ABSTRACT

CHAPMAN, CHRISTINA MARIE. Assessing and Evaluating Nutrition Undergraduate Students' Career Decision Self-Efficacy and Career Readiness Using Novel Course-Based Approaches to Career Preparation. (Under the direction of Dr. Natalie K. Cooke, Chair of Committee).

Career development learning equips students with essential skills to transition smoothly into their future careers by connecting their academic experiences with their future career goals, enhancing their preparedness for the professional world. By participating in career-related activities, such as resume building and career exploration, students gain insights into their desired careers. Research shows that structured career development programs significantly improve students' confidence in making career decisions and overall career readiness. These programs provide the necessary tools and experiences to ensure students are well-prepared to enter and succeed in their chosen fields.

The research in this dissertation focuses on career development learning to aid students' transition to their future careers by linking course learning with future goals. The first study aimed to identify themes in students' career-related discussions in an introductory nutrition, communication, and careers course. Key findings include students' lack of career awareness, desire for real-world success, and the importance of resume building and career exploration.

The second study examined students' baseline career decision self-efficacy (CDSE) and their perspectives on their CDSE at the beginning of a career development learning project. Quantitative findings indicate that students had good confidence in their career decision-making ability at the beginning of the career development learning project. Findings from students' critical reflections papers indicated that participants gained a deeper understanding of their strengths and weaknesses and how they contributed to their overall CDSE, providing valuable skills and experiences for professional development.

The third study analyzed the impact of a semester-long career development project on students' CDSE by using quantitative data from pre- and post-assessments. Results showed statistically significant improvements in students' CDSE, with most students finding the project effective and reporting feeling more prepared for their careers.

The findings from this dissertation filled a notable gap in the literature using qualitative analysis for CDSE. Furthermore, these studies highlight the importance of structured career development learning initiatives in enhancing students' career preparedness and decision-making skills. This dissertation contributes to the scholarship of teaching and learning literature by providing evidence-based practices that can guide educators in designing and implementing effective career development initiatives. Additionally, it highlights the importance of continuous assessment and reflection by educators to ensure that these projects meet students' evolving needs and aspirations. By regularly reviewing student feedback and outcomes, educators can create and adapt projects to better align with students' needs and goals.

Assessing and Evaluating Nutrition Undergraduate Students' Career Decision Self-Efficacy and Career Readiness Using Novel Course-Based Approaches to Career Preparation.

by
Christina Marie Chapman

A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Nutrition

Raleigh, North Carolina
2024

APPROVED BY:

Dr. Natalie K. Cooke Chair of Advisory Committee	Dr. L. Suzanne Goodell
Dr. Nicola Singletary	Dr. Diane Chapman

BIOGRAPHY

Born and raised in Omaha, Nebraska, Christina Chapman moved to North Carolina in 2014 to pursue an undergraduate degree at North Carolina State University. Throughout her time at NC State, she was actively involved in campus life, including membership in the Pi Beta Phi sorority and volunteer positions with the Inter-Faith Food Shuttle and the Expanded Food and Nutrition Education Program (EFNEP).

During her undergraduate and master's studies, Christina nurtured a lifelong passion for dance by teaching at a local dance studio in Raleigh. This experience honed her teaching skills and reinforced her love for education. After completing her Bachelor of Science in Nutrition Science from NC State, she continued her education and earned a Master of Science in Nutrition Science from Meredith College in 2021.

Starting in 2020, while pursuing her master's degree, Christina began working as a graduate teaching assistant under the supervision of Dr. Suzie Goodell. Through Dr. Goodell's mentorship, Christina gained valuable opportunities and wisdom, sparking a passion for higher education. This led to the decision to pursue a doctoral degree, during which she continued as a teaching assistant and further explored interests in childhood development by nannying an infant through toddlerhood.

Outside of academia, Christina enjoys spending time in the sun at the beach and is an avid football fan, particularly of the Kansas City Chiefs. She loves traveling to cheer on the Chiefs and has even ventured internationally to see them play. Christina also enjoys playing golf and spending quality time her dog, friends, and family.

Looking forward, Christina aspires to make a significant contribution to career development in higher education and educational technology. With a strong foundation in nutrition science and a passion for teaching, she hopes to impact the academic and professional paths of future generations.

ACKNOWLEDGEMENTS

Completing this dissertation has been a challenging yet deeply rewarding journey, and it would not have been possible without the support, guidance, and encouragement of many individuals. I would like to take this opportunity to express my heartfelt gratitude to all those who have contributed to this work.

First and foremost, I would like to express my deepest appreciation to Dr. L. Suzanne Goodell for hiring me as her graduate teaching assistant. Dr. Goodell's trust in me allowed me to explore course design, curriculum development, and ignited my passion for pursuing a PhD. Her continued guidance, mentorship, and support over the past four years have been instrumental in shaping me into the individual I am today. There are truly not enough words to express my sincere gratitude to Dr. Goodell for the role she has had in my life. I am also grateful for Dr. Goodell sponsoring my assistantship alongside Dr. Natalie K. Cooke.

My sincere thanks go to my committee chair, Dr. Natalie K. Cooke, who recommended me for the position as Dr. Goodell's teaching assistant in 2020, sparking my interest in pursuing a PhD. Dr. Cooke has provided unwavering support, and she has pushed me to excel both as a researcher and educator. Dr. Cooke's willingness to let me develop my ideas and enhance them further has been invaluable. Her understanding and steadfast support during difficult times has been greatly appreciated. Words cannot fully convey my gratitude to Dr. Cooke's dedication to my success.

I would like to acknowledge my co-authors on the three manuscripts included in this dissertation: Dr. Cooke (Chapter 2, 3, and 4), Dr. Goodell (Chapter 2, 3, and 4), Karlyn Matheson (Chapter 2), Maggie Anthony (Chapter 3), Anshika Gutta (Chapter 3), Avery DiPasquale (Chapter 4), and Taylor Moen (Chapter 4). Thank you for your contributions to research design, data collection and analysis, and manuscript development – this dissertation would not be possible without you.

I would also like to thank my research assistants Maggie Anthony, Kirsten Brady, Avery DiPasquale, Anna Gessner, Sanvi Gupte, Anshika Gutta, Karlyn Matheson, and Taylor Moen who helped me conduct this research. A special thanks goes to Karlyn Matheson for her continued support and efforts in data analysis and writing for Chapter 2. Her bright smile and warm energy provided much-needed reprieve during the demanding phases of this work. I am grateful that each of you chose to be a part of the Cooke lab group and that I got to work with you.

I extend my gratitude to my committee members, Dr. Nicola Singletary and Dr. Diane Chapman, for their invaluable guidance and support throughout my doctoral program. Their insights and feedback have significantly enriched my research and academic development.

I would also like to acknowledge those who have played an instrumental role in my professional development. My heartfelt thanks go to Kelly Rownd for her continuous support and mentorship, and for connecting me with key individuals in the field. I am equally grateful to Sara Lane for involving me with the North Carolina Association of Colleges and Employers (NCACE), where I had the opportunity to meet many influential people and further my passion for career development. Additionally, I extend my gratitude to everyone who has participated in informational interviews with me. Your insights and experiences have greatly contributed to my growth and professional journey.

Lastly, I wish to thank my parents, who have always pushed me to be my best self. Their presence during the highs and lows of this journey has been a source of immense strength and motivation. I wouldn’t be who I am today if it wasn’t for their unwavering support and encouragement. Additionally, I want to acknowledge my dog, Lily, for providing constant companionship and emotional support during this journey. Her loyalty and cheerful presence have been a great source of comfort and joy during this process

To all these individuals and many others who have been part of my doctoral journey, I offer my heartfelt thanks. This accomplishment would not have been possible without you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: LITERATURE REVIEW

Employability Skills: History, definitions, prevalence, and implications.

During the late 1980s and early 1990s there was a growing recognition that traditional education needed to extend beyond academic knowledge and technical expertise.[1–5] The focus expanded to include a broader set of skills and attributes essential for success in the workplace.[1-5] This shift in perspective led to the formulation of the concept of "employability skills" or "soft skills."[1–5] These skills encompassed a range of qualities such as communication, teamwork, problem-solving, and adaptability.[1–5] Employers began to emphasize the importance of these skills alongside technical qualifications.[1–5] Various educational and vocational institutions, as well as policymakers, started incorporating employability skills in their frameworks and curricula.[1–5] The idea was to better prepare individuals for the demands of the rapidly changing and competitive job market.[1–5] Over the years, the definition of and emphasis on specific employability skills have evolved to reflect the dynamic nature of work and advancements in technology.[1–5]

Burton and Bero were among the first to determine a gap between educators' and employers' views on the skills needed to adequately prepare students for life and the workforce.[1] Teachers tended to prioritize isolated job-related tasks and fundamental academic skills, whereas employers were seeking candidates with strong personal, social, and coping skills.[1] This prompted a heightened initiative to better connect and align educational practices with the demands and expectations of the workforce, aiming to bridge the gap between school curricula and professional needs.[1] A subsequent study by Burton revealed that employers consistently assigned high importance to employability skills associated with personal, social, and interpersonal behaviors.[2] Brown and Stemmer expanded on Burton's work within a Michigan task force focused on defining and assessing employability skills.[2,3] The task force created a comprehensive list of academic, personal, management, and teamwork skills, which served as the basis for a questionnaire sent to over 7,500 Michigan employers.[3] Results from the Michigan Employability Skills Survey indicated that personal, management, and teamwork skills were deemed more crucial than academic skills;[3] however, when respondents were prompted to contemplate skills necessary for adapting to future changes, academic skills were rated as more critical than other skill categories.[3] These findings highlighted the importance placed by employers on personal, social, management, and teamwork skills, but there remained a lack of a clear definition of employability skills.[3] Subsequently, the Conference Board of Canada's Corporate Council on Education defined employability skills as "characteristics that make a person employable, including knowledge, know-how, attitude, and behaviors."[4]

As the century turned, the challenge of employability skill gaps persisted, with the ongoing struggle to find workers possessing the requisite job readiness skills.[6] Employers sought dependable, problem-solving individuals with strong social skills, fostering a collaborative work environment.[6] Companies aimed to cultivate an empowered and high-performance workforce to enhance competitiveness in the job market.[6] Employability skills were later defined as fundamental competencies necessary for securing, retaining, and excelling in a job, characterized by their generic nature rather than being job-specific.[6] This early categorization marked one of the initial efforts to classify skills into three domains: basic academic skills, higher-order thinking skills, and personal qualities.[6] Robinson emphasized that employability skills are teachable and can be imparted both in educational and employment settings.[6]

In 2012, seeking to bridge the gap between education and workforce needs in the U.S,[7] the Department of Education developed the Employability Skills Framework (Figure 1.1).[7]

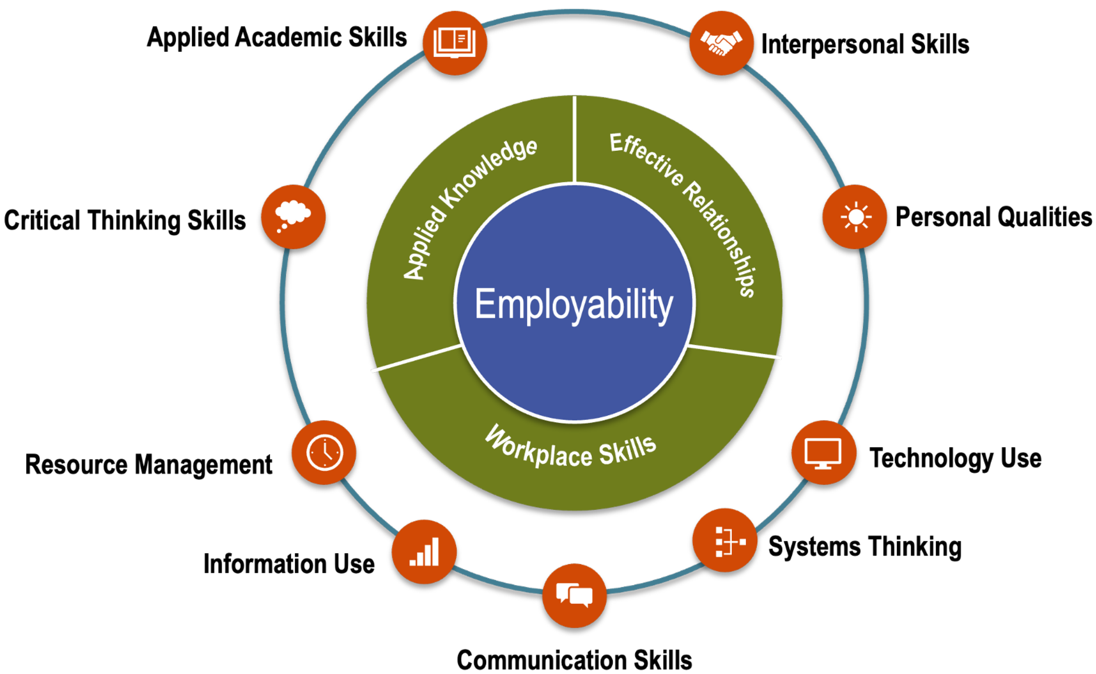


Figure 1.1. Employability Skills Framework – adapted from the *U.S. Department of Education* (2012)

The Employability Skills Framework (ESF) generally outlines a set of essential skills and attributes, including communication, teamwork, problem-solving, and adaptability among others, that individuals need to thrive in the workplace.[7] There are three main sectors of the ESF: applied knowledge, effective relationships, and workplace skills.[7] Applied knowledge involves practical application of academic concepts and technical expertise in real-world scenarios, such as the workplace, emphasizing the integration of theoretical learning with hands-on experience.[7] This integration is fundamental for individuals to effectively apply their knowledge in professional contexts.[7] Applied academic skills and critical thinking skills are integral components of this concept.[7] Applied academic skills refer to the ability to use academic knowledge in real-world scenarios.[7] This may include applying mathematical principles in solving practical problems, utilizing scientific concepts in a laboratory setting, or employing language and writing skills effectively in professional communication.[7] Applied academic skills bridge the gap between theoretical knowledge gained in educational settings and its practical application in professional contexts.[7] Critical thinking skills involve the ability to analyze, evaluate, and synthesize information to make informed decisions and solve complex problems.[7] Critical thinking skills may manifest in tasks such as assessing the validity of information, making logical connections between ideas, and approaching challenges with a strategic and analytical mindset.[7] In the workplace, critical thinking skills are essential for effective decision-making, problem-solving, and innovation.[7] Developing effective relationships within the ESF emphasizes the importance of cultivating positive interactions and connections in the workplace.[7] This involves fostering strong interpersonal skills and nurturing personal qualities that contribute to collaborative and supportive professional environments.[7] Interpersonal skills involve the ability to communicate, collaborate, and build positive relationships with colleagues, clients, and stakeholders.[7] Effective communication, active listening, conflict resolution, and teamwork are examples of interpersonal skills.[7] Interpersonal skills are crucial for creating a harmonious work environment, enhancing teamwork, and promoting a culture of open communication.[7] They contribute to effective collaboration and a positive workplace environment.[7] Personal qualities refer to inherent characteristics and traits that influence how individuals interact with others, such as integrity, empathy, and adaptability.[7] Examples of personal qualities include reliability, resilience, adaptability to change, and a positive attitude.[7] Personal qualities play a vital role in building trust, fostering a positive work culture, and adapting to various professional challenges.[7] They contribute to individual and collective success in the workplace.[7] Workplace skills within the ESF encompass a range of competencies for thriving in professional settings.[7] These skills include resource management, information use, communication skills, systems thinking, and technology use.[7] Resource management involves efficiently utilizing available resources, including time, finances, and materials, to achieve organizational goals.[7] Examples include prioritizing tasks, budgeting time effectively, and optimizing available resources for maximum productivity.[7] Resource management skills contribute to organizational efficiency, cost-effectiveness, and successful project completion.[7] Information use skills refers to the ability to gather, analyze, and apply relevant information to make informed decisions and solve problems.[7] Examples include researching, synthesizing data, and using information to support decision making.[7] Information use skills enhance decision-making, problem-solving, and overall effectiveness in the workplace.[7] Communication skills involve the effective exchange of information through verbal, written, and non-verbal means.[7] Examples include clearly conveying ideas, active listening, and adapting communication styles to diverse audiences.[7] Strong communication skills foster collaboration, prevent misunderstandings, and contribute to a positive workplace culture.[7] Systems thinking skills allow employees to understand and analyze complex systems, recognizing how individual components interconnect and influence each other.[7] An example is identifying the interdependencies within a project or process and considering the broader implications of decisions.[7] Systems thinking skills enhance problem-solving by addressing issues holistically and understanding the broader context.[7] Technology skills involve proficiency in utilizing various tools and technologies relevant to the workplace.[7] An example is effectively using software, applications, or digital platforms for tasks and projects.[7] Technology use skills are vital in the modern workplace, improving efficiency, communication, and adaptability to evolving technological trends.[7] Employability skills contribute to individual success by enhancing problem-solving abilities, promoting positive interpersonal relationships, and enabling individuals to thrive in diverse professional settings.[7]

Possessing a robust set of employability skills is key to personal and collective achievement in a dynamic and competitive job market.[7]

Soft skills, such as professionalism and written, verbal, and interpersonal communication skills, are considered strong predictors of employability.[8–11] Problem-solving skills, including critical and creative thinking, leadership, and adaptability are a core component of employability skills and are also considered strong predictors of job performance.[8,12] Job-specific functional skills indicate that graduates have the skills necessary to perform well on a specific job.[8,13] Pre-graduate experience, like volunteering or internships, job shadowing, or part-time or summer employment, can prepare undergraduate students for success in entry level jobs.[8,14,15] Oftentimes, employers view pre-graduate experience as an indicator of workplace readiness because it allows students to develop skills necessary for real-world challenges.[8,14,15]

In 2020, the Association of Public and Land Grant Universities (APLU) released two reports from a 2018-2019 survey assessing employability skills in agriculture and natural resources.[16] Thirty-one universities and organizations affiliated with the APLU participated in the survey.[16] The purpose of the survey was to understand the gap between what skills employers expect out of employees who are newly graduated, and how much students value those skills. The following eleven employability skill gaps were identified by the APLU:[16]

1. Recognize and deal constructively with conflict
2. Accept and apply critique and direction in the workplace
3. Listen effectively
4. Realize the effect of decisions
5. Communicate accurately and concisely
6. Build professional relationships
7. Navigate change and ambiguity
8. Identify and analyze problems

9. Transfer knowledge from one situation to another
10. Ask good questions
11. Understand role in the workplace

The purpose of the APLU reports was to encourage faculty at public and land grant universities to make critical changes to their curricula or academic programs in order to prepare college graduates for the workforce.[16,17] There were three skills out of the eleven critical growth areas studied that employers felt were the most important: listen effectively, communicate accurately, and identify and analyze problems.[16,17] The three skills with the largest preparedness gaps are: understand roles and realize career expectations, recognize and deal constructively with conflict, and accept critique and direction in the workforce.[16,17] The APLU suggests three ways to build employability skills:[17]

1. Increase student engagement through in-class and out-of-class group projects;
2. Link assessment through in-class and out-of-class group projects; and
3. Research that enforces classroom concepts can act as an agent for building employability skills.

