscales: Self Appraisal, Goal Selection, Problem Solving, Occupational Information, and Planning. These constructs were developed originally under Crites' career maturity theory (Crites, 1978). Therefore, the

Career Decision Self-Efficacy is the convergence of two theories: Bandura's Self-Efficacy expectations and Crites' model of career maturity. The former originally emerging from clinical and social psychology, and the latter was oriented to counseling and vocational psychology.

From its creation, the Career Decision Self Efficacy scale has been widely utilized by numerous researchers (Al-Bahrani et al., 2021; Choi & Kim, 2013; Crişan & Turda, 2015; Gianakos, 1999, 2001; Grier-Reed & Skaar, 2010; Hampton, 2005; Hargrove et al., 2002; Harlow & Bowman, 2016; Hsieh & Huang, 2014; Luzzo, 1993, 1996; Makransky et al., 2015; Niles & Sowa, 1992; Penn & Lent, 2019; Peterson & Delmas, 1998; Török et al., 2017; Walker, 2010; Watson et al., 2001.), ranging from different topics and areas related to Career Decision Self Efficacy such as culture (Chiesa et al., 2016; P. A. Creed et al., 2002; Flores et al., 2006, 2006; Gushue, 2006; Huang, 2015; In, 2016; Ogutu et al., 2017; Sidiropoulou-Dimakakou et al., 2012.); gender studies (N. E. Betz, Harmon, et al., 1996; Chung, 2002; Dickey et al., 2016; Gutman & Schoon, 2012; Hackett et al., 1992; Jiang, 2014.) ; family influence (Hargrove et al., 2002; Lease & Dahlbeck, 2009; Mao et al., 2017.); among other topics. This instrument has two versions: one with 25 items and another one with 50 items. Since the subjects of this study are high school students, we decided to apply the 25 items version intending to maximize the concentration/focus of the subjects while responding to the instrument. Every item of the instrument is formatted as a five-level confidence continuum -Likert type, ranging from "No confidence at all" (score 1) to "Complete confidence" (score 5). Each of the Career Decision Self Efficacy

subscales is reflected by five items in the instrument. The authors of the Career Decision instrument scale suggest scoring the instrument by obtaining six scores: a total score for Career Decision Self Efficacy and a score for each subscale. Each item is worth a point. Several studies confirm the validity (Gati et al., 1994; Miller et al., 2009; Peterson & Delmas, 1998; Taylor & Popma, 1990, and others.) and reliability (N. E. Betz, Klein, et al., 1996b; N. E. Betz & Vuyten, 1997; Luzzo, 1993; Taylor & Betz, 1983, and others.) of the instrument.

The Career Decision Scale was developed by Samuel H. Osipow and other researchers in 1973 and has been widely utilized ever since in the study of career development (Crişan & Turda, 2015; Daniels et al., 2011; Fuqua et al., 1988; Germeijs & De Boeck, 2002; Kazin, 1977; McNeill, 1992; S. Osipow, 1978; S. H. Osipow et al., 1976; Resnick et al., 1970; Rojewski, 1994; Slaney, 1980; Taylor & Betz, 1983; Taylor & Popma, 1990; among others). The Career Decision Scale comprises 19 items; 18 of them are of the Likert type ranging from 1 to 4, where 1 reflects low similarity of the respondent to the item, and 4 reflects high similarities of the respondent to the item. Item 19 is a qualitative question -open type, offering the respondent the opportunity to elaborate on his or her response to previous items. This instrument is adequate for respondents of any gender and school age. The Career Decision Scale is used to measure career certainty and Career Indecision. Both subscales are scored totaling the responses for the raw score of each subscale. Several studies attest to the validity (Allis, 1984; Harmon, 1985; Lange, 1980; Limburg, 1980; Neice & Bradley, 1979; S. Osipow, 1978; Slaney, 1980; Taylor & Betz, 1983a; Westbrook

et al., 1976) and reliability (Hartman & Hartman, 1982; Kazin, 1977; S. H. Osipow et al., 1976) of this instrument.

What follows is a description of the constructs of our research model as described in table 4.

Table 4: Construct Definitions

Construct	Definition
Self-Appraisal	<i>Knowing Yourself.</i> Reflects how the individual assess his or her own capabilities related to career selection.
Goal Selection	Goal Selection is about <i>choosing a job</i> , and it is related to the career maturity of the individual. An individual with a high maturity level should be able to choose goals that are related to his or her career capabilities.
Problem Solving	Given that problems and certain barriers arise during the student's career selection process, <i>what should they do</i> when these problems or barriers occur is what defines Problem Solving.
Occupational Information	<i>Knowing about jobs</i> "Much as the individual learns more about himself [or herself] as he [or she] grows older, he [or she] also gathers more information about jobs and occupations. Consequently, accuracy

	and extent of job knowledge should differentiate the more from the less vocationally mature” (Crites, 1978, p. 25).
Planning	<i>Looking ahead.</i> After a career goal has been established, then it is necessary to define what is needed to reach the destination, that is “the tendency of the individual to think about the means that are necessary to attain a desired end”. (Crites, 1978, p. 28)
Career Indecision	Career Indecision is a complex construct of psychological variables such as anxiety, external attribution, and identity.

Pilot Study

The Pilot Study was conducted by applying the instruments (Career Decision Self Efficacy (CDSE) (Taylor & Betz, 1983a) and Career Decision Scale (S. H. Osipow, 1987) through Qualtrics, where a total of 76 (n = 76) completed responses were received. In addition to the items included in the Career Decision Self Efficacy Short Form (CDSE - SF) and Career Decision Scale, other items included were Gender, Grade Level, Ethnic, and Free / Reduced Lunch Participation.

Main characteristics of control variables of pilot sample (n = 76) are described as follows; 57 males (75.0%), and 19 females (25.0%); 1 student in 9th grade (1.3%), 5 students in 10th grade (6.6%), 16 students in 11th grade (21.1%), and 54 students in 12th grade (71.1%). The ethnicity of the sample was reflected as follows: 1 Asian (1.3%), 1 Black (1.3%), 2 White (2.6%), 71 Hispanic or Latino (93.4%), and 1 Other (1.3%).

Table 5 shows descriptive stats for dependent variables of the pilot study.

Table 5: Descriptive Statistics of Pilot Data (N=76)^a.

Construct (Reference)	Item Code	Mean	SD	α
Self-Appraisal	SelfA_1	3.63	0.921	.668
	SelfA_2	3.34	1.083	
	SelfA_3	3.84	0.898	
	SelfA_4	3.47	1.055	
	SelfA_5	4.21	0.865	
Occupational Information	Oclnf_1	4.30	0.845	.768
	Oclnf_2	3.30	1.210	
	Oclnf_3	4.00	0.972	
	Oclnf_4	3.42	1.235	
	Oclnf_5	3.84	1.106	
Goal Selection	GoalSel_1	3.49	1.002	.877
	GoalSel_2	3.60	1.024	

	GoalSel_3	3.59	1.039	
	GoalSel_4	2.64	1.147	
	GoalSel_5	3.75	0.997	
Planning	Plann_1	3.49	1.082	.881
	Plann_2	3.58	1.066	
	Plann_3	3.60	1.064	
	Plann_4	3.48	1.144	
	Plann_5	3.44	0.986	
Problem Solving	ProbS_1	3.32	0.984	0.668
	ProbS_2	3.82	0.903	
	ProbS_3	3.11	1.087	
	ProbS_4	2.99	1.007	
	ProbS_5	3.48	0.959	

An initial factor analysis (principal axis with Varimax oblique rotation) was performed. First, the Kaiser-Mayer-Olkin (KMO) test was applied to observe sampling properness, with overall KMO ((KMO = .875) revealing 'meritorious' data (Kaiser & Rice, 1974). Furthermore, KMO values for each item were higher than .725, representing values above satisfactory limits of .50. Eigenvalues for each data factor were obtained through additional analysis, justifying 69.31% of the variance as six factors showed eigenvalues over Kaiser's criterion of 1. However, Exploratory Factor Analysis (EFA) was conducted to ensure that these

dimensions were distinct, revealing significant cross-loadings. Hence two constructs had to be dropped. Nonetheless, since the pilot sample was relatively small and all constructs had significant satisfactory reliabilities, it was decided to move on and include all constructs in the main study.

VI. DATA ANALYSIS AND RESULTS

For the main study, the instrument was applied through Qualtrics. As in the pilot study, the instrument consisted of four parts: Part 1- Introduction, Part 2- Individual information, Part 3- Career Decision Self Efficacy scale, Part 4- Career Decision Scale, and Part 5-Conclusions.

Part 1 includes the assent to participate in the study. In this part, respondents receive information such as *Why are you doing this study? How many others will be in the study?* as well as offering information about the length of the study, whether respondents will receive any compensation for participating (in our case, compensation was not offered), along with other questions. Part 2 collects data that will correspond to our control variables: Gender, Grade Level, Ethnic, and whether the student receives Free or Reduced Lunch. Part 3 includes all the items of the Career Decision Self Efficacy scale (Short Version). This version consists of 25 items, with five subscales: Self Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving. Every item of the instrument is formatted as a five-level confidence continuum -Likert type, ranging from *No confidence at all* (score 1) to *Complete confidence* (score 5). Each of the subscales of the Career Decision Self Efficacy is reflected by five items of the instrument. The Career Decision Instrument scale authors suggest scoring the instrument by obtaining six scores: a total score for Career Decision Self Efficacy and a score for each subscale. Here are some of the items included in the Career Decision Self Efficacy scale (Betz and Taylor, 2012, p. 3):

“How Much Confidence Do You Have That You Could:

- *Summarize the skills you have developed in the jobs you have held?*
- *Select one major from a list of potential majors you are considering.*
- *Make a plan of your goals for the next five years.*

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Part 4 includes all items of the Career Development Scale (CDS) developed by Osipow (1978). The CDS is composed of 19 items; 18 of them are of the Likert type ranging from 1 to 4, where 1 reflects low similarity of the respondent to the item and four high similarities of the respondent to the item. Item 19 is a qualitative question -open type, offering the respondent the opportunity to elaborate on his or her response to previous items. Some of the items included in the CDS:

“Please be sure to give only one response to each item and answer every item.

- *I have decided on a career and feel comfortable with it. I also know how to go about implementing my choice.*

- *I have decided on a major and feel comfortable with it. I also know how to go about implementing my choice.*
- *Several careers have equal appeal to me. I am having difficult time deciding among them.”*

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Lastly, part 5 of the instrument confirms respondents about the culmination of the session while thanking them for their participation.

Data collection procedures followed the steps proposed by Kristjansson et al. (2013). This procedure was specially designed for data collection among adolescents in high school and included the following steps: 1- Obtain institutional approval for the use of human subjects, 2- Determine eligible schools and potential sample sizes, 3- Conduct pre-study notification, 4- Solicit study participation, 5- Secure school principal support, 6- Identify and contact school Supervising Contact Agent (SCA), 7- Prepare survey material for selected school, 8- Mail survey materials to school, 9- Distribute consent forms to parents and students, 10-SCA reminder, 11- Distribute letters of appreciation for participation.

All students at the school selected were invited to participate. The invitation included a description of the research while stating that there would not be repercussions for not participating and that no compensation will be offered for participating. All subjects signed a consent (Appendix 2) before participating

in the study. The consent specified that participation is voluntary without any negative repercussion for not participating, nor any compensation for participating would be offered. Underage students were required to sign an assent. Likewise, parents were required to sign a participation consent. During this process, no sensitive personal information was collected (such as name, address, phone numbers, or email). Online communication was encrypted, and the website's security measures utilized for the instrument's application were verified.

Miami-Dade County Public Schools (MDCPS) is a public school system that serves the entire county. It is the country's fourth-largest school system with three hundred ninety-two schools, 345,000 students, and nearly 40,000 personnel. The schools are run independently of the metropolitan and city governments (Miami Dade District Directory Information, 2021). Students in the district speak 56 different languages and come from 160 different countries, making it a truly global society.

The school's mission is to assist the learning community in its quest for achievement with the help of a caring, nurturing faculty and staff committed to empowering students through academics and preparing them for the future to succeed in a globally diverse and technologically advanced climate. Ultimately, the school's vision is to provide the administration and staff with the tools they need, so they are devoted to empowering the students through academics.

The school has a diverse population. On the other hand, it has a network of key individuals who proactively assist students with their social and emotional needs. A psychologist is available to assist with student observations and counseling. A specialist focuses on students with emotional and behavioral issues while meeting with pupils in the special education program to address goals and monitor the Individualized Educational Plan (IEP) progress. The school social worker creates small groups to work with and offers individual counseling, and school guidance counselors meet regularly with students to review academic and attendance progress.

Additionally, the school has a relatively equal proportion of males and females, with 52% males and 48% females making up the student population. The free/reduced lunch program is used by 66.1% of the student population. To qualify for the free or reduced-price lunch program, the student's family income must be less than \$15,171 as of 2015 (Under 130 percent of the poverty line). Even with the economic and academic challenges, the school continues to improve. The class of 2015 had 82% of its students graduate, which was the highest graduation rate from 2011 to 2015. For the most recent years, the average graduation rate has been higher overall than the average graduation rate for Florida (76%).

Out of 265 responses, a total of 250 complete responses were analyzed (n = 250); 151 males (60.4%), and 97 females (38.8%); 13 students in 9th grade (5.2%), 58 students in 10th grade (23.3%), 92 students in 11th grade (36.8%), and 87 students in 12th grade (34.8%). The ethnicity of the sample was reflected

as follows: 5 Asian (2.0%), 3 Black (1.2%), 17 White (6.8%), 224 Hispanic or Latino (89.6%), and 1 Other (0.4%). This information is reflected in Table 6. Moreover, Table 9 highlights descriptive figures of the constructs involved in this study.

Table 6: Main Sample Study Characteristics.

		N	%
Gender			
	Female	151	60.40%
	Male	97	38.80%
Grade			
	9th	13	5.20%
	10th	58	23.20%
	11th	92	36.80%
	12th	87	34.80%
Ethnic			
	Asian	5	2.00%
	Black or African American	3	1.20%
	White / Caucasian	17	6.80%
	Hispanic or Latino	224	89.60%
	Other	1	0.40%
FrLunch			
	Yes	163	65.20%
	No	87	34.80%

Statistical analysis of data collected through the main study followed the framework of Structural Equation Modeling (SEM) through SmartPLS.

First, the Kaiser-Mayer-Olkin (KMO) test was applied to observe sampling properness, with overall KMO ($KMO = .937$) revealing 'marvelous' data (Kaiser & Rice, 1974).

Furthermore, eigenvalues for each data factor were obtained through additional analysis, justifying 55.27% of the variance as four factors showed eigenvalues over Kaiser's criterion of 1. The scree plot was ambiguous as it reflects inflections that would justify retaining two or three factors. Hence, three factors were retained (SE_GoalSel, SE_OcInf, and SE_ProbS) since two of the factors showed cross-loadings (SE_SelfA and SE_Plann).

Table 8 shows the factor loadings after cross-loading items were removed. The items that cluster on the same factor suggest that factor 1 represents Self-Efficacy Goal Selection (SE_GoalSel), factor 2 represents Self-Efficacy Occupational Information (SE_OcInf), and factor 3 represents Self-Efficacy for Problem Solving (SE_ProbS). All factors (SE_OcInf, SE_GoalSel, and SE_ProbS) had high reliabilities, with Cronbach's alphas above 0.71 except for SE_OcInf with a Cronbach alpha below .7 (0.631) as shown in Tables 7 and 8.

To assess the degree of shared variance between the latent variables of the model -convergent validity, a Fornell Larcker criterion was observed, showing adequate ($AVE < 0.5$) average variance extracted (AVE) between all variables (Table 7). Moreover, to observe reliability and convergent reliability, Composite Reliability (CR) values were analyzed, concluding that all Composite Reliability

values were below 0.7. Furthermore, an R2 value over 0.09 indicates an adequate proportion of the variance for all Self-Efficacy variables explained by Career Indecision in the regression model.

Table 7: Reliabilities and Correlations ^a.

	α	CR	AVE	Career Indecision	SE- Oclnf	SE- GoalSel	SE- ProbS
Career Indecision	1.00	1.00	1.00	<i>1</i>			
SE_Oclnf	0.63	0.79	0.55	-0.266	<i>0.798</i>		
SE_GoalSel	0.86	0.897	0.64	-0.139	0.516	<i>0.744</i>	
SE_ProbS	0.71	0.82	0.54	-0.24	0.594	0.51	<i>0.732</i>

a. Note. The square roots of average variance extracted (AVE) appear on the diagonal and are italicized.

Table 8: Cross Loadings. Main Study.

	SE_GoalSel	SE_Oclnf	SE_ProbS
GoalSel_1	0.78	0.46	0.480
GoalSel_2	0.83	0.47	0.47
GoalSel_3	0.84	0.37	0.55
GoalSel_4	0.77	0.35	0.40
GoalSel_5	0.76	0.44	0.50
Oclnf_3	0.28	0.64	0.28
Oclnf_4	0.44	0.86	0.42
Oclnf_5	0.47	0.72	0.48
ProbS_1	0.48	0.45	0.76
ProbS_2	0.44	0.36	0.75
ProbS_4	0.41	0.29	0.58
ProbS_5	0.44	0.40	0.82

Table 9: Descriptive Statistics of Main Study Data (N=250).

Construct	Item Code	Mean	SD
Self-Efficacy Occupational			
Information	Oclnf_3	3.8	0.987
	Oclnf_4	3.41	1.15
	Oclnf_5	3.65	1.022
Self-Efficacy Goal Selection	GoalSel_1	3.39	1.038
	GoalSel_2	3.54	0.949
	GoalSel_3	3.67	0.997
	GoalSel_4	2.84	1.149
	GoalSel_5	3.73	1.022
Self-Efficacy Problem Solving	ProbS_1	3.16	0.886
	ProbS_2	3.57	0.959
	ProbS_4	3.18	1.002
	ProbS_5	3.33	0.938
Career Indecision	CI_3	2.08	0.906
	CI_4	2.53	1.019
	CI_5	1.9	0.989
	CI_6	1.69	0.965
	CI_7	2.28	1.101
	CI_8	2.25	1.05

CI_9	1.74	0.909
CI_10	2.43	1.093
CI_11	2.42	1.103
CI_12	2.14	0.974
CI_13	2.1	0.895
CI_14	2.01	1.006
CI_15	2.4	1.01
CI_16	2.21	0.98
CI_17	2.7	1.003
CI_18	2.5	0.979
Gender	1.391	0.488
Grade	3.012	0.888
Ethnic	4.852	0.527
FrLunch	1.348	0.476

A multiple regression analysis was conducted to examine the relationship between Self-Efficacy Occupational Information (SE_OcInf), Self-Efficacy Goal Selection (SE_GoalSel), and Self-Efficacy Problem Solving (SE_ProbS) with Career Indecision (CI), while controlling for Grade, Gender, Ethnic, and FrLunch. As reflected by the regression analysis, SE_GoalSel showed that each unit increase in this construct represents a decrease in career indecision of .0.203; this relationship is significantly different from zero ($p = .014$), showing support for

H3. The unstandardized coefficient for SE_ProbS also showed a negative relationship ($p = .076$), offering partial support for H5. Nevertheless, the unstandardized coefficient for SE_OcInf is positive, hence not offering support for H2. Table 10 reflects a summary of the results.

Table 10: Summary of Results.

	Hypotheses	Result	Significance
H1	Self-Appraisal negatively influences Career Indecision.	Not Supported	
H2	Occupational Information negatively influences Career Indecision.	Not Supported	$\beta = 0.036$
H3	Goal Selection negatively influences Career Indecision.	Supported	$\beta = -0.203^*$
H4	Planning negatively influences Career Indecision.	Not Supported	
H5	Problem Solving negatively influences Career Indecision.	Supported	$\beta = -0.138^{**}$

a. Note: $*p < .1$; $**p < .05$

Nevertheless, regression analysis by gender showed that the negative correlation between SE_GoalSel and CI is significantly higher ($p = 0.014$) for females than for males. On the other hand, there was not a significant difference between the group of respondents who participated in the free/reduced lunch program and those who did not participate in the program, suggesting that the poverty level has no impact on the effect of Self Efficacy Goal Selection on Career Indecision.

VII. DISCUSSIONS AND IMPLICATIONS

In this section, the contributions of the study, as well as the theoretical and practical implications, are discussed.

The theoretical implications verse around the analysis of several factors that affect the framework of this study; that is, around the paradigms of Self-Efficacy, career maturity, and Career Indecision. Here, a comparison between our study and other studies similar -or relevant to these frameworks is presented. This comparison includes an assessment of the variables and constructs that interact in our research model: Career Decision Self-Efficacy Problem Solving, Career Decision Self-Efficacy for Self-Assessment, Career Decision Self-Efficacy in Planning, Career Decision Self-Efficacy for Goals Selection, Career Decision Self-Efficacy in Occupational Information, Career Indecision, Gender, Age, and Economic Status. Other aspects included in the analysis are the types of research, location, units of analysis, grade level, sample size, consideration of the Career Decision Self-Efficacy scale as a unit, validity, and reliability of instruments, and the like.

Additionally, the practical implications are observed on the direct consequences of the impact of Career Decision Self Efficacy in Career Indecision related to the field of education and our educational system. This section also highlights the relevance, importance, and recommendations from the review and analysis that responds to the research questions, concluding with specific recommendations to further researchers as well as to educators.

Theoretical Implications

When conducting a simple search about the Career Decision Self Efficacy, an astonishing number of papers was retrieved: more than 1,650,000 results. Even when the search was reduced to the last years, the number was reduced to 90,600, evidencing the relevance of the Career Decision Self Efficacy among scholars. As stated in previous sections, the Career Decision Self Efficacy scale was developed over the pillars of Crites' career maturity theory, which establishes five factors for Career Decision Self Efficacy: Problem Solving, Planning, Occupational Information, Self-Assessment, and Goal Selection. Nonetheless, the opinion of researchers and scholars community is divided after applying the Career Decision Self Efficacy instrument in their studies: Some researchers consider the existence of 5 factors as originally preconceived by Crites (e.g., Gati et al., 1994; Miller et al., 2009; Taylor & Betz, 1983) whereas some observe the existence of a lower number of factors (e.g., P. A. Creed et al., 2002; Peterson & Delmas, 1998) and others consider that the results of this instrument reflect one single factor -not five (e.g., Miller et al., 2009; Peterson & Delmas, 1998; Presti et al., 2013; Taylor & Popma, 1990; Watson et al., 2001). Nevertheless, considering the number of cross-loadings, both our pilot and final study reveal the basis for the existence of either one single variable or fewer than five for Career Decision Self Efficacy. Thus, our study contributes to the body of knowledge about Career Decision Self Efficacy by providing evidence that supports that the five factors of the Career Decision Self Efficacy scale conform

to either one unit or fewer than five scales that describe the confidence of the individual on her or his ability to select a career.

After the Confirmatory Factor Analysis was conducted, several items were extracted. The extraction brought as a consequence the removal of two independent variables from the original research model (Self-Efficacy Self Appraisal and Self-Efficacy Planning); hence transferring to the final regression analysis, the observation of the impact of three independent variables (Self-Efficacy Occupational Information (Oclnf), Self-Efficacy Goal Selection (GoalSel), and Self-Efficacy Problem Solving (ProbS)) on Career Indecision (CI). In the previous section, it has been established that we did not find bases to support Hypothesis No.2 (H2- Occupational Information negatively influences Career Indecision) because of the absence of a negative relationship. The fact that we found basis to support H3 (Self-Efficacy Goal Selection negatively influences Career Indecision) and H5 (Self-Efficacy Problem Solving negatively influences Career Indecision) offers another contribution of this research: additional basis for the observation of Career Decision-related studies. As Self-Efficacy Goal Selection is about *choosing a job* (therefore related to the career maturity level of the individual), and Problem Solving is about *what needs to be done*, other studies can include and use our findings to observe the relationship between career maturity, Career Decision Self Efficacy, Career Crystallization, and Career Indecision.

Throughout the extensive and rich source of materials related to Career Decision Self Efficacy, it is common to observe that these studies pay special attention to an important construct/variable: Gender (e.g., Dickey et al., 2016; Ojeda et al., 2012; Piña-Watson et al., 2014; Shin et al., 2019). In the Career Decision Self-Efficacy (CDSE) Manual, their authors posit that no significant gender differences have been found neither in the CDSE as a whole nor in any of the subscales of the CDSE while signaling several studies that support this (e.g., N. E. Betz, Klein, et al., 1996; Luzzo, 1993; Taylor & Betz, 1983). Similarly, several other studies were found to support this as well -while conducting the pertinent literature review for this study, such as Jiang (2014) and Chung (2002); nevertheless, other studies have found gender differences in studies related to the Career Decision Self Efficacy and/or Career Indecision, for example: (Lease & Dahlbeck, 2009; Ojeda et al., 2012; Scott & Ciani, 2008; Shin et al., 2019; K. R. Sullivan & Mahalik, 2000). In this sense, our study contributes to the body of knowledge by observing that the total score of the Career Decision Self Efficacy was higher for females than for males ($M = 85.246$, $SD = 15.60629$) as well as the Career Decision Scale, where the total score was higher for females than for males ($M = 36.061$, $SD = 8.38254$). Nevertheless, these gender differences were not significant neither for the totals of Career Decision Self Efficacy nor for the totals of the Career Decision scale. Independent-samples t-tests were conducted to compare the score totals of Career Decision Self Efficacy and Career Indecision. Levene's tests for the equality of variances were not significant ($F = 1.506$, $p = .221$; for Career Indecision; and $F = 1.813$, and $p = 1.79$, for Career

Decision Self Efficacy), not rejecting the null position of no differences in variances for Career Decision Self Efficacy and Career Indecision. There were no significant differences in gender among the sub-scores of each of the Career Decision Self Efficacy subscales except for Self-Efficacy Goal Selection, $p = .16$. Nevertheless, the multivariate regression analysis reflects that the negative correlation between SE_GoalSel and CI is significantly higher ($p = 0.014$) for females than for males.

Furthermore, the fact that our study found that there is not a significant difference between the group of respondents who receive free/reduced lunch and the ones who do not receive free/reduced free lunch (thus suggesting that the poverty level has no impact on the effect of Self-efficacy Goal Selection in Career Indecision) constitutes an additional theoretical contribution to this study.

As indicated before in the literature review section, there are many antecedents to career selection. Much of these constructs could interact with each other and with other variables in different settings, cultures, educational levels, and others. Our research offers a unique perspective to the study of career selection given the singularity of the study itself: it encompasses the observation of Career Self Efficacy and Career Indecision in high school students of the United States while controlling for Grade, Gender, Ethnicity, and Economic Status. For the studies related to career selection should remain relevant, this study offers a contemporary view on the process of Career Selection.

Practical Implications

The practical implications of this study are directly related to the field of education, essentially with professionals responsible for guiding and providing academic assistance and counseling students on career selection. Throughout this study, it has been established that Self Efficacy Goal Selection (GoalSel) and Self Efficacy Problem Solving (ProbS) have a negative impact on Career Indecision. Additionally, through the analysis of the relationship of the individual Career Decision Self-Efficacy subscales, we have observed that the impact of Self-Efficacy Goal Selection (GoalSel) on Career Indecision is higher for Females. These findings have a direct impact on the four areas of educational interventions identified by the Learning Policy Institute in the Elementary and Secondary Education Act (ESEA) and the Every Student Succeeds Act (ESSA): high-quality professional development, class size reductions, community schools, wraparound services, and high school redesign (L. Lam et al., 2016).

Educational interventions are utilized to eliminate or reduce barriers to the educational development of the individual. Moreover, career orientation interventions and vocational guidance programs include career counseling, career group treatments, seminars, and courses. These can be offered either in person or online. It has been established that Career Indecision is related to anxiety, low levels of self-esteem, and insufficient levels of career crystallization, among others, and that is being identified among the inventory of career-making difficulties (Gati & Osipow, 1996). Designing intervention tools aiming to reduce Career Indecision is of paramount importance since it will directly benefit

students, teachers, administrators, counselors, partner educational institutions, and related industries. For counselors, Understanding the impact of two particular subscales of Career Decision Self-Efficacy (CDSE) on Career Indecision (CI) allows them to provide guidance toward career orientation focused on these areas. Hooley & Dodd (2015) highlight other benefits: 1- Human capital development and supported transitions for individuals; 2- Higher labor market participation, higher opportunities for future employment, and enhanced skills and knowledge base; 3- Improved health and decreased benefit costs; 4- Macro-economic benefits: Deficit reduction, productivity, living standards, economic growth (Hooley & Dodd, 2015).

Progressively -over the last years, educational authorities (Local Education Agencies, State and Federal departments of education) are requiring curriculum design specialists to take into consideration current issues -research based, affecting students. From this perspective, academic designers should develop the structure of study programs around research-based sources. Our findings provide evidence of gender differences. Hence, other practical implications of this study have a broader scope because of their social nature. The evidence found about gender differences on CDSE, especially on SE Goal-Selection; allows policymakers, politicians, activists, community leaders, faith and religious leaders to gain awareness about these gender differences and to take measures to reduce the difference GAP that is the cause of major gender issues in society unfavorable to women: relegation to unfavorable occupation,

stereotyping, salary disparity, and lack of professional opportunities, among others. (Gati et al., 1995).

Limitations and Future Research

Whereas the limitations of this study are related to its sample size, unit of analysis, location, and some other characteristics of the respondents, the recommendations for further research revolve around these limitations.

Concerning sample size, this study included a total of 250 respondents. Perhaps, future studies could benefit from including a bigger sample size, allowing better observance of the proposed hypotheses. For instance, one of the limitations of this study is that the last hypothesis - H5- Problem Solving negatively influences Career Indecision- is partially supported since the significance level of the relationship, although negative, was below .1; conceivably, a bigger sample size will allow full support for this hypothesis.

With respect to the generalizability of this study, it should include students of similar population composition to the one participating in this study. As Taylor and Betz (1983) did initially, including different sources from different cities and from different grade levels could propitiate observing career selection across cultures and educational levels. Hence, it becomes necessary to update it as well as to become innovative in research terms to incorporate relevant variables that the evolution of the career decision process brings incessantly along with societal changes.

This study includes only students from grades 9 through 12 in High School; therefore, generalizations from this study can only be made for High School Students.

Another limitation of this study is that all communications with students were made online; this was necessary given that the study was conducted during the peak times of the Corona Virus pandemic, which kept students attending classes virtually. Considering the maturity level and the nature of the participants (high school students), future studies could benefit from introducing and explaining the characteristics of the study. For instance, we recommend presenting the general instructions for taking the instruments in a general or live setting where students of this age could feel more comfortable asking any questions they might have and receiving instructions tailored to this type of audience.

Further studies on the scale composition of Career Decision Self Efficacy are recommended in order to observe the status of this composition under current circumstances and in different settings. One recommendation is to observe Self-Appraisal and Occupational Information as subscales -or part- of Goal Selection and Planning as a subscale -or part- of Problem Solving.

A final recommendation for further research is to perform similar studies observing the impact of Career Decision Self Efficacy on Career Indecision in several developmental stages of the respondents. That is, performing the observations and studies on elementary students, middle school students, junior and senior high school students, junior and senior college students, graduate

students, and professionals. In this sense, the adaptation of the instruments would be needed. It may be necessary for some of the proposed levels to develop other instruments from other sources or to develop new ones.

VIII. CONCLUSIONS

From the relevance and importance of the career decision process for individuals -especially students, the research questions posited by this study were *1-What are the factors that affect career indecision of high school students in the United States? and 2- What are the effects of career decision self-efficacy on the career indecision of high school students in the United States?*

Throughout an extensive review of the existing literature, this study described the factors that affect career selection and offered the following hypotheses: H1: Self-Appraisal negatively influences Career Indecision; H2: Occupational Information negatively influences Career Indecision; H3: Goal Selection negatively influences Career Indecision; H4: Planning negatively influences Career Indecision; H5: Problem Solving negatively influences Career Indecision.

A sample of 250 respondents participated voluntarily in the study. These participants were high school students attending a public institution in Florida, United States. The instruments applied were the Career Decision Self Efficacy scale (Taylor and Betz, 1983) and the Career Decision Scale (Osipow, 1987).

Two of the original hypotheses were removed from the study since many items were loading in several factors during the Confirmatory Factor Analysis (CFA). As Several of the factors of the Career Decision Self Efficacy loaded in several scales, the data analysis process suggests that Career Decision Self Efficacy scale should be taken as a whole unit. Moreover, multivariate regression showed a significant negative impact of Self-Efficacy Planning on Career

indecision, a significant difference in this impact (Self-Efficacy Planning on Career Indecision) in female students over male students, and a negative impact of Self-Efficacy Problem Solving on Career Indecision. Furthermore, there was no significant difference between the group of respondents who received free/reduced lunch and those who did not receive free/reduced lunch, suggesting that the poverty level has no impact on the effect of Career Decision Self-Efficacy over Career Indecision.

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APPENDICES

Additional Statistics Tables

Descriptive Statistics for Control Variables. Pilot Study

			Statistic	Std. Error
Gender	Mean		1.25	.050
	95% Confidence	Lower Bound	1.15	
	Interval for Mean	Upper Bound	1.35	
	5% Trimmed Mean		1.22	
	Median		1.00	
	Variance		.190	
	Std. Deviation		.436	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		1.178	.276
	Kurtosis		-.629	.545
Grade	Mean		3.62	.077
Level	95% Confidence	Lower Bound	3.46	
	Interval for Mean	Upper Bound	3.77	
	5% Trimmed Mean		3.70	
	Median		4.00	
	Variance		.452	

Ethnic	Std. Deviation		.673	
	Minimum		1	
	Maximum		4	
	Range		3	
	Interquartile Range		1	
	Skewness		-1.797	.276
	Kurtosis		2.859	.545
	Mean		4.92	.052
	95% Confidence	Lower Bound	4.82	
	Interval for Mean	Upper Bound	5.03	
	5% Trimmed Mean		5.00	
	Median		5.00	
	Variance		.207	
	Std. Deviation		.455	
	Minimum		2	
	Maximum		6	
FrLunch	Range		4	
	Interquartile Range		0	
	Skewness		-4.694	.276
	Kurtosis		26.947	.545
	Mean		1.41	.057
	95% Confidence	Lower Bound	1.29	
	Interval for Mean	Upper Bound	1.52	
	5% Trimmed Mean		1.40	

Median	1.00	
Variance	.245	
Std. Deviation	.495	
Minimum	1	
Maximum	2	
Range	1	
Interquartile Range	1	
Skewness	.382	.276
Kurtosis	-1.905	.545

Fornell Larcker Table. Main Study.

	CI_Total	SE_GoalSel	SE_Oclnf	SE_ProbS
CI_Total	1			
SE_GoalSel	-0.266	0.798		
SE_Oclnf	-0.139	0.516	0.744	
SE_ProbS	-0.24	0.594	0.51	0.732

Heterotrait-Monotrait Ratio (HTMT) Table. Main Study.

	CI_Total	SE_GoalSel	SE_Oclnf	SE_ProbS
CI_Total				
SE_GoalSel	0.281			
SE_Oclnf	0.154	0.714		
SE_ProbS	0.276	0.776	0.773	

Tests of Normality for Career Indecision.

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
CI	.048	244	.200*	.991	244	.143

Residual Statistics.

	Std.					N
	Minimum	Maximum	Mean	Deviation		
Predicted Value	30.0384	42.3036	35.3760	2.32975		250
Std. Predicted Value	-2.291	2.974	.000	1.000		250
Standard Error of Predicted Value	.568	2.570	1.067	.322		250
Adjusted Predicted Value	29.9939	42.1652	35.3805	2.33333		250
Residual	-19.27101	30.63883	.00000	8.75851		250
Std. Residual	-2.187	3.477	.000	.994		250
Stud. Residual	-2.220	3.492	.000	1.002		250
Deleted Residual	-19.86456	31.00612	-.00450	8.90537		250
Stud. Deleted Residual	-2.238	3.575	.001	1.007		250
Mahal. Distance	.038	20.189	2.988	2.533		250
Cook's Distance	.000	.065	.004	.007		250
Centered Leverage Value	.000	.081	.012	.010		250

a. Dependent Variable: CI

Group Statistics for sumCI and total SelfEff by Gender.

	Gender	N	Mean	Std.	
				Deviation	Std. Error Mean
CI	1	151	35.0927	9.41017	.76579
	2	97	36.0619	8.38254	.85112
SelfEff	1	150	85.2467	15.60629	1.27425
	2	92	87.2065	13.61926	1.41991

Independent Samples Test for sumCI and total SelfEff by Gender

	Levene's Test for Equality of Variances				t-test for Equality of Means	
	F	Sig.	t	df	Significance	
					One-Sided p	Two-Sided p
CI	1.506	.221	-.825	246	.205	.410
SelfEff	1.813	.179	-.994	240	.161	.321

Group Statistics for subscales of CDSE by Gender

				Std.	Std. Error
	Gender	N	Mean	Deviation	Mean
GoalSel	1	151	16.9007	4.44785	.36196
	2	97	17.4639	3.59416	.36493
Oclnf	1	151	14.7351	2.98150	.24263
	2	97	15.0825	2.80502	.28481
Plann	1	151	9.3311	2.51852	.20495
	2	97	10.2371	2.45702	.24947
ProbS	1	151	9.7815	2.57396	.20947
	2	97	9.4330	2.38881	.24255

Independent Samples Test for Subscales of CDSE by Gender.

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
GoalSel	Equal variances assumed	5.857	.016	-1.047	246	.148	.296	-.56326	.53815	-1.62322	.49671
	Equal variances not assumed			-1.096	233.294	.137	.274	-.56326	.51399	-1.57592	.44941
Oclnf	Equal variances assumed	.602	.439	-.916	246	.180	.360	-.34737	.37916	-1.09420	.39945
	Equal variances not assumed			-.928	213.829	.177	.354	-.34737	.37415	-1.08486	.39011
Plann	Equal variances assumed	.532	.466	-2.791	246	.003	.006	-.90599	.32462	-1.54537	-.26661
	Equal variances not assumed			-2.806	208.526	.003	.005	-.90599	.32287	-1.54249	-.26949
ProbS	Equal variances assumed	.378	.539	1.070	246	.143	.286	.34847	.32574	-.29313	.99006
	Equal variances not assumed			1.087	215.780	.139	.278	.34847	.32048	-.28320	.98013

Group Statistics of CDSE Subscales by FrLunch.

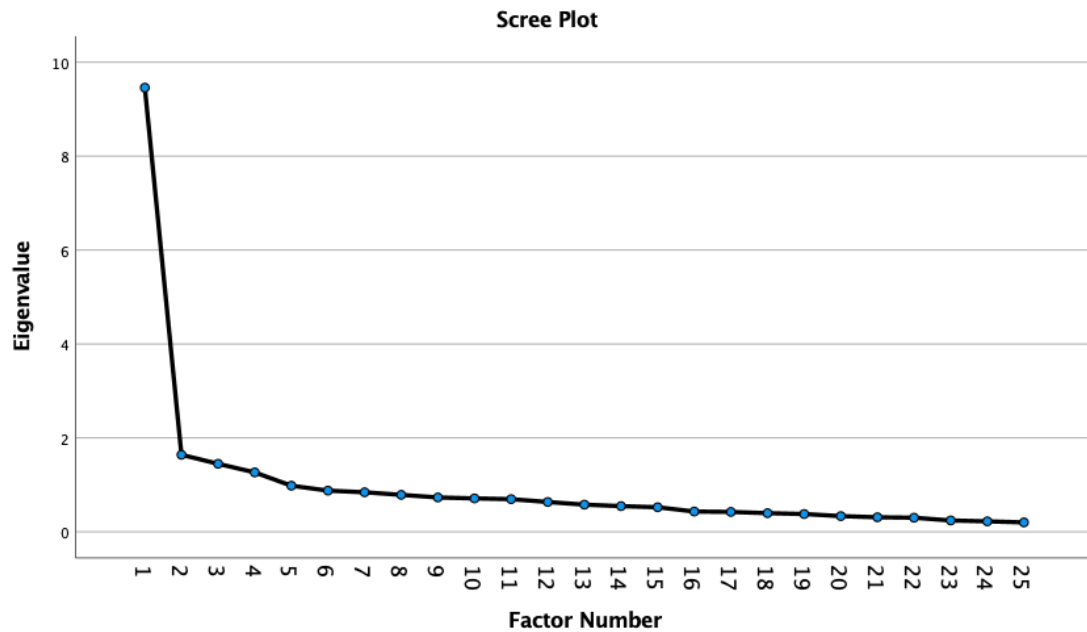
	FrLunch	N	Mean	Std. Deviation	Std. Error Mean
GoalSel	1	163	17.1718	4.18049	.32744
	2	87	17.0805	4.12936	.44271
Oclnf	1	163	14.8037	2.90776	.22775
	2	87	14.9885	3.02122	.32391
Plann	1	163	9.5153	2.61136	.20454
	2	87	10.0230	2.41592	.25901
ProbS	1	163	9.5153	2.44282	.19134
	2	87	9.8506	2.60379	.27916

Independent Sample Test of CDSE Subscales by FrLunch.

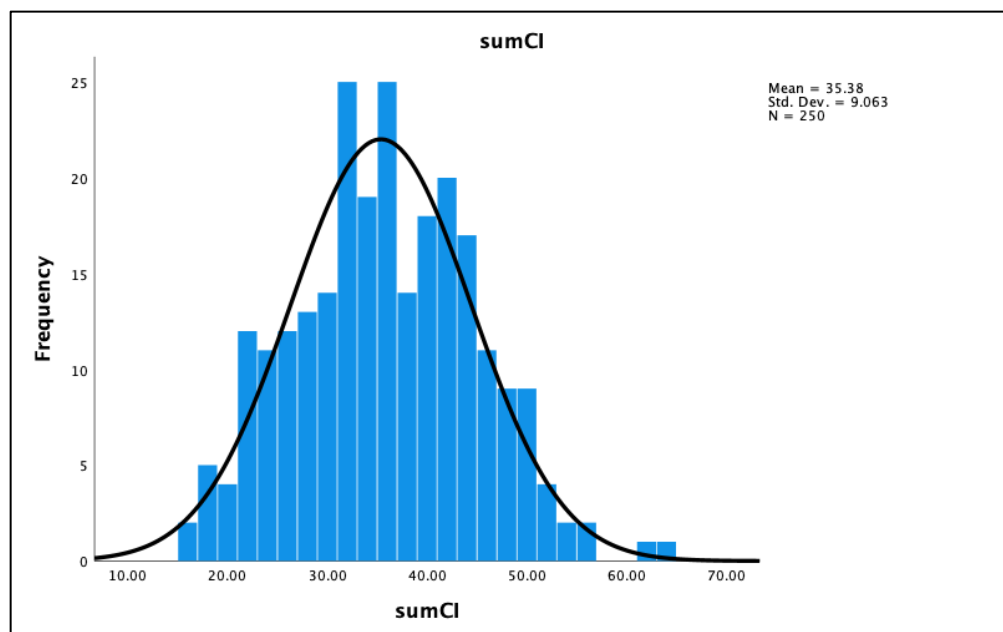
Independent Samples Test											
		Levene's Test for Equality of Variances		Significance				95% Confidence Interval of the Difference			
		F	Sig	t	df	One- Sided p	Two- Sided p	Mean Diff.	Std. Error Diff.	Lower	Upper
GoalSel	Equal variances assumed	.314	.575	.165	248	.434	.869	.09132	.55272	-.99730	1.17994
	Equal variances not assumed			.166	177.611	.434	.868	.09132	.55065	-.99533	1.17797
Oclnf	Equal variances assumed	.036	.849	-.472	248	.319	.637	-.18482	.39137	-.95565	.58600
	Equal variances not assumed			-.467	170.000	.321	.641	-.18482	.39597	-.96647	.59682
Plann	Equal variances assumed	.020	.887	-	248	.067	.134	-.50765	.33795	-1.17327	.15797
	Equal variances not assumed			-	187.909	.063	.126	-.50765	.33004	-1.15870	.14340
ProbS	Equal variances assumed	.238	.626	-	248	.157	.313	-.33524	.33191	-.98897	.31849
	Equal variances not assumed			-.991	166.300	.162	.323	-.33524	.33843	-1.00342	.33294

Additional Statistics Figures

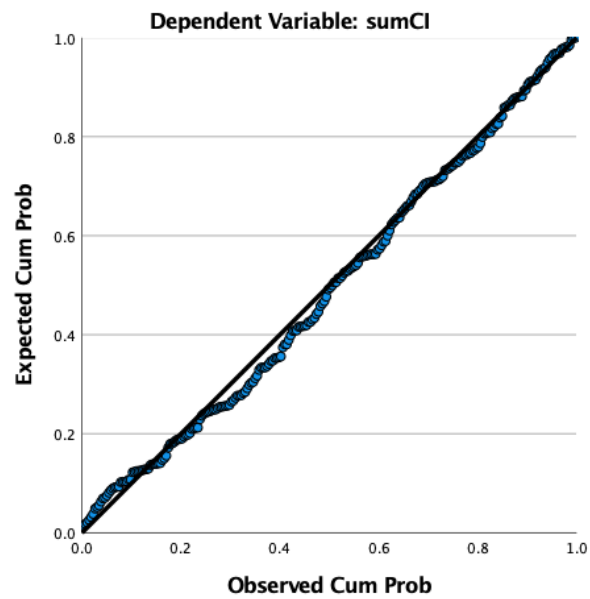
Scree Plot. Main study.



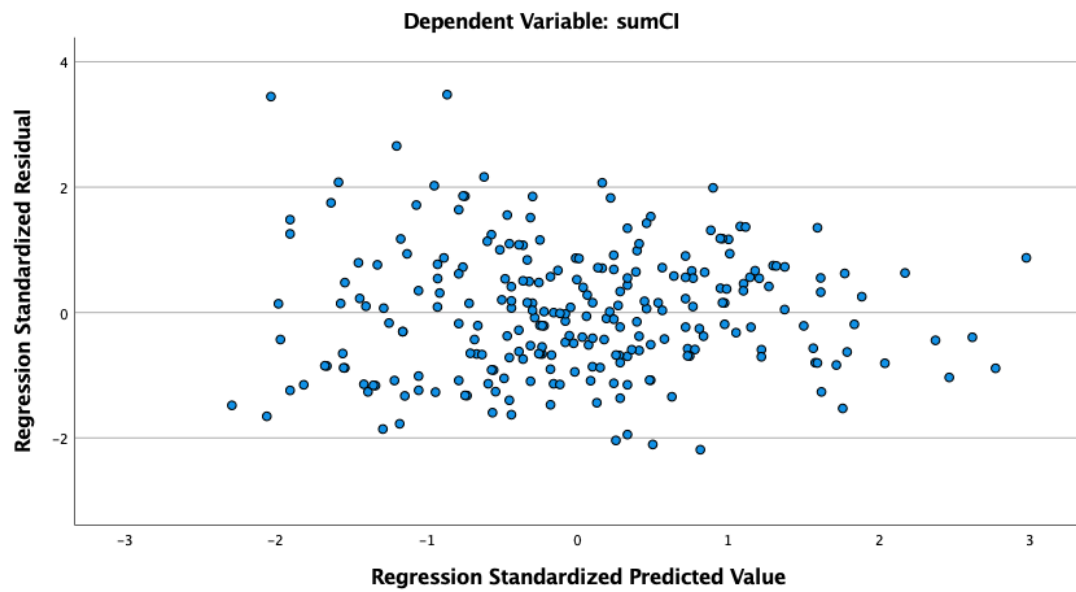
Normal Distribution of SumCI.



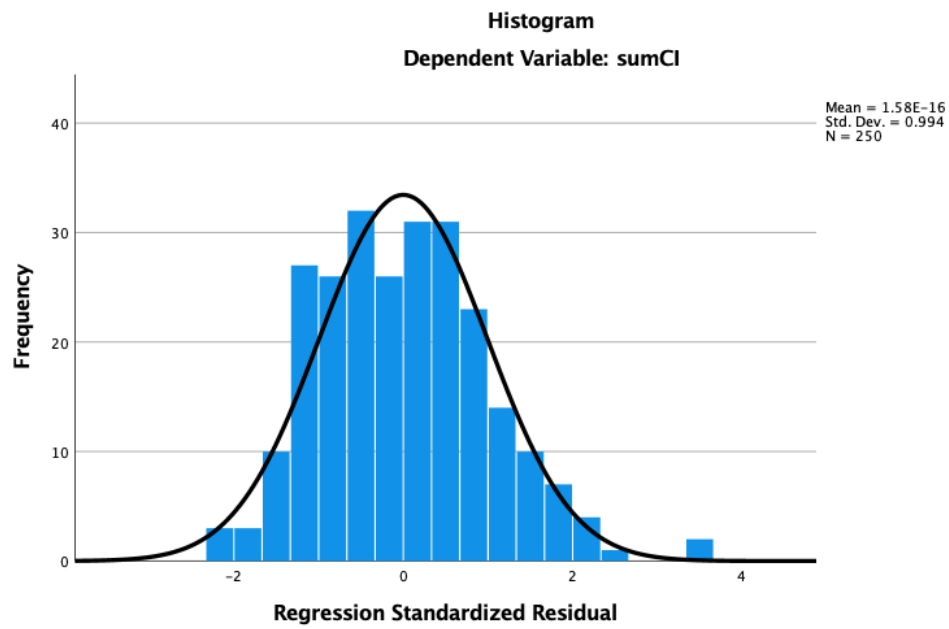
Normal P-P Plot of Regression Standardized Residual.



Regression Standardized Predicted / Residual Scatterplot



Regression Standardized Residual Histogram.



Permission to reproduce sample items from Career Decision Self-Efficacy Scale (CDSE)

For use by Juan Rey only. Received from Mind Garden, Inc. on July 29, 2021



www.mindgarden.com

To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Career Decision Self-Efficacy Scale

The three sample items only from this instrument as specified below may be included in your thesis or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below.

Sample Items:

How Much Confidence Do You Have That You Could:

Summarize the skills you have developed in the jobs you have held?

Select one major from a list of potential majors you are considering.

Make a plan of your goals for the next five years.

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Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

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Institutional Review Board (IRB) Approval



Office of Research Integrity
Research Compliance, MARC 414

MEMORANDUM

To: Dr. George Marakas
CC: Juan Rey
From: Maria Melendez-Vargas, MIBA, IRB Coordinator *W*
Date: July 13, 2021
Protocol Title: "C2D - Rey - Closing the gap in career selection pathways: Factors that influence career indecision of high school students in the US."

The Social and Behavioral Institutional Review Board of Florida International University has approved your study for the use of human subjects via the **Expedited Review** process. Your study was found to be in compliance with this institution's Federal Wide Assurance (00000060).

IRB Protocol Approval #:	IRB-21-0296	IRB Approval Date:	07/12/21
TOPAZ Reference #:	110321	IRB Expiration Date:	07/12/24

As a requirement of IRB Approval you are required to:

- 1) Submit an IRB Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved by the IRB prior to implementation.
- 2) Promptly submit an IRB Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 3) Utilize copies of the date stamped consent document(s) for obtaining consent from subjects (unless waived by the IRB). Signed consent documents must be retained for at least three years after the completion of the study.
- 4) **Receive annual review and re-approval of your study prior to your IRB expiration date.** Submit the IRB Renewal Form at least 30 days in advance of the study's expiration date.
- 5) Submit an IRB Project Completion Report Form when the study is finished or discontinued.

HIPAA Privacy Rule: N/A

Special Conditions: N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

MMV/em

Parental Consent to Participate in Study

FIU IRB Approval:	06/04/2020
FIU IRB Expiration:	06/04/2023
FIU IRB Number:	IRB-20-0263



PARENTAL CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Closing the Gap in Career Selection Pathways: Analysis of Effectiveness of The Career Choice and Work Life Skills Course with The Work Preference Indicator for High School Students in the US.

SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of the study is to observe the application of a career orientation course in your child's school.
- **Procedures:** If you choose to allow your child to participate, your child will be asked to take two questionnaires, and thereafter take a career orientation course.
- **Duration:** The questionnaires take about 30 minutes each while the course is about 4 weeks.
- **Risks:** Discomfort when answering some questions.
- **Benefits:** The main benefit to your child from this research is that by taking the course your child will have the possibility to begin or continue college career exploration.
- **Alternatives:** There are no known alternatives available to your child other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

PURPOSE OF THE STUDY

The purpose of this study is to observe the application of a career orientation course in your child's school.

NUMBER OF STUDY PARTICIPANTS

If you agree to allow your child to participate in this study, he/she will be one of 50 people in this research study.

FIU IRB Approval:	06/04/2020
FIU IRB Expiration:	06/04/2023
FIU IRB Number:	IRB-20-0263

DURATION OF THE STUDY

Your child's participation will involve 4 weeks.

PROCEDURES

If your child participates in this study, we will ask your child to do the following things:

1. Take two 30 minutes questionnaires (Pre and post course) related to college career selection.
2. Take a 4 weeks college career selection course.

RISKS AND/OR DISCOMFORTS

When taking the surveys, there is a possibility that your child might feel uncomfortable answering some of the items, in that case, your child can skip the item if he/she wishes.

BENEFITS

The study has the following possible benefits to your child: The main benefit to your child from this research is that by taking the course your child will have the possibility to begin or continue college career exploration.

ALTERNATIVES

There are no known alternatives available to your child other than not taking part in this study. Any significant new findings developed during the course of the research which may relate to your child's willingness to continue participation will be provided to you.

CONFIDENTIALITY

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report we might publish, we will not include any information that will make it possible to identify your child. Research records will be stored securely and only the researcher team will have access to the records. However, your child's records may be inspected by authorized University or other agents who will also keep the information confidential.

COMPENSATION & COSTS

Your child will not receive any compensation for your participation. However there are no costs to your child for participating in this study

RIGHT TO DECLINE OR WITHDRAW

FIU IRB Approval:	06/04/2020
FIU IRB Expiration:	06/04/2023
FIU IRB Number:	IRB-20-0263

Your child's participation in this study is voluntary. Your child is free to participate in the study or withdraw his/her consent at any time during the study. Your child will not lose any benefits if he/she decides not to participate or if your child quits the study early. The investigator reserves the right to remove your child from the study without your consent at such time that he/she feels it is in the best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Juan C. Rey at 3601 SW 147th Ave. Miami, FL 33185, 305-225-9729, jrey005@fiu.edu.

IRB CONTACT INFORMATION

If you would like to talk with someone about your child's rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to allow my child to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. I understand that I will be given a copy of this form for my records.

Signature of Parent/Guardian

Date

Printed Name of Parent/ Guardian

Printed Name of Child Participant

Signature of Person Obtaining Consent

Date

Child Assent to Participate in Study

FIU IRB Approval:	07/12/2021
FIU IRB Expiration:	07/12/2024
FIU IRB Number:	IRB-21-0296



CHILD ASSENT TO PARTICIPATE IN A RESEARCH STUDY

Closing the Gap in Career Selection Pathways: Analysis of Effectiveness of The Career Choice and Work Life Skills Course with The Work Preference Indicator for High School Students in the US.

WHY ARE YOU DOING THIS STUDY?

We would like for you to be in a research study we are doing. A research study is a way to learn information about something. We would like to find out more about the application of a career orientation course in your school.

HOW MANY OTHERS WILL BE IN THIS STUDY?

If you agree to participate in this study, you will be one of 50 children in this research study.

WHAT WILL HAPPEN IN THIS STUDY?

If you participate in this study, we will ask you to do the following things: Take a 30 minutes entry survey related to college career selection, take a 4 weeks college career selection course, and take a 30 minutes exit survey at the end.

HOW LONG WILL THE STUDY LAST?

Your participation will require 4 weeks.

CAN ANYTHING BAD HAPPEN TO ME?

When taking the surveys, there is a possibility that you might feel uncomfortable answering some of the items, in this case, you can skip the item if you wish.

CAN ANYTHING GOOD HAPPEN TO ME?

The following benefits may be associated with your participation in this study: The main benefit from this research is that by taking the course you will have the possibility to begin or continue college career exploration.

DO I HAVE OTHER CHOICES?

FIU IRB Approval:	07/12/2021
FIU IRB Expiration:	07/12/2024
FIU IRB Number:	IRB-21-0296

There are no known alternatives available to you other than not taking part in this study, although if you decide to participate, you can stop at any time.

WILL ANYONE KNOW I AM IN THE STUDY?

The records of this study will be kept private and will be protected by the researchers.

WILL I BE GIVEN ANYTHING FOR PARTICIPATING?

You will not receive any compensation for your participation. However, you will not need to pay for anything to participate in this study.

WHAT IF I DO NOT WANT TO DO THIS?

You do not have to be in this study if you don't want to and you can quit the study at any time. If you don't like a question, you don't have to answer it and, if you ask, your answers will not be used in the study. No one will get mad at you if you decide you don't want to participate.

WHO CAN I TALK TO ABOUT THE STUDY?

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Juan C. Rey at 3601 SW 147th Ave. Miami, FL 33185, 305-225-9729, jrey005@fiu.edu. If you would like to talk with someone about your rights of being a participant in this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

This research study has been explained to me and I agree to be in this study.

Signature of Child Participant

Date

Printed Name of Child Participant

Signature of Person Obtaining Consent

Date

Adult Consent to Participate in Study

FIU IRB Approval:	
FIU IRB Expiration:	
FIU IRB Number:	



ADULT CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Closing the Gap in Career Selection Pathways: Analysis of Effectiveness of The Career Choice and Work Life Skills Course with The Work Preference Indicator for High School Students in the US.

SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of the study is to observe the application of a career orientation in your school.
- **Procedures:** If you choose to participate, you will be asked to take one questionnaire, before taking a career orientation course, and another questionnaire after the course is over.
- **Duration:** The questionnaires take about 30 minutes each while the course is about 4 weeks.
- **Risks:** The main risk or discomfort from this research might be discomfort when answering some of the questions of the questionnaires.
- **Benefits:** The main benefit to you from this research is that by taking the course you will have the possibility to begin or continue college career exploration.
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

PURPOSE OF THE STUDY

The purpose of this study is to observe the application of a career orientation course in your school.

NUMBER OF STUDY PARTICIPANTS

If you decide to be in this study, you will be one of 50 people in this research study.

DURATION OF THE STUDY

Your participation will involve 4 weeks.

FIU IRB Approval:	
FIU IRB Expiration:	
FIU IRB Number:	

PROCEDURES

If you agree to be in the study, we will ask you to do the following things:

1. Take two 30 minutes questionnaires (Pre and post course) related to college career selection.
2. Take a 4 weeks college career selection course.

RISKS AND/OR DISCOMFORTS

When taking the surveys, there is a possibility that you might feel uncomfortable answering some of the items, if that's the case, you can skip the item if you wish.

BENEFITS

The study has the following possible benefits to you: The main benefit to from this research is that by taking the course you will have the possibility to begin or continue college career exploration.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this study. Any significant new findings developed during the course of the research which may relate to your willingness to continue participation will be provided to you

CONFIDENTIALITY

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely, and only the researcher team will have access to the records. However, your records may be inspected by authorized University or other agents who will also keep the information confidential.

The U.S. Department of Health and Human Services (DHHS) may request to review and obtain copies of your records. The Food and Drug Administration (FDA) may request to review and obtain copies of your records.

A description of this clinical trial will be available on <http://www.ClinicalTrials.gov>, as required by US Law. This web site will not include information that can identify you. At most, the web site will include a summary of the results. You can search this website at anytime.

COMPENSATION & COSTS

You will not receive any compensation for your participation; however, there are no costs to you for participating in this study.

FIU IRB Approval:	
FIU IRB Expiration:	
FIU IRB Number:	

RIGHT TO DECLINE OR WITHDRAW

Your participation in this study is voluntary. You are free to participate in the study or withdraw your consent at any time during the study. You will not lose any benefits if you decide not to participate or if you quit the study early. The investigator reserves the right to remove you without your consent at such time that he/she feels it is in the best interest.

RESEARCHER CONTACT INFORMATION

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PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. I understand that I will be given a copy of this form for my records.

Signature of Participant

Date

Printed Name of Participant

Signature of Person Obtaining Consent

Date

VITA

JUAN C. REY

1973	Born, Camaguey, Cuba
1991-1998	B.S., Science Mathematics and Computer Science Education Havana, Cuba
2004-2005	MS Ed., Science Nova Southeastern University Mathematics Curriculum and Instruction Miami, FL
2006	Pioneer Award
2009-2012	Excellent Provider Award by the FLDOE
2015-2016	ED.S, Educational Leadership Nova Southeastern University Miami, FL
2016	Exceptional Entrepreneur Scholarship Award
2017	Brian Fraser Scholarship Award
2016-2018	MBA, Executive Business Administration Florida International University Miami, FL
2021	AIB Latin America (AIB-LAC) 2021 Conference Butler, U., Idani, P., Rey, J., Wijesinha N., The impact of virtual networks on small and medium businesses:

	Observations from the emergent market perspective (Research Proposal)
2019 -2022	Doctoral Candidate Florida International University Miami, FL