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## Development of the CASVE Cycle Questionnaire: Confirmatory Factor Analysis and Navigator Score

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DEVELOPMENT OF THE CASVE CYCLE QUESTIONNAIRE: CONFIRMATORY  
FACTOR ANALYSIS AND NAVIGATOR SCORE

by

Brianna Werner

A Dissertation  
Submitted to the Graduate School,  
the College of Education and Human Sciences  
and the School of Psychology  
at The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

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## ABSTRACT

A new career decision-making status measure, the CASVE Cycle Questionnaire (CASVE-CQ), grounded in Cognitive Information Processing (CIP) theory, was created as an assessment of the CASVE decision-making cycle, one of the major components of CIP theory. One purpose of the CASVE-CQ is to determine an individual's standing among the CASVE cycle phases given how many career decision-making tasks he/she has completed. Six factors, which assess the five phases, with initial and final communication scales, were previously established (Werner, 2017).

Therefore, the present study focused on the revision of items, development of new items, an exploratory factor analysis, two confirmatory factor analyses, and the analysis of three potential scoring methods for the Navigator Score to determine the best scoring procedure and meaningful interpretation of items. The exploratory factor analysis suggested a six-factor structure, with 42 items, measuring the five phases of the CASVE cycle. After two confirmatory factor analyses, including revised items in the Analysis and Synthesis scales after the first confirmatory factor analysis, a stable six-factor structure was confirmed. The use of a total score of the CASVE-CQ was not supported; however, the Navigator Score categorizes Ideal and Non-Ideal Navigators of the CASVE cycle based on completing at least 2 items (25%) in each phase and in phase order or indicating prerequisite phase completion. Practical implications of the CASVE-CQ and directions for future research are discussed.

## ACKNOWLEDGMENTS

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TABLE OF CONTENTS

ABSTRACT ..... ii

ACKNOWLEDGMENTS ..... iii

LIST OF TABLES ..... vii

LIST OF ILLUSTRATIONS ..... viii

CHAPTER I – LITERATURE REVIEW ..... 1

    Cognitive information processing theory and the CASVE cycle ..... 2

        Career decision-making ..... 3

    The CASVE Cycle Questionnaire ..... 5

        Career development validity measures and constructs ..... 8

CHAPTER II – PRESENT STUDY ..... 10

    Research Questions and Hypotheses ..... 11

    Methods ..... 12

        Procedures ..... 12

        Participants ..... 15

        Instruments ..... 16

            CASVE Cycle Questionnaire ..... 16

            Career Decision-Making Difficulties Questionnaire ..... 17

            Career Commitment Measure ..... 18

            Vocational Identity Subscale of the My Vocational Situation ..... 19

The Career Thoughts Inventory.....	19
Career Exploration and Decision Self-Efficacy – Brief Decisional.....	20
Results.....	23
Exploratory factor analysis.....	23
First confirmatory factor analysis.....	27
Second confirmatory factor analysis.....	30
Correlations.....	32
Multiple analyses of variance.....	35
CHAPTER III - DISCUSSION .....	41
Exploratory and Confirmatory Factor Analyses.....	42
Navigator Score .....	43
Considerations for Practitioners and Researchers.....	46
Limitations and Future Research .....	49
APPENDIX A –Screeener Questions .....	51
APPENDIX B Demographics Questionnaire.....	52
APPENDIX C CASVE Cycle Questionnaire Werner (2017) Version .....	56
APPENDIX D CASVE Cycle Questionnaire – Modifications.....	59
APPENDIX E CASVE Cycle Questionnaire Present Study.....	64
APPENDIX F CASVE Cycle Questionnaire - Current Version.....	67
APPENDIX G Consent Form .....	70

APPENDIX H IRB Approval Letter .....	72
REFERENCES .....	74

## LIST OF TABLES

Table 1 Demographics of Samples .....	21
Table 2 Percentage of Variance and Cumulative Percentages for Factors of the CASVE Cycle Questionnaire with 42 Items.....	26
Table 3 Exploratory Factor Analysis Factor Loadings with 42 Items .....	26
Table 4 Standardized Solutions by First Confirmatory Factor Analysis (Sample 2) .....	29
Table 5 Standardized Solutions by Second Confirmatory Factor Analysis (Sample 3)...	31
Table 6 Correlations, Standard Deviation, Mean, Possible Range, and Actual Range for Measures Used in Second Confirmatory Factor Analysis (Sample 3) .....	34
Table 7 Correlations of CTI CASVE Items and CASVE-CQ Items .....	34
Table 8 Descriptive Statistics of Navigator Score Multivariate Analyses of Variance ....	38
Table 9 Correlations Between Navigator Score and Measures using Subsamples.....	38
Table 10 Standardized Canonical Discriminant Function Coefficients.....	38
Table 11 Logistic Regression for Navigator Score.....	39
Table 12 Logistic Regression for Navigator Score Observed and Predicted Frequencies	39
Table 13 Logistic Regression for Navigator Score with CTI .....	39
Table 14 Logistic Regression Observed and Predicted Frequencies with CTI .....	40

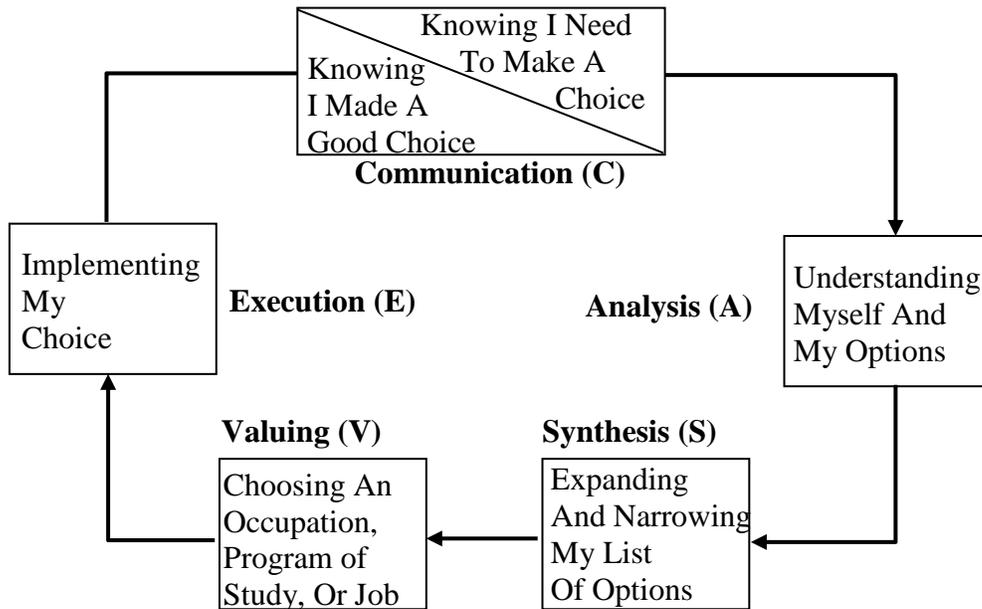
## LIST OF ILLUSTRATIONS

Figure 1. The five phases of the CASVE cycle. ....	1
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## CHAPTER I – LITERATURE REVIEW

The process of making career decisions occurs throughout an individual's life. Cognitive information processing (CIP) theory demonstrates a framework for the career decisions an individual will encounter throughout his or her life (Sampson, Reardon, Peterson, & Lenz, 2004). The CIP approach to decision making is demonstrated in the phase-based CASVE cycle. The CASVE cycle allows individuals and practitioners to systematically find solutions for career problems from identification of a problem through establishing a plan of action and evaluating the decision. A short definition of each phase is presented in Figure 1.

Figure 1. The five phases of the CASVE cycle.



Adapted from: Sampson, J. P., Jr., Peterson, G. W., Lenz, J. G., & Reardon, R. C. (1992). A cognitive approach to career services: Translating concepts into practice. *Career Development Quarterly*, 41, 67-74. Copyright © National Career Development Association. Used with permission.

Werner (2017) began the initial development of a measure, the CASVE-Cycle Questionnaire (CASVE-CQ), to assess the decision-making process using the CASVE cycle as a guide. The current study further developed and accumulated evidence on the validity for a measure of a phase-based, task-oriented career decision-making process with a focus on incorporation of individual factors. Specifically, this was accomplished by using samples of working adults, attempts to increase the reliability of the Valuing and Communication 1 scales, attempts to balance the item numbers across scales/phases, further assessment of convergent and discriminant validity evidence, and continued exploration of the best scoring method for the measure.

#### Cognitive information processing theory and the CASVE cycle

Cognitive information processing (CIP) theory was developed as a systematic, consumable, and inclusive conceptualization of career development (Sampson et al., 2004). Comprehensive accounts of CIP theory can be found in several sources (Osborn, Dozier, Peterson, Bullock-Yowell, Saunders, & Sampson, 2019; Sampson et al., 2004). The CIP theory's main constructs are depicted in a pyramid in which the base is composed of self and options knowledge, the mid sector is the decision-making domain operationalized via the CASVE cycle, and the apex of the pyramid involves metacognitions or career-related thinking. This research focuses on the decision-making mid sector, the CASVE cycle.

CIP's CASVE cycle is the basis and guide for the development of the current study's CASVE-CQ. The acronym CASVE summarizes the five decision-making phases which are conceptualized as fluid and interconnected yet systematic (Sampson et al., 2004). Individuals can return to previous phases or restart the cycle when dissatisfaction

occurs in the decision-making process, but completion of phases in the CASVE order is considered necessary for a quality decision (Sampson et al., 2004). The first phase, Communication, begins when one is triggered, by either internal or external awareness, to acknowledge the need to make a career decision, determine what type of decision needs to be made, and where they would like to be in the future. The second phase, Analysis, is when individuals clarify the knowledge they possess against his or her exploration of options, self-knowledge, and decision-making skills (Sampson et al., 2004). The third phase, Synthesis, focuses on expanding and narrowing possible options through elaboration and crystallization to identify three to five solid options. The fourth phase, Valuing, consists of an examination of the costs and benefits of each remaining option and subsequent rank-ordering of the top options (Sampson et al., 2004). Execution, the fifth phase, involves acting upon the steps necessary, as outlined in a time-based task list to obtain the top career option. At the end of the CASVE cycle, individuals loop back to the Communication phase a second time to evaluate the decision-making process and his or her executed choice. Although fluidity of the CASVE cycle is acknowledged, the structured approach allows individuals to continue to return to specific tasks to move forward (Sampson et al., 2004).

#### *Career decision-making*

The CASVE cycle allows career decision-making to classify as systematic while considering differences between individuals and career problems (Sampson et al., 2004). The CASVE-CQ assesses progress through the career decision-making process rather than other approaches to assessing career decision making such as career decision-making readiness, difficulties, commitment, and self-efficacy.

CIP theory assumes that as people age they can better conceptualize dynamic information in a more complex, organized way indicating that career decision-making skills can be increased (Sampson et al., 2004). Osipow (1999) pointed out that career decisions are made throughout the lifespan indicating a need for career decision-making resources available and applicable throughout the life-span. Therefore, in the current study, a sample of working adults may present as more skilled than the sample of emerging adults in Werner (2017).

Decision making is typically conceptualized as an independent process; however, family, significant others, community, and work environment, with respect to culture, should be considered (Arthur, 2000; Rounds, 1990; Sampson et al., 2004). Most individuals can rank order choices based on preferred alternatives; however, it is important to be able to conceptualize what each individual favors and values in both their personal and professional lives (Kaldor & Zytowski, 1969). The specific active process of evaluating options against one another is the cornerstone of Valuing as a phase in the CASVE cycle and is critical in considering all aspects that can influence one's career choice including gender, race, ethnicity, dis/ability, affectional orientation, religion and spirituality, and other factors that can impact the lens with which individuals view their world. It has long been a criticism within vocational psychology that inclusion is often missed; therefore, it is vital to consider the lens from which someone views the world of work (Blustein, 2017). For some, the connections between intersecting identities may not provide obvious influence on his or her career decision. Therefore, considering an individual's preferences or work values, external influences, identities, and barriers

throughout the process can make each task more meaningful and beneficial. These ideas were considered in the writing of items for the CASVE-CQ, especially the valuing scale.

### The CASVE Cycle Questionnaire

The CASVE-CQ was developed to give a client and practitioner the information on the client's current stage in the decision-making process and what steps are next to complete the decision. CIP posits that regardless of an individual's decision-making approach, there are identified tasks to make a satisfying career decision. The CASVE-CQ provides a comprehensive way to measure these tasks in career decision-making and it advances the concept into a quantifiable construct. As a practitioner grounds his or her work in CIP theory, CASVE phase clarification can be helpful to aid in the identification of career decision-making tasks individuals can complete to move forward in the career decision-making process.

The CASVE-CQ was originally developed in a sample of traditional college students (ages 18-25). Items for Werner's (2017), 55-item CASVE-CQ (see in Appendix C) were developed through a multi-phase process, including expert review and best fit in a six-factor structure. The factor structure represents the five phases of the CASVE cycle with a sixth factor representing re-entering the Communication phase to evaluate the career decision made. The CASVE-CQ is a direct representation of the CASVE cycle phases as outlined in CIP theory.

The total score of the CASVE-CQ was intended to assess how much progress one has made in the career decision-making process. A higher total score would indicate greater progress or endorsement of more completed decision-making tasks with limited emphasis on the phase or ordering of the tasks (Werner, 2017). However, the total score

does not account for whether a client adequately engages each CASVE phase in the theoretical order. The Navigator Score is calculated with CASVE phase scale scores because each scale score is meant to assess how much progress an individual has made in each phase, rather than overall progress. The Navigator Score is meant to aid in better identification of potential phases that may need more attention before a satisfying career decision can be successfully made. The Navigator Score will indicate Ideal or Non-Ideal phase completion order and is meant to be a categorical indicator of needed or unnecessary intervention or attention. A phase is considered successfully navigated when a meaningful portion of the items within that phase are endorsed as completed. Additionally, a phase is only considered successfully navigated when the preceding phases have been effectively navigated. For instance, one must be able to have identified his or her career problem (Communication) before they can rank order options (Valuing). In Werner (2017), the first development study, 50% was chosen as a starting point to assess an individual's level of phase completion (Werner, 2017). The current study analyzed the relationship between the various predetermined navigator score thresholds (i.e. 25%, 50%, and 75%) and the related career development constructs of career decision-making difficulties, negative career thoughts, vocational identity, career commitment, and career decision-making self-efficacy.

Werner (2017) found evidence of validity for the CASVE-CQ total and scale scores. The CASVE-CQ and the Career Commitment Measure (CCM; Carson & Bedeian, 1994) were moderately correlated ( $r = .51$ ) indicating those with higher levels of commitment to their careers have completed more career decision-making tasks. The Career Decision-Making Difficulties Questionnaire (CDDQ; Gati, Krausz, & Osipow,

1996) was also moderately correlated with the CASVE-CQ ( $r = -.60$ ) suggesting those who have completed more career decision-making tasks have lower levels of career decision-making difficulties. The vocational identity subscale of the My Vocational Situation (MVS; Holland, Daiger, & Power, 1980) was moderately correlated with the CASVE-CQ ( $r = .68$ ) signifying higher vocational identity is associated with completion of career decision-making tasks. The CASVE-CQ total score was moderately correlated with the Career Thoughts Inventory ( $r = -.64$ ) (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1998). This indicated that higher completion of career decision-making tasks is correlated with lower levels of negative career thoughts. The CTI items that address CASVE cycle phases were low to moderately correlated with corresponding CASVE-CQ scales indicating the CASVE-CQ phases are measuring similar but distinct CASVE cycle constructs. Most notably, the Valuing and Synthesis scales had a low correlation with the corresponding CTI valuing and synthesis items indicating there may be conceptual differences in the way that the CTI and the CASVE-CQ identify tasks in these phases. Significant differences, interpretable with caution, were found between Ideal and Non-Ideal navigators with respect to levels of negative career thoughts, vocational identity, career commitment, and career decision-making difficulties. Follow up univariate analysis indicated levels of career decision-making difficulties ( $F(299,1) = 18.5, p < .001$ ) and vocational identity ( $F(321,1) = 13.2, p < .001$ ) best accounted for statistically significant differences between Ideal and Non-Ideal Navigators. Additionally, discriminant analysis suggested vocational identity was the best predictor of Ideal and Non-Ideal Navigators. Yet, the Werner (2017) version of the CASVE-CQ had some drawbacks including low reliability and small number of items for the Valuing and

Communication 1 scales, inadequate knowledge of utility of the measure outside college students samples, and limited understanding of the function of the Navigator Score and appropriate scoring.

*Career development validity measures and constructs*

Again, the validity of the best navigator score thresholds (i.e. 25%, 50%, and 75%) will be assessed largely by the different scoring thresholds' relationship with established career development measures of career decision-making difficulties, career commitment, vocational identity, negative career thoughts, and career decision-making self-efficacy. As previously detailed, several of these construct's measures were also utilized in the initial CASVE-CQ development process (Werner, 2017).

Together, these constructs provide a basis for evaluation and establishment of the CASVE-CQ. These validity measures were chosen due to their inherent relationship to the career decision-making process or relationship with CIP theoretical concepts. For example, Kleiman et al. (2004) found those who have more career decision-making difficulties have higher levels of negative career thoughts. Goulet and Singh (2002) reported that those who are satisfied with their current positions are more likely to be committed to their careers, demonstrating the relationship between career commitment and choice satisfaction. In a sample of high school students, persistent indecision (i.e. changing the selected choice four or more times) was highly correlated with low a vocational identify subscale score on the MVS (Conneran & Hartman, 1993). In 2008, Strauser, Lustig, and Ciftçi, found those who scored higher in vocational identity and lower in negative career thoughts were found to have high levels of psychological well-being. In a sample of over four hundred participants, it was found that career decision-

making self-efficacy mediated the relationship between assertiveness, instrumentality, and interpersonal facility as indicators of human agency and vocational identity, career decision needs, and career activities that have been achieved (Solberg, Good, Fischer, & Brown, 1995). In a meta-analysis, it was found that career decision-making self-efficacy is significantly correlated with career indecision and vocational identity (Choi, Park, Yang, Lee, Lee, & Lee, 2012). Although Grief-Reed, Skaar, and Parson (2011) noted that higher career decision self-efficacy does not always indicate career indecision will be lowered. Overall, the assessment of these constructs in the current study aim to provide empirical support for the CASVE-CQ among variables well-established and explored in vocational and career decision-making literature.

## CHAPTER II – PRESENT STUDY

The present study aimed to continue the development of the CASVE Cycle Questionnaire (CASVE-CQ) following the work of Werner (2017). The CASVE-CQ would allow researchers and practitioners to better understand the movement of individuals within career decision-making skills as a task-based process versus the literature's current conceptualization of career decision-making as an abstract immeasurable process. The measurement of progress through the CASVE cycle is vital in the progression of theory to practice. A new version of the CASVE-CQ (Appendix D), modified based on the findings from Werner (2017), was used in the present study. The present study continued the development of the CASVE-CQ in five ways including the development and modification of items to increase stability of factor structure and reliability, an exploratory factor analysis, two confirmatory factor analyses, analysis of the Navigator Score scoring procedure through multiple regression, and to better understand the performance of the CASVE-CQ in a working adult population.

It was predicted that the CASVE-CQ six-factor structure would be confirmed in a new sample, the scale coefficient alpha levels would be at or above .70, and the overall CASVE-CQ reliability would be at or above .80. Positive correlations with career commitment and vocational identity as well as negative correlations with negative career thoughts and career decision-making difficulties were expected with the selected scoring procedure. Further, it was predicted the Navigator Score would be able to differentiate between low and high scores for each of the constructs.

## Research Questions and Hypotheses

Research Question 1: Will the CASVE-CQ's six-factor structure be stable in a sample of community adults?

Hypothesis 1 (Phase 2; Sample 1): An exploratory factor analysis will suggest supportive evidence of a six-factor structure in a sample of community adults similar to the originally developed CASVE-CQ six-factor structure.

Hypothesis 2 (Phase 3; Sample 2 and Sample 3): A confirmatory factor analysis will suggest supportive evidence of a six-factor structure in a sample of community adults similar to the originally developed CASVE-CQ six-factor structure.

Research Question 2 (Phase 4; Sample 3): Will the relations between the CASVE-CQ and other related career measures be moderately correlated?

Hypothesis 3: The CASVE-CQ Total Score will be moderately, negatively correlated with career decision-making difficulties (measured by the CDDQ).

Hypothesis 4: The CASVE-CQ Total Score will be moderately, negatively correlated with negative career thoughts (measured by the CTI).

Hypothesis 5: The CASVE-CQ subscales assessing each of the CASVE cycle phases will be moderately, negatively correlated with the corresponding CASVE cycle items on the CTI (Sampson et al., 1998).

Hypothesis 6: The CASVE-CQ Total Score will be moderately, positively correlated with vocational identity (measured by the VI scale of the MVS).

Hypothesis 7: The CASVE-CQ Total Score will be moderately, positively correlated with career commitment (measured by the CCM).

Research Question 3 (Phase 4; Sample 3): What is the most meaningful phase completion threshold for the Navigator Score of the CASVE-CQ?

Hypothesis 8: Fifty percent of item completion for each subscale will increase statistically significant differences in ability to differentiate between high and low scores on the CDDQ, CTI, identity subscale of the MVS, and CCM.

Research Question 4: Will the best-identified Navigator Score be able to assess differences between Ideal and Non-Ideal navigators, based on selected percentage, on the utilized career-related measures?

Hypothesis 9: Ideal Navigators will be correlated with lower negative career thoughts (measured by the CTI).

Hypothesis 10: Ideal Navigators will be correlated with lower career decision-making difficulties (measured by the CDDQ).

Hypothesis 11: Ideal Navigators will be correlated with higher career commitment (measured by the CCM).

Hypothesis 12: Ideal Navigators will be correlated with higher vocational identity (measured by the VI scale of the MVS).

## Methods

### *Procedures*

The procedure for the current study occurred in 4 phases and involved collection of 3 unique samples. The purpose of each phase is described below, and the sample that was used in each phase is indicated here and expounded upon in the Participants section. In phase 1, problematic items identified from the previous exploratory factor analysis conducted by Werner (2017) were modified and new items were developed for each

scale. Modification and new item development were conducted by the researcher, reviewed by an expert in the field who also generated items, and reviewed by a research team of graduate and undergraduate students with a primary research interest in vocational psychology. For each of the subsequent phases, informed consent was obtained utilizing the university approved IRB-approved consent form (Appendix L). In phase 2 (sample 1), an exploratory factor analysis was conducted to determine the factor structure of the CASVE-CQ version (Appendix E) that included previously established items, modified items, and new items. Phase 3 (sample 2) included a confirmatory factor analysis with an examination of model fit indices. These phases were based on the previously established six-factor structure of the CASVE-CQ. The confirmatory factor analysis indicated further item refinement was needed, and a second confirmatory factor analysis was conducted (sample 3). Between CFA 1 and CFA 2, 3Ana and 11Syn were eliminated and 7Ana and 9 Ana were added. Phase 4 (sample 3), which focused on the Navigator Score, included three separate analyses to determine the best scoring procedure for obtaining a reliable and valid distinction between Ideal and Non-Ideal Navigators. The Navigator Score was conceptualized as a combination of CASVE phase completion and navigation of the test-taker's decision-making process in the theoretically-consistent CASVE order. Because it was unclear how many completed tasks justified adequate scale and phase completion, the present study aimed to determine whether 75%, 50%, or 25% of item completion on each scale was most meaningful in identifying Ideal and Non-Ideal Navigators. In phases 2-4, the CDDQ, CCM, and vocational identity subscale of the MVS were administered in addition to the CASVE-CQ and demographic questionnaire. In addition to the aforementioned measures, the CEDSE-BD and CTI was administered

in sample 3 for phases 3 and 4. The CTI was only administered in sample 3 due to cost restriction and necessity of the CTI for multiple regression analyses. The CEDSE-BD was added as an additional exploratory measure to better understand the relationship between career decision-making self-efficacy and completion of career decision-making tasks.

One thousand one hundred and fifty-seven participants, across 3 samples, completed a brief demographics questionnaire, the CASVE-CQ, and four to six career-related measures to evaluate convergent and discriminate validity, as well as provide context to the EFA and CFA results. The 3 samples were collected independently from each other. The full survey and study components were hosted on Qualtrics, an online survey service. The measures took approximately 60 minutes to complete. The study was listed on mechanicalTurk, (mTurk), an Amazon service utilized to connect “Turkers,” or individuals who receive pay to complete tasks, including completing questionnaires, to obtain samples working or employment-seeking adults (Mason & Suri, 2012).

Demographics of participants on mTurk have been found to be 55% female, with an average age of 32, and have an average income of \$30,000 (Mason & Suri, 2012). Those who completed the study using mTurk were compensated 16 cents to 21 cents each for adequate recruitment. To assess validity, directed response items were included such as “Select strongly disagree for this question” (Meade & Craig, 2012). Additionally, time of completion for each measure was assessed as a measure of indication for the participants’ overall tendency to attend to items. Participants were not able to successfully complete the survey if they were under 18-years-old, lived outside the United States, were not

employed and not seeking employment or education, or failed to complete the validity items appropriately.

### *Participants*

Cattell (1978) suggested no less than 250 participants for factor analysis. Further, Kline (2010) suggested at least five participants for each item. Therefore, because after phase 1 there were 88 items, 427 participants were recruited for phase 2. Because phase 2 resulted in a 42-item measure, 324 participants were recruited for phase 3 or the first confirmatory factor analysis, and 388 participants were recruited to complete phases 3 and 4 or the second confirmatory factor analysis and exploration of Navigator Score scoring method. See Table 1 for demographic information for each phase of the study. Using G\*Power, a tool used to find the necessary sample size for multiple regression, it was determined that 74 participants would be necessary for each of the three scoring possibilities to achieve 95% confidence (Faul, Erdfelder, Buchner, & Lang, 2009). Therefore, in phase 4, with the 3<sup>rd</sup> sample, the sample was split randomly by SPSS into 3 groups of 122, 129, and 137 participants to more confidently assess possible scoring procedures. A summary of the data collection plan by phase is provided below.

- Phase 1: No sample required.
- Phase 2: Sample 1; 427 participants for exploratory factor analysis.
- Phase 3: Sample 2; 324 participants for confirmatory factor analysis.

Second confirmatory factor analysis was conducted on a new sample of 388 participants (sample 3) because item modification was found necessary after the first confirmatory factor analysis.

- Phase 4: Sample 3; Sample of 388 participants also used to compare the three possible Navigator Score scoring methods.

The surveys for each phase were hosted on Qualtrics and subsequently linked to mTurk. Individuals completed a screening questionnaire prior to gaining access to the full survey to assure all participants could fully engage CASVE-CQ items that assume the test taker is within or contemplating a career change or decision. Individuals were screened out if they were in college and not working, if they endorsed that they were not seeking a new employment or educational opportunity, and if they endorsed that they did not currently contemplate an employment change (i.e. changing careers, positions, employers).

#### *Instruments*

Participants completed a brief demographic questionnaire, the CASVE Cycle Questionnaire, Career Decision-Making Difficulties Questionnaire (Gati et al., 1996), the vocational identity subscale of the My Vocational Situation (Holland et al., 1980), and Career Commitment Measure (Carson & Bedeian, 1994). One hundred and four participants completed the Career Thoughts Inventory in sample 3 only due to the cost of the measure (Sampson et al., 1998). In sample 3, the Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale (Lent, Ezeofor, Morrison, Penn, & Ireland, 2016) was added for exploratory purposes (see Table 7).

#### *CASVE Cycle Questionnaire.*

The Werner (2017) version of the CASVE Cycle Questionnaire (CASVE-CQ; see Appendix C) was composed of 55 yes-no items with six scales assessing Initial Communication, Analysis, Synthesis, Valuing, Execution, and Final Communication. For

the exploratory factor analysis, the CASVE-CQ had 88 yes-no items (see Appendix D) for the items as well as which items included in the first and second confirmatory factor analysis). Total and scale scores are calculated with Yes = 1 and No = 0; the scale scores are calculated independently by totaling the items answered “yes” within the relevant CASVE cycle phase. The total score is the sum of the scale scores and indicates overall career decision-making task completion. The Navigator Score is composed of two indicators, 1) adequate completion of CASVE-based scales and 2) completion of prerequisite theoretical CASVE cycle phases. For example, an Ideal Navigator will have completed Communication, Analysis, and Synthesis while a Non-Ideal Navigator will have completed Analysis, Synthesis, and Execution. The Werner (2017) version of the CASVE-CQ had high internal consistency for the overall measure ( $\alpha = .93$ ). In addition, moderate reliability on Communication 1 ( $\alpha = .76$ ), Analysis ( $\alpha = .84$ ), Synthesis ( $\alpha = .85$ ), Execution ( $\alpha = .86$ ), and Communication 2 ( $\alpha = .83$ ). However, low internal consistency was found for Valuing ( $\alpha = .59$ ). Additionally, the Werner (2017) version of the CASVE-CQ demonstrated moderate item-total correlation ( $r = .46$ ). The Communication 1 scale had 4 items, Analysis had 10 items, Synthesis had 14 items, Valuing had 5 items, Execution had 14 items, and Communication 2 had 8 items.

#### *Career Decision-Making Difficulties Questionnaire.*

The Career Decision-Making Difficulties Questionnaire (CDDQ; Gati et al., 1996) was used to assess participants’ career decision-making difficulties. The CDDQ assesses difficulties in the areas of readiness, lack of information, and inconsistent information. There are 34 items that each utilize a 1 (*does not describe me*) to 9 (*describes me well*) scale. Items include content such as “work is not the most important

thing in one's life and therefore the issue of choosing a career doesn't worry me much" (Gati et al., 1996). The CDDQ total score is the result of an average of 10 subcategory scores, with higher scores meaning higher levels of career decision-making difficulties. Internal consistency of .95 was found in a sample of college students (Gati et al., 1996). When college students completed the CDDQ, the Career Decision-Making Self-Efficacy Scale (Taylor & Betz, 1983) and Career Decision Scale (Osipow, Carney, & Barak, 1976) correlations of -.50 and .77 were found, respectively. The CDDQ is expected to be negatively correlated with the CASVE-CQ, suggesting discriminant validity among career decision-making difficulties and higher levels of career decision-making task completion.

*Career Commitment Measure.*

The Career Commitment Inventory (CCM; Carson & Bedeian, 1994) identifies an individual's level of career commitment, or meaningful investment, in his or her vocation. Three subscales – career identity, career planning, and career resilience – make up the 12-item measure which can be answered from 1 (*strongly disagree*) to 5 (*strongly agree*) with items such as “My line of work/career field is an important part of who I am.” A maximum total score, which is utilized in this study, of 60 indicates higher satisfactory responsibility to one's chosen career. Carson and Bedeian (1994) internal consistency of .79 to .85. When correlated with another measure of career commitment, years of education, and organization commitment, validity was supported with correlations of .75, .18, and -.05, respectively (Blau, 1985; Carson & Bedeian, 1994). The CCM was expected to be positively correlated with the CASVE-CQ and each phase of

the CASVE cycle, suggesting convergent validity among career commitment and higher levels of career decision-making task completion.

*Vocational Identity Subscale of the My Vocational Situation.*

The vocational identity (VI) subscale of the My Vocational Situation (MVS; Holland et al., 1980) was used in the current study to assess one's vocational standing and goal stability. The VI subscale consists of 18 true-false items, scored by totaling the amount of endorsed false items, with higher scores indicating more stable career goals. One item from the VIVI subscale of the MVS is "No single occupation appeals to me strongly." Used in more than 50 studies, test-retest reliability was found to be moderate while evidence of construct validity was high (Holland, Johnston, & Asama, 1993). The reliability for the VI subscale was found to be from .76 to .86 (Holland et al., 1980; Diemer & Blustein, 2007). Moderate correlations between negative career thoughts and the MVS scores have been found at -.76 (Saunders, Peterson, Sampson, & Reardon, 2000). The VIVI subscale of the MVS was expected to be positively correlated with the CASVE-CQ, suggesting convergent validity among vocational identity and higher levels of career decision-making task completion.

*The Career Thoughts Inventory.*

The Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1998) is a measure of negative thinking with regards to career decision making. As the CTI was also developed within the concepts of the CIP theory, the CTI has three subscales that map onto the CASVE cycle: Decision-Making Confusion (Communication, Analysis, Synthesis) Commitment Anxiety (Execution), and External Conflict (Valuing) (Walker & Peterson, 2012). The CTI has 48 items that use a 4-point

Likert scale from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*), with higher scores indicating a higher level of negative thinking. A sample from the CTI is “My interests are always changing.” Internal consistency and test-retest reliability of the CTI were assessed to be .96 and .86, respectively (Sampson, Peterson, Lenz, & Reardon, 1996). The CTI has been found to be related to lower vocational identity, lower psychological well-being, neuroticism, communication apprehension, and depression (Strauser et al., 2008); Kelly & Shin, 2008; Meyer-Griffith, Reardon, & Hartley, 2009; Saunders et al., 2000). The total score and items on the CTI that assess phases of the CASVE cycle will be used in the current study. The CTI was expected to be negatively correlated with the CASVE-CQ, suggesting discriminant validity among negative career thoughts and higher levels of career decision-making task completion. CTI items that assess CASVE cycle phases are predicted to be low to moderately correlated with CASVE cycle phases assessed by the CASVE-CQ due to assume content similarity.

*Career Exploration and Decision Self-Efficacy – Brief Decisional.*

The eight-item Career Exploration and Decision Self-Efficacy – Brief Decisional Scale (CEDSE-BD; Lent et al., 2016) is a measure of career decision-making self-efficacy or belief in one’s self to implicate skills to decide between career-related options. The CEDSE-BD has answer options from 0 (*no confidence at all*) to 4 (*complete confidence*). with items such as “How much confidence do you have in your ability to learn more about careers that you might enjoy?” Higher scores indicate more belief in one’s ability to make a career decision. Reliability (internal consistency) for the CEDSE-BD has been found to be high at .94. In addition, the measure was found to be correlated with coping

efficacy (.61), conscientiousness (.55), and decision anxiety (-.53) (Lent et al., 2016). The CEDSE-BD was expected to be positively correlated with the CASVE-CQ.

Table 1 *Demographics of Samples*

	Sample 1 (N=427)	Sample 2 (N=342)	Sample 3 (N=388)
Age: Mean (SD) %	37.4(11.2)0.2	34.6(10.2)0.9	34.6(10.3)0
	N(%)	N (%)	N(%)
<b>Age (years)</b>			
18-25	58(13.5)	60(17.5)	81(20.9)
26-30	78(14.5)	74(21.6)	77(19.8)
31-35	83(19.4)	76(22.2)	74(19)
36-40	63(14.7)	53(15.5)	55(14.9)
41-45	46(1.8)	25(15.5)	56(9.8)
46-50	36(8.5)	28(8.2)	18(4.6)
51-55	30(7.1)	13(3.9)	28(7.2)
56-60	13(3.0)	8(2.4)	10(2.6)
61-65	12(2.8)	1(0.3)	3(0.9)
66-70	7(0.16)	1(0.3)	1(0.3)
71-78			
<b>Sex</b>			
Male	129(30.2)	123(36.0)	119(30.7)
Female	295(69.1)	216(63.2)	268(69.1)
Transgender	3(0.7)	2(0.6)	1(0.3)
Genderqueer	0(0)	1(0.3)	0(0)
<b>Race</b>			
American Indian Alaskan Native	3(0.3)	4(1.2)	5(1.3)
Asian Pacific Islander	33(7.7)	25(7.3)	32(8.2)
Black African American	37(8.7)	21(6.1)	46(11.9)
Hispanic	20(4.7)	13(3.8)	23(5.9)
White	329(77.0)	277(81.0)	274(70.6)
Other	5(1.2)	1(0.6)	8(2.1)
<b>Marital Status</b>			
Single	176(41.2)	142(41.5)	185(47.7)
Married	183(42.9)	171(50.0)	158(40.7)
Divorced	45(10.5)	19(5.6)	35(9.0)
Widowed	6(1.4)	3(0.9)	3(0.8)
Other	17(4.0)	7(2.0)	7(1.8)
<b>Affectional Orientation</b>			
Homosexual	30(7.0)	24(7.0)	31(8.0)
Heterosexual	363(85.0)	282(82.5)	306(78.9)

Table 1 (continued).

Bisexual	28(6.6)	33(9.6)	44(11.3)
Other	6(1.4)	3(0.09)	7(1.8)
<b>Education</b>			
HS or less	27(6.3)	21(6.1)	21(5.4)
Some College	89(20.8)	96(28.1)	98(25.3)
Tech. Training	9(2.1)	7(2.0)	11(2.8)
Assoc. Degree	59(13.8)	38(11.1)	47(12.1)
Bachelor's	146(32.2)	122(35.7)	144(37.1)
Master's	79(18.5)	46(13.5)	55(14.2)
Doctoral	18(4.2)	12(3.5)	12(3.1)
<b>Region</b>			
West	65(15.2)	43(12.6)	65(16.8)
Midwest	106(24.8)	81(23.7)	86(22.2)
Northeast	102(23.9)	82(24.0)	100(25.8)
South	154(36.1)	136(39.8)	137(35.3)
<b>Job Category</b>			
Agriculture	7(1.6)	5(1.5)	9(2.3)
Food & Natural Resources			
Architecture	5(1.2)	5(1.5)	2(0.5)
Construction			
Arts,	14(3.3)	14(4.1)	16(4.1)
AV Tech & Communication			
Business	26(6.1)	16(4.7)	20(5.2)
Management & Administration			
Education	76(17.8)	39(11.4)	42(10.8)
Training			
Finance	24(5.6)	21(6.1)	27(7.0)
Government.	16(3.7)	18(5.3)	16(4.1)
Public Administration			
Health Science	40(9.4)	25(7.3)	34(8.8)
Hospitality	21(4.9)	20(5.8)	18(4.6)
Tourism			
Human Services	26(6.1)	14(4.1)	18(4.6)
Info. Technology	24(5.6)	24(7.0)	20(5.2)
Law	10(2.3)	12(3.5)	8(2.1)
Public Safety, Security, & Corrections			
Manufacturing	11(2.6)	10(2.9)	16(4.1)
Marketing	14(3.3)	11(3.2)	22(5.7)
STEM	17(4.0)	15(4.4)	20(.2)
Transportation	17(4.0)	8(2.3)	11(2.8)
Distribution & Logistics			
Unemployed	23(5.4)	28(8.2)	26(6.7)
Other	56(13.1)	57(16.7)	63(16.2)

Table 1 (continued).

Annual Income			
Under \$20K	103(24.1)	76(22.2)	87(22.4)
\$20-40K	134(31.4)	109(31.9)	135(34.8)
\$40-60K	97(22.7)	80(23.4)	91(23.5)
\$60-100K	71(16.6)	55(16.1)	56(14.7)
Over 100K	22(5.2)	22(6.4)	18(4.6)
Employ. Status			
Full-Time	294(68.9)	221(64.6)	247(63.7)
Part-Time	97(22.7)	78(22.8)	105(27.1)
Unemployed	36(8.4)	43(12.6)	36(9.3)
# of Hours Worked/Week			
0-5	29 (6.9)	34(9.9)	34(8.8)
6-10	1(2.3)	10(2.9)	15(3.9)
11-15	13(3.0)	10(2.9)	16(4.1)
16-20	28(6.6)	19(5.6)	28(7.2)
21-25	24(5.6)	17(5.0)	26(6.7)
26-30	26(6.1)	17(5.0)	16(4.1)
31-35	30(7.0)	22(6.4)	21(5.4)
36-40	140(32.8)	108(31.6)	121(31.2)
41-45	73(17.1)	59(17.3)	65(16.8)
45+	54(12.6)	45(13.2)	46(11.9)
No Answer	0(0)	1(0.3)	0(0)

### *Results*

In phase 1, the CASVE-CQ version resulting from Werner's (2017) work was modified and resulted in 19 modified items, 28 unedited item, and 41 new items, for a total of 88 items on the version of the CASVE-CQ used in phase 2 of the research (Appendix D).

#### *Exploratory factor analysis.*

In phase 2 (sample 1, hypothesis 1), an exploratory factor analysis using principal axis factoring with an oblimin oblique rotation was conducted in the Statistical Package for the Social Sciences (SPSS; Version 22.0). Parallel analysis (Horn, 1965), minimum average partial (Velicer, 1976), and eigenvalues were used to extract factors.

Additionally, information from the previous exploratory factor analysis from Werner (2017) was used to inform the present analysis (e.g., 6 factor rotation). In the present study, an exploratory factor analysis was conducted due to the continued early developmental work (i.e., new item development, item modification) on the CASVE-CQ. Twenty-eight items were original from the Werner (2017) version of the CASVE-CQ, nineteen Werner (2017) items were edited, and forty-one items were newly generated. Although instability in exploratory factor analysis is typically high, Osborne and Fitzpatrick (2012) recommended comparing more than one exploratory factor analysis to create a more stable factor structure. Minimum average partial (Velicer, 1976) which indicated 10 factors and parallel analysis (Horn, 1965) which indicated 8 factors were used to inform factor selection. Cattell's scree test indicated five factors (Cattell, 1966). Therefore, five, seven, and eight factor solutions were explored and were unable to produce a theoretically meaningful foundation or provided factors with less than four items. An additional goal was to have items with a factor loading of .32 or above (Tabachnick & Fidell, 2001). In the five, seven, and eight factor solutions it was found that they were unable able to provide a factor structure in which items assessing the same CASVE cycle phase were each grouped together, factors with an acceptable number of items (e.g. four or more items) with factor loadings of .32 or above, or theoretically grounded conceptualization of the CASVE cycle. Six factors were found in Werner (2017), therefore, this was used to derive a meaningful factor solution.

Items were systematically eliminated one at a time in each factor solution based on low (below .3) and double loadings. Items that were eliminated due to low loadings were items (Appendix D) 4Com1 (.28), 7Com1 (.25), 9Com1 (<.20), 10Com1 (.28),

14Com1 (.26), 11Ana (.29), 12Ana (<.20), 13Ana (.25), 15Ana (<.20), 2Val (.29), 3Val (.25), 4Val (.28), 12Val (<.20), 13Val (<.20), 1Syn (.29), 12Syn (.29), 4Exe (.29), and 5Exe (<.20). Items that were eliminated due to double loadings, with highest loading the item had provided, were items 3Com1 (.37), 5Com1 (.40), 14Val (.40), 2Com2 (.69), 2Exe (.49), 7Exe (.35), 12Exe (.37), 3Com2 (.57), 4Com2 (.49), 6Com2 (.50), and 7Com2 (.48). In addition, items were then eliminated from factors that did not have predominate items from that phase of the CASVE cycle or loaded onto the wrong scale. These included; 14Ana (-.45), 15Val (.40), 1Com2 (.57), 5Com2 (.69), 8Com2 (.61), 9Com2 (.73), 12Com2 (.60) were eliminated from the factor representative of the Execution phase. 13Syn (.40) was eliminated from the factor representative of the Analysis phase. 3Exe (.35) was removed from the factor representative of the Valuing phase. Next, items were eliminated that were similar and had lower factor loadings to create factors with a realistic number of items. 1Exe (.34) was eliminated from Execution, 7Ana (-.38), 8Ana (-.32), 9Ana (-.38) were eliminated from Analysis, and 2Syn (-.35) and 3Syn (-.40) were eliminated from Synthesis. Forty-two items remained after this process of elimination. Table 2 provides the percentage of variance and cumulative percentage of the 6-factor CASVE Cycle Questionnaire. The item factor loadings after all elimination was completed and the EFA was re-ran can be seen in Table 3. The CASVE-CQ is scored by summing the amount of items endorsed for each scale, or CASVE phase, with Communication assessed at the beginning and end of the cycle. Communication 2 items are negatively worded and indicate a lack of career decision-making task completion and are therefore reversed scored. All other items are worded in the positive direction that progress is made towards each scale, or CASVE phase.

Reliability for the factors and total score were acceptable except Analysis: CASVE-CQ total score (.73), Communication 1 (.86), Analysis (.41), Synthesis (.85), Valuing (.79), Execution (.82), and Communication 2 (.78). The EFA began with 88 items and showed that 42 items were likely part of a stable factor structure.

Table 2 *Percentage of Variance and Cumulative Percentages for Factors of the CASVE Cycle Questionnaire with 42 Items*

Factor	% of Variance	Cumulative Variance
Execution	21.90	21.90
Analysis	11.32	33.29
Valuing	5.78	39.01
Communication 2	4.60	43.61
Synthesis	3.86	47.54
Communication 1	3.23	50.72

Table 3 *Exploratory Factor Analysis Factor Loadings with 42 Items*

Item	Factor					
	1	2	3	4	5	6
<b>Factor</b>						
<b>1. Communication 1</b>						
1Com1	<b>.53</b>	-.22	-.02	-.06	-.02	.02
2Com1	<b>.50</b>	-.22	-.03	-.05	-.19	.01
6Com1	<b>.47</b>	-.05	-.01	-.08	.22	.03
8 Com1	<b>.51</b>	-.10	.00	-.08	.05	-.05
11Com1	<b>.56</b>	-.08	.03	.05	-.13	.06
12Com1	<b>.69</b>	.08	-.01	-.02	-.13	.13
13Com1	<b>.46</b>	-.05	.04	.03	-.14	.13
15 Com1	<b>.65</b>	-.03	.07	.05	-.01	.02
<b>2. Analysis</b>						
1Ana	.21	<b>-.49</b>	.06	.01	-.15	.12
2Ana	.22	<b>-.54</b>	-.01	-.03	-.05	-.00
3Ana	.21	-.76	-.00	.04	.00	.01
4Ana	.09	<b>-.70</b>	-.06	.01	.03	-.02
5Ana	.05	<b>-.69</b>	.03	.01	-.10	-.05
<b>3. Synthesis</b>						
4Syn	.03	-.01	<b>-.64</b>	.00	.08	-.05
5Syn	-.04	-.08	<b>-.85</b>	.02	-.12	-.00
6Syn	.07	-.03	<b>-.79</b>	-.02	-.01	.01

Table 3 (continued).

7Syn	.05	.05	<b>-.41</b>	.04	.25	.05
8Syn	-.03	.10	<b>-.36</b>	.23	.14	.07
9Syn	.07	.16	<b>-.41</b>	.18	.12	.02
10Syn	.07	.17	<b>-.31</b>	.19	.18	.00
11Syn	.01	.09	-.39	.08	.17	-.09
<b>4. Valuing</b>						
1Val	-.03	-.01	-.10	<b>.36</b>	.18	-.04
5Val	.04	.00	.00	<b>.45</b>	.01	.00
6Val	.06	.05	-.13	<b>.58</b>	-.08	.03
7Val	-.03	.03	-.10	<b>.57</b>	.10	-.02
8Val	-.04	-.10	-.06	<b>.58</b>	-.11	-.05
9Val	-.12	-.03	-.03	<b>.57</b>	.00	-.00
10Val	.01	.07	.10	<b>.68</b>	.01	.00
11Val	-.05	-.10	.04	<b>.55</b>	.08	-.05
<b>5. Execution</b>						
6Exe	-.03	-.07	-.03	.05	<b>.52</b>	-.08
8Exe	.05	.07	-.06	.01	<b>.73</b>	-.11
9Exe	.02	.12	-.01	.02	<b>.72</b>	-.05
10Exe	-.03	.09	-.12	.01	<b>.58</b>	.01
11Exe	-.04	.03	-.07	.02	<b>.70</b>	-.02
13Exe	.06	.04	-.01	.19	<b>.44</b>	.00
14Exe	-.12	-.11	.02	.03	<b>.51</b>	.18
15Exe	-.07	-.02	-.08	.00	<b>.54</b>	.07
<b>6. Communication 2</b>						
10Com2	.01	-.02	-.00	-.00	.14	<b>.59</b>
11Com2	-.07	-.06	-.08	-.07	-.05	<b>.58</b>
13Com2	.05	.03	.06	.04	-.02	<b>.67</b>
14Com2	.03	.03	.04	-.02	-.06	<b>.77</b>
15Com2	.19	-.02	-.03	-.01	.01	<b>.50</b>

*First confirmatory factor analysis.*

After data collection for the first confirmatory factor analysis, it was determined that items in the Communication 2 scale would be reverse scored. With tolerable model fit,  $\chi^2(819) = 3521.70$ ,  $p < .00$ , CFI=.51, TLI=.48, RMSEA=0.098, with 90% CI: .095 to .102, the first confirmatory factor analysis provided some evidence for a 6-factor structure.

In phase 3 (sample 2 and sample 3, hypothesis 2), a covariance matrix was analyzed with maximum likelihood estimation for a confirmatory factor analysis which used the factor structure of the CASVE-CQ, with each item indicating latent score scales, using Mplus which shifts one observable variable to a fixed factor of 1.0, or using the marker indicator, due to the lack of causal implications related to latent variables (Muthèn & Muthèn, 1998; Millsap & Oliveria-Aguilar, 2012; Gerbing & Hamilton, 1996). Jackson, Gillaspay, and Purc-Stephenson (2009) suggest that multivariate and univariate normality, due to the sensitivity to normality of maximum likelihood, as well as the identification of missing data, outliers, and necessary transformations should be first assessed. The fit of the model data, or the model's ability to predict the data was assessed through multiple fit-indices including lower chi-square ( $\chi^2$ ), although it is sensitive to sample size, root-mean-square error of approximation (RMSEA) at or below .06, comparative fit index (CFI) above .90, goodness of fit index (GFI) above .90, and Tucker-Lewis index (TLI) above .90 are suggestive of a good fitting model (Hu & Bentler, 1999; Bentler, 1990; Valero & Topa, 2015). Factor loadings can be seen in Table 4 which were all considered acceptable. Utilizing modification indices, Ana1 aligned with Communication 1 items; however, moving the item, although increasing model fit was not theoretically justifiable,  $\chi^2(804) = 1487.65$ ,  $p < .00$ , CFI=.87, TLI=.88, RMSEA=0.050, with 90% CI: .046 to .054. 10Syn and 11Syn as well as 2Ana and 3Ana were found to be items that were highly correlated. Syn10 and Syn11 did not add meaningful fit to the model through an assessment of BIC, or Bayesian Information Criteria, error reduction. Therefore, it was decided 11Syn and 3Ana would be eliminated to ensure content integrity, or the assessment of important item content with redundancy

with a resulting model fit of  $\chi^2(725) = 1325.320, p < .00, CFI = .88, TLI = .87, RMSEA = 0.049$ , with 90% CI: .045 to .053. 7Ana and 9Ana were added for the 2<sup>nd</sup> confirmatory factor analysis even though they were previously eliminated after utilizing evidence from the exploratory factor analysis, confirmatory factor analysis, analysis reliability, and theory. To assess the utility of the CASVE-CQ total score, the model was assessed as one factor. The model did not converge, despite an increased amount of iterations and changing variables to be interpreted as categorical. The confirmatory factor analysis indicated poor fit, taking into consideration the multiple assessments of fit, adjustments (i.e., removing and adding items) were made, and a second confirmatory factor analysis (sample 3) was conducted. The first CFA began with 42 items, and after modification 42 items were utilized in the second CFA.

Table 4 *Standardized Solutions by First Confirmatory Factor Analysis (Sample 2)*

Item	1	2	3	4	5	6
<b>1. Communication 1</b>						
1Com1	<b>.73</b>					
2Com1	<b>.70</b>					
6Com1	<b>.44</b>					
8 Com1	<b>.65</b>					
11Com1	<b>.68</b>					
12Com1	<b>.71</b>					
13Com1	<b>.56</b>					
15 Com1	<b>.62</b>					
<b>2. Analysis</b>						
1Ana		<b>.77</b>				
2Ana		<b>.74</b>				
4Ana		<b>.60</b>				
5Ana		<b>.62</b>				
7Ana*		<b>.20</b>				
9Ana*		<b>.60</b>				
<b>3. Synthesis</b>						
4Syn			<b>.63</b>			
5Syn			<b>.69</b>			
6Syn			<b>.67</b>			

Table 4 (continued).

7Syn	<b>.63</b>	
8Syn	<b>.66</b>	
9Syn	<b>.65</b>	
10Syn	<b>.58</b>	
<hr/>		
4. Valuing		
<hr/>		
1Val	<b>.66</b>	
5Val	<b>.45</b>	
6Val	<b>.65</b>	
7Val	<b>.62</b>	
8Val	<b>.69</b>	
9Val	<b>.43</b>	
10Val	<b>.56</b>	
11Val	<b>.44</b>	
<hr/>		
5. Execution		
<hr/>		
6Exe		<b>.55</b>
8Exe		<b>.75</b>
9Exe		<b>.77</b>
10Exe		<b>.61</b>
11Exe		<b>.70</b>
13Exe		<b>.50</b>
14Exe		<b>.52</b>
15Exe		<b>.54</b>
<hr/>		
6. Communication 2		
<hr/>		
10Com2		<b>.63</b>
11Com2		<b>.66</b>
13Com2		<b>.59</b>
14Com2		<b>.70</b>
15Com2		<b>.60</b>

*Second confirmatory factor analysis.*

A second confirmatory factor analysis was conducted with a unique sample (Sample 3) and was found to have acceptable fit;  $\chi^2(804) = 1559.70$ ,  $p < .00$ , CFI=.86, TLI=.85, RMSEA=0.049, with 90% CI: .045 to .053. The factor loadings can be seen in Table 55. Ana7 had a low factor loading which was a concern for its ability to add meaningful information to the overall construct.

In addition, the one factor model to measure the CASVE-CQ total score would again not converge despite increase iterations. Brown (2015) acknowledged that increased model complexity, or having a greater number of freely estimated parameters, increases the risk of non-convergence. Scale reliabilities (Cronbach's alpha) were found to be acceptable for the second confirmatory factor analysis (Table 6): Total CASVE-CQ (.80), Communication 1 (.84), Analysis (.76), Synthesis (.83), Valuing (.78), Execution (.83), and Communication 2 (.77). After the second CFA, it was determined that further modification would likely not increase the stability of the factor structure. Therefore, the version of the CASVE-CQ resulting from the present research includes 42 items.

Table 5 *Standardized Solutions by Second Confirmatory Factor Analysis (Sample 3)*

Item	1	2	3	4	5	6
<b>1. Communication 1</b>						
1Com1	<b>.73</b>					
2Com1	<b>.70</b>					
6Com1	<b>.44</b>					
8 Com1	<b>.65</b>					
11Com1	<b>.68</b>					
12Com1	<b>.71</b>					
13Com1	<b>.56</b>					
15 Com1	<b>.62</b>					
<b>2. Analysis</b>						
1Ana		<b>.77</b>				
2Ana		<b>.74</b>				
4Ana		<b>.60</b>				
5Ana		<b>.62</b>				
7Ana*		<b>.20</b>				
9Ana*		<b>.60</b>				
<b>3. Synthesis</b>						
4Syn			<b>.63</b>			
5Syn			<b>.69</b>			
6Syn			<b>.67</b>			
7Syn			<b>.63</b>			
8Syn			<b>.66</b>			
9Syn			<b>.65</b>			
10Syn			<b>.58</b>			

Table 5 (continued).

<b>4. Valuing</b>		
1Val	<b>.66</b>	
5Val	<b>.45</b>	
6Val	<b>.65</b>	
7Val	<b>.62</b>	
8Val	<b>.69</b>	
9Val	<b>.43</b>	
10Val	<b>.56</b>	
11Val	<b>.44</b>	
<b>5. Execution</b>		
6Exe		<b>.55</b>
8Exe		<b>.75</b>
9Exe		<b>.77</b>
10Exe		<b>.61</b>
11Exe		<b>.70</b>
13Exe		<b>.50</b>
14Exe		<b>.52</b>
15Exe		<b>.54</b>
<b>6. Communication 2</b>		
10Com2		<b>.63</b>
11Com2		<b>.66</b>
13Com2		<b>.59</b>
14Com2		<b>.70</b>
15Com2		<b>.60</b>

*Note.* \* indicates items that were not included in the 1<sup>st</sup> confirmatory factor analysis.

#### *Correlations.*

Utilizing the 42-item version of the CASVE-CQ that resulted from the second CFA analysis (Appendix F), correlational analyses (sample 3, hypotheses 3-7) were conducted between the CASVE-CQ total score, CASVE-CQ scales, CDDQ, CTI, VI subscale of the MVS, CCM, and CEDSE-BD. The correlational relationships between the CASVE cycle phase specific items on the CTI and CASVE-CQ scales were also explored.

Although the CASVE-CQ total score was not found to be appropriate for use at this point. To test hypotheses, it was found that the CASVE-CQ total score was not correlated with the CTI, CCM, or CEDSE-BD (see Table 7). However, the CASVE-CQ total score was significantly correlated with the CDDQ and VI subscale of the MVS. Therefore, hypotheses 4 and 7 were not supported while hypotheses 3 and 6 were supported. The CASVE-CQ scales assessing each of the CASVE cycle phases were low to moderately correlated with the corresponding CASVE cycle items on the CTI (see Table 8). Given the directional wording of items in the CASVE-CQ, after the EFA, the negative and positive correlations provided evidence in support of the CASVE-CQ. However, when evaluating the original hypothesis, there was only partial support for hypothesis 5 as Communication 1 and Analysis items were negatively correlated with CTI scores while Synthesis, Valuing, Execution, and Communication 2 were positively correlated.

Table 6 *Correlations, Standard Deviation, Mean, Possible Range, and Actual Range for Measures Used in Second Confirmatory Factor Analysis (Sample 3)*

Measure	1	1.1	1.2	1.3	1.4	1.5	1.6	2	3	4	5	6
1. CASVE-CQ	(.73)	.27*	.21*	.69*	.62*	.59*	-.78	-.31*	.26*	-.06	.06	.17
1.1 Communication 1		(.84)	.70*	-.18*	-.22*	-.30*	-.41*	-.72*	.57*	-.48*	-.41*	.67*
1.2 Analysis			(.76)	-.26*	-.26*	-.31*	-.37*	-.72*	.63*	-.42*	-.50*	.67*
1.3 Synthesis				(.83)	.57*	.54*	.07	.27*	-.23*	.22*	.42*	-.38*
1.4 Valuing					(.78)	.45*	.17*	.27*	-.26*	.29*	.42*	-.38*
1.5 Execution						(.83)	.01	.33*	-.26*	.33*	-.41*	-.40*
1.6 Communication 2	<u>SD</u>	<u>M</u>	<u>Range</u>				(.77)	.39*	-.37*	.22*	.19*	-.40*
2. VI-MVS	5.0	8.7	0-18					(.87)	.70*	.49*	.54*	-.77*
3. CDDQ	4.7	13.1	3.2-26.5						(.93)	-.40*	.47*	.76*
4. CCM	8.9	38.2	12-60							(.85)	.38*	-.56*
5. CEDSE-BD	7.0	20.9	0-32								(.94)	-.60*
6. CTI	31.4	57.1	48-171									(.97)

*Note.* Coefficient alphas are presented along the diagonal in parentheses. Coefficients presented with \* are significant at  $p < .01$ . CASVE Cycle Questionnaire (CASVE-CQ); Vocational Identity subscale of the My Vocational Situation (VI-MVS); Career Decision-Making Difficulties Questionnaire (CDDQ); Career Commitment Measure (CCM); Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale (CEDSE-BD); Career Thoughts Inventory (CTI;  $n = 104$ )

Table 7 *Correlations of CTI CASVE Items and CASVE-CQ Items*

Measure	CTI	Communication 1	Analysis	Synthesis	Valuing	Execution	Communication 2	Communication
CASVE-CQ	.17	.16	.14	.09	.27*	.19	.00	.04
Communication 1	.67*	.68*	.62*	.64*	.55*	.66*	-.62*	-.68*
Analysis	.67*	.67*	.65*	.61*	.56*	.57*	-.64*	-.68*
Synthesis	-.38*	-.38*	-.40*	-.44*	-.17	-.29*	.34*	.38*
Valuing	-.38*	-.40*	-.38*	-.41*	-.22**	-.33*	.35*	.39*
Execution	-.40*	-.43*	-.40*	-.43*	-.22**	-.37*	.33*	.40*

Table 7 (continued).

Communication 2	-.40*	-.42*	-.41*	-.36*	-.33*	-.36*	-.35*	-.40*
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Note. CTI items corresponding to CASVE cycle phases are presented along the horizontal axis and CASVE-CQ cycle phases are presented along the vertical axis. Items are presented in the CTI items as two sections of Communication items; therefore, these items are presented separately (Communication 1 and Communication 2) as well as together (Communication). Coefficients presented with \* are significant at  $p < .01$  and \*\* are significant at  $p < .05$ . CASVE Cycle Questionnaire (CASVE-CQ); Career Thoughts Inventory (CTI).

*Multiple analyses of variance.*

Then, in phase 4 (sample 3, hypothesis 8), three multiple analyses of variance with follow-up analyses of variance were conducted to best determine the most meaningful phase completion scoring method (i.e. 75%, 50%, or 25%) to determine Ideal and Non-Ideal navigators. It was predicted that fifty percent of item completion would increase the statistically significant differences in ability to differentiate between high and low scores on the CDDQ, CCM, CTI, and identify subscale of the MVS. Follow-up analyses of variance, discriminant, and canonical analyses were conducted to explore the relationship between each measure used (i.e. CTI, MVS, CDDQ, CCM) and Ideal and Non-Ideal navigators. To determine the best scoring method statistical significance and follow-up analyses (i.e. discriminant and canonical) were used (see Table 11).

To compare the Navigator Score scoring method (e.g. 25%, 50%, or 75%) phase completion – the minimum number of items to obtain each percentage was calculated.

After calculations were made to identify 25%, 50%, and 75% item completion for each participant, it was determined if individuals completed prerequisite phases (e.g. Communication 1, Analysis, Synthesis, Valuing, Execution, Communication 2) to determine if they were Ideal Navigators or Non-Ideal Navigators, who may have skipped phases. Therefore, one would not be considered an Ideal Navigator if they completed later phases, such as Execution, before an earlier phase, such as Analysis. In addition, one would still be considered an Ideal Navigator if they had completed earlier phases, such as Communication 1 and Analysis but no other subsequent phases because this theoretically would mean that they are still in the process of making a career decision and navigating the decision in a theoretically consistent manner. It was predicted that 50% completion would be the best scoring method to differentiate between those who have not completed enough tasks while also not penalizing others for not engaging in tasks that may be irrelevant in their career decision. Sample 3 was split into three randomly selected groups to compare the three scoring criteria, resulting in three groups of 122, 129, and 137 participants as randomly split by SPSS. Only participants who completed the CTI were included in the analyses that include the CTI which resulted in a fourth subset of 104 participants who completed the CTI. There was a significant difference ( $F(3, 133) = 19.01, p < .01$ ; Wilk's  $\Lambda = 0.700$ , partial  $\eta^2 = .30$ ) in scores on the vocational identify subscale of the MVS, CDDQ, and CCM based on 25% phase completion. Further, 50% phase completion also resulted in significant differences on vocational identify subscale of the MVS and CDDQ ( $F(3, 115) = 5.03, p < .01$ ; Wilk's  $\Lambda = 0.884$ , partial  $\eta^2 = .11$ ). A multivariate analysis of variance was conducted, and it was found that there was a significant difference ( $F(3, 123) = 8.86, p < .01$ ; Wilk's  $\Lambda = 0.827$ , partial  $\eta^2 = .17$ ) in

scores on the vocational identity subscale of the MVS and CDDQ based on the 75% completion Navigator Score 75% and 50% phase completion did not produce statistically significant differences CCM scores. Therefore, follow-up ANOVAs were utilized to further investigate phase completion scoring criteria. Correlational analyses (sample 3, hypotheses 9-12; Table 10) were conducted between the Navigator Score, at both 25% and 50%, which showed to both be viable options, and the other measures used (i.e. CTI, MVS, CDDQ, CCM). However, 75% phase completion indicated much lower levels of correlation between Ideal and Non-Ideal Navigators, a stark contrast of correlation strength from 25% and 50% phase completion.

Through logistic regression with subsamples, it was determined that 25% completion would be the best scoring method due to the ability of the VI-MVS, CDDQ, CCM and then VI-MVS, CDDQ, CCM, and CTI to best predict the likelihood of participants to be classified as Ideal or Non-Ideal Navigators. The model containing VI-MVS, CDDQ, and CCM as predictors of the Navigator Score at 25% phase completion best exhibits how the model can distinguish between Ideal and Non-Ideal Navigators with the least restrictive requirements and maintained integrity between Ideal and Non-Ideal Navigation (Tables 13-15). Fifty percent phase completion was also assessed with VI-MVS, CDDQ, and CCM and generated in similar results; however, when assessing Ideal and Non-Ideal Navigators, the 25% scoring model approached significance in ability to predict categorization when adding the CTI. In addition, while 75% phase does capture the most individuals accurately, the stringent level of task completion required is unrealistic. These analyses were meant to select the scoring criterion of the Navigator Score as a scoring method for the CASVE-CQ. Therefore, Hypothesis 8 was not

supported as the 25% scoring method best differentiated Ideal and Non-Ideal navigators rather than the 50% scoring method.

Table 8 *Descriptive Statistics of Navigator Score Multivariate Analyses of Variance*

Measure	<i>n</i>	Ideal Navigator		Non-Ideal Navigator		
		M	SD	<i>n</i>	M	SD
<u>25% Completion</u>						
VI-MVS	72	5.7	3.7	65	11.1	4.7
CDDQ		15.6	3.8		10.8	4.6
CCM		34.7	8.0		39.0	9.0
CTI	49	62.8	24.4	55	33.0	30.5
<u>50% Completion</u>						
VI-MVS	87	6.2	3.3	32	9.8	4.9
CDDQ		14.5	3.4		12.2	4.4
CCM		35.1	10.7		39.1	8.5
CTI	32	75.3	22.8	62	48.9	31.5
<u>75% Completion</u>						
VI-MVS	15	3.2	3.4	112	9.5	4.8
CDDQ		18.4	3.8		12.6	4.6
CCM		34.2	9.0		40.3	8.4
CTI	14	82.8	21.4	90	53.1	30.9

Table 9 *Correlations Between Navigator Score and Measures using Subsamples*

Measure	25% Completion	50% Completion	75% Completion
VI-MVS	-.52*	-.47*	-.34*
CDDQ	.48*	.45*	.26*
CCM	-.24*	-.13*	-.21*
CTI	.51*	.39*	.34*

*Note.* Coefficients presented with \* are significant at  $p < .01$ . Vocational Identity subscale of the My Vocational Situation (VI-MVS); Career Decision-Making Difficulties Questionnaire (CDDQ); Career Commitment Measure (CCM); Career Thoughts Inventory (CTI;  $n = 104$ )

Table 10 *Standardized Canonical Discriminant Function Coefficients*

Measure	Coefficient		
	25% Completion	50% Completion	75% Completion
VI-MVS	.69	.89	.68
CDDQ	-.40	.08	.02
CCM	-.03	-.10	-.43

Table 11 *Logistic Regression for Navigator Score*

Navigator Score	B	SE	Wald	<i>p</i>	Odds Ratio
<u>25 Percent Scoring</u>					
Constant	.01	1.4	.00	.99	52.6
VI-MVS	-.19	.06	9.8	.00	<b>75.9</b>
CDDQ	.11	.05	3.9	.04	
CCM	-.00	.02	.00	.96	
<u>50 Percent Scoring</u>					
Constant	.30	1.5	.038	.84	69.7
VI-MVS	-.16	.06	6.34	.74	<b>72.3</b>
CDDQ	.02	.06	.138	.71	
CCM	-.09	.02	.103	.74	
<u>75 Percent Scoring</u>					
Constant	.01	1.4	.00	.99	75.9
VI-MVS	-.19	.06	9.86	.00	<b>52.9</b>
CDDQ	.11	.05	3.99	.04	
CCM	-.00	.02	.00	.42	

Table 12 *Logistic Regression for Navigator Score Observed and Predicted Frequencies*

Navigator Score	Predicted		% Correct
<u>25 Percent Scoring</u>			
Observed	0	1	
0 – Non-Ideal	52	20	72.2
1 – Ideal	13	52	80.0
			75.9 – Overall Percentage
<u>50 Percent Scoring</u>			
Observed	0	1	
0 – Non-Ideal	82	5	94.3
1 - Ideal	28	4	12.5
			75.3 – Overall Percentage
<u>75 Percent Scoring</u>			
Observed	0	1	
0 – Non-Ideal	110	2	98.2
1 - Ideal	11	4	26.7
			89.8 – Overall Percentage

Table 13 *Logistic Regression for Navigator Score with CTI*

Navigator Score	B	SE	Wald	<i>p</i>	Odds Ratio
<u>25 Percent Scoring</u>					

Table 13 (continued).

Constant	1.3	2.3	.35	.55	52.9
VI-MVS	-.20	.08	6.6	.01	<b>70.6</b>
CDDQ	-.06	.08	.55	.45	
CCM	-.01	.03	.21	.64	
CTI	.01	.01	1.1	.28	
<u>50 Percent Scoring</u>					
Constant	1.8	2.3	.57	.44	68.6
VI-MVS	-.19	.08	5.45	.02	<b>69.6</b>
CDDQ	-.06	.09	.44	.50	
CCM	-.04	.03	1.7	.19	
CTI	.01	.01	.62	.42	
<u>75 Percent Scoring</u>					
Constant	4.6	3.7	1.55	.21	87.3
VI-MVS	-.44	.17	6.72	.01	<b>92.2</b>
CDDQ	.02	.13	.02	.86	
CCM	-.11	.05	3.88	.04	
CTI	-.01	.02	.24	.64	

Table 14 *Logistic Regression Observed and Predicted Frequencies with CTI*

<u>Navigator Score</u>			
<u>25 Percent Scoring</u>	<u>Predicted</u>		<u>% Correct</u>
Observed	0	1	
0 – Non-Ideal	36	18	66.7
1 – Ideal	12	36	75.0
			70.6 – Overall Percentage
<u>50 Percent Scoring</u>	<u>Predicted</u>		<u>% Correct</u>
Observed	0	1	
0 – Non-Ideal	57	13	81.4
1 - Ideal	18	14	43.8
			69.6 – Overall Percentage
<u>75 Percent Scoring</u>	<u>Predicted</u>		<u>% Correct</u>
Observed	0	1	
0 – Non-Ideal	88	1	98.9
1 - Ideal	7	6	46.2
			92.2 – Overall Percentage

### CHAPTER III - DISCUSSION

The CASVE-CQ is a practical measure that can be connected to both modern vocational and historic decision-making theory (Amundson, 1995; Gati, 1986; Gati, Fassa, & Houminer, 1995; Olson, McWhirter, & Horan, 1989; Walsh, 1987). The CASVE-CQ, grounded in Cognitive Information Processing theory, is used to understand the type and amount of career decision-making tasks from the CASVE cycle an individual has systematically engaged in to progress towards a personally relevant career decision (Sampson et al., 2004). The utility of the CASVE-CQ aims to connect research, theory, and practice in a valuable way for researchers, practitioners, and clients. The present study has obtained evidence of validity and reliability in samples of working adults for the CASVE-CQ given the current results.

An asset of the current version of the CASVE-CQ is the attendance to multicultural factors in that it can relate to individuals from diverse backgrounds through Valuing item content that maintains goals with various career decision-making implications. The CASVE-CQ provides a unique and rare opportunity to connect the client, holding multiple identities, with the practitioner, holding the blueprint of successful career decision-making. The present study aimed to expand on the current version of the CASVE-CQ includes items such as “Who I am (e.g., culture, place in the community and society) fits with the options I am considering.” (7Val), “My career choice fits well with my lifestyle.” (9Val), and “My career choice will enable me to live life in the way I want/prefer.” (11Val). In contrast, it has also been expressed that self-guided interventions grounded in theory may increase the success of individuals who chose or need to navigate career decision-making independently (Sampson et al., 2017).

Further, the CASVE-CQ was developed and established in a time when vocational psychology called for the integration of theory, research, and practice which was a thread carried out throughout the development (Sampson et al., 2017).

### Exploratory and Confirmatory Factor Analyses

The EFA (Hypothesis 1) provided strong evidence in support of the findings in Werner (2017) that a six-factor model was indeed the best representation of the CASVE cycle. Nine items did not load onto the factor with items representative of their intended phases versus 19 in the original measure development attempt (Werner, 2017). Systematic elimination of items allowed an evidence-based selection of items to form the CASVE-CQ. The CFAs (Hypothesis 2) highlighted potential pitfalls of the CASVE-CQ. Items 11Syn and 7Ana had low factor loadings suggesting that these items may not add unique information to the Analysis and Synthesis constructs, respectively, as measured by the CASVE-CQ. To mitigate the impact of poor performing items from the first CFA to the second CFA, items 7Ana and 9Ana, which were previously eliminated were added. Most notably, the CASVE-CQ total score was not correlated with any of the validity measures. The lack of support for use of a total score and the greater support for scale score use is critical for continued appropriate use of the CASVE-CQ. The total score should not be used by researchers or practitioners at this point. The calculation and empirical support of the meaning of the Navigator Score helps to support theory-based interpretation of the measure. In other words, it is more meaningful to complete adequate number of decision-making tasks in CASVE order (i.e., Navigator Score) than it is to complete more decision-making tasks overall regardless of CASVE area (i.e., total score). The CASVE-CQ total score has been shown through both failed confirmatory

factor analyses and correlational findings to be an ineffective way of assessing one's progress through the CASVE cycle.

While the correlational data do not provide evidence of utility in a total score (Hypotheses 3-4, 6-7), they do provide evidence that the CASVE-CQ is moderately correlated with items on the CTI assessing the CASVE phases (Hypothesis 5). This provides evidence of the relationship of the most theoretically relevant constructs – the phases of the CASVE cycle as represented in both the CASVE-CQ and CTI, as a measure of credibility for Cognitive Information Processing theory. Further, there was evidence of moderate relationships between the CASVE Cycle Questionnaire scales (Communication 1, Analysis, Synthesis, Valuing, Execution, and Communication 2) and related measures including the vocational identity subscale of the My Vocational Situation, Career Commitment Measure, Career Decision-Making Difficulties Questionnaire, and Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale. The often-researched construct of career decision-making self-efficacy was added to better understand the relationship with the CASVE-CQ. Career decision-making self-efficacy was found to be negatively correlated with Communication 1 and Analysis as well as positively correlated with Synthesis, Valuing, Execution, and Communication 2. Correlational analyses indicate that the CASVE-CQ is a viable measure with both convergent and discriminant validity among well-established and respected measures in the vocational psychology literature.

#### Navigator Score

Hesketh (2000) found that when individuals were prompted with negative stimuli they were more likely to make short-term career decisions even though options that

required more time and would have a better pay off were available. Therefore, those who have negative career thoughts or emotions may have difficulty generating a variety of possibilities. The CASVE cycle allows individuals to assess these barriers by going through a process of systematically considering many alternatives. If an individual has completed phases inconsistent with the CASVE cycle ordering (i.e. Communication 1 and Valuing but skipped Analysis and Synthesis) they are considered Non-Ideal Navigators. A distinction between Ideal and Non-Ideal is not meant to be pejorative but rather an opportunity for intervention related to phases that may have been missed or could further provide meaningful information. Vocational identity is a construct conceptualized as a broad assessment of connection between one's self and their career which may help explain the strong connection between Ideal and Non-Ideal Navigator classification and vocational identity. Items in the CASVE-CQ are not always relevant to everyone based on his or her cultural background and life situation because they are person specific and culturally bound at times which does make 100% completion unrealistic. Therefore, while 75% phase completion may appear to be highly capable of predicting group membership, it is impractical that almost all individuals would need to utilize career interventions at the level of intervention with a practitioner. In addition, the cost for both systems (e.g. universities, job centers) and individuals would be extremely prohibitive if most individuals were assessed as needing intervention (Sampson, Dozier, & Colvin, 2011). In addition to statistically support, 25% scoring provides a non-prohibitive, yet informative, way to assess career decision-making task completion. It is important to view the CASVE-CQ as a dynamic task inventory that should be expanded on by individual differences and unique aspects of everyone's vocational situation.

Therefore, each phase item was developed with the intention to allow for any individual to incorporate his or her specific information into the CASVE phases. From a practice and research perspective, the Navigator Score, as a categorical variable, can help identify individuals or groups that may need more specific intervention. It could also give insight into the relationship of career decision-making task completion and other career-related variables. The Navigator Score can be viewed as a quick screener for intervention or used as an intervention to explore an individual's career decision-making experience and barriers.

Given the difficulty in providing empirical evidence of the utility of a total-score for the CASVE-CQ, the Navigator Score better represents the practical implications of a dynamic task-based inventory. The Navigator Score would create opportunities for researchers to categorically understand complex populations and career decision-making related concepts. As clinicians, utilizing the Navigator Score would provide a quick understanding of intervention necessity and even potential interventions. While 25% completion of phases, was selected as the best scoring criterion due to statistical evidence (Hypothesis 8) it is also the most theoretically beneficial as someone is more likely to be appropriately placed as an Ideal Navigator than a Non-Ideal Navigator, which alleviates concern that those who are unable to endorse some items for various reasons will not be penalized. Ideal navigator status was moderately correlated with vocational identity (Hypothesis 12) and negative career thoughts (Hypothesis 9). However, Ideal navigator status was not correlated with career commitment (Hypothesis 11) and career decision-making difficulties (Hypothesis 10). While career decision-making self-efficacy was added to better understand the relationship with the CASVE-CQ, it was not utilized in the

analyses to determine the best scoring criteria. Career decision-making self-efficacy was correlated with the CASVE scales but was not correlated with the CASVE-CQ total score.

### Considerations for Practitioners and Researchers

A measure that allows identification of where one is in the cycle can be helpful in adding a new level of clarity in the decision-making process. The CASVE-CQ can serve as a simple, useful tool for practitioners and researchers to assist in determining progress and quality of career decision making from the CIP theoretical perspective. Clients can approach a decision in a CIP consistent manner while still having individual variation and relevant factors in the process. The CASVE-CQ was also developed to aid in the identification of career decision-making tasks that individuals may have failed to complete in earlier phases. For example, if an individual is in the Valuing phase but has only considered one option, it would be beneficial to go back to the Analysis and Synthesis phases of the CASVE cycle to gather information to generate more options to consider. Additionally, the CASVE-CQ can aid in the development of increased empirical support of CIP theory by quantifying the CASVE cycle into a psychometrically sound way to assess CIP theory. The CASVE-CQ could allow for the exploration between the decision-making cycle and other important career development outcomes within and external to CIP theory. Further development of the CASVE-CQ was meant address similarities in career decision making across the life-span as the Werner (2017) version was used with college students and in the present study was used with working adults. Taken together, the CASVE-CQ can be utilized to enhance CIP theory, actively

used by practitioners, and enhance the relationship between literature grounded in CIP theory and execution of evidence-based career interventions.

Patterson (1993) asserted that individuals may be resistant in career counseling if they are fearful or have other barriers to moving forward. CIP theory addresses these barriers by assessing negative career thoughts, conceptualizing the career decision-making process, and understanding it reduces ambiguity with structure (Sampson et al., 2004). Developing the CASVE-CQ as a practice-worthy measure could help meet client needs to improve decision-making ability. Specifically, CIP theory outlines the five specific phases that should be completed to navigate the career decision-making sequence, conceptualized as 6-factors in the CASVE-CQ with one phase being revisited.

There are eight points of consideration for practitioners and researchers seeking to utilize the CASVE-CQ. First, The CASVE-CQ is a task-based inventory, where the data obtained for each participant will reflect the current tasks they have completed with a specific career decision in mind rather than a stable reflection of one's career decision-making ability. Second, the CASVE-CQ is not intended for use among a population not currently contemplating a career decision. While in the collection of this data, this was determined by screener questions (Appendix A), a screener is less likely to be needed among a population inherently faced with multiple career decisions such as high school or college students. Third, in a clinical setting, the Navigator Score is meant to assess for those Non-Ideal Navigators who may benefit from intervention and Ideal Navigators who may benefit most from information and self-guided interventions. Fourth, when using the CASVE-CQ in a clinical setting, scale and item level data are likely to be greatly beneficial in utilizing the CASVE-CQ assessment as an intervention. While the Navigator

Score assesses the presence or absence of difficulty or need for intervention, scale and item level data will be useful data points and qualitative information for both Ideal and Non-Ideal Navigators.

Fifth, the Navigator Score, as Ideal and Non-Ideal Navigators of the CASVE-CQ, utilizes two indicators of category membership: the number of items in each scale endorsed (i.e., phase completion) and phase order. The importance of phase order dictates that it is not only the number of tasks one completes, but also that prerequisite tasks are completed that is of importance. This finding is supportive of the theoretical basis, and now the empirical basis, of the CASVE cycle for effective decision making.

Sixth, the measure is scored in four steps. Step 1: Reverse score items in Communication 2. Step 2: Sum the total number of items in each scale. Step 3: determine each phase that meet 25% minimum completion (which is two items in each phase) coding with 1 = phase completed and 0 = phase not completed. Step 4: determine whether pre-requisite phases were completed by identifying and classifying everyone as Ideal (1) or Non-Ideal Navigators (0). Do not penalize individuals, or consider them Non-Ideal Navigators, who have not completed phases later in the CASVE cycle (e.g. completed Communication 1, Analysis, Synthesis, Valuing but not completed Execution or Communication 2). Seventh, the items are answered with “yes” or “no”; therefore, it is important to recognize that there is likely a gray area between yes and no for some participants on some items. With 25% phase completion required when assessing Navigator Status, this should limit the penalization for those who feel items do not apply. In addition, this will limit the amount of both Type I and Type II errors. Communication 2 items are reverse scored as the negative item wording indicates difficulty with career

decision-making task completion. Lastly, there is currently no statistical evidence for the use of a total score of the CASVE-CQ. Therefore, each CASVE cycle phase, as represented in the CASVE-CQ, is to be viewed as a separate, yet inextricable, theoretically linked scale to each of the other CASVE cycle phases.

#### Limitations and Future Research

Future research should focus on achieving a clear understanding of the utility of the Navigator Score. In addition, while the CASVE-CQ total score is not viable at this time, it should be further empirically reviewed. Further the CASVE-CQ should be explored as a task-based inventory among other established constructs in the vocational psychology literature and diverse populations. A large sample assessing the CASVE-CQ total score could address the concern of too many parameters (Brown, 2015). In addition, it would be beneficial to gain information regarding how the measure performs among samples of populations other than working adults and treatment-seeking samples. Given the limited sample size of participants who completed the CTI, it would be beneficial to better understand the relationship between the CTI and CASVE-CQ as it relates to Cognitive Information Processing theory, understanding of practitioners, and statistical implications. Further, the CASVE-CQ could be utilized in assessing both college students and adults as their career decision-making skills advance and develop overtime. It is possible that different elements of the CASVE-CQ are more salient for certain types of decisions (e.g. picking a major versus making a lateral job change). The impact of age on career decision-making task ability increase has been a long-standing view in the literature (Hazler & Roberts, 1984). Further, relationships between the five-factor model and difficulties encountered in career decision-making have been found; therefore, it

could be helpful to better understand the connection between personality characteristics and Navigator Score (Martincin & Stead, 2015). In addition, it is a limitation that the Navigator Score cannot assess if participants actually completed phase in the appropriate order without an assessment of longitudinal task completion. The CASVE Cycle Questionnaire can have immediate practical use within clinical settings as a tracking measure throughout counseling, particularly utilizing the dichotomous Navigator Score, detailed road-map of career decision-making tasks, and as a quick aid in determining useful areas of intervention such as gathering more information about the world of work or using a values-based comparison of viable options. Research is needed on the clinical applications of the CASVE-CQ.

For researchers, the CASVE-CQ provides a beginning look at a lesser-explored concept in the career decision-making literature to be utilized across the adult life-span and in a variety of settings. Particularly, the focus on the CASVE-CQ is not on the barriers one faces in making career decisions, but instead on the global process of career decision-making. The CASVE-CQ possesses the ability to connect theory, research, and practice in a way that allows practitioners and researchers to view both sides of the same coin from a practical data-driven standpoint.

## APPENDIX A – Screener Questions

The following questions are going to be about making career decisions. They can be difficult to answer if you do not see yourself making a career or work-related decision any time in the near future (e.g. sometime in the next year).

*Career-related decisions can involve the consideration of changing jobs, decreasing your work hours, quitting paid work, retiring, seeking paid work, going to school/training, and changing college majors among many other possible decisions. Essentially, we are looking to know whether at this time you actively consider changing something about your work or educational roles.*

1. Are you 18 years of age or older? **(If no, will not be eligible to participate in the survey.)**
  - a.  Yes
  - b.  No
  
2. Are you a college student? **(Prompt new question if answer is yes.)**
  - a.  Yes
  - b.  No
    - i. Are you also working? **(If no, will not be eligible to participate in the survey.)**
      1.  Yes
      2.  No
  
3. Are you employed? **(Prompt new question if answer is yes or no.)**
  - i.  Yes
  - ii.  No
  - b. **(No Question)** Are you seeking new employment or educational opportunities? **(If no, will not be eligible to participate in the survey.)**
    - i.  Yes
    - ii.  No
  - c. **(Yes Question)** Do you ever contemplate an employment change (i.e. changing careers, positions, employers)? **(If no, will not be eligible to participate in the survey.)**
    - i.  Yes
    - ii.  No
  
4. Are you contemplating more than one career choice?
  - i.  Yes
  - ii.  No

APPENDIX B Demographics Questionnaire

**Directions:** Please fill in the blank or check the response that best applies to you.

1. Age: \_\_ (You must be 18 years or older to continue)
  
2. Sex:
  - Male
  - Female
  - Transgender
  - Other
  
3. Racial/Ethnic Background:
  - American Indian/Alaskan Native
  - Asian/Pacific Islander
  - Black/African American
  - Latino/a
  - White
  - Other - please specify \_\_\_\_\_
  
4. Marital Status:
  - Single
  - Married
  - Partnered
  - Divorced
  - Widowed
  - Other: (please specify) \_\_\_\_\_
  
5. Affectional Orientation:
  - Homosexual
  - Heterosexual
  - Bisexual
  - Other: (please specify) \_\_\_\_\_
  
6. Level of Education
  - High school or less
  - Technical Training
  - Associate's Degree
  - Bachelor's Degree
  - Master's Degree
  - Doctoral Degree
  
7. Are you currently in college?
  - Yes
  - No

8. Do you see your current job as part of your long-term career path?

Yes

No

9. What region of the country do you live in?

West

Midwest

Northeast

South

10. Which state or territory do you currently reside in?

Alabama

Alaska

American Samoa

Arizona

Arkansas

California

Colorado

Connecticut

District of Columbia

Delaware

Florida

Georgia

Guam

Hawaii

Idaho

Illinois

Indiana

Iowa

Kansas

Kentucky

Louisiana

Maine

Maryland

Massachusetts

Michigan

Minnesota

Mississippi

Missouri

Montana

Nebraska

Nevada

New Hampshire

New Jersey

New Mexico

New York  
North Carolina  
North Marianas Islands  
North Dakota  
Ohio  
Oklahoma  
Oregon  
Pennsylvania  
Puerto Rico  
Rhode Island  
South Carolina  
South Dakota  
Tennessee  
Texas  
Utah  
Vermont  
Virginia  
Virgin Islands  
Washington  
West Virginia  
Wisconsin  
Wyoming

11. Describe your current career decision: \_\_\_\_\_

12. What is your job title? \_\_\_\_\_

13. Which category does your position best fit in?
- Agriculture, Food, & Natural Resources
  - Architecture and Construction
  - Arts, Audio/Video Technology, and Communication
  - Business Management & Administration
  - Education & Training
  - Finance
  - Government & Public Administration
  - Health Science
  - Hospitality & Tourism
  - Human Services
  - Information Technology
  - Law, Public Safety, Corrections & Security
  - Manufacturing
  - Marketing
  - Science, Technology, Engineering & Mathematics
  - Transportation, Distribution & Logistics
  - Unemployed

Other, Please Specify \_\_\_\_\_

14. How long have you been in the above category?  
\_\_ years \_\_ months
15. Have you had previous positions that you consider similar but with a different company or employer?  
 Yes  
 No
16. Do you plan to stay in your current job for the next year?  
 Yes  
 No  
 Not Currently Employed
17. If you plan to change jobs in the next year, will you look for a similar job?  
 Yes  
 No  
 Not Currently Employed
18. Which choice best describes your annual income?  
 Under \$20,000  
 \$20,000 - \$40,000  
 \$40,000 - \$60,000  
 \$60,000 - \$100,000  
 Over \$100,000
19. What is the status of your employment?  
 Full-Time  
 Part-Time
20. How many hours, on average, per week do you work?  
 0-5 hours  
 6-10 hours  
 11-15 hours  
 16-20 hours  
 21-25 hours  
 26-30 hours  
 31-35 hours  
 36-40 hours  
 41-45 hours  
 Over 45 hours

## APPENDIX C CASVE Cycle Questionnaire Werner (2017) Version

### Directions:

As you complete this questionnaire please keep in mind a current career problem. Answer each question with YES indicating you have completed this task or NO indicating you have not completed this task. All items may not apply to you; simply answer those items with NO. If you are currently in an educational program, it may be beneficial to think about some items in terms of your final career goal.

### Key Terms you will see in the questionnaire items:

**Career problem:** an identifiable discrepancy or gap between where you are currently in your career and where you would like to be in the future. Examples of career problems are choosing a major, obtaining an internship, selecting a career field, or obtaining a job.

**Career values:** factors you find important to consider when making career decisions. Examples of career values are income level, work and family balance, independence, and prestige.

All items will be answered with “yes” or “no”.

### Communication 1 (Reverse Scored)

1. I feel a lot of pressure to make a career decision.
2. The amount of effort it takes to make a career decision is overwhelming.
3. I struggle with thinking about my future.
4. It is hard for me to identify solutions to my career problem.

### Analysis (Reverse Scored)

1. I am unsure where to begin to solve my career problem.
2. I need help identifying my career options.
3. I need more information about my career options.
4. I need more information about myself before I can find solutions to my career problem.
5. I am having difficulty narrowing down the best career or job options for me since there are so many.
6. I do not have enough information to compare my career or job options accurately.
7. I do not understand how to balance my career goals and family goals.
8. I have not considered my family when thinking about my career problem.
9. I still need to outline a plan to reach my career goals.
10. I am unsure of a good timeline for achieving my career goal.

### Synthesis

1. I am aware of the way I make decisions about my career.

2. I have thought about how well I can use my skills in the career options I am considering.
3. There is one career choice that I prefer, but I also have other options if my first choice doesn't work out.
4. I have thought about 3-5 options that would allow me to achieve my career goals.
5. I am currently exploring all of my possible career options.
6. I am able to identify many career or job options that match my values.
7. I am able to identify multiple jobs that match my career interests.
8. I am able to identify multiple career options that match my career-related skills.
9. I have explored a large amount of career or job options and then narrowed those down to a few that I feel good about.
10. I can narrow my career or job options to a few that I am seriously considering.
11. I am able to compare my career or job options based on information I have gathered about them.
12. I know the strengths and weaknesses of each of my career options based on my own career values.
13. I have compared the advantages and disadvantages and benefits associated with each of my career options.
14. I can list my career options.

#### Valuing

1. The career options I am considering will satisfy my career values.
2. My significant other will be satisfied with my career choice.
3. My family will be satisfied with my career choice.
4. I know my career choice will be an enjoyable aspect of my life.
5. I have considered my career in relation to other life roles (e.g. family, work, leisure, spirituality).

#### Execution

1. I know what steps it would take to achieve my career goals.
2. I am aware of my career values.
3. I am aware of my skills.
4. I am familiar with the types of experiences I must gain in order to achieve my career goal.
5. I know how my career choice will fit into my life.
6. I can easily rank order the career or job options I am considering.
7. I can imagine the steps needed to accomplish my career goals.
8. I will know when I have reached my career goals.
9. I am ready to take the necessary steps to reach my career goal.
10. I know the steps I need to take in order to reach my career goal.
11. I am taking the necessary steps to reach my career goal.
12. I am in the process of achieving my career goals.

13. I know what I will need to be doing in six months from now in order to reach my career goal.
14. I have a plan of action to achieve my career goal.

#### Communication 2

1. I am confident in my career decision.
2. I have chosen a career or job option that best solves my career problem.
3. I have chosen the career that is best for me.
4. I have chosen a career option that incorporates my career interests.
5. I feel less anxiety now that I have made a decision about my career.
6. I have chosen a career or job option that incorporates my career values.
7. I have selected the best choice, for me, from my career or job options.
8. I feel that I am where I want to be in my career development.

#### Scoring

Total Score – Add up all “yes” answers for the entire CASVE-CQ with attention to reverse scoring Communication 1 and Analysis. Yes answers are calculated as “1” and No answers are calculated as “0”.

Navigator Score – Add up “yes” answers for each subscale, if the individual has completed 50% or more of the items (rounding up for odd-numbered subscales) they are considered to have completed that phase.

## APPENDIX A CASVE Cycle Questionnaire – Modifications

### Directions:

As you complete this questionnaire please keep in mind a current career problem or career decision. Answer each question with YES indicating this statement applies to your current situation or No indicating the statement does not apply to you currently. All items may not apply to you; simply answer those items with NO. If you are currently in an educational program or hold a position outside of your final career goal, it may be beneficial to think about some items in terms of your final career goal.

### Key Terms you will see in the questionnaire items:

**Career problem:** an identifiable discrepancy or gap between where you are currently in your career and where you would like to be in the future. Examples of career problems are choosing a major, obtaining an internship, selecting a career field, or obtaining a job.

**Career values:** factors you find important to consider when making career decisions. Examples of career values are income level, work and family balance, independence, and prestige.

All items will be answered with “yes” or “no”.

### Communication 1

1. I am overwhelmed by making a career decision. (Thesis Version – Com1\_1 – Modified)
2. I have difficulty thinking about my future career goals. (Thesis Version – Com1\_3 – Modified)
3. It is hard for me to identify solutions to my career problem. (Thesis Version – Com1\_4 – Unedited)
4. I am not where I want to be in my career.
5. I need assistance making a career decision.
6. There is pressure in my life to make a career decision.
7. I am unhappy in my current career situation, but I have avoided exploring my options.
8. I have a problem concerning my career path.
9. I am working to identify if I want to take a new direction in my career.
10. I am excited to start making a career decision.
11. I worry about needing to make a career decision.
12. I feel sad or worried when I think about my need to make a career choice.
13. I find ways to avoid making a career decision.
14. Some events have occurred recently that make me excited about making a career decision.
15. The amount of effort it takes to make a career decision is overwhelming.

### Analysis

1. I am unsure where to begin to solve my career problem. (Thesis Version – Ana1 – Unedited)
2. I need help identifying my career options. (Thesis Version – Ana2 – Unedited)
3. I need more information about my career options. (Thesis Version – Ana3 – Unedited)
4. I need more information about myself to make the best career choice. (Thesis Version – Ana4 – Modified)
5. I do not have enough information to compare my career or job options accurately. (Thesis Version – Ana6 – Unedited)
6. I do not understand how to balance my career and personal goals. (Thesis Version – Ana7 – Modified)
7. I have not considered my family or significant people in my life when thinking about my career problem. (Thesis Version – Ana8 – Modified)
8. I need to outline a plan to reach my career goals. (Thesis Version – Ana9 – Modified)
9. I am unsure of a good timeline for achieving my career goal. (Thesis Version – Ana10 – Unedited)
10. My experience making decisions in the past has prepared me for this current career decision.
11. I am aware of my career related interests.
12. I have considered how my personal values may affect my career choice.
13. I am aware of the way I make decisions about my career.
14. I am experiencing mostly positive thoughts about my next career move.
15. My typical method of making decisions will be helpful to me in making career-related decisions.

#### Synthesis

1. There is one career choice that I prefer, but I also have other options if my first choice doesn't work out. (Thesis Version – Syn3 – Unedited)
2. I have thought about 3-5 options that would allow me to achieve my career goals. (Thesis Version – Syn4 – Unedited)
3. I am currently exploring all my possible career options. (Thesis Version – Syn5 – Modified)
4. I can identify many career or job options that match my values. (Thesis Version – Syn6 – Modified)
5. I can identify multiple jobs that match my career interests. (Thesis Version – Syn7 – Modified)
6. I can identify multiple career options that match my career-related skills. (Thesis Version – Syn8 – Modified)
7. I have explored a large amount of career or job options and then narrowed those down to a few I feel good about. (Thesis Version – Syn9 – Unedited)
8. I can narrow my career or job options to a few that I am seriously considering. (Thesis Version – Syn10 – Unedited)

9. I can compare my career or job options based on information I have gathered about them. (Thesis Version – Syn11 – Unedited)
10. I know the strengths and weaknesses of each of my career options based on my own career values. (Thesis Version – Syn12 – Unedited)
11. I have compared the advantages and disadvantages and benefits associated with each of my career options. (Thesis Version – Syn13 – Unedited)
12. I can list my career options. (Thesis Version – Syn14 – Unedited)
13. I am having difficulty narrowing down the best career or job options for me.

#### Valuing

1. The career options I am considering satisfy my career values. (Thesis Version – Val1 – Modified)
2. Important people in my life will be satisfied with my career choice. (Thesis Version – Val2 and Val3 – Modified)
3. I know my career choice will be an enjoyable aspect of my life. (Thesis Version – Val4 – Unedited)
4. I made my career decision while considering other life roles (e.g. family, work, leisure, spirituality). (Thesis Version – Val5 – Modified)
5. I have considered the costs and benefits of my career options.
6. The options I am considering match my values, interests, skills, and preferences.
7. Who I am (e.g. culture, place in the community and society) fits with the options I am considering.
8. My career options match my aspirations.
9. My career choice fits well with my lifestyle.
10. My career choice is a good match with my personality.
11. My career choice will enable me to live life in the way I want/prefer.
12. I have eliminated several career options that did not fit well with my preferences or needs.
13. I have sought feedback from important people in my life about my current career decision.
14. If my top career choice does not work out, I have a second option I would consider.
15. I can easily rank the career or job options in the order I am considering.

#### Execution

1. I am familiar with the types of experiences I must gain to achieve my career goal. (Thesis Version – Exe1 – Modified)
2. I know what steps it would take to achieve my career goals.
3. I know how my career choice will fit into my life. (Thesis Version – Exe5 – Unedited)
4. I can imagine the steps needed to accomplish my career goals. (Thesis Version – Exe7 – Unedited)

5. I will know when I have reached my career goals. (Thesis Version – Exe8 – Unedited)
6. I am ready to take the necessary steps to reach my career goal. (Thesis Version – Exe9 – Unedited)
7. I know the steps I need to take to reach my career goal. (Thesis Version – Exe10 – Modified)
8. I am taking the necessary steps to reach my career goal. (Thesis Version – Exe11 – Unedited)
9. I am in the process of achieving my career goals. (Thesis Version – Exe12 – Unedited)
10. I know what I will need to be doing in six months from now to reach my career goal. (Thesis Version – Exe13 – Modified)
11. I have a plan of action to achieve my career goal. (Thesis Version – Exe14 – Unedited)
12. I know the requirements to be qualified for the career choice I have made. (Thesis Version – Exe4 – Modified)
13. I will try out my top career choice.
14. I have applied for my top career choice.
15. I have begun the training and/or education necessary for my top career choice.

#### Communication 2

1. I am confident in my career decision. (Thesis Version – Com2\_1 – Unedited)
2. I have chosen a career or job option that best solves my career problem. (Thesis Version Com2\_2 – Unedited)
3. I have chosen the career that is best for me. (Thesis Version – Com2\_3 – Unedited)
4. I have chosen a career option that incorporates my career interests. (Thesis Version – Com2\_4 – Unedited)
5. I feel less anxious now that I have made a decision about my career. (Thesis Version – Com2\_5 - Modified)
6. I have chosen a career or job option that incorporates my career values. (Thesis Version – Com2\_6 – Unedited)
7. I have selected the best choice, for me, from my career or job options. (Thesis Version – Com2\_7 – Unedited)
8. I think I am where I want to be in my career development. (Thesis Version – Com2\_8 – Modified)
9. I feel better now that I have acted on my career decision.
10. Even though I have told others I have made my career decision, I do not feel very good about it.
11. I made a career choice but think I may need to make a new choice.
12. My career choice has allowed me to start the life I want.
13. My career choice has not improved my situation.
14. The career choice I made has not made me feel any better.

15. I continue to experience anxiety even though I have made my career choice.

APPENDIX B CASVE Cycle Questionnaire Present Study

Communication 1

- 1Com1** *I am overwhelmed by making a career decision.*  
**2Com1** *I have difficulty thinking about my future career goals.*  
3Com1 It is hard for me to identify solutions to my career problem.  
4Com1 I am not where I want to be in my career.  
5Com1 I need assistance making a career decision.  
**6Com1** *There is pressure in my life to make a career decision.*  
7 Com1 I am unhappy in my current career situation, but I have avoided exploring my options.  
**8 Com1** *I have a problem concerning my career path.*  
9Com1 I am working to identify if I want to take a new direction in my career.  
10Com1 I am excited to start making a career decision.  
**11Com1** *I worry about needing to make a career decision.*  
**12Com1** *I feel sad or worried when I think about my need to make a career choice.*  
**13Com1** *I find ways to avoid making a career decision.*  
14 Com1 Some events have occurred recently that make me excited about making a career decision.  
**15 Com1** *The amount of effort it takes to make a career decision is overwhelming.*

Analysis

- 1Ana** *I am unsure where to begin to solve my career problem.*  
**2Ana** *I need help identifying my career options.*  
**3Ana** *I need more information about my career options.*  
**4Ana** *I need more information about myself to make the best career choice.*  
**5Ana** *I do not have enough information to compare my career or job options accurately.*  
6Ana I do not understand how to balance my career and personal goals.  
**7Ana** **I have not considered my family or significant people in my life when thinking about my career problem.**  
8Ana I need to outline a plan to reach my career goals.  
**9Ana** **I am unsure of a good timeline for achieving my career goal.**  
10Ana My experience making decisions in the past has prepared me for this current career decision.  
11Ana I am aware of my career related interests.  
12Ana I have considered how my personal values may affect my career choice.  
13Ana I am aware of the way I make decisions about my career.  
14Ana I am experiencing mostly positive thoughts about my next career move.  
15Ana My typical method of making decisions will be helpful to me in making career-related decisions.

Synthesis

- 1Syn There is one career choice that I prefer, but I also have other options if my

first choice doesn't work out.

- 2Syn I have thought about 3-5 options that would allow me to achieve my career goals.
- 3Syn I am currently exploring all my possible career options.
- 4Syn *I can identify many career or job options that match my values.*
- 5Syn *I can identify multiple jobs that match my career interests.*
- 6Syn *I can identify multiple career options that match my career-related skills.*
- 7Syn *I have explored a large amount of career or job options and then narrowed those down to a few I feel good about.*
- 8Syn *I can narrow my career or job options to a few that I am seriously considering.*
- 9Syn *I can compare my career or job options based on information I have gathered about them.*
- 10Syn *I know the strengths and weaknesses of each of my career options based on my own career values.*
- 11Syn *I have compared the advantages and disadvantages and benefits associated with each of my career options.*
- 12Syn I can list my career options.
- 13Syn I am having difficulty narrowing down the best career or job options for me.

#### Valuing

- 1Val *The career options I am considering satisfy my career values.*
- 2Val Important people in my life will be satisfied with my career choice.
- 3Val I know my career choice will be an enjoyable aspect of my life.
- 4Val I made my career decision while considering other life roles (e.g. family, work, leisure, spirituality).
- 5Val *I have considered the costs and benefits of my career options.*
- 6Val *The options I am considering match my values, interests, skills, and preferences.*
- 7Val *Who I am (e.g. culture, place in the community and society) fits with the options I am considering.*
- 8Val *My career options match my aspirations.*
- 9Val *My career choice fits well with my lifestyle.*
- 10Val *My career choice is a good match with my personality.*
- 11Val *My career choice will enable me to live life in the way I want/prefer.*
- 12Val I have eliminated several career options that did not fit well with my preferences or needs.
- 13Val I have sought feedback from important people in my life about my current career decision.
- 14Val If my top career choice does not work out, I have a second option I would consider.
- 15Val I can easily rank the career or job options in the order I am considering.

## Execution

- 1Exe I am familiar with the types of experiences I must gain to achieve my career goal.
- 2Exe I know what steps it would take to achieve my career goals.
- 3Exe I know how my career choice will fit into my life.
- 4Exe I can imagine the steps needed to accomplish my career goals.
- 5Exe I will know when I have reached my career goals.
- 6Exe** *I am ready to take the necessary steps to reach my career goal.*
- 7Exe I know the steps I need to take to reach my career goal.
- 8Exe** *I am taking the necessary steps to reach my career goal.*
- 9Exe** *I am in the process of achieving my career goals.*
- 10Exe** *I know what I will need to be doing in six months from now to reach my career goal.*
- 11Exe** *I have a plan of action to achieve my career goal.*
- 12Exe I know the requirements to be qualified for the career choice I have made.
- 13Exe** *I will try out my top career choice.*
- 14Exe** *I have applied for my top career choice.*
- 15Exe** *I have begun the training and/or education necessary for my top career choice.*

## Communication 2

- 1Com2 I am confident in my career decision.
- 2Com2 I have chosen a career or job option that best solves my career problem.
- 3Com2 I have chosen the career that is best for me.
- 4Com2 I have chosen a career option that incorporates my career interests.
- 5Com2 I feel less anxious now that I have made a decision about my career.
- 6Com2 I have chosen a career or job option that incorporates my career values.
- 7Com2 I have selected the best choice, for me, from my career or job options.
- 8Com2 I think I am where I want to be in my career development.
- 9Com2 I feel better now that I have acted on my career decision.
- 10Com2** *Even though I have told others I have made my career decision, I do not feel very good about it. (R)*
- 11Com2** *I made a career choice but think I may need to make a new choice. (R)*
- 12Com2 My career choice has allowed me to start the life I want.
- 13Com2** *My career choice has not improved my situation. (R)*
- 14Com2** *The career choice I made has not made me feel any better. (R)*
- 15Com2** *I continue to experience anxiety even though I have made my career choice. (R)*

All items were included in the exploratory factor analysis. (R) denotes items that are reverse scored. *Italicized* items were used in the first confirmatory factor analysis. **Bold** items were used in the second confirmatory factor analysis.

## APPENDIX C CASVE Cycle Questionnaire - Current Version

### **Directions:**

As you complete this questionnaire please keep in mind a current career problem or career decision. Answer each question with YES indicating this statement applies to your current situation or No indicating the statement does not apply to you currently. All items may not apply to you; simply answer those items with NO. If you are currently in an educational program or hold a position outside of your final career goal, it may be beneficial to think about some items in terms of your final career goal.

Key Terms you will see in the questionnaire items:

**Career problem:** an identifiable discrepancy or gap between where you are currently in your career and where you would like to be in the future. Examples of career problems are choosing a major, obtaining an internship, selecting a career field, or obtaining a job.

**Career values:** factors you find important to consider when making career decisions. Examples of career values are income level, work and family balance, independence, and prestige.

All items will be answered with “yes” or “no”.

### Communication 1

1. I am overwhelmed by making a career decision.
2. I have difficulty thinking about my future career goals.
3. There is pressure in my life to make a career decision.
4. I have a problem concerning my career path.
5. I worry about needing to make a career decision.
6. I feel sad or worried when I think about my need to make a career choice.
7. I find ways to avoid making a career decision.
8. The amount of effort it takes to make a career decision is overwhelming.

### Analysis

1. I am unsure where to begin to solve my career problem.
2. I need help identifying my career options.
3. I need more information about myself to make the best career choice.
4. I do not have enough information to compare my career or job options accurately.
5. I have not considered my family or significant people in my life when thinking about my career problem.
6. I am unsure of a good timeline for achieving my career goal.

### Synthesis

1. I can identify many career or job options that match my values.
2. I can identify multiple jobs that match my career interests.

3. I can identify multiple career options that match my career-related skills.
4. I have explored a large amount of career or job options and then narrowed those down to a few I feel good about.
5. I can narrow my career or job options to a few that I am seriously considering.
6. I can compare my career or job options based on information I have gathered about them.
7. I know the strengths and weaknesses of each of my career options based on my own career values.

#### Valuing

1. The career options I am considering satisfy my career values.
2. I have considered the costs and benefits of my career options.
3. The options I am considering match my values, interests, skills, and preferences.
4. Who I am (e.g. culture, place in the community and society) fits with the options I am considering.
5. My career options match my aspirations.
6. My career choice fits well with my lifestyle.
7. My career choice is a good match with my personality.
8. My career choice will enable me to live life in the way I want/prefer.

#### Execution

1. I am ready to take the necessary steps to reach my career goal.
2. I am taking the necessary steps to reach my career goal.
3. I am in the process of achieving my career goals.
4. I know what I will need to be doing in six months from now to reach my career goal.
5. I have a plan of action to achieve my career goal.
6. I will try out my top career choice.
7. I have applied for my top career choice.
8. I have begun the training and/or education necessary for my top career choice.

#### Communication 2 (Reverse Scored)

1. Even though I have told others I have made my career decision, I do not feel very good about it.
2. I made a career choice but think I may need to make a new choice.
3. My career choice has not improved my situation.
4. The career choice I made has not made me feel any better.
5. I continue to experience anxiety even though I have made my career choice.

The measure is scored in four steps. Step 1: Reverse score items in Communication 2. Step 2: Sum the total number of items in each scale. Step 3: determine each phase that is completed, or if at least two items are completed in the phase, with 1 = phase completed and 0 = phase not completed. Step 4: determine whether or not phases were completed in order and classifying each individual as Ideal (1) or Non-Ideal Navigators (0).

Do not penalize individuals, or consider them Non-Ideal Navigators, who have not completed phases later in the CASVE cycle (e.g. completed Communication 1, Analysis, Synthesis, Valuing but not completed Execution or Communication 2).

## APPENDIX D Consent Form

Principal Investigator:  
Brianna Werner  
Counseling Psychology Doctoral Student  
Department of Psychology  
brianna.werner@usm.edu

### Informed Consent

The purpose of this study is to further develop a measure of career decision making status, the CASVE Cycle Questionnaire. The CASVE-CQ is based on a career decision-making cycle grounded in the cognitive information process approach to career development. The cognitive information processing theory is used extensively in applied settings, and this measure will allow career counselors to pinpoint an individual's position in the CASVE cycle or decision-making process to more efficiently and effectively serve clients.

You will be asked to complete online measures regarding vocational identity, career decision-making difficulties, career commitment, career decision-making tasks, and negative career thoughts. The study is fully online, will take about 60 minutes to complete, and is designed to be completed in one session (i.e., starting the study and then trying to finish it later may not work). Participants who complete the study will receive compensation as designated in mTurk. Quality assurance checks will be used to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive credit for completing the study.

Participants will receive compensation as designated in mTurk. Participants will receive no other direct benefits; however, the information provided will enable researchers to better understand the career decision-making process of adults. This study does not involve treatment procedures of any kind or the potential for medical injury.

There are no foreseeable risks to participating in this study. If you feel that completing these questionnaires has resulted in emotional distress, please stop and notify the researcher (brianna.werner@usm.edu). If you should decide at a later date that you would like to discuss your concerns, please contact the research supervisor, Dr. Emily Yowell (emily.yowell@usm.edu). Alternatively, you may contact one of several national agencies, such as:

Substance Abuse and Mental Health Services Administration - Behavioral Health Treatment Services Locator

<https://findtreatment.samhsa.gov/>

1-800-662-HELP(4357) - Treatment Referral Hotline

National Suicide Prevention Lifeline: 1-800-273-TALK (8255)

Crisis Text Line: Text "home" to 741741

National Alliance on Mental Illness (NAMI) Helpline: 1-800-950-NAMI (6264)

The online measures are designed to be anonymous, and the information you provide will be kept strictly confidential. Any potentially identifying information (e.g., your IP address) will not be retained with your responses.

Those who do not wish to participate in this study may stop participation at any time without penalty.

This project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the Chair of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits.

Any questions about the research should be directed to the Principle Investigator using the contact information provided in Project Information Section above.

Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator with the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

## APPENDIX E IRB Approval Letter

### NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
  - Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
  - Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
  - Appropriate additional safeguards have been included to protect vulnerable subjects.
  - Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months.  
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: CHI7092902

PROJECT TITLE: The CASVE Cycle Questionnaire: Confirmatory Factor Analysis and Navigator Score

PROJECT TYPE: Doctoral Dissertation (Change to a Previously Approved Project)

RESEARCHER(S):

Brianna Werner

COLLEGE/DIVISION:

College of Education and Psychology

DEPARTMENT:

Psychology

FUNDING AGENCY/SPONSOR:

N/A

IRB COMMITTEE ACTION:

Expedited Review Approval

PERIOD OF APPROVAL:

11/06/2017 to 11/05/2018

Edward L. Goshorn, Ph.D.

Institutional Review Board

PROTOCOL NUMBER:

17092902

**PROJECT TITLE:**

The CASVE Cycle Questionnaire: Confirmatory Factor Analysis and Navigator Score

**PROJECT TYPE:** Doctoral Dissertation

**RESEARCHER (S):** Brianna Werner

**COLLEGE/DIVISION:** College of Education and Psychology

**DEPARTMENT:** Psychology

**FUNDING AGENCY/SPONSOR:** N/A IRB

**COMMITTEE ACTION:** Expedited Review Approval

**PERIOD OF APPROVAL:** 11/06/2017 to 11/05/2018

Lawrence A. Hosman, Ph.D.

Institutional Review Board

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