Developing Employability Skills

Employability skills are versatile and applicable across diverse work settings, as they are not confined to job-specific requirements but instead encompass a broad range of transferable competencies.[18,19] Employers prioritize generic employability skills over specific occupational skills, recognizing the broader value and adaptability these skills bring to diverse roles and work environments.[19,20] Employability skills are shifting from once being considered desirable to now being considered essential for employment, leading employers to expect educational institutions to take responsibility for their development.[19] Effective instruction of employability skills depends on multiple factors such as encompassing instructional methods, teacher qualities, the explicit inclusion of skill acquisition goals, and student engagement.[19] Fostering students' ability to independently navigate their career paths and manage stress is crucial for enhancing graduates' level of self-awareness, self-efficacy, and career adaptability.[21–23] The career-related behaviors and attitudes exhibited by graduates significantly impact their career outcomes.[21,24] Students who actively commit to career-related life goals have a greater ability to adapt and sustain proactive career behaviors, ultimately enhancing their employability post-graduation.[21,25,26] Proactive career management encompasses activities such as exploring relevant job options, setting career-related goals, developing employability skills, accumulating experiences for future career opportunities, and building professional networks.[21,25,26] The optimal acquisition of employability skills occurs when they are incorporated into instructional objectives and are explicitly taught as part of the learning process.[20,27–29] Integrating employability skills into the curriculum underscores their significance for students, emphasizing their importance alongside academic coursework.[20] The most effective learning of employability skills takes place when educators implement a curriculum that emulates essential aspects of real work settings, which allows students to closely mirror tasks carried by professionals in those environments.[20,27,29–32] Furthermore, instructors who set high expectations for student learning create an environment conducive to developing employability skills.[20,28,33] For example, educators can facilitate the acquisition of employability skills in the classroom by implementing employability portfolios that showcase students' skills and traits. Additionally, professional development activities emphasizing employability skills contribute to students' overall preparation for the workforce.[20]

Self-Efficacy: Definition, sources, and ways to build

Not only is it important for students to develop employability skills, but it is also important for them to be confident in their ability to use these skills in the workforce. Therefore, self-efficacy is an important component of employability. Albert Bandura, the "Father of Self-Efficacy," defined self-efficacy (or self-confidence, in lay terms) as the confidence that an individual has in their own ability to complete a specific skill or task.[34] "Outcome expectations" are when a person believes that an outcome will occur based on the behavior leading to an expectation.[34] However, "efficacy expectations" are defined as the confidence that a person has that their behavior(s) will lead to the expected outcome.[34] When students see a difference in their academic performance and what is perceived as the standard for academic success, they are likely to be motivated to change their behavior.[34] The actual outcome differs from students' expected outcome, when they are incentivized to change their behavior.[34] Students with a perceived higher self-efficacy are more likely to persevere during times of adversity when trying to reach an effort, demonstrating resilience and determination.[34]

It is important to note the differences between self-efficacy, self-esteem, self-concept, and growth mindset, as terms may be used incorrectly in common conversation. Self-esteem is how people perceive themselves and their significance or personal worth.[35] Organization-based self-esteem is when an employee evaluates their personal worth in regards to their role in their organization.[35] Organization-based self-esteem is related to self-efficacy because employees who perceive their worth in their organization as meaningful and important have more confidence in their ability to complete certain skills or tasks.[35] This can ultimately lead to better outcomes for the organization because the individual is more confident in their ability to complete job-related tasks.[35] Growth mindset suggests that intelligence and performance are able to be changed and refined through various strategies and efforts.[36] A growth mindset can lead to perseverance and resilience when facing challenges and often students with this mindset will view challenges as opportunities to learn and grow.[36] Students with growth mindsets often perform better academically because they exhibit greater effort and engagement resulting in increased motivation to succeed.[36] While there are overlapping constructs between self-efficacy and self-concept, self-concept can simply be defined as the perception and individual has about themselves.[37] Self-efficacy constructs are descriptive, whereas self-concept constructs are descriptive and evaluative.[38] This means that self-efficacy is "descriptive of expected accomplishments," whereas self-concept is "based on how accomplishments meet standards of reference."[38] The last major difference between self-efficacy and self-concept is that self-efficacy is more often related to future achievements, whereas self-concept is based on past achievements.[38]

Bandura defined four sources of self-efficacy: enactive mastery, vicarious experience, verbal persuasion, and physiological arousal.[34] Success heightens enactive mastery expectations, while persistent failures inhibit enactive mastery expectations, particularly during the beginning stages of events.[34] However, when repeated successes occur, there is less inhibition from failures.[34] Eventually students will be proficient in a skill or task due to increased self-efficacy with the skill or task, built on prior successful attempts.[34] Mastery is the most powerful construct because it reinforces the self-confidence that one has when they successfully overcome a challenge, allowing the individual to subconsciously affirm that they can learn new skills and complete new tasks.[34] For example, students may view the outcome from an exam as a success or failure in terms of mastery of the content, which may lead to a positive mindset and increased self-efficacy.[34] However, if students persistently fail or their expected outcome does not match the actual outcome, they are subject to doubt and be less self-confident in their ability to master material in a course.[34] Enactive mastery can be induced through participant modeling, performance desensitization, performance exposure, and self-instructed performance.[34] Performance desensitization is when an individual is able to effectively handle emotional responses such as anxiety by eliminating threats to the emotional response.[34] Performance exposure occurs when the individual is shown what performance skills and tasks result in positive outcomes.[34] Self-instructed performance is when an individual uses their own skills and knowledge to complete a task without having been given formal instruction.[34] Participant modeling allows for behavior concepts to be translated to actions that can help build confidence in performing a skill or task.[34]

Vicarious experience, or self-modeling, allows individuals to learn to be proficient in a skill or task by watching an expert complete the skill or task.[34] Individuals can watch successes and failures and determine how to best mimic behavior that leads to completion of the skill or task.[34] With students, they see their peers successfully completing a challenging skill or task, such as taking an exam and performing well on the exam, and want to model that behavior to be successful.[34] However, it could also lead to self-doubt if they perceive that everyone else understands the material while they do not.[34] Therefore, it might be more beneficial for them to observe peers who are ahead of them in their program.[34] Vicarious experience can be induced through live modeling or symbolic modeling.[34] Live modeling occurs when an individual performs skills or tasks in front of other individuals, whereas symbolic modeling is when behavior is demonstrated through real or fictional characters in books, films, television, etc.[34]

Verbal persuasion or verbal encouragement allows individuals to receive feedback from an expert on how to be more successful at completing the skill or task.[34] With students, feedback on assignments and exams can provide students with the knowledge they need to be successful in completing a challenging skill or task.[34] Positive reinforcement when a student succeeds and does well on an assignment or exam can build their self-efficacy.[34] Verbal persuasion can be induced through suggestion, exhortation, self-instruction, and interpretive treatments.[34] Individuals can be persuaded to believe a particular behavior will lead to success through verbal suggestions from those who are considered experts at a skill or task.[34] Exhortation from an expert occurs when an expert strongly suggest or urges a learner to do something because it will help them be more successful at completing a skill or task.[34] Interpretive treatments can be a form of support from the expert in which they interpret and explain the learner's struggles with a skill or task and frame them in a way that be used to increase their confidence in a skill or task.[34]

Through physiological arousal or an emotional state, building self-efficacy is more achievable when an individual is in a good mental health state.[34] When individuals learn how to effectively manage their stress and anxiety, they can improve their perceived self-efficacy.[34] Physiological arousal can be induced through attribution, relaxation or biofeedback, symbolic desensitization, and symbolic exposure.[34] Attribution can be a motivational approach in which the perceived cause of an event, the information that influenced the event, and the consequences of the event are assessed.[39] Relaxation is a treatment strategy used to reduce anxiety which can increase perceived self-efficacy.[34] Desensitization and exposure are used as an approach in which individuals receive increased exposure to adverse events in conjunction with strategies to reduce anxiety.[34] College students often face significant mental health challenges, exacerbated by academic pressure and social stress,[40] which can negatively impact their emotional state and self-efficacy, leading to a decreased belief in their ability to succeed and manage their academic and personal responsibilities.[34] Acknowledging and addressing these mental health challenges is crucial for fostering a supportive environment that enhances students' self-efficacy to promote better academic performance and overall well-being.

Self-efficacy can primarily be built through peer modeling, seeking feedback, and encouraging participation.[34] Providing examples of prior students' work as a model of what success looks like, increases student self-efficacy in their ability to achieve success.[34] Additionally, peer modeling can happen when an individual who successfully adopts a regular exercise routine and shares their journey with others to help inspire them to incorporate fitness into their lives, thereby increasing their confidence in achieving similar health goals.[34]

Understanding and leveraging the four sources of self-efficacy (enactive mastery, vicarious experience, verbal persuasion, and physiological arousal)[34] is essential for empowering individuals to achieve their goals and maintain a positive belief in their capabilities.

Career Decision Self-Efficacy

Building on self-efficacy, it is important to explore how the belief in one's abilities specifically influences career decision-making, which plays a critical role in shaping students' career choice and future success.[34,41–43] Career Decision-Making Self-Efficacy (CDMSE), also referred to as Career-Decision Self-Efficacy (CDSE) was built upon Bandura's self-efficacy theory and Crites model of career maturity[41] to create the Career Decision-Making Self-Efficacy Scale.[34,41–43] The CDMSE scale is used to rate confidence in skills related to making career decisions.[41–43] Bandura suggested that self-efficacy is related to the competency that one has in various areas, so Crites determined career choice competencies that help determine career decision-making.[34,41–43] The following five competencies from Crites were used to create the subscales of CDMSE: accurate self-appraisal (SA), gathering occupational information (OI), goal selection (GS), making plans for the future, and problem solving (PS).[41–43] Self-appraisal is defined as the idea of knowing oneself, whereas occupational information is knowing about a job, which is followed by selecting a job (GS) and planning for the future and any problems (PS) that arise in career decision-making.[41] The original CDMSE scale has 50 Likert-scale questions, which include ten questions for each competency, with each question having the respondent assess their ability to complete a task.[42,43] Each question ranges from 0 (no confidence) to 9 (complete confidence) with a total possible score ranging from 0-450.[42,43] A CDMSE scale short-form was created for pre- and post-tests and for easier administration, and contains five questions for each competency, or a total of 25 Likert-scale questions.[42,43] Both versions have been tested for reliability, content validity, and construct validity.[42–44] Early research suggested that there was a strong correlation between CDMSE and making and following through with career decisions, where low scores indicate career indecision and high scores indicate high self-efficacy for career decision making.[42,43,45]

There are two areas of career self-efficacy that can influence career decision-making self-efficacy: content- and process-domains.[42,43,46] The content domain of career self-efficacy refers to self-efficacy in specific career fields, whereas the process domain of career self-efficacy centers on self-efficacy in using the necessary strategies for successfully navigating a decision-making process.[42,43,46] The CDSME scale, hereby referred to as the CDSE scale, uses the process-domain of career self-efficacy to determine how career decisions are made;[42,43,45] however, it is important to note that self-efficacy (self-concept) is the strongest predictor of career decision self-efficacy.[42,43,46]

Socialization experiences have an important role in shaping career-related self-efficacy by providing individuals with opportunities for mentorship, feedback, and observational learning.[46] To further illustrate this concept, Figure 1.2 showcases the effects of socialization experiences on career-related self-efficacy.

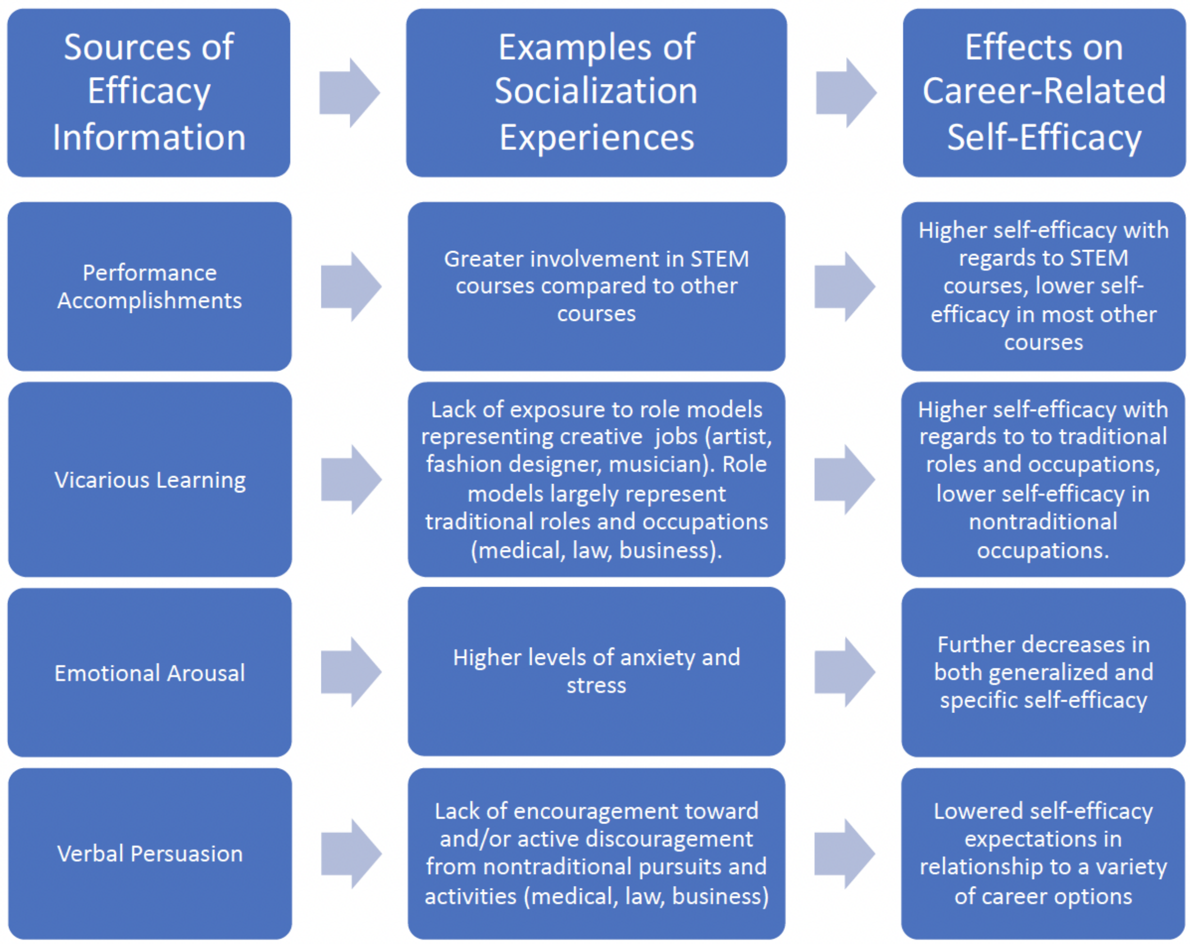


Figure 1.2. A model depicting effects of socialization experiences on career-related self-efficacy – adopted from *Hackett and Betz* (1981).[46]

Social Cognitive Theory: *Theoretical Framework, Observational Learning, The Learning Process*

In 1986, Albert Bandura developed the Social Cognitive Theory (SCT) to expand on prior learning theories that suggested learning occurs through direct experiences.[47] Social cognitive theory emphasizes the dynamic interaction between personal factors, environmental factors, and an individual's behavior.[47] Bandura suggests that learning is not a simple process, rather learning occurs through "Reciprocal Determinism" of the aforementioned factors.[47]

Bandura iterates that observational learning is not simple; rather, there are four key aspects that govern observational learning.[48] The first aspect is attentional processes, or what is remembered from the observation of the behavioral model.[48] The second aspect is representational processes or retention.[48] This occurs when an individual takes the information learned and reconstructs the information to rules and concepts.[48] Retention is improved when individuals reconstruct the information into memories and mentally review the memories.[48] The third aspect is behavioral production processes, which are concepts and memories retained that are reproduced into actions from the observed behavior.[48] The last aspect is motivational processes, which occurs when motivation influences the individual to pay attention to the behavior model, retain information, and practice the behavior.[48]

There are three different types of motivational incentives: direct incentives, vicarious incentives, and self-produced incentives.[48] Direct incentives occur when individuals are likely to acquire the modeled behavior or strategy if the behavior results in a desired outcome.[48] The opposite is likewise true because individuals are less likely to acquire the modeled behavior if the behavior or strategy results in an undesired outcome.[48] Vicarious incentives occur when individuals are motivated to acquire a modeled behavior if the individual sees others who are like themselves have a desired outcome.[48] Whereas, if the other individuals have an undesired outcome, the person is unlikely to be motivated to acquire the modeled behavior.[48] Self-produced incentives are how an individual perceives their personal behavior correlates to the modeled behaviors they are likely to acquire.[48] An individual will likely be motivated to acquire a modeled behavior they find beneficial and disprove of a modeled behavior that they find offensive.[48]

There are several concepts that are critical in the learning process.[48,49] Human agency occurs when learning and individuals make a decision intended to create a learning or behavior change.[48,49] Intentionality, forethought, and self-reactiveness or self-regulation can influence human agency.[48,49] Intentions, or planned behaviors, are rooted in motivation which determines the likelihood that a future course of action will be performed.[48,49] Individuals use a future perspective to motivate themselves to achieve goals and actions that result in the anticipated desired outcome.[48,49] The self-directed ability to motivate oneself to execute a course of action will lead to the desired outcome.[48,49]

Self-monitoring, performance self-guidance, and corrective self-reactions impact self-regulation.[48,49] Self-monitoring one's behavior and the conditions affecting that behavior leads to behavior change.[30] Self-evaluation can motivate one to match the standards they have set for themselves by increasing their self-satisfaction.[30] Setting small achievable goals can lead to progress towards a desired outcome when goals are structured correctly.[14] Goals should be structured to focus on what can be accomplished in the short term to allow for progress which can motivate the individual to achieve long-term goals.[30] An individual must be able to apply concepts, evaluate the outcome, and modify their behavior accordingly.[30] Self-correction allows for an individual to learn new concepts and change their behavior to meet the desired outcome.[30] Through self-reflection individuals can evaluate their motivation, values, and meaning of the goals set in order to compare their intentions and forethought with the outcomes of their actions.[30] Self-efficacy is at the center of self-reflectiveness as it impacts the motivation and learning of individuals.[30]

Social Cognitive Career Theory

In 1994, researchers developed the social cognitive career theory (SCCT) to expand upon three aspects of career development based on Bandura's social cognitive theory.[50] The three aspects are: 1) the formation and elaboration of career-relevant interests, 2) the selection of academic and career choice options, and 3) performance and persistence in educational and occupational pursuits.[50] SCCT focuses on the dynamic interaction between interest development, choice, and performance.[50] SCCT aims to explain how academic and career interests develop, how academic and career choices are made, and how success is obtained.[50] SCCT emphasizes a feedforward mechanism in which individuals' anticipation and forethought means they are proactively shaping their environment instead of responding to external stimuli.[50]

At the center of the SCCT framework are three variables: self-efficacy, outcome expectations, and goals.[50] Self-efficacy is the belief one has about their ability to perform a behavior or action.[34] For example, a nurse might feel confident in their ability to complete tasks in their profession but might feel less confident in their abilities to complete tasks in another profession.[50] Self-efficacy is considered a crucial factor in choice and development because it can relate past and future behavior.[50] Outcome expectations are the beliefs one has about the outcomes of performing a particular behavior or action.[34] Individuals are more likely to engage in a behavior if they believe that the behavior will help them achieve a desired outcome.[50] Goals are the intentions that an individual has to engage in a behavior to reach a desired outcome.[50] Goals allow individuals to self-regulate their behavior and determine to what extent their behavior is leading to the desired outcome.[50] Personal goals closely relate to self-efficacy and outcome expectations because individuals are more likely to set goals that closely align with their abilities and the outcomes they expect to achieve from performing a certain behavior.[50]

When goals are not met, it allows an individual to self-regulate and self-monitor to determine if their goals align with their self-efficacy and outcome expectations and then set new goals that are more attainable.[50]

According to the SCCT, one's career-related interests and choices develop over time, and they are an extension of one's self-efficacy and outcome expectations.[50] Throughout one's life they are exposed to a variety of experiences, direct and vicarious, in their environments.[34,50] Through these repeated exposures, individuals gain skills to develop their personal standards and self-efficacy and determine outcome expectancies based on their experiences.[34,50] As individuals develop their self-efficacy and goals for their involvement in particular activities, they also develop an interest in the activity.[50] Continued involvement in an activity leads to experiences in which an individual either masters or does not master the skill or and therefore modifies their self-efficacy and outcome expectations.[50] This continual feedback mechanism ultimately changes an individual's interest in an activity, until they feel confident in their ability to perform a behavior and the outcomes produced are expected.[34,50] In order for an individual's interests to expand in areas that they have natural abilities, the environment they are in must provide them direct, vicarious, and persuasive experiences in which they can increase their self-efficacy and reach their desired outcome.[34,50] Lent, Brown, and Hackett propose that one's interests, career- or academic-related, correlate to their self-efficacy and outcome beliefs.[50] They further hypothesized that there would be an association between career-related self-efficacy and outcome expectations, and career interests.[50] One example of this could be the students who are majoring in nutrition also have an interest in a nutrition-related career, such as a registered dietitian, because they have high self-efficacy in nutrition-related competencies due to positive outcomes within the required coursework.[50]

Career-related interests lead to choice goals (intent to pursue a career path) that form a link between interests and actions, where self-efficacy and outcome expectations prelude career-related interests.[50] Setting choice goals increases the likelihood that an individual will participate in behaviors that will help them achieve overall goals, such as getting accepted into a high-achieving honors program which might help with future graduate school applications.[50]

The time when individuals develop their career choice and goals is dynamic and ultimately creates a feedback loop using three primary components:[50] a) determining a choice goal based on career-related interests; b) utilizing behaviors that will help to reach the choice goal; and c) achievements related to the choice goal. For example, a student majoring in nutrition science might want to become a registered nurse and therefore decides to enroll in a course to become a certified nursing assistant, works as a certified nursing assistant in an assisted living facility, and after graduation accepts admission to a nursing program.[50] While environmental and personal conditions can influence one's choice goal(s), the goals that an individual sets based upon their career-related and personal self-efficacy, outcome expectations, and interests are a stronger predictor of career decision.[50] Academic and career choice are bidirectionally related, as choice goals can change based upon performance outcomes.[50] A student majoring in nutrition science might want to go to medical school, but after receiving low grades in pre-requisite courses for medical school, the student might decide to pursue a different health-related career as a nurse, physician assistant, or registered dietitian.[50]

The SCCT suggests that there is a direct and indirect relationship between self-efficacy and academic and career choices, as well as between ability and performance through performance goals and positive outcomes from the performance goals.[50] Performance involves the level of accomplishments in an educational or career setting (i.e., grade point average), as well as emotional/behavioral indicators of motivation (i.e., perseverance during hardship).[50] Performance is affected by goals set by an individual, as goals suggest the individual is likely to perform tasks or actions to help reach the goal and desired outcome.[50] Self-efficacy can directly affect performance domains and attainments, or indirectly affect performance through interest, choice goals, and choice actions.[50] Outcome expectations affect performance through goals and actions.[50] A positive feedback loop exists between performance attainment and choices and behaviors, such that a desirable performance increases outcome expectations which strengthen an individual's interests and goals thereby increasing their interest in the behavior performed.[50] Another predictor of career choice is interest, which is often a stronger predictor of career choice than criteria that indicate future success in a career.[50,51] An individual's choice to follow an academic or career path is led partly by interest, performance attainments, as well as, choice goals that help determine performance domains.[50] Furthermore, the quality of performance achieved by an individual relates to the quality of goals set by the individual. For example, a dietetic intern (i.e., choice goal) could form a goal to receive high praise on their case study presentation (i.e., performance goal) therefore determining the behaviors they are likely to perform (i.e., submit high quality and detail-oriented work).[50] Choice goals and the quality of performance can depend upon the efficacy of performance goals.[50] This could be seen in a student (choice goal) who creates performance goals to make the Dean's List, which leads to behaviors such as forming study groups, increasing study time, and utilizing course- and university-related resources.[50]

While self-regulation and self-reflection play a significant role in career interest, choice, and performance, there are other inputs that affect career development such as personal, contextual, and experiential factors.[50] Personal factors are biological factors, such as sex and race, as well as personality traits that impact career interest, choice, and performances by determining self-efficacy and outcome expectations from personal experiences and social conditions.[50] The culture that an individual grows up in can also determine academic and/or career goals because of different opportunities and lived experiences.[50] Differences in cultures leads to differences in values, norms, and beliefs which result in differences in student learning and student learning outcomes.[52] The learning environment differences between cultures influence the skills learned, which can influence academic and career goals.[52] These personal factors can ultimately influence career decision self-efficacy and outcome expectations based on the career options available to those from certain racial/ethnic groups.[50] For example, individuals from certain cultural backgrounds might experience limited educational opportunities and feel obligated to select a career based on what is acceptable in their culture.[50] Thus, personal factors can be barriers to career development which originate from cultural norms and personal outcome beliefs.[50] However, personal factors can also be beneficial to individuals and allow them to acquire and master skills which increase their self-efficacy and outcome expectations.[50] For example, the field of nutrition and dietetics is predominantly female,[53] so females interested in the field of nutrition and dietetics might have increased self-efficacy because females dominate the field.[50] However, the field of nutrition and dietetics is also predominantly White,[53] so individuals of other race and ethnicity in the field might experience barriers to career development and have lowered self-efficacy in their choice.[50]

How an individual perceives the environment around them and how they can objectively set goals are considered determinants of academic and career behaviors.[50,54,55] External determinants such as familial and social support, opportunities, and barriers (e.g., hiring and promotion discrimination) create experiences that influence interests and choices and ultimately affect career decisions.[50,54,55] Career interests do not always align with career choice if environmental determinants, such as socioeconomic factors or educational opportunities, are present.[50,56]

In 2008, a new social cognitive model was developed in order to understand the various sources of job satisfaction and job dissatisfaction.[57] Since the variables included in the model are focused on subjective well-being, this model can be applied to the academic setting as well.[57] There are seven variables that interact to affect satisfaction: work/academic satisfaction, overall life satisfaction, personality and affective traits, goal-directed activity, self-efficacy, work conditions and outcomes, and lastly goal- and efficacy-related environmental supports and obstacles.[57]

Work/academic satisfaction is considered the extent to which people have positive attitudes or general feelings about their job or academic experiences most of the time.[57–59] There is bidirectional interaction between work/academic satisfaction and life satisfaction and the direction of the path depends on moderator variables, which are variables that impact the strength and direction of the relationship.[57,60] Personality and affective traits indirectly and directly relate to job, life, and academic satisfaction through cognitive, affective, behavioral, and social paths.[50] Anger, anxiety, or self-consciousness may indirectly impact academic satisfaction via changing levels of self-efficacy.[50]

Goal-directed behaviors and progress towards goals can provide structure and meaning, which promote satisfaction.[50] Self-efficacy and academic and/or work conditions directly impact work/academic satisfaction via outcome expectations, and indirectly impact satisfaction by encouraging goal-directed behavior.[50] "Environmental resources, such as "modeling, encouragement, and performance feedback, can influence self-efficacy and outcome expectations which impact goal setting and achievement."[50] These resources then directly impact satisfaction depending on whether the resources are supporting or inhibiting progress towards goal achievement.[50]

This model is similar to SCCT with central constructs of self-efficacy, outcome expectations, goals, and external inputs.[34,50] The main difference between this model and the SCCT model is where the inputs or predictor variables interact with the constructs.[34,50] Employers and academic leaders can improve satisfaction by encouraging individuals to meet self-set goals, outline clear expectations, create a safe learning and work environment, and provide necessary support to improve self-efficacy and goal progress.[50] Employers and academic leaders can do the aforementioned by encouraging individuals to set realistic goals and monitor their progress, determine expected outcomes and ways to meet expectations, and create options for individuals to discuss unacceptable environmental conditions.[50] Individuals in a teaching role can outline clear expectations by creating learning objectives that students can utilize to create course-specific goals.[50] The APLU suggests that linking assessments and/or activities to course learning objectives can build employability skills, which can ultimately build self-efficacy in career decision-making.[16,42,46]

Reviewing the SCT, self-efficacy has a greater impact on outcome expectations when the quality of behaviors performed is necessary to meet the expected outcome.[42,43,45,49] Therefore, one can expect a relationship between CDSE and career outcome expectations.[42,43,45]
One of the many contextual determinants of SCCT is peer support, and there is a correlation between peer support and increased CDSE.[42,43,45,49] Another contextual determinant of SCCT could be career barriers, which are not significantly related to CDSE for many potential reasons.[42,43,45,49] One reason could be that prior knowledge and experience could "mediate the

effects of career barriers."[42,43,45] These barriers can be classified as one of the following: a) social or family influences, b) financial constraints, c) instructional barriers, and d) gender and race discrimination.[61] On the contrary, there are career supports which can be classified as one of the following: a) social support and encouragement, b) instrumental assistance, c) access to role models or mentors, and d) financial resources.[61] Barriers that a student might face could vary from a lack of family support about choosing a major that family members do not approve of, to a lack of financial support to take a certified nursing assistant course to get experience necessary for nursing school admission.[61] Additionally, barriers to career choice can also occur in an academic setting through poor-quality teaching.[31] Researchers have found that teaching quality is a strong predictor of learning performance outcomes and career choice.[50,62–64] Therefore, it might be beneficial for teachers to improve their teaching strategies such as motivation techniques and classroom management, in order to improve student learning outcomes.[50,62–64]

Theory of Career Construction

Savickas' Theory of Career Construction is built upon the seminal work of Super who conceptualized vocational development in a changing society and economy.[65] Super's theory of vocational development included ten propositions, which form the overarching idea that there is a relationship between individual and occupational characteristics.[66] However, Super never formed a comprehensive theory based on the ten principles, so Savickas created the Theory of Career Construction to explain the dynamic interactions and processes that individuals utilize in determining their vocational behavior.[65] Career construction theory utilizes various perspectives, such as contextual and cultural, to understand human development in response to a changing environment.[65] Contextualist and constructionist perspectives are used to demonstrate that development within a career is due to environmental adaptation and individual interpretation of "vocational behavior and occupational experiences."[65]

One of the main components of the career construction theory is career adaptability, which can further be defined as how prepared an individual is to change in order to construct a career.[65] Individual resources are needed to adapt to current and anticipated tasks, transitions, and personal traumas in vocational roles that change their social integration.[65,67] Career adaptability can increase career or professional self-efficacy, improve decision-making skills when faced with a difficult choice or situation, improve vocational performance, and influence job and life satisfaction.[65,67] Career adaptability is correlated with one's readiness to complete developmental tasks, one's ability to manage occupational transitions, and one's readiness to cope with personal traumas.[65,67] Career adaptability is a reactive construct of the career construction theory, meaning adaptability is based upon the ability of one to adapt to changes in their environment.[65,67] Through the use of self-regulation strategies, career adaptability allows individuals to develop their career self-concept which thereby helps to build their career.[65]

Savickas defined four dimensions that represent, "general adaptive resources and strategies that individuals use to manage critical tasks, transitions, and traumas as they construct their careers."[65] These four dimensions conceptualize adaptive individuals' response readiness and coping strategies, and thereby increase career adaptability.[65] The four dimensions, hereby known as the 4C's, are as follows:

1. "Becoming *concerned* about the vocational future."[65]
2. "Taking individual *control* of preparing for the vocational future."[65]
3. "Displaying *curiosity* by exploring possible selves and future scenarios."[65]
4. "Strengthening the *confidence* to pursue one's aspirations."[65]

The 4C's support self-regulation strategies that help to improve career adaptability.[65,67] Concern about the vocational future allows individuals to shift their focus to the future in order to prepare for anticipated tasks, transitions, and/or traumas.[49] *Control* gives individuals the power to determine and change their self-concept and environments(s) based to prepare for the future by using "self-discipline, effort, and persistence."[49] Developing and displaying *curiosity* allows individuals to explore alternative scenarios and determine what their personal self looks like in different scenarios and roles.[49] This exploration of alternative scenarios allows one to set goals and aspirations and strengthens one's *confidence* in their ability to perform behaviors that allow them to meet their aspirations.[49]

Students need to develop employability skills, explore career paths, and form career-related plans and goals in order to make a career decision.[68] When a student is *concerned* about their vocational future, they start to become aware of the future and consequently begin to focus on their career development path.[65,67,69] The student can then accept individual *control* that choosing a career is something that is done individually and independently.[65,67,69] Once a student has accepted control, they can use their *curiosity* to determine the requirements for careers they might be interested in.[65,67,69] The *confidence* that a student has in their interests strengthens the career path they might choose.[65,67,69]

Career adaptability is related to employability skills, job search self-efficacy, and future employment status;[70,71] therefore, career adaptability can help determine the career adaptability of a target population and their competency in employability skills (such as those set forth by the APLU), and their career-decision self-efficacy.[67,70–73] Figure 1.3 further illustrates the relationship between employability skills and career adaptability.[70]

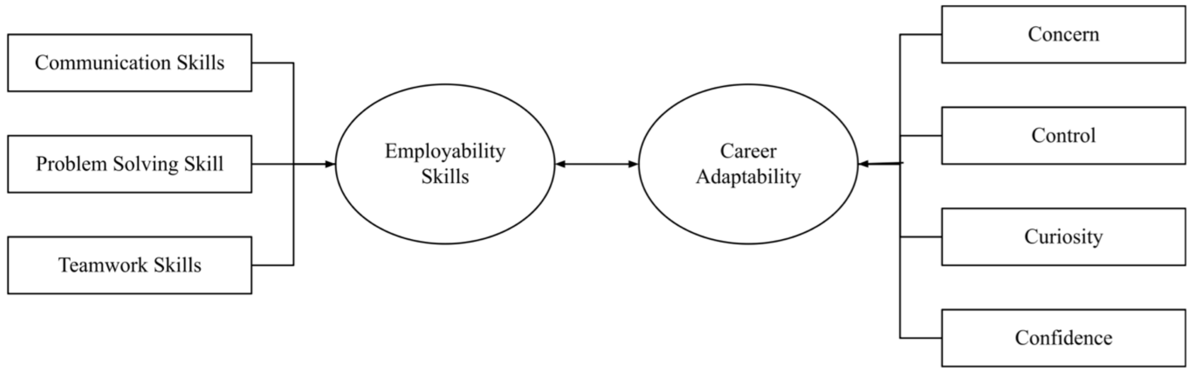


Figure 1.3: Relationship between employability skills and career adaptability – adapted from *de Guzman* (2013).[70]

There is a correlation between career adaptability and employability skills, with a significant correlation between proficiency in teamwork skills and career adaptability.[16,73] These skills closely align with the APLU employability skill gaps; therefore, educators should create course content and learning objectives that emphasize communication skills, problem solving, and teamwork skills.[16,73]

Career adaptability allows for individuals to utilize their strengths when entering the workforce and allows for improvement in self-efficacy which can influence career-decision self-efficacy.[74–76] Several studies show that there is a relationship between career adaptability and CDSE;[45,75–82] however, it should be noted that moderator variables add greater levels of specificity and allow for the relationship to be understood in different contexts.[76] Understanding the relationship between career adaptability and self-efficacy is crucial in course development, as course activities can be created or aimed at enhancing CDSE and career adaptability.[76] Courses that incorporate the four sources of self-efficacy can improve CDSE and career adaptability.[83] For example, a course that utilizes group work and project based learning, having group members discuss prior successful accomplishments towards goals can stimulate a conversation about behaviors that will help the group be successful in their goals.[34,83] Additionally, providing students with proper resources (i.e., university counseling center resources) to address negative emotions, such as depression and anxiety, can help to increase self-efficacy which can ultimately impact CDSE and career adaptability.[34,83]

Career Readiness

The National Association of Colleges and Employers (NACE) defines career readiness as a "foundation from which to demonstrate requisite core competencies that broadly prepare the college educated for success in the workplace and lifelong career management."[84] Career readiness encompasses a wide range of competencies that can help individuals successfully navigate and thrive in the workforce.[84] The eight career readiness competencies identified by NACE are: Career and Self-Development, Communication, Critical Thinking, Equity and Inclusion, Leadership, Professionalism, Teamwork, and Technology.[84]

- Career and Self-Development refers to an individual's ability to actively manage and navigate their commitment to continuous personal and professional growth.[84,85] It encompasses the skills and behaviors necessary for individuals to take ownership of their career development, make informed career decisions, and adapt to the changing workplace environment.[84,85]
- The communication competency refers to an individual's ability to effectively convey and exchange information, ideas, and thoughts in various professional settings.[84,85] Strong communication skills are essential for successful workplace interactions, collaborations, and the ability to articulate ideas clearly and persuasively.[84,85]
- Critical thinking refers to an individual's ability to analyze, evaluate and interpret information and evidence to make informed decisions and solve problems effectively.[84,85]

It involves the application of logical reasoning, evidence-based judgment, and creative thinking to navigate complex situations and challenges in the workplace.[84,85]

- The equity and inclusion competency refers to an individual's ability to value and embrace diversity, promote inclusivity, and demonstrate cultural competence in professional settings.[84,85] It involves recognizing and respecting the unique perspectives, experiences, and identities of others, and actively working towards creating equitable and inclusive environments.[84,85]
- Leadership refers to an individual's ability to inspire, influence, and guide others towards achieving common goals and driving positive change in professional settings.[84,85] It encompasses a combination of skills, behaviors, and qualities that enable individuals to lead effectively and make a meaningful impact in their careers and organizations.[84,85]
- The professionalism competency refers to an individual's ability to demonstrate ethical behavior, integrity, and responsibility in a professional setting.[84,85] It encompasses a set of attitudes, behaviors, and qualities that contribute to maintaining high standards of conduct and building a positive professional reputation.[84,85]
- Teamwork refers to an individual's ability to collaborate effectively with others, contribute to shared goals, and work harmoniously in diverse team settings.[84,85] It encompasses a set of skills and behaviors that promote cooperation, communication, and coordination to achieve collective success.[84,85]
- The technology competency refers to an individual's ability to effectively and ethically utilize technology tools, platforms, and systems relevant to their field of work.[84,85] It encompasses digital literacy, information management, technological adaptability, data analysis, cybersecurity awareness, and ethical use of technology.[84,85]

The NACE career readiness framework emphasizes the importance of these competencies to help individuals navigate the world of work, make informed career decisions, and contribute effectively to their chosen professions.[84,85] It provides a holistic approach to career preparation, encompassing both technical and transferable skills necessary for success in the modern workplace.[84,85] By developing these competencies, individuals enhance their employability, adaptability, and ability to thrive in a rapidly changing job market.[84,85]

Career Development Learning and Career Education

During the 1990s when the term career management skills was being used, the focus was primarily on equipping individuals, particularly those in middle and senior management, with the skills necessary to navigate their careers effectively.[86–88] Over time, this concept expanded to encompass a more holistic approach, including personal growth, self-awareness, and a broader set of competencies beyond mere management.[87,89,90] Career development learning now embraces a comprehensive view, emphasizing lifelong learning, adaptability, and the continuous development of skills and attitudes necessary for success in a dynamic job market.[86,88–93]

Career education refers to a comprehensive process that assists individuals in developing the knowledge, skills, and attitudes needed to make informed decisions about their education, training and employment.[94] Career education aims to equip individuals with the tools to explore and understand different career paths, set career goals, and effectively navigate the job market.[94] The goal is to empower individuals to make informed career decisions and successfully manage their professional development.[94] While career education and career development learning share common goals and components, they have distinct emphasis and scopes.[94]

Career education primarily focuses on the acquisition of knowledge and skills related to careers and occupations, whereas career development learning encompasses a broader and more holistic approach that goes beyond specific careers and includes personal growth, self-awareness, and the continuous development of skills throughout one's career.[88,94] Career education aims to provide individuals with information about various career options, job roles, and the skills required in specific fields, whereas career development learning aims to foster lifelong learning, adaptability, and transferable skills necessary to succeed in various occupations.[88,94] Career education may include career exploration, vocational training, and guidance on educational pathways, whereas career development learning includes cultivation of critical thinking, communication skills, emotional intelligence, and other competencies that contribute to overall career success.[88,94] Career education is often more focused on the acquisition of career-related knowledge and skills, while career development learning takes a more comprehensive approach integrating personal and professional growth throughout an individual's entire career journey.[88,94]

Career development learning can be promoted through three delivery strategies: targeted modules, broader cross-curricular integration, and activities conducted outside the formal curriculum.[88,95] The modular approach to career development learning takes three forms: generic, customized, and bespoke.[88,95] Generic modules are standardized and designed to address general employability skills applicable across various industries and professions.[88,95] These modules are broadly applicable and can be implemented across diverse educational and professional contexts.[88,95] Customized modules involve adapting existing modules to meet the specific needs and characteristics of a particular group or context.[88,95] This approach allows for tailoring content to align with the unique needs and goals of certain departments or courses.[88,95] Bespoke modules are entirely tailored and developed to meet the specific requirements and goals of a particular department, course, industry, or organization.[88,95] This approach is highly personalized and ensures that the content directly addresses the unique needs and challenges of the target audience.[88,95]

Teaching and learning methods for career development learning should be personalized, involving active participation of students through interactive approaches.[88] Facilitative teaching styles, promoting open exploration of career planning, self-audits, role-playing (e.g., mock interviews), and self-directed learning are effective techniques that engage students in the dynamic process of their career development.[94,96,97] Research indicates a positive correlation between students' awareness of CDL and their employability outcomes.[86,98] Students perceive CDL as a valuable resource providing them with essential career advice from various sources, including lecturers, recruiters, alumni and career services.[86,99] This perceived guidance significantly contributes to enhancing employability skills and readiness for the job market.[86,99] In light of these findings, it is crucial for universities to develop strategies that address the observed lack of engagement with CDL.[86,98–100] By overcoming this challenge, institutions can better support students in navigating the university-to-work transition, a role that has gained increased importance, particularly during uncertain times such as those experienced during the pandemic.[86,98–100] Universities should proactively foster a culture that emphasizes the practical utility of CDL, ensuring students recognize its significance in shaping their career trajectories.[86,98–100] By strengthening the connection between students and CDL resources, universities can effectively prepare their students for the dynamic demands of the workforce.[86,98–100] This proactive approach aligns with the evolving landscape of employability, providing students with necessary skills and insights to navigate career uncertainties and succeed in a rapidly changing professional environment.[86,98–100]

Career Development Learning and Career Readiness

A 2015 report by Graduate Careers Australia found that recent graduates have unrealistic expectations about employment prospects, while employers believe that universities are not doing a good job of preparing graduates for realistic expectations of career advancement.[101,102] Many students are unsure how to find a job with their degree and worry about the competition for jobs, which leads to low confidence in their qualifications and abilities, and ultimately impacts their career decision-making ability.[102] Yang and McKenzie (2018) used the CDSE short-form to evaluate the impacts of career development learning (CDL) in an undergraduate science course and undergraduate information technology (IT) course from two Australian universities.[102] The students in this study were from two different universities and were enrolled in two different courses.[102] The first cohort was enrolled in a 12-week Cancer Sciences course during the second teaching period of 2013, and the second cohort was enrolled in an 11-week Games Design course during the first teaching period of 2013.[102] In order to help students develop self-awareness or self-appraisal skills, the researchers created several activities to build these skills.[102] Career development learning sessions, career activities, and apprenticeship-style learning allowed students to talk with professionals specific to the discipline of interest and share their career goals.[102] An important aspect of self-awareness is the ability to reflect; therefore, ePortfolios were used to help students document and reflect on their professional and career-related achievements.[102] Students also practiced reflection through written assignments, experiential activities, self-exploration, and group discussions.[102] The students in both cohorts practiced goal setting and planning through career development activities, such as personal career planning and mock interviews, which ultimately increased their CDSE.[102] The students in both cohorts gathered occupational information through activities that asked students to reflect on their career goals and present them in the ePortfolio.[102] The students in this study had lower baseline self-efficacy levels with gathering occupational information compared to the other four dimensions.[102] The students in both cohorts prepared for post-graduate employment by participating in a mock interview and career-oriented information sessions.[102] The mock interview impacted students' career planning by making them critically think about their career plan.[102] There was an improvement (median, mean, or quartile) in the CDSE scores of the population of both cohorts in response to all questions, with statistically significant improvement a little over half of the questions on the CDSE short-form scale.[102] Students' pooled efficacy with the five subscales increased significantly after the intervention.[102] Overall, these results indicate that career-related activities as part of a course curriculum increase students' CDSE which can help improve their employability post-graduation.[102]

This study formed the basis of Yang et al.'s research to deliver integrative career development learning (ICDL) in four third-year courses and evaluate the effectiveness of students' career associates self-efficacy.[102,103] Based on the effectiveness of the pilot of Integrative Career Development Learning in a cancer sciences course, the researchers created a new ISA model.[102,103] The ISA model is a framework for ICDL that describes students' learning experiences through the image of their own career possibilities, learning that is self-directed and an assessment adjustment model.[103] The model highlights' students ability to envision their own career potential, engage in self-directed learning throughout life, and continuously assess and adjust their studies to achieve their goals.[103] The ISA model emphasizes the dynamic relationship between self-beliefs, opportunities, decisions, and transitions in the context of development.[103] This study also introduced the combination of ePortfolios with ICDL to emphasize reflective learning as a tool for enhancing employability skills within the context of effective ICDL.[103] This study employed the ISA model in five senior third-year undergraduate science course to enhance ICDL and improve students' confidence in pursuing graduate research scholarships or preferred jobs.[103] The ISA model, integrating career development learning with ePortfolios, was applied to foster goal setting, ePortfolio learning, and reflection.[103] Students utilized personal ePortfolios to set career goals, record learning experiences, and adjust goals throughout the course.[103] The ICDL was assessed using pre- and post-course administration of the CDSE Short Form Scale, focusing on the impact of ICDL intervention on students' career-associated self-efficacy within individual courses, comparing groups with or without intervention, and examining differences between male and female students.[103] The results indicate significant improvement in three of all five CDSE subscales in all four ICDL courses, while no improvement was observed in the non-ICDL course.[103] There was a significant improvement in all five subscales within the ICDL group compared to the non-ICDL control group.[103] Initially the non-ICDL group had slightly higher mean scores in four subscales, but after the ICDL intervention, the ICDL group showed a substantial gain in all five subscales.[103] There was significant improvement in all five subscales within both female and male student groups post-ICDL intervention.[103] There were no initial differences between genders, except in planning.[103] Males exhibited slightly better improvement than females in four of the five subscales post-ICDL intervention.[103] The results suggest that ICDL with ePortfolios positively impacted students' self-directed learning and career aspirations.[103] The ePortfolios served as a valuable tool beyond assessment, becoming relevant for evidence of learning and aiding in graduate employment.[103] Overall, this approach enhanced self-directed learning, career awareness, and employability skills.[103]

Universities should work to develop students' career management competencies to improve their employability self-efficacy.[104,105] Career management competencies include making informed career goals, understanding the job market, how to search for a job, finding relevant learning opportunities, and building professional relationships through networking.[87,105–108] There is limited literature on the development and determinants of career management competencies, and more understanding could inform strategies for development and determine gaps in the undergraduates' proficiency with the competencies.[23,106,108,109] Work-integrated learning (WIL) is an approach to develop career management competencies and integrates both theoretical and practical learning about the job-market in higher education (HE).[105,106,110,111] WIL provides real experience to foster students' understanding of career pathways to make an informed career choice in a highly competitive job market.[105,112,113] The purpose of the study by Jackson and Wilton (2016) was to develop the understanding of WIL and career management competencies by gauging undergraduates' scope of career management competencies, evaluating the role of WIL in the development of undergraduates' career management competencies, and assessing the variation in career management competencies by individual characteristics.[105] Business undergraduates from a UK and Australian university participated in an online survey assessing career management competencies.[105] Using the DOTS career management framework, researchers explored self-awareness, opportunity awareness, decision-making learning, and transition learning of the undergraduate students.[105] Results showed similarities in self-awareness, opportunity awareness, and transition learning between UK and Australian students.[105] The ratings for both UK and Australian students were similar for three out of the four dimensions: self-awareness, opportunity awareness, and transition learning.[105] Students had the highest score for self-awareness (M = 4.01), meaning that students believe they know the skills they have developed during their undergraduate degree and know their strengths and weaknesses in relation to employability.[105] The lowest score was for opportunity awareness (M = 3.54), which means that students have limited awareness of career opportunities with their degree.[105] Students scored slightly above average (M = 3.77) for transition learning, and scored higher during the selection process compared to the job-seeking process.[105] An independent sample t-test found that UK students scored lower than the Australian students for all six questions under the decision-making dimension ($t(478) = 3.37$, $p = 0.001$).[105] The mean score for all four dimensions of career self-management for students who completed a work placement was higher, but only significantly ($p = 0.012$) for decision-making learning.[105] There were six main themes that came from the thematic analysis of work placement aspects that contributed to developing career management competencies.[105] The first was that students developed a better understanding of the skills needed for their desired profession.[105] The second theme was that students felt that exposure to working in their desired profession provided them with career planning skills and insight into the industry that they would not have otherwise had.[105] Thirdly, students felt they gained guidance and mentorship by working with professionals in their desired career.[105] The fourth theme that the researchers identified is that students felt work placement increased their self-efficacy in the skills needed for employment progression.[105] The fifth theme was that students felt their career planning skills improved and opened their eyes to career opportunities.[105] Lastly, students felt the work placement allowed them to build professional relationships and network with professionals in their desired field.[105] The researchers determined there were six barriers to developing career management competencies during work placement.[105] The first theme was lack of exposure because some work placements were too short, were unrelated to their degree, or students were isolated from other professionals.[105] The second barrier was a lack of mentoring and guidance.[105] The third barrier was that students felt they were not given formal training and were left to learn on their own through their mistakes.[105]

The next barriers surrounded personal characteristics, like age and language spoken.[105] Younger students and students with weaker English language skills felt less trusted and more judgment from professionals and members at their work placement.[105] Lastly, the size of the work placement organization influenced career management development.[105] Students who were placed at large organizations felt they were exposed to more areas and opportunities than students who were placed at smaller organizations.[105] The researchers in this study contributed to the findings on undergraduate career management competencies by evaluating the impact of WIL on individual knowledge, skills, and abilities.[105] The findings from this study show that WIL through work placements can help students to develop their career management competencies.[105] Work placements can help students to develop their self-awareness, opportunity awareness, decision-making learning, and transition learning.[105] Overall, these findings indicate that universities could expand opportunities for WIL to help students improve their employability by developing their skills to make them more marketable.[105]

Summary and Conclusions

The investigation into self-efficacy, career-decision making, and career development learning highlights a nuanced interconnection that significantly impacts the career readiness of undergraduate students. These factors have an important role in shaping students' confidence, decision-making abilities, and adaptability, which are crucial for minimizing employability skill gaps. While there have been numerous quantitative investigations into these factors, there has been a relative scarcity of studies that have systematically employed qualitative analysis to explore these factors.

Employability skills, encompassing cognitive, interpersonal, and applied abilities, have undergone a historical evolution. Recognizing the prevalence and implications of these skills, the focus has expanded from technical expertise to a broader skill set essential for success across diverse sectors. The development of employability skills is essential to minimize employability skill gaps, such as those identified by the APLU. Educational institutions play a pivotal role in integrating these skills into curricula through experiential learning, project-based learning, and collaborative activities.

High career decision self-efficacy contributes to proactive career exploration, effective decision-making, and perseverance in the face of setbacks. Educational and career interventions that provide diverse experience, role models, and skill-building opportunities contribute to the development of career decision self-efficacy.

Interventions targeting career development learning contribute to enhanced career readiness. By aligning educational experiences with industry demands, these interventions bridge the gap between academic preparation and professional expectations, fostering a workplace equipped with the skills, knowledge, and confidence needed for successful careers.

The dynamic interplay of employability skills, self-efficacy, and career theories underscores the complexity of career development. Integrating these concepts into educational and intervention strategies empowers individuals to navigate their career journeys successfully, fostering resilience, adaptability, and a lifelong commitment to learning and growth.

Existing research predominantly relies on quantitative methodologies to measure career decision self-efficacy, often employing standardized scales and surveys. Similarly, when considering career readiness and employability skills, the literature tends to focus on quantitative assessments of skills acquisition and preparedness. Current literature often lacks an in-depth exploration of personal and contextual factors that contribute to the effectiveness of career development learning interventions. Therefore, by employing qualitative thematic analysis to explore the facets of career decision self-efficacy, career readiness, and employability skills, researchers can provide a more holistic comprehension of the multifaceted nature of career decision-making. A comprehensive understanding and evaluation of undergraduate students' career readiness, career decision self-efficacy, and employability skills is crucial for fostering their successful transition from academia to the professional realm, ensuring that they are well-equipped to navigate the complexities of the nutrition field with confidence.

Overview of Dissertation Chapters

This dissertation includes five chapters exploring career readiness and decision-making self-efficacy of undergraduate nutrition science students. Chapter 1 presents an overview and background of the historical context, definitions, and implications of employability skills, career decision self-efficacy, and the theories and interventions associated with career development learning and career education. Chapter 2 examines the impact of a course-based approach on students' career-related learnings, employing qualitative thematic analysis to extract meaningful themes from Packback discussion posts and responses. By identifying these themes, we aim to pinpoint potential areas for interventions to enhance students' career decision self-efficacy, serving as a valuable model for educators seeking to integrate career-related learnings into their courses. Chapter 3 utilizes a mixed methods approach to examine the relationship between the Career Decision Self-Efficacy (CDSE) scale and students' perceptions at the beginning of a career development learning project. This study fills a gap in the literature by systematically applying thematic analysis to explore the qualitative responses from reflections after completing the CDSE scale, contributing to a more comprehensive understanding of career decision self-efficacy. Chapter 4 evaluates the impact of a career development learning project on students' career decision self-efficacy, combining quantitative analysis of CDSE Scale scores with qualitative analysis of student feedback. Lastly, Chapter 5 summarizes the significant conclusions based on the findings from the three studies, provides recommendations for educators and institutions seeking to minimize employability skill gaps, and provides actionable insights for effective integration of career-related learning and targeted interventions.

CHAPTER 2: QUALITATIVE ANALYSIS OF ONLINE DISCUSSIONS FROM "ALUMNI CAREER CONNECT," A COURSE-BASED CAREER DEVELOPMENT LEARNING TEACHING APPROACH USING AN AI PLATFORM

Abstract

Career development learning (CDL) helps students develop skills that assist their transition to their future careers by connecting course learning to their future goals, potentially increasing their self-efficacy. This project aimed to determine themes from students' online discussions as part of a CDL model, "Alumni Career Connect." Students identified and discussed their learnings from career-related alumni video interviews through Packback, an AI learning platform. We collected secondary data and analyzed data using qualitative thematic analysis. The dataset included 56 participants enrolled in an introductory career-related course during one of seven semesters from Fall 2019 to Spring 2022. After analyzing 553 questions and 1,086 responses, three main themes emerged from the data: (1) Students had "enlightened pathways" after engaging with alumni videos and online discussions with their peers; (2) students learned about resources and experiences available to them to be "equipped for success" after graduation, and (3) some students "refined strategies" to help build their path to career readiness. The results of this study demonstrate that Alumni Career Connect is beneficial for students' career growth and development and can help students reflect on how to prepare for and succeed in their future careers.

Introduction

Career development learning (CDL) refers to the educational processes and activities that help individuals acquire the knowledge, skills, and attitudes necessary to manage their careers effectively.[88,90] It aims to empower individuals to make informed decisions about their career paths, navigate the job market, and develop the competencies needed for career success.[94] CDL directly relates to career readiness, defined as the state of being prepared with the competencies needed to succeed in the workforce.[84] CDL bridges academic knowledge with real-world application, enhancing students' understanding of practical implications and emphasizing lifelong learning, adaptability, and continuous development of skills and attitudes necessary for success in a dynamic job market.

Self-efficacy is an individual's confidence in completing a specific skill or task; individuals with higher self-efficacy are more likely to persist in the face of challenges and ultimately achieve success.[34,50] CDL helps students increase their self-efficacy in applying for jobs and showcasing their employability skills.[114] CDL enhances career readiness by equipping individuals with the skills and confidence necessary to navigate their career paths, thereby boosting their self-efficacy in making informed career decisions.

By strengthening the connection between students and CDL resources, such as improving access and engagement with tools, increasing awareness of available resources, integrating CDL into curricula, or providing educational opportunities that help students develop their career-related skills, universities can effectively prepare their students for the dynamic demands of the workforce.[86,98–100] Universities can develop strategies to address the observed lack of engagement with CDL and better support students navigating the university-to-work transition.[86,98–100] This approach aligns with the evolving employability landscape, providing students with the necessary skills and insights to navigate career uncertainties and succeed in a rapidly changing professional environment.[86,98–100]

Discussion-based learning (DBL) is an instructional approach emphasizing student participation and interaction to develop students' critical thinking and a deeper understanding of the subject matter.[115–121] DBL can foster active engagement, critical thinking development, enhanced communication skills, a collaborative learning environment, application of knowledge to real-world problems, personalized learning, and preparation for real-world situations.[122–126] DBL can be used in various settings, such as small group discussions, online classroom discussion boards (OCDBs), debates, think-pair-share, role-playing, and peer review sessions.[118,123,127] There is a notable gap in the research assessing the use of OCDBs for CDL purposes, even though students feel that OCDBs for CDL purposes are beneficial for self-awareness, gathering occupational information, and supporting career decision-making.[128]

Vicarious experience, the most impactful of the four sources of self-efficacy,[34] allows individuals to learn by watching an expert complete the skill or task.[129,130] Vicarious learning can enhance self-efficacy by providing role models, indirectly influencing career choice intention, and contributing to increased confidence and motivation.[131] Role models can shape career decisions by providing inspiration and a reference point for individuals.[132] Observing someone who has succeeded in a chosen field can instill confidence and belief in one's capabilities, positively impacting career intention.[132] Role models can serve as tangible examples that reinforce the feasibility of achieving specific career goals, motivating individuals to pursue their chosen paths with greater determination and clarity.[132] Integrating vicarious learning through role models enriches the educational experience with practical wisdom and firsthand accounts of navigating the professional landscape.[132]

Therefore, the last author developed "Alumni Career Connect," an innovative teaching approach to improve career-related self-efficacy by utilizing CDL that combines OCDBs with alumni video interviews, and the first and last author then implemented this teaching approach in an introductory nutrition research, communication, and careers (NRCC) course. The primary aim of this study was to analyze students' career-related discussion question posts and responses within a course-based framework to determine their learnings after engaging with a CDL model.

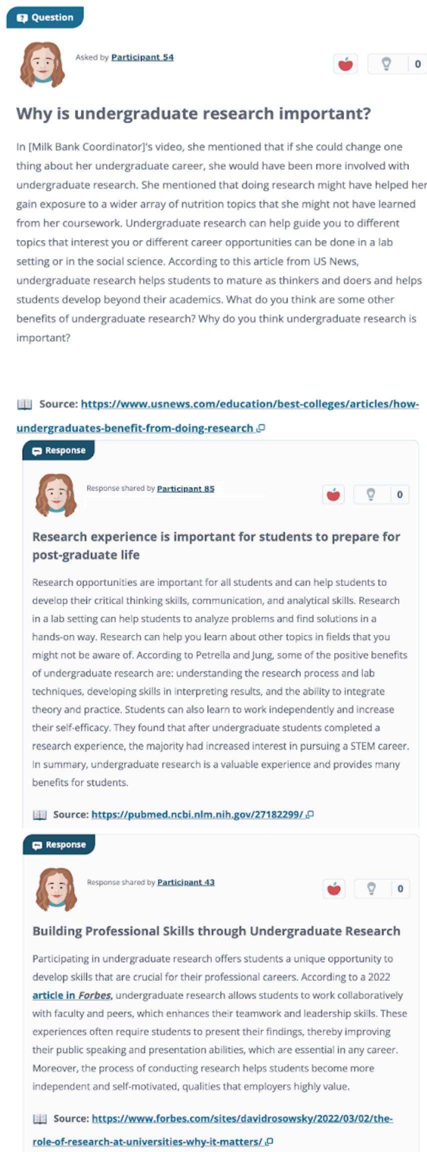
Methods

Course Design

All students in a nutrition science program take an introductory NRCC course and engage with an innovative CDL teaching approach, "Alumni Career Connect." As part of this model, undergraduate students used Packback Questions (Packback),[133] an online discussion-based platform with a built-in AI writing tutor that helps students develop their ideas and writing skills through active learning,[133] to engage in career-related discussions about nutrition science alumni career videos.

Students watched video interviews in which program alumni shared their career trajectories and advice for current students. After watching a video, students determined a theme from the video and selected a website, popular press article, or scientific research article related to the theme. Students created a discussion question post on Packback, incorporating (1) a summary of the video and theme, (2) information (e.g., statistics, quotes, main takeaways) from the article or website, and (3) a discussion question about the theme that would engage their peers in discussion. Students had to submit ten discussion question posts and 20 responses to their peers throughout the semester. Students could respond to any discussion question post as long as they met the minimum "curiosity score." An example of the discussion thread can be seen in Figure 2.1.

Figure 2.1: Example Packback Discussion Thread



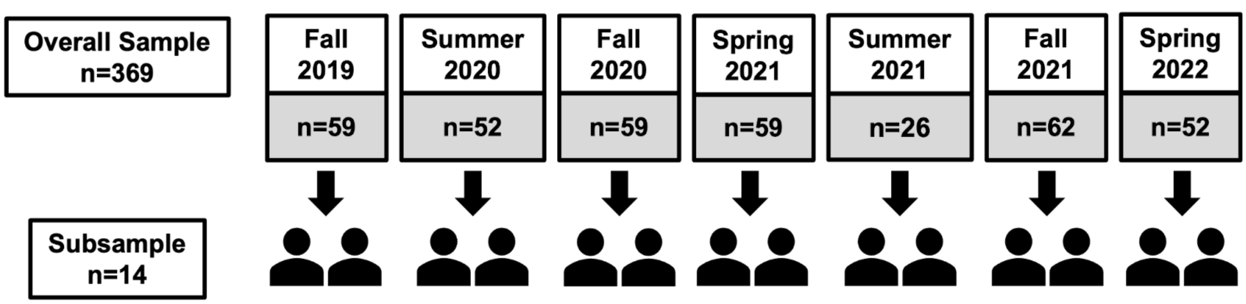
Packback utilizes AI to provide feedback and prompts students to improve their posts and responses to achieve a minimum "curiosity score."[133] Packback calculates curiosity scores for posts based on curiosity, communication, and credibility.[133] Curiosity refers to the depth of thought in a post; communication refers to the clarity of writing to ensure engaging and easily understood posts; and credibility refers to claims being well-supported by credible sources.[133] For this course assignment, students had to achieve a minimum curiosity score of 60 out of 100 points to receive credit for the discussion question posts and responses. According to Packback, utilizing AI in this process reduces the burden on instructors and ensures a more efficient and effective learning environment for students and educators.[133]

Participants and Recruitment

Participants in this study were undergraduate students who were enrolled in an introductory NRCC course at a large public institution in the southeastern United States during one of seven semesters from Fall 2019 to Spring 2022. The overall sample consisted of 369 students. We received approval from our university's institutional review board (IRB) and a waiver of consent due to many students no longer having access to their university email. Since the data were already collected and submitted for educational purposes, we did not actively recruit participants. The entire secondary data set included the Packback discussion question posts and responses completed by all students enrolled in the course during seven separate semesters: Fall 2019 (n=59), Summer 2020 (n=52), Fall 2020 (n=59), Spring 2021 (n=59), Summer 2021 (n=26), Fall 2021 (n=62), and Spring 2022 (n=54). We measured each discussion thread as a single unit, including one discussion question post and its responses, to capture the interaction and engagement around each discussion question post. Each discussion thread was considered a distinct unit, and all original discussion question posts and responses were analyzed together, regardless of the number of responses.

Because of the number of participants each semester, we would likely have reached saturation, the point at which no new themes emerged,[134] after analyzing one semester of data, potentially missing any changes in career-related questions that could have occurred among the three-year period. Therefore, we decided to create randomized subsamples of data to be representative of the entire sample (n=369), the process for which can be seen in Figure 2.2. To create a subsample of data, two participants were randomly selected from each of the seven semesters to create a subsample of 14 participants. After analyzing four subsamples of data (n=56), we reached saturation. The first subsample (n=14) consisted of 139 discussion question posts and 276 responses, the second subsample (n=14) consisted of 132 discussion question posts and 260 responses, the third subsample (n=14) consisted of 137 discussion question posts and 287 responses, and the fourth subsample (n=14) consisted of 145 discussion question posts and 263 responses, for a total of 553 questions and 1,086 responses

Figure 2.2. Process for Creating Subsamples of Data



Data Analysis

We utilized qualitative thematic analysis[134] to determine themes from students' online discussion question posts and responses. To familiarize ourselves with the data (step one in Braun and Clarke's six-phase coding framework for thematic analysis), five research team members individually engaged in the process of open coding for four subsets of data (553 questions and 1,086 responses). Through group discussion comparing the similarities and differences among codes, the research team generated a set of initial codes, informed by open coding (step two in Braun and Clarke's framework). After further discussion to determine if the codes and examples in the codebook were reflective of data, we created an initial codebook. The research team pilot-tested the initial codebook by applying the codebook to 2 randomly selected participants from each of the four semesters and coding sentence-by-sentence. After piloting the codebook, we modified it to include new codes, more precise definitions, and examples for existing codes.

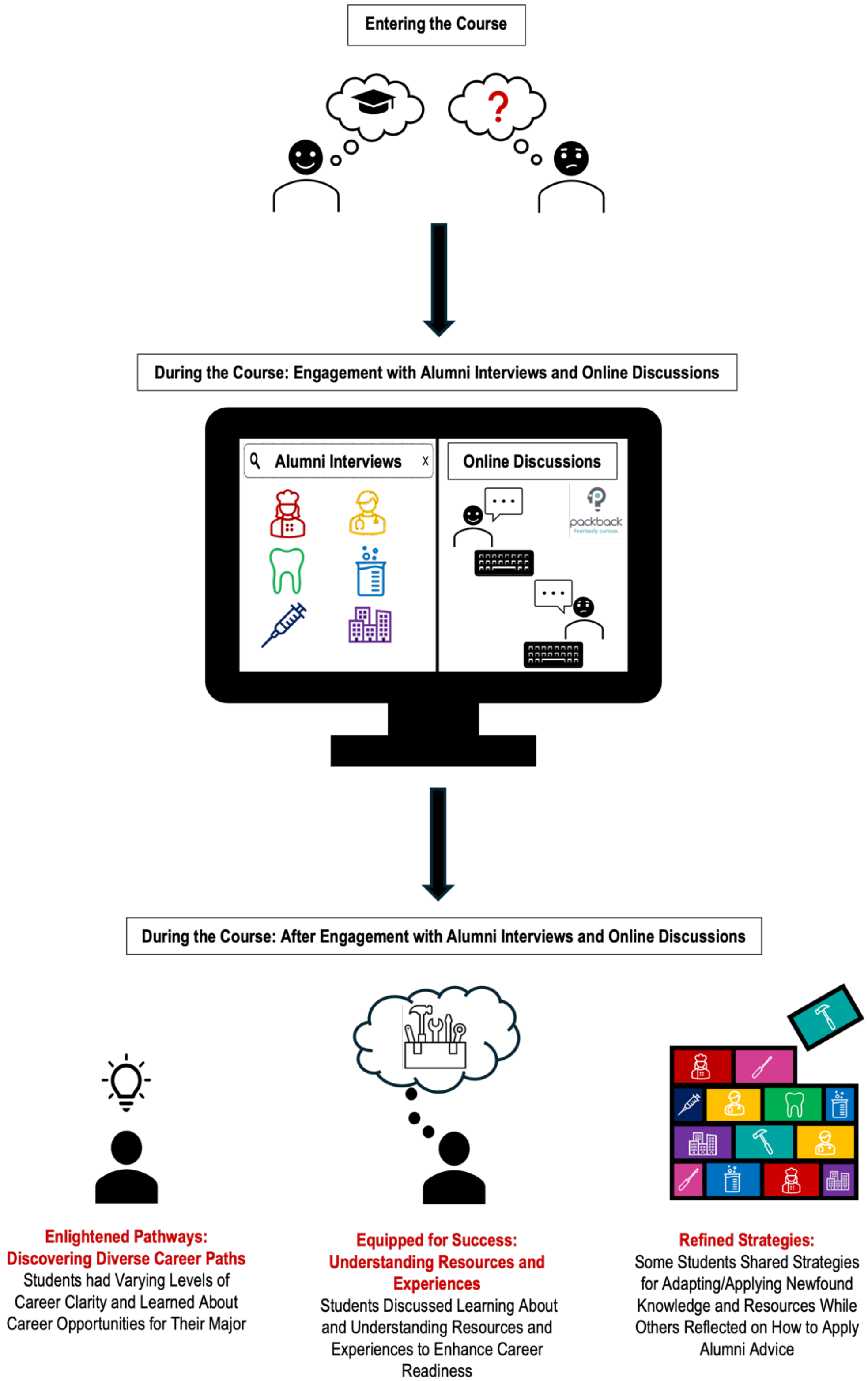
To independently code the data (step three in Braun and Clarke's framework), the research team was divided into two teams, both teams consisting of two research assistants led by the first author (graduate student and course teaching assistant) and who were supervised by the last author (course instructor). To minimize bias during analysis, the research team engaged in a standardized 5-phase coder training,[135] which included ethics training, a review of qualitative methods, and how to use the initial and final codebook. Additionally, the research team was encouraged to maintain reflexivity by memoing, noting potential biases, assumptions, and reflections, throughout the analysis process to ensure their interpretations were not influenced by pre-existing biases.[136] To further minimize bias, each team also overlapped data analyzed, meaning that two of the participants' discussion threads from each subsample were analyzed by all coders. This overlap allowed us to ensure consistency and reliability in our coding process, further reducing potential biases. Each research team member applied the final codebook sentence-by-sentence and met regularly to discuss similarities and differences among final codes, reaching a consensus on final codes for initial themes.

After reaching saturation with four subsets of data (n=56), we met to group concepts from the final codes to form initial dominant emergent themes (step four in Braun and Clarke's framework for thematic analysis). Before the fifth step in Braun and Clarke's framework (defining and naming the themes), three of the four research assistants completed their research assistantship, so the first and second author finished the process. The first, second, and last authors met several times over the course of the following semester to refine the final themes' descriptions and names. The sixth step in Braun and Clarke's framework (producing the report), is presented below in the form of our final themes and relevant example quotes. To further minimize bias and improve trustworthiness, during the final step we engaged in peer debriefing[137] with an external expert reviewer (third author) who was not affiliated with the course.

Results

After analyzing 553 questions and 1,086 responses, three main themes emerged from the data: (1) Students had "enlightened pathways" after engaging with alumni videos and interacting with peers' discussion question posts; (2) students were "equipped for success" after identifying resources and experiences available to them to improve their career readiness; and (3) some students "refined strategies" to build their path to career readiness. These themes are illustrated in Figure 2.3. We have edited embedded quotes from students' discussion question posts and responses for length and clarity.

Figure 2.3. Thematic Overview: Themes from "Alumni Career Connect"



Theme 1: "Enlightened Pathways" - Discovering Diverse Career Paths

Students in the course discussed varying levels of career clarity, with some having already made defined career decisions and others uncertain about their future career paths. By watching alumni interview videos and participating in online discussions with their peers, students discovered the versatility of their academic degree and diversity of career opportunities, illustrating the potential pathways they can pursue with their degree.

While watching alumni interview videos, students learned vicariously about the diverse career paths alumni have taken and how they have applied their degree knowledge in various fields. This inspired students to think about their own career possibilities and value the practical advice given by alumni. As one student discussed:

> *"I watched [the researcher]'s video where she spoke about her current job with [another university]. She ended up not pursuing a job specifically for either [of her degrees]. However, she stated how the knowledge of nutrition has been beneficial for her current job. … Overall, this video made me excited about my plan to become a Physical Therapist because I believe that although that is not a nutrition job specifically, that a strong knowledge of nutrition will still serve me extremely well in that career." (Participant 49)*

One student reflected on learning about different career options after watching an alumni interview video:

> *"I was also unaware of the possible careers you can have while utilizing your nutrition degree. Each alumni interview I watch, I truly feel amazed at all of the pathways alumni have taken. The videos have really opened [my] eyes as to the possible careers. … I now know that if I decide against going to P[hysician] A[ssistant] school, I still have plenty of*

career options." (Participant 21)

Some students were surprised by the diverse and unexpected career paths pursued by alumni. For example, this student explained:

> *"... I think what's surprising more than anything is knowing someone who got the same degree that I am getting now ended up in a field that I never imagined would even be an option. I think [the] reason I was surprised to see that [she] is a hospice nurse [is] because I have never met anyone in my field who had the goal of becoming a hospice nurse. I find that every time I ask someone in my major what their career plans are, I always get an answer somewhere between medical school, PA school, registered dietitian, or physical therapist. ... [Her] interview got me curious about other unique careers that the nutrition career can lead you." (Participant 30)*

This theme highlights students' newfound insights into diverse career paths and the practical applications of their academic skills in various industries gained after watching the alumni video interviews and participating in related online discussions.

Theme 2: "Equipped for Success" - Understanding Resources and Experiences

Vicarious learning from alumni interview videos helped students understand how alumni have been successful in their professional lives, making students question what they can do during the rest of their undergraduate careers to be equipped for success in the "real world." In this theme, students discussed learning about and understanding the various resources and experiences available to them to enhance their career readiness. They gained insights into the importance of networking and gaining field-related experience, as well as identifying campus career resources. When asked what ways *"volunteer experiences can benefit college students,"* this student responded:

"[Registered dietitian] [stated] volunteering is a great way to make connections in new fields that could lead to job opportunities in the future; however, there are many more potential benefits that come from volunteering. If you're curious about working in different fields, volunteering around those in the field could give you insight to help you decide [whether] it's something you'd want to pursue. Additionally[,] it can help you grow interpersonally, allowing you to better communicate with others." (Participant 47)

Another student responded to the same question by sharing their perspective on the benefits of volunteering:

"*There are so many benefits to volunteering. Volunteering allows you to connect with other people. ... Volunteering can also help you advance in your career, and ... allow[s] people to increase their social and relationship skills while also growing their network. Through volunteering, you can learn valuable life experiences, job skills, and knowledge that can be used in your future career ..." (Participant 2)*

Students also learned that some of these experiences and opportunities are available through the university, such as research experience, teaching assistant experience, study abroad, coursework, and career fairs. As this student shared:

"I am very interested to see what other kinds of service opportunities I could be involved in at [our institution] in the Nutrition Program. [Medical Services Trip Coordinator] mentioned the [local food shuttle], which I would be very interested in participating in." (Participant 23)

Another student responded to a question about how to "*utilize resources in the nutrition program to get [one] ready for post-graduate life"* by sharing:

"... [Our institution] offers many resources that allow you to get a scope of what being in

a certain job feels like without actually having that job. For example, the career fair offers a range of companies looking for interns that go to [our institution]. This type of resource allows you to get a foot in the door with companies and gives you good experience so you might have a better idea of what is to come after college." (Participant 37)

Students also learned and shared about the importance of building professional relationships. This student shared that connections enrich one's network and contribute to future career advancements and opportunities:

"I think some key steps we as undergraduates can take in preparing ourselves for our future careers are things like setting up a LinkedIn, creating a strong resume, reaching out to professionals in your field of interest and building connections early. A majority of the workforce is interconnected, and you never know who can get you an opportunity that may lead to a potential job. Social networking is crucial if you want to get a foot in the door when starting life after your undergraduate career." (Participant 38)

One student asked their peers, *"In what ways can students make connections besides using LinkedIn?"* Then one peer responded with their experience with LinkedIn:

"*LinkedIn has helped me meet P[hysician] A[ssistant]'s around the area and shadow different fields." (Participant 15)*

Another peer responded to the question about ways to make connections outside of LinkedIn by sharing their experiences:

"Making connections has definitely helped me build more relationships [and] meet more people who I may never have crossed paths with before. One way I made connections was by going on [our institution's] website and look[ing] for virtual conferences or club

meetings. Also, I received emails from people within the nutrition department about upcoming meetings and such so that helped a lot." (Participant 21)

Another student shared their point of view on making connections by joining student organizations:

"From my point of view, attending clubs would be a very good way to network with other students in nutrition. People interested in nutrition will attend Nutrition Club activities, and [the] Nutrition Club also provide[s] many lectures and activities to club members. These lectures will give students broad information, including career path[s] for different people, and companies giving lecture[s]." (Participant 4)

Lastly, this student shared their thoughts on preparing for the "real world":

"The more we experience as students, the more we are able to better prepare ourselves for the real world." (Participant 8)

This theme emphasizes students' understanding the importance of knowing and utilizing available resources to build a strong foundation for future successes.

Theme 3: "Refined Strategies" - Building the Path to Career Readiness

Building on the findings discussed in the second theme, a small subset of students reflected on their personal strategies for adapting and applying their newfound knowledge and resources to become career ready. This theme explores how students plan to integrate their skills, experiences, and insights from the alumni video interviews to help them achieve their career goals. One student exemplified this by reflecting on their current job's alignment with their future goals after watching the alumni video:

"After watching [nutrition program assistant]'s career video, I was forced to reflect on my own current job situation. I currently am a nanny, and though I enjoy it, the job may

not be the best set-up for my future career. ... Gaining experience in one's field of interest seems to be imperative for landing a job outside of college. (Participant 26)

Another student shared:

> *"I have not yet done any internships or job shadowing, but [I hope] to do so in the spring. I think having internship and job shadowing experience is a great way for you to find out first hand if a career is right for you. ... When I start interning or job shadowing I am hopeful that it will give me clarity as to which career path I am most interested [in]." (Participant 9)*

This student shared their perception on applying classroom knowledge in real life:

> "*I am currently trying to get more involved with the nutrition field on [our institution's] campus. From personal experience, I can say that when knowledge is applied in a real life setting you gain so many more skills than what was provided in the classroom. Classroom instruction is the building block to a successful career in nutrition but it is not the end all be all." (Participant 42)*

Another student shared their experience with undergraduate research:

> *"... I have found that the undergraduate research I have participated in has allowed me to not only apply concepts that I have learned in my different nutrition classes, but also start to figure out what I want and don't want for my future career in nutrition. This has helped me feel confident in my future and confident in the career path I have picked..." (Participant 11)*

One student learned that an alumni wished they had done differently was to "*job shadow many different professionals."* The student then reflected,

> *"I have never job shadowed but considered it. It seems to be like something that would be*

very helpful in deciding what career path to follow." (Participant 26)

The same student then asked their peers:

> *"How do you go about getting job shadowing experience…would you just call or email someone you were interested in shadowing?" (Participant 26)*

Their peer responded by sharing:

> *"... When I wanted to get shadowing experience in healthcare professions, I contacted friends to see if anyone's parents worked in the healthcare field. I then came up with a list of my top three choices of people and contacted them through their work email address (found online), explaining how I heard about them, and what my intentions were through shadowing." (Participant 40)*

This student shared their thoughts on how shadowing and volunteering can aid in preparation for future jobs:

> *"There are so many ways to prepare for a future job other than just internships. ... I have already begun shadowing to help me determine what I would like to do! ... This can help you determine whether you can see yourself doing a job like how they are for your permanent career in life. Another great way to prepare for a future job is through volunteering. ... can also help you gain other useful characteristics in the professional world such as communication, responsibility, and courage." (Participant 19)*

One student reflected on using acquired knowledge and skills to prepare for the next step:

> *"It is pretty much impossible to be 100% prepared for life after graduation if you have never experienced it before. However, taking all the skills learned in college and applying them to whatever job you choose will definitely help." (Participant 14)*

Overall, these three themes illustrate a progressive journey towards career readiness. Students began by discovering career opportunities through alumni experiences, expanding their understanding of the career opportunities available to them with their degree(s). Building on this newfound awareness, students identified and understood the resources and experiences that could enhance their career readiness, such as internships and networking opportunities, some of which are available through the university. Lastly, some students reflected on how to integrate their skills and experiences to prepare for their next steps, while tailoring their approach to achieve their career goals and ensure long-term success.

Discussion

By participating in the "Alumni Career Connect" CDL model in this course, students engaged in vicarious learning by watching alumni video interviews, which broadened their perceptions of available career opportunities. These videos served as a "trigger event,"[128] where students were inspired to explore the various career opportunities they learned about and discussed ways to integrate the knowledge and experiences shared by alumni into their own lives. While some students discussed applying what they learned to prepare for success, the long-term resolution of their integration plans remains unseen, emphasizing the ongoing nature of their pursuit of career readiness. These results build upon prior findings[128] that career-related OCDBs are a source of CDL beneficial for students' career growth and development. Furthermore, engaging in structured career-related online discussions can help students enhance their self-awareness and self-efficacy as they reflect on how to prepare for and succeed in their future careers.[138] These discussions encourage students to challenge assumptions, consider alternative viewpoints, make informed decisions, and communicate effectively - all essential competencies for navigating the complexities of the modern workplace and becoming career-ready.[85,139]

Building on prior research highlighting the significance of vicarious learning in shaping expectations concerning career exploration and decision-making,[140] it is evident that involving students in experiences of learning from others, such as the alumni interview videos used in this study, can help them understand their career options to make informed career decisions.[140] Additionally, through vicarious learning, students understand how others have been successful in their professional lives, which can ultimately increase their confidence in making career decisions.[34,42] Furthermore, students explored different career paths they can pursue with their degree, which research suggests correlates to greater confidence in career decision-making.[141,142] Students in this study discovered they could apply their degree knowledge in various career paths, like the alumni in the videos they watched, to navigate and excel in future careers, even if their career is not specifically related to their degree. A 2023 report emphasized that graduates with essential skills and knowledge from their education frequently utilize these skills in their daily jobs, indicating the practical relevance and effectiveness of their college education.[143] Our study also found that students recognized the importance of developing professional relationships and actively engaging in networking opportunities to expand their range of future career opportunities. Contrary to prior research,[144] the students in this study acknowledged the importance of networking and discussed participating in networking opportunities; however, whether students act on this knowledge is beyond the scope of the data.

Limitations and Future Directions

A few limitations need to be considered. There is the inherent challenge of potential bias in student responses. Because students submitted the collected data as part of a graded assignment, they may have tailored their posts or responses to align with what they believed the instructor wanted to hear, possibly compromising the authenticity of their reflections. Although students were encouraged to think critically and connect themes from the alumni interview videos to external sources, the graded nature of this CDL model may have influenced the content of their posts. Another limitation is the inability to ask follow-up questions to understand students' intent in their discussion question posts and responses. This restriction prevents a deeper understanding of what students meant to convey and their planned actions, ultimately hindering understanding of their perspectives and intended career development strategies.

This study offers valuable insights that can inform the design and implementation of more effective career development learning projects by identifying key components such as integrating alumni video interviews to showcase diverse career opportunities, using AI-driven feedback to enhance student engagement and learning outcomes, and providing structured resources and experiences to improve career readiness. For example, educators could develop interactive platforms allowing students to ask alumni follow-up questions after watching video interviews to enhance their understanding and engagement. Educators could also expand the range of alumni profiles in the videos to cover various industries and career paths, ensuring that students from diverse backgrounds and interests find relevant role models. Additionally, educators could require students to create video interviews with alumni, fostering a more active and participatory approach to learning about career opportunities.

Ultimately, this study presents findings from an innovative model for CDL, using vicarious learning through alumni video interviews and career-related online discussions about learnings from the alumni video interviews. This research highlights the importance of integrating alumni insights into career development learning and utilizing AI-driven feedback to enhance students' career readiness.

CHAPTER 3: EXPLORING THE INITIAL STATE OF UNDERGRADUATE STUDENTS' CAREER DECISION SELF-EFFICACYAT THE BEGINNING OF A CAREER DEVELOPMENT LEARNING PROJECT

Abstract

This study aimed to address a gap in the literature using qualitative analysis for career decision self-efficacy (CDSE). Students in an introductory career-related course during one of three semesters in 2023 completed the CDSE-Short Form (CDSE-SF) scale. Participants (n=26) had "good confidence" in skills related to making career decisions (Mean = 3.8, Median = 3.9). Participants were most confident in Gathering Occupational Information (Mean = 4.02, Median = 4.0) and least confident in Planning and Problem Solving (Mean = 3.7, Median = 3.7 and 3.9, respectively). Three themes emerged from qualitative analysis of students' reflection papers on results from the CDSE-SF scale: (1) uncertainty in career decision-making; (2) preparing for the workforce; and (3) strength development and strategies to improve weaknesses. Initiatives focused on enhancing skills identified by students as areas of weakness from the CDSE-SF scale could improve students' CDSE and better prepare them for future careers.

Introduction

Choosing a career path can be daunting for students due to a lack of awareness of options and the overwhelming array of potential career paths, leading to uncertainty about navigating career exploration and making a career choice.[65,145,146] Individuals with higher levels of Career Decision Self-Efficacy (CDSE), the belief in one's ability to navigate career choices,[46] are more confident in making career decisions, which is important for a successful career transition to the workforce.[146] Scholarly research emphasizes the importance of addressing challenges inherent in career decision-making, indicating that the career decision-making process also demands deeper inquiry and comprehension by researchers and educators.[145,147,148]

Social Cognitive Career Theory and Career Decision-Making

Social Cognitive Career Theory (SCCT) is a framework often used in career development research, that emphasizes the reciprocal relationship between individuals, their environment, and their behaviors, providing a comprehensive understanding of the cognitive processes and environmental influences that shape individuals' career development trajectories.[50,68] For example, a student's self-efficacy in their ability to succeed in a particular field (individual) can be influenced by mentorship and resources available at their school (environment), which in turn can affect their engagement and performance in related activities (behavior).[50,68] It provides guidance on promoting career success and satisfaction by addressing self-efficacy, outcome expectations, goals, environmental factors, and learning experiences.[50,68]

Making career decisions can be more difficult for some students than others.[146] One way to understand the reasons for these differences is through the Career Decision Self-Efficacy (CDSE) scale, which measures individuals' confidence in their ability to make career-related decisions and includes five subscales: self-appraisal, gathering occupational information, goal setting, planning, and problem solving.[42] Higher CDSE is associated with proactive career-related behaviors, satisfaction, and success.[102,149–151] Individuals with high CDSE are more likely to actively monitor their career-related behaviors, interests, and skills.[68,146,152] They demonstrate greater self-judgment capabilities, possess the confidence to assess their skills realistically, and are more resilient in their self-assessments to career-related challenges and setbacks.[68,146,152]

Career Development Learning (CDL)

Many students struggle with uncertainty about their career prospects due to a lack of clarity on how to utilize their degree and find relevant job opportunities.[102] As a result of this uncertainty, students lack confidence in their qualifications and abilities, which negatively impacts their CDSE by hindering their ability to make informed decisions about their career.[102] A few reports emphasize the need for universities to provide students with better employability skills, highlighting the importance of career development initiatives.[17,101]

Career development learning (CDL) emphasizes lifelong learning, adaptability, and continuous skills development for success in a dynamic job market[86,88–93] and can be promoted through targeted modules within courses, broader cross-curricular integration, and activities outside the formal curriculum,[88,95] providing students with the knowledge, skills, and experiences necessary to explore various career options and make informed decisions, which can increase students' CDSE. In this context, personalized teaching and learning methods involving active student participation through interactive approaches[88] effectively students in the dynamic process of career development.[94,96,97]

Students' awareness and engagement with CDL is associated with improved employability.[86,98] They perceive CDL as valuable for obtaining career advice from various sources, including lecturers, recruiters, alumni and career services, which is positively related to an enhancement in their employability skills and readiness for the job market.[86,99] Lack of engagement with CDL is a concern because it hinders students' ability to be prepared for the workforce, and by increasing engagement with CDL, students can gain more confidence in finding employment.[86,98,99] By increasing students' engagement with CDL, institutions can better support students in navigating the university-to-work transition.[86,98,99]

Reflective Learning

Reflective learning is important for educational and professional development because it encourages students to think critically about their learning experiences, understand their strengths and weaknesses, and make informed decisions about their future actions.[153,154] Reflective learning enhances self-awareness and professional growth, and being reflective allows individuals to adapt and improve their practices by integrating observations and feedback into their learning processes.[155] Moreover, reflective practice is related to improved learning outcomes and competence. In healthcare education, for example, reflection aids in bridging the gap between theoretical knowledge and practical application, enhancing clinical skills and patient care.[154] This process helps learners retain new information more effectively and supports their ability to apply knowledge in varied contexts, reinforcing their learning by deepening their understanding and retention of knowledge, and professional development by helping them apply this knowledge to their career goals.[156] Furthermore, reflective learning encourages a deeper understanding of self-awareness of one's skills and weaknesses, which can improve students' confidence in their ability to make informed career decisions and manage tasks related to making career decisions.

Purpose of the Study

Although several research studies suggest that participating in CDL activities can improve CDSE,[102,103,157] the literature lacks qualitative analyses of students' CDSE, more specifically their perceptions of their results from the CDSE scale. Therefore, the purpose of this study was to utilize qualitative thematic analysis to uncover themes related to students CDSE from reflection papers on their CDSE-SF scale report results. Additionally, this study utilized quantitative analysis to provide context for these reflections by presenting the CDSE-SF scale scores as provided by the report each student received upon completing the CDSE scale. This mixed methods approach aims to address a notable gap in the literature, which has largely overlooked the qualitative aspects of CDSE, by providing a more comprehensive understanding of how students interpret their CDSE.

Methods

Participants and Recruitment

The participants from this study were undergraduate students who completed a semester-long CDL project as part of the required coursework for an introductory nutrition research, communication, and career (NRCC) course. All students enrolled in the course completed the CDSE-SF scale[43] and associated reflection paper, but only the data of those who consented to participate in the study were used in the analysis. Participants were recruited using convenience sampling. Participants were recruited by an individual who was not affiliated with the NRCC course to ensure participation was entirely voluntary and free from any potential coercion. Initially, a recruitment video and email were used to invite participants at the beginning and midpoint of the semester. Subsequently, at the beginning of the semester after the course concluded, the first author, who was the course teaching assistant, sent a recruitment email to participants. One hundred twenty-two participants were enrolled in the course during the 2023 calendar year, and of those 122 participants, 26 participants (21.3%) provided informed consent. The breakdown of participants who consented per semester was: Spring 2023 (n=15), Summer 2023 (n=5), and Fall 2023 (n=6). Twenty-five participants identified themselves as women. Most participants were White (n=17), 4 were Hispanic or Latino, 3 were Asian, and 2 were Black/African American. All participants were enrolled in the course at a large institution in the southeastern United States. Of those 26 participants, 10 were freshmen, 11 were juniors, 4 were seniors, and 1 was a fifth-year senior. This CDL scholarship of teaching and learning research project received approval from the Institutional Review Board (IRB) at the authors' institution (#25609). Participants provided informed consent by electronically signing their names, and only de-identified and valid data were used for analysis.

Overall Career Development Learning (CDL) Project Design

The CDL project consisted of four main areas:

1. A pre-skills assessment, including a skills inventory of transferable, knowledge-based, and personal attribute skills; the CDSE-SF; and a reflection paper on the customized individual CDSE-SF results report.
2. A career exploration and resume preparation exercise, where students completed a career or graduate school exploration worksheet, created a resume and a cover letter or personal statement, and met with a career services professional to review their resume.
3. Application and interview preparation, wherein students completed a practice job or graduate school application and responded to written interview questions using the STARR method.

4. A post-skills assessment, in which students completed the CDSE-SF again, developed three professional SMART goals, and provided feedback on the CDL project.

Process for Implementing the CDSE-SF Scale and Reflection Paper

Students completed the 25-question CDSE-SF scale to assess their baseline confidence level in career decision-making.[43] The CDSE-SF scale consists of five subscales: Self-Appraisal (accurately and identifying assets and liabilities), Occupational Information (knowledge of what workers in different occupations do), Goal Selection (ability to match oneself with the occupation best suited for), Planning (ability to start and progress in a career), and Problem-Solving (confident in ability to choose best solutions to resolve career problems).[158] Students used a five-point Likert scale (1 = no confidence at all to 5 = complete confidence) to rate their perceived confidence for the 25 questions from the CDSE-SF.

Upon finishing the CDSE-SF scale, students received a 15-page individual report from Mind Garden®, the platform used to administer the CDSE-SF scale with a background of CDSE, explaining how to understand their results; the results for each subscale; and steps that they can take to improve their scores for each section. We utilized the general instructions for planning and development provided on the individual report to create reflection prompts for students to write a one-page reflection on their results.[159] We instructed students to use the following prompts to guide their reflection:

1. What are your overall areas of strength and in which areas are you less confident? What specific items were your strongest and weakest?
2. Reflect on how you developed your areas of high efficacy. Can any of these processes be applied to your less well-developed areas?
3. Reflect on how accurate you feel your results are. Were you surprised by any of

the scores? If you feel that your scores are not accurate, reflect on why you feel that way. If you weren't surprised by any of the scores, explain why.

Completion of the CDSE-SF scale was worth 10 points and completion of the reflection of results from the CDSE-SF scale was worth 5 points out of 1000 possible points for this course.

Data Analysis

We conducted thematic analysis to analyze the qualitative data collected from students' reflections on their results from the CDSE-SF scale. The research team consisted of two research assistants (authors two and three; one from within the program and one from outside the program) led by the first author (course teaching assistant) and the last author (course instructor). To minimize bias, all research team members completed a standardized 5-phase coder training[135] to ensure a consistent understanding of the qualitative methods. We followed Braun and Clarke's method for thematic analysis, which consists of six stages.[134] The first stage involved the first three authors reading through all de-identified reflection papers to become familiar with the data. In the second stage, the first three authors engaged in open coding of reflection papers to determine initial codes for developing the codebook. During the third stage, these initial codes were organized into groups, and the research team finalized the thirty-six final codes for the codebook. The first three authors applied the codebook to each reflection paper, coding sentence-by-sentence. After this coding, the research team met regularly to discuss the similarities and differences in their codes. Through these discussions, we reached a consensus on the final codes to ensure consistency and accuracy in the analysis. Saturation, the point at which no new patterns or themes emerged from the data,[134,160] was reached after coding the Spring 2023 participants (n=23). However, the Summer 2023 (n=5) and Fall 2023 participants (n=6) were coded to confirm saturation was reached and that there were no new concepts emerged during subsequent semesters of implementation. The fifth stage involved reviewing coded data to develop detailed theme descriptions. We included an outside expert reviewer (fourth author) to provide an impartial perspective during discussions to weave themes together to form a narrative. The last stage of Braun and Clarke's framework is presented below, along with quotes from the data that best represent the research findings.

We used the CDSE-SF to quantitatively assess students' baseline self-efficacy at the beginning of a CDL project. The analysis involved evaluating participants' overall scores for each of the five CDSE subscales and examining each of the 25 questions individually to calculate the overall average CDSE-SF scale score. According to the CDSE Manual, the scores for the CDSE-SF are categorized into three ranges:[159]

1. Scores from 1.0 to 2.5 indicate low to little confidence, suggesting that individuals within this range may need intervention to enhance their career decision-making abilities.
2. Scores from 2.5 to 3.5 reflect moderate confidence, where individuals may feel somewhat comfortable exploring career options but might still require some assistance.
3. Scores from 3.6 to 5.0 denote good confidence, indicating that individuals in this range feel comfortable with their career decision-making skills and are likely capable of navigating career choices on their own.

Descriptive statistics for each of the five subscales in the CDSE and overall CDSE were conducted using IBM SPSS Statistics 28.

The qualitative thematic analysis of students' reflection papers was conducted first and was independent of the quantitative analysis of students' CDSE-SF scale scores. We adopted this approach to minimize potential bias and ensure that the analysis of the qualitative data was not influenced by the quantitative data. By separating the analyses, we allowed the qualitative themes to emerge naturally without being colored by preconceived notions based on the students' scores.

Results

The quantitative results from the CDSE-SF scale are presented first, which are supported by integrated qualitative data from students' CDSE-SF scale reflection papers. Following this, we present the themes that emerged from the thematic analysis of students' CDSE-SF scale reflection papers, providing a comprehensive understanding of their CDSE results. The following quotes have been slightly edited for brevity, grammar, and clarity. It is also important to note that when students discussed the career resources at the university, they could have been talking about embedded college-level or university-level career resources.

Integrated Quantitative and Qualitative Findings from CDSE-SF Scale Scores

Participants' overall CDSE-SF mean and median scores were 3.8 and 3.9, respectively, which is classified as "good confidence," meaning that students are "comfortable with this skill set."[161] Detailed subscale scores provide specific insights into the various aspects of CDSE, whereas the overall CDSE score offers a comprehensive view of students' confidence in their career decision-making abilities.

Self-Appraisal

Participants indicated they had "good confidence" in their ability to accurately assess their skills and interests, with a mean score of 3.9 and a median of 3.8 on the Self-Appraisal subscale. Within this subscale, participants were the most confident in their ability to determine their priorities and preferences when considering aspects of a job or career (Mean = 4.5, Median = 5.0). For example, this student shared how their career choice aligns with their interests: "After much research, I was able to look into becoming a physician assistant and realized it aligned with many of my interests and was something I could pursue…" (Participant 5).

Within this subscale, participants were least confident in both their ability to describe the kind of life they want to lead (Mean = 3.3, Median = 3) and in their ability to evaluate their strengths and weaknesses (Mean = 3.3, Median = 3). For example, one student reflected about the life they want to lead by writing: "I know what I want for my life, and I know what I am capable of; I am confident that I will not stop until I achieve that" (Participant 14). Another student reflected about their strengths and weaknesses: "I started out this reflection talking about how unsure I am at analyzing myself. It is not that I don't think I could perform these skills well, I know I can, I just have a hard time praising myself. I do not like to overestimate my skills" (Participant 20). Another student shared: "I may not have given myself enough credit for what I can accomplish. It may be that my capabilities in some areas were lower than expected due to not wanting to rate myself too high for fear of being proven incorrect." Lastly, this student reflected that they knew their self-appraisal score would be low because, "... I have a hard time assessing myself - especially when it comes to knowing exactly what I think I want" (Participant 22).

Gathering Occupational Information

Overall, participants were the most confident in the skills related to the Gathering Occupational Information subscale, with a mean score of 4.0 and a median of 4.0. Within this subscale, participants were most confident in their ability to explore different career paths by researching information online about careers that capture their interest (Mean = 4.3, Median = 4.0). For example, this student reflected on their proactive approach to researching occupational information: "Over winter break I watched many YouTube videos on 'What it's actually like to be a RD', 'Day in the life of an RD', etc. I want to continue doing things like that so I can feel more confident in my decision making" (Participant 19). Another student shared, "While being the ambitious and determined person I am, as soon as I realized I was interested in pursuing nutrition, it did not take me long to research specific occupations within that field…" (Participant 24). Lastly, this student reflected, "I do not have an issue researching information about a program or occupation or attending an informative meeting. For example, I have attended multiple webinars/informational meetings about different graduate and professional programs" (Participant 25).

Within this subscale, participants were least confident in their ability to examine the forecasted employment outlook for a career(s) in the coming decade (Mean = 3.5, Median = 3.5). While students were least confident in this ability, this student recognized they can use university resources to determine employment trends: "I have the right resources such as [university career resource] to find the average yearly earnings of people in an occupation [and] find out employment trends for an occupation…" (Participant 15).

Goal Setting

Participants indicated "good confidence" in their ability to identify and pursue career paths that align well with their skills, strengths, and interests, with a mean score of 3.9 and a median of 4.0 on the Goal Setting subscale. Within this subscale, participants were most confident in their ability to select an academic path or professional trajectory that aligns with their passions and preferences (Mean = 4.3, Median = 5.0) For example, this student wrote: "…I felt that my results were very accurate because, over the past year I have done a lot of planning and research to find which major I believe best fits my interests; and naturally, I am a person who enjoys planning and having an organized idea of what my future will look like" (Participant 23). Another student reflected: “I am confident that I am pursuing a career that interests me, and I have goals set for myself to make these goals happen” (Participant 15).

Within this subscale, participants were least confident in their ability to choose a career from a list of options they are exploring (Mean = 3.6, Median = 4.0). One student explained: “Since I am not confident in what career would actually fit me best, I also expected I would score low in goal selection” (Participant 19). Another student reflected: “By having many different interests, I find it increasingly difficult to goal select and plan to follow these interests” (Participant 17).

Planning

Overall, participants were the least confident in their ability to complete the tasks within the Planning subscale with a Mean score of 3.7 and Median of 3.7. Within this subscale, students were the most confident in navigating the job interview process (Mean = 4.3, Median = 4.0) and in navigating the path to finishing their major (Mean = 4.3, Median = 4.0). This student expressed confidence with the interview process: “I have already started my grad school applications and have completed several job interviews so it makes sense that I would feel confident in this area” (Participant 13). Although, this student rated the question a 2 because they “...struggle with interviews” (Participant 15).

Across all 25 survey questions, participants reported the lowest score in resume preparation (Mean = 3.0, Median = 3.0). One student wrote: “One thing I haven’t been accustomed to is how important a very formal resume is” (Participant 6. Another student shared: “It does not surprise me that I scored lower in those two categories because I have never made a professional resume before, and I also have never had a job interview for anything other than the food service industry” (Participant 8).

Problem Solving

Overall, participants had the same overall scores for the Problem Solving subscale as the Planning subscale (Mean =3.7, Median = 3.9), indicating that they had "moderate confidence" with the tasks within the Problem Solving subscale. Within this subscale, participants were the most confident in their ability to maintain committed to their aspirations, despite encountering challenges or setbacks (Mean = 4.4, Median = 4.0). For example, this student shared: "I am confident that I have the knowledge and skills necessary to make goals, execute plans to accomplish them, and make adjustment[s] in the face of challenges" (Participant 11).

Within this subscale, participants were the least confident in their ability to navigate a career change (Mean = 3.2, Median = 3.0). For example, this student wrote: "The one thing that I am not confident in, as seen in the results, is the act of changing my career path" (Participant 15).

Dominant Emergent Themes Related to Career Decision Self-Efficacy

Analysis from students' reflection papers on their results from the CDSE-SF scale revealed three dominant emergent themes: (1) reflecting on uncertainty in career decision-making, (2) preparing for a future career, and (3) growth and development.

Reflecting on Uncertainty in Career Decision-Making

Students reflected on their struggles with fear and indecisiveness which highlights the relationship between uncertainty and growth as students navigate their career paths.

Many students reflected on the anxiety and fear associated with the fear of making the wrong career choice, and they expressed concerns about the long-term implications of their decisions. For example, one student wrote: "I have a hard time making a final decision without worrying whether it was right or wrong for me" (Participant 19).

Coupled with the fear of making a wrong decision, students notably struggled with indecisiveness. Students described the difficulty of choosing between multiple interests and career paths, leading to feelings of being overwhelmed and uncertain. This student reflected: “I sometimes find myself to be overwhelmed with the options that are available to me for graduate school and careers. As someone double majoring, I find that there are so many options for career paths that I could explore” (Participant 3). Another student shared a similar sentiment: “I am very nervous I might make the wrong decision, whether that’s about my career or graduate school options. I don’t think that it’s because I am unsure what I want, but because I am interested in so many things that are vastly different” (Participant 22).

Despite these concerns, students acknowledged that they have time to make these crucial decisions: “I feel that I have now had a decent amount of time to somewhat figure out what exactly I want to get out of my degree and how I want to move forward when I graduate” (Participant 2). Another student remarked: “The great thing is that I have plenty of time to continue learning before I have to choose a specialty” (Participant 7)

Some students expressed concern with navigating a career change, while others felt better about changing their career choices. For example, this student shared: “I find it challenging that there is a possibility that I may not like the career I chose and may have to change career paths” (Participant 15). Another student shared their worries about changing career paths because of their confidence in their current career choice: “I am so certain of my current career choice and have spent a lot of time thinking about this, so the idea of something so well-thought-out changing is really scary to me (and thus something I have lower confidence in)” (Participant 12). This student shared a different perspective about navigating a career change: “When it comes to my life, I am confident that if I do not like what I am doing, I am going to change it. I feel like it is never too late to start doing something that you love to do" (Participant 14).

Preparing for a Future Career

This theme reflects students' awareness of the necessary components for success in transitioning to the workforce. To prepare for their future career, students navigated applications and prepared for their future endeavors by gathering relevant job experience and cultivating valuable professional connections. Many students mentioned a lack of confidence in preparing a polished resume and managing a job interview. This student discussed: "... though I feel like I have the pathway in place to get where I want to be in my career, I feel super unprepared and unconfident with the 'real life' parts such as preparing my resume and preparing for interviews" (Participant 14). Another student reflected: "One skill I have always struggled with is being able to write and talk about how my experiences have translated into skills that make me a good candidate for a certain career. While I know I have gained such useful skills in multiple areas … it is hard for me to put into writing how these skills will help me in the future and think of scenarios to answer basic interview questions like, 'think of a time when you were challenged'" (Participant 2).

Many students acknowledged that they could utilize career-related resources at our institution to improve their confidence in resume writing and interview preparation. For example, this student discussed their plan to use career services for resume refinement and interview preparation: "I plan on utilizing the career center at [our institution] to begin preparing for interviews and other crucial components that are required for graduate programs, as well as future employment opportunities. It is a great opportunity as I would not be able to determine whether my resume is optimal compared to other individuals. This is an aspect I would rather be proactive about and ensure that my cover letters, resume, and other crucial information accurately represent who I am and also have a competitive advantage" (Participant 5).

Students also recognized the significance of networking and discussed their efforts to build and maintain relationships with professionals in their field of interest, highlighting their understanding of the role of professional connections in career advancement. For example, this student shared the importance of building a relationship with their supervisor to have them write a letter of recommendation for graduate school: "Furthermore, my relationship with healthcare providers is very important because I will eventually need someone to write a letter of recommendation when I apply for graduate school. By building strong relationships with individuals in the field, I will have great connections who can write strong recommendations for me" (Participant 7).

Growth and Development

Students reflected on how they developed their strengths through past experiences and how those experiences might have impacted their skills and self-efficacy. This student shared a sentiment held by many students and expressed a sense of achievement and satisfaction with the progress they have made thus far: "Reflecting on my younger self during this reflection has actually helped me gain more confidence because I know how unconfident I was as a teenager, and it makes me proud of myself to see how far I have come" (Participant 20).

Students also reflected on strategies to improve their areas of weakness to become more confident in skills related to career decision-making. This student shared how they developed their strengths of problem-solving and goal selection: "I think the biggest actions I have taken in order to strengthen the areas of both Problem Solving and Goal Selection are working on my time management and organizational skills. In addition, implementing problem solving in my daily life has allowed me to be more productive and successful in my endeavors, thus leading to the formation of even more goals. If I am able to work through problems and make them easier, then I am able to accomplish even larger tasks" (Participant 42866). Another student shared that their background as an athlete has helped them with developing their strengths: "Being an athlete my whole life, I have been able to easily identify things that I need to improve in order to succeed in this area of my life. This mindset has aided me in other significant areas of my life, especially when it comes to my future career and goals. I have been able to come to terms with whether or not I think a specific job would be fitting for me, personally" (Participant 19).

Alongside recognizing their strengths, students reflected on their areas of weakness and ways to improve their areas of weakness. One student reflected on how to use their strengths to develop their weaker skills: "All of these areas of efficacy can help one another in some way. Looking at my low score of planning, being good in goal selection and problem solving can help me in terms of my planning. Additionally, if I get stronger in my weakness of planning, this can also aid in the improvement of my low self-efficacy in occupational information" (Participant 16). Another student reflected on their plan to improve their weaknesses: "However, I still have room for improvement in the areas of Problem-Solving and Occupational Information. In order to improve in these areas, I can email professors I know more often when I have a question, and take advantage of connections I already have in the nutrition field. I plan to email local Registered Dietitians for shadowing opportunities before applying to graduate schools. I also intend on creating a list of questions to ask those I know in the nutrition field, in order to get more used to asking questions" (Participant 25).

Ultimately, the reflection papers revealed that students struggle with fear and indecisiveness in career decision-making, are aware of the necessary components for a successful transition into the workplace, and recognize the impact of past experiences on their skills development and self-efficacy. These themes can guide the development of targeted interventions to enhance students' career decision-making confidence, preparedness for the workforce, and growth in career-related skills and self-efficacy.

Discussion

This study explored students' perspectives and insights regarding their CDSE at the beginning of a semester-long CDL project. To our knowledge, this research is among the first to use qualitative analysis to understand students' beliefs about their CDSE. Understanding these beliefs is crucial because it provides deeper insights into the factors that influence students' career decision-making processes, which can inform the development of more effective career development interventions. Furthermore, we identified underlying themes that the quantitative data alone did not reveal, thereby contributing to a more comprehensive understanding of CDSE in the literature.

Participants had good confidence in their career decision-making skills, particularly in gathering occupational information, but they were least confident in planning. The qualitative findings support the quantitative findings that participants were least confident in resume creation which was a task in the planning subscale. Participants also reflected on their uncertainty regarding career decision-making, used self-assessment to evaluate their career competencies, discussed their growth and development. Overall, students' CDSE-SF scores indicated they had "good confidence" in tasks related to making a career decision, although some admitted they had areas to improve and felt uncertain about certain aspects.

The participants in our study were the most confident in gathering information about potential careers despite qualitative findings suggesting that they may feel overwhelmed by the numerous choices available. This aligns with prior research suggesting that career decisions are difficult for many people due to the complexity of considering multiple options and any other factors.[146]

Our participants were highly confident in identifying what they value most in an occupation but showed moderate confidence in defining the lifestyle they want. This indicates that while students are clear about their career-related values and preferences, they may struggle to envision how these translate into their overall lifestyle. This discrepancy suggests that students may focus more on immediate career aspects than on how these choices align with their long-term personal lives. This could also indicate a gap in their ability to connect career aspirations with broader life goals, which is an important factor in personal fulfillment.[162,163]

Participants were least confident in problem-solving and planning for the future. Specifically, the quantitative CDSE-SF results indicated that students felt the least confident in creating resumes, with qualitative results supporting that and many students reflected on feeling unprepared to create a resume. However, participants discussed plans to utilize university resources to improve their resume-building skills and were looking forward to the resume activity in the second part of the CDL project.

Many students reflected on their struggle, worrying about whether they were making the right choice. Students exhibited low confidence in their ability to change careers if dissatisfied, further exacerbating their indecision and fear of making initial career choices. This anxiety might come from pursuing perfection, causing them to delay decisions in hopes of finding the perfect option.[164] Pursuit of perfection and the associated fear of making a wrong choice may also explain their lower self-efficacy in defining the lifestyle they want and navigating career changes.[164] Future research could explore the reasons behind students' fear of making incorrect career decisions and its impact on their confidence in making career changes.

Participants had increased awareness of their strengths and weaknesses regarding their CDSE skills and could identify improvement methods. This self-awareness enables students to articulate specific areas they need to develop and to strategize how to leverage their strengths effectively in career decision-making and professional development.[50] Furthermore, students who engage in reflective practices are better prepared to articulate their strengths during job interviews[80] by integrating their experiences with acquired knowledge.[102,103]

There are several limitations associated with this study. The first limitation is that the reflections may have only provided surface-level insights into students' reflections and missed a deeper understanding of their motivations or learning styles. Two of the research team members were involved in the course (the course instructor and course teaching assistant), which could impact the outcomes by potentially introducing biases. Measures were taken to minimize bias, such as maintaining rigorous data analysis protocols and involving additional researchers to review and validate the findings. Lastly, the small sample size makes it more difficult to detect significant effects or results, which can lead to less generalizable and reliable results, as the findings may not represent the broader population.

Future research could also delve deeper into understanding the root causes of students' apprehensions and develop tailored strategies to mitigate them. Addressing students' apprehensions through targeted interventions could enhance their overall career preparedness. By targeting interventions to improve CDSE, students can feel more capable and ready to take on various career challenges, thereby enhancing their overall career preparedness. An example of this might be a mentorship program where students are paired with industry professionals or alumni who can provide guidance, share experiences, and offer personalized advice on career development. By addressing these targeted areas, students can be better prepared for future career opportunities.

Developing interactive online tools or apps that simulate real-world decision-making scenarios could help students translate theoretical confidence into practical skills. For example, integrating hands-on activities such as resume building and interview practice in educational curricula or career development programs can better prepare students for the job market. Practicing skills, such as interviews, is essential for building self-efficacy, which in turn is important for job-market preparedness, as it enhances confidence and performance in real-world career challenges. For example, educators could develop virtual reality (VR) simulations for career development activities like mock interviews or managing workplace scenarios. By focusing on building students' self-efficacy, these tools can empower them to apply their knowledge effectively in real-world scenarios.

Ultimately, the quantitative findings from this study indicate that at the beginning of a CDL project students generally had good confidence in their career-decision making skills, indicating that they should feel assured in their ability to handle change and overcome challenges.[165] However, qualitative insights uncovered a contrasting narrative, highlighting some apprehension among students when it comes to making career decisions and completing practical tasks, such as creating a resume.

CHAPTER 4: FROM CLASSROOM TO CAREER: EFFECTIVENESS OF AN INTEGRATED CAREER DEVELOPMENT LEARNING PROJECT

Abstract

This research assesses the impact of a semester-long career development learning (CDL) project on undergraduate students' Career Decision Self-Efficacy (CDSE). We used a mixed-methods approach to collect quantitative data from pre- and post-assessments of the CDSE-Short Form (CDSE-SF) scale and qualitative data from students' feedback on the CDL project. Participants were undergraduate students enrolled in an introductory nutrition, communication, and careers course during the spring, summer, and fall 2023 semesters ($n=26$). Quantitative analyses revealed a statistically significant improvement in 3 out of 5 CDSE Subscales: Goal Selection, Planning, and Problem-Solving ($p < 0.05$). The CDL project received an average rating of 4.12 out of 5, and many students reported feeling more prepared for their careers. These findings indicate that structured CDL projects in academic programs can significantly improve students' CDSE and readiness for their careers.

Introduction

Exploring career options is fundamental for college students, as it significantly impacts their future.[166] During this exploratory phase, students explore their interests and skills, which helps them identify their career aspirations and achieve job satisfaction.[167] However, choosing the right career path can be daunting for many students.[24,166] Engagement in career search activities can contribute to students' confidence in their ability to make informed career decisions and enhance their career decision self-efficacy (CDSE).[140,166–170] By exploring various career options, individuals expand their vocational horizons and develop a sense of certainty about their career paths.[166] This increased certainty helps students make confident decisions and pursue fulfilling and meaningful careers.[166] Career exploration plays a significant role in career development learning (CDL) by building occupational knowledge and provides an opportunity to create and build professional relationships.[50,171–173] Educational institutions can enable students to navigate the ever-changing workforce by integrating career exploration into their curricula through internal program offerings and external partnerships. Through intentional engagement with exploration activities, students can enhance their knowledge of potential career options and develop essential employability skills, such as goal setting, networking, and decision-making.[174] As a result, encouraging career exploration within the framework of CDL prepares students for the job market challenges and empowers them to make informed career choices, develop critical skills, and pursue opportunities that align with their personal and professional goals.

Career Exploration and Career Decision-Making

Career exploration is a systematic process that helps individuals identify personal interests, values, skills, and aspirations and research various career paths, industries, and job roles to find potential paths for professional growth and fulfillment.[167,175] Engagement with career exploration activities can enhance students' self-efficacy by providing firsthand experience and exposure to various career options.[152,167–170] This exposure enables students to make well-informed decisions and encourages individuals to reflect on their interests, values, and goals, leading to greater career clarity about their career aspirations.[171,176] Individuals can clarify their understanding of the rewards, challenges, and opportunities linked to various occupations and the potential outcomes of different career choices.[167,176,177] Moreover, career exploration enables students to align their strengths and aspirations with viable career options by assessing the potential outcomes and consequences of different career paths, thus influencing their career decisions.[167] Individuals can also refine their career-related goals through reflection and exposure to diverse career options.[140,170] Exploring different career options, industries, and job roles can give students a comprehensive understanding of potential career paths.[171,176] Moreover, participating in career exploration activities fosters the development of CDSE.[178] Career exploration and planning, along with career decisiveness, are factors that directly impact career readiness.[179]

Students need skills to effectively engage with potential employers with proficient interview techniques, create resumes and cover letters, and understand terminology relevant to career pathway exploration.[145] Prior research has demonstrated that a course-based intervention using guided and structured CDL activities effectively enhances students' perceived CDSE and career-related skills. Specifically, there were statistically significant improvements in students' ability to gather occupational information, set meaningful career goals, and engage in effective career planning.[102,103] CDL interventions equip students with the confidence and skills necessary to navigate the complexities of career decision-making.[180]

Project-Based Learning

Project-based learning (PBL) emphasizes real-world experiences and active student engagement, allowing students to develop a deeper understanding of key concepts and explore their interests, strengths, and aspirations in a meaningful context.[181] In career-oriented PBL, students can explore potential career paths, giving them valuable insights into various industries and professions.[182] Research suggests that PBL activities can increase students' STEM career aspirations and self-efficacy related to STEM skills.[182] PBL effectively bridges the gap between theoretical learning and practical application, helping students develop career readiness competencies. Furthermore, PBL empowers students to take responsibility for their learning and pursue areas of interest that align with their goals, values, and interests,[181] fostering a sense of agency and self-direction crucial for success in the workforce.

PBL has shown promise in promoting student interest in careers and facilitating content learning; however, there is a notable gap in connecting PBL experiences to broader career-related outcomes such as skills development, values alignment, and job search strategies.[174] Although students may become engaged in PBL activities and learn content effectively, the follow-up connecting PBL learning to career and practical interests is lacking.[174] Embedding career-related discussions, reflections, and assessments into PBL projects may help students make explicit connections between their learning experiences and their future career goals.

Purpose

This mixed methods study aimed to evaluate the impact of a CDL project on students' CDSE through quantitative analysis of CDSE and qualitative analysis of students' feedback on the project.

Methods

Participants and Recruitment

Undergraduate students enrolled in a 16-week (2023 spring and fall semesters) or a 5-week (2023 summer semester) introductory nutrition research, communication, and careers (NRCC) course completed a semester-long CDL project. Participants were recruited for this study using convenience sampling, as the first author was the course teaching assistant, and the last author was the course instructor. To ensure that participation was entirely voluntary and devoid of any potential coercion, an external individual unaffiliated with the NRCC course managed the recruitment process. Participants were invited through a recruitment video and email at the start and midpoint of the semester. Following the conclusion of the semester, once final grades had been posted, the first author sent a follow-up recruitment email. One hundred twenty-two students were eligible to participate in this study, and 26 (21.3%) voluntarily participated. Of those 26 participants, 10 were sophomores, 11 were juniors, 4 were seniors, and 1 was a fifth-year senior. The majority (96%) of participants identified themselves as women. Seventeen participants were White, 4 were Hispanic or Latino, 3 were Asian, and 2 were Black/African American. The study was conducted under the approval of the university's Institutional Review Board (IRB #25609), with participants providing informed consent electronically.

Structure of the Career Development Learning Project

The semester-long CDL project consisted of the following four parts:

1. Initial Skills Assessment and Reflection: Students completed a comprehensive skills assessment to identify transferable skills, knowledge-based skills, and personal attributes across the eight career readiness competencies outlined by the National Association of Colleges and Employers,[85] which was worth 5 points of the available 1000 points for the

course. Then, students used five of their identified skills and brainstormed how they could demonstrate their previous experience with those skills to a potential employer. Subsequently, students completed the 25-question CDSE-SF scale[43] using the Mind Garden® platform, which was worth 10 points of the available 1000 points for the course. After completing the CDSE-SF scale, they received a 15-page individual report of their scores for the five subscales (Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem-Solving) and a customized narrative of recommendations for improving CDSE. After reviewing their customized report, students wrote a one-page paper, worth 10 points of the available 1000 points for the course, to reflect on their results using the following reflection prompts, which were generated based on the prompts provided from the CDSE-SF report:[159]

1. What are your overall areas of strength and in which areas are you less confident? What specific items were your strongest and weakest?
2. Reflect on how you developed your areas of high efficacy. Can any of these processes be applied to your less well-developed areas?
3. Reflect on how accurate you feel your results are. Were you surprised by any of the scores? If you feel that your scores are not accurate, reflect on why you feel that way. If you weren't surprised by any of the scores, explain why.

The first part of the project should have taken students approximately 1 hour to complete. Students in the 16-week course were given a week and a half to complete this part, whereas students in the 5-week course were given four days to complete this part.

2. Exploration and Resume Development: Students completed a career or graduate school exploration worksheet, worth 15 points of the available 1000 points for the course, where

they recorded key information about the employer or graduate program. Students who planned to obtain a job after graduation, at the time of completing this project, completed the career exploration worksheet, whereas students who planned to pursue graduate or professional school after graduation, at the time of completing this project, completed the graduate exploration worksheet. As part of the worksheets, students identified next steps they should take, such as courses to take, people to talk to, or experiences they should gain. A member of the college's career services office gave a guest lecture on resumes, cover letters, and personal statements. After drafting a resume, worth 10 points of the available 1000 points for the course, and cover letter (intent to obtain a job after graduation) or personal statement (intent to pursue graduate or professional school after graduation), worth 20 points of the available 1000 points for the course, students were required to meet with a career services professional to receive personalized feedback on their resume, worth 10 points of the available 1000 points for the course. While not required, they were highly encouraged to review their cover letter or personal statement during that meeting. The second part of the project should have taken students approximately 10 hours to complete. Students in the 16-week course were given six weeks to complete this part of the project, whereas students in the 5-week course were given two weeks to complete this part of the project.

3. Application and Interview Preparation: Students completed a practice job or graduate school application, worth 25 points of the available 1000 points for the course. As part of this application, students were required to upload their resume and cover letter (job applicants) or purpose statement (graduate school applicants). Then, they refined their interview skills by responding to written interview questions using the STARR

(Situation, Task, Action, Result, Reflection) method[183] to ensure comprehensive readiness for real-world scenarios, worth 50 points of the available 1000 points for the course. The third part of the project should have taken students approximately 6 hours to complete. Students in the 16-week course were given 1.5 weeks to complete the job or graduate school application, whereas students in the 5-week course were given one day after completing the second part of the project to complete the job or graduate school application. Students were required to submit their application first and then submit the written interview questions later to mimic a real-world scenario of applying and having an interview after submitting the application. Students in the 16-week course were given 2.5 weeks to submit their written interview questions after completing the job or graduate school application, whereas students in the 5-week course were given 1 week to submit their written interview questions after completing the job or graduate school application.

4. Post-Assessment and Goal Setting: Students completed the CDSE-SF scale for a second time, to gauge changes in their CDSE after completing the CDL project, which was worth 10 points of the available 1000 points for the course. Then, they formulated three professional SMART goals to align their aspirations with their desired competencies, which was worth 5 points of the available 1000 points for the course. Lastly, students provided constructive feedback on the semester-long project, which was worth 5 points of the available 1000 points for the course. Students were asked to provide honest feedback and answer the following questions:
    a. What are some of the most significant (useful, meaningful, surprising) things that you have learned during this project?

b. How do you feel that you will use the skills that you learned in this project in the future? If you don't feel that you will use these skills in the future, please discuss why you feel that way.
c. What were some of the challenges that you faced while completing this project? Do you have any suggestions for improving this project? If so, please describe.
d. Discuss how you feel about the directions for this project. Were they clear and easy to follow? Were they presented in an organized manner? Did you have questions after reviewing the directions?
e. Considering both the strengths and limitations of this project, how would you rate the overall effectiveness of this project on a scale of 1-5, with 1 being not effective at all and 5 being very effective?

The fourth part of the project should have taken students approximately 2 hours to complete. Students in the 16-week course were given two weeks to complete this part of the project, whereas students in the 5-week course were given 1 week to complete this part of the project. The activities in this CDL project as they relate to the five subscales of the CDSE-SF Scale can be seen in Table 4.1.

Measures

Quantitative analysis was used to compare students' pre- and post-project scores on the CDSE-SF scale.[158] This scale assesses the extent to which individuals feel confident in their ability to engage in various career-related tasks, such as setting career goals, making career plans, and solving career-related problems.[43] The scale consists of 25 Likert scale questions, with higher scores indicating greater levels of CDSE.[158] The CDSE-SF is widely used in research and practice to assess and understand individuals' confidence in their career decision-making abilities.[43,158]

Strategy of Analysis

Students' pre- and post-CDSE-SF scales were analyzed using IBM SPSS Statistics 28 to determine changes in students' CDSE after completing the semester-long CDL project. Data analysis included summarizing central tendencies (mean (median)) values to provide a comprehensive overview of participants' self-efficacy perceptions before and after the career development learning project. To determine the significance of changes in participants' CDSE, the Wilcoxon signed-rank test was utilized because of the smaller sample size and the use of paired ordinal data. A value of $p < 0.05$ was considered significant; however, it is important to note that the sample size was limited to 26 participants. The initial power analysis indicated that a sample size of 74 participants was required to achieve adequate power and a 10% margin of error. Due to this limitation, the power of the study was reduced, and the findings should be interpreted with caution.

To analyze students' feedback on the effectiveness of the CDL project, the first author analyzed the written responses based on the five structured questions previously described. The first author organized the feedback by question to examine students' responses to each question systematically. After reviewing the responses, general patterns and recurring ideas were identified across the data. This approach involved multiple readings of the feedback in gathering the nature of students' insights and conveying the overall effectiveness of the CDL project.

Table 4.1. Overview of CDL Activities Related to CDSE-SF Subscales

CDSE-SF Subscale	Activity	Section of the Four-Part CDL Project
Self-Appraisal	Skills inventory to identify transferable skills, knowledge-based skills, and personal attributes across ten skill theme areas	Part 1: Pre-Skills Assessment
	Pre-intervention 25 question CDSE-SF scale to determine confidence in skills related to making a career decision	–
	One-page critical reflection on CDSE-SF scale results	–
	Post-intervention 25 question CDSE-SF scale to determine confidence in skills related to making a career decision	Part 4: Post-Skills Assessment
Gathering Occupational Information	Career or graduate school exploration worksheet	Part 2: Career Exploration and Resume Creation
Goal Selection	No activities created specifically for goal selection Career or graduate school exploration worksheets inherently supported goal selection	NA
Planning	Resume creation	Part 2: Career Exploration and Resume Creation
	Resume review by career counselor	–
	Personal statement (graduate school applicant) or cover letter (job applicant) creation	–
	Practice job or graduate school application	Part 3: Application and Interview Preparation
	Written interview response preparation	–
Problem-Solving	Three professional goals using the SMART goal system	Part 4: Post-Skills Assessment

Results

Quantitative Findings from the CDL Project Effectiveness

The survey results comparing the five subscales of the CDSE-SF before and after the project can be found in Table 4.2. Students' total CDSE score significantly improved ($p < 0.005$) after completing the semester-long CDL project. There was a statistically significant improvement in 3 out of 5 CDSE Subscales: Goal Selection, Planning, and Problem-Solving ($p < 0.05$). Scores improved in 20 of the 25 (80%) of the questions from 4 out of 5 subscales.

Table 4.2. Comparison of CDSE Survey Results Pre- and Post-CDL Project (n=26*)*

CDSE Subscale	pre-CDL project	post-CDL project	Wilcoxon p-value
	M	M	
Self-Appraisal	3.7	4.1	0.8
Occupational Information	4.0	4.3	0.08
Goal Selection	3.9	4.1	0.03*
Planning	3.9	4.1	0.004*
Problem Solving	3.7	4.0	0.01*
Total CDSE Score	3.84	4.0	0.005*

*p-values < 0.05 are significant, M = Mean

Qualitative Findings from Assignment Feedback

Question 1: What are some of the most significant (useful, meaningful, surprising) things that you have learned during this project?

Students felt the project helped them feel more prepared for their future career because they gained various skills such as resume building and practice with interview responses, and they valued career exploration through researching graduate programs. This student shared, *"I believe that the most important skill I have gained throughout this course is the ability to look into different graduate programs and schools. Before this course, I had no idea how to look into graduate programs and what questions I should be asking regarding the programs. Now I am able to conduct my own research on different programs and see what fits the best for me* " (Participant 1). Another student shared, *"I think one of the most useful aspects of this project was learning how to create an effective resume and personal statement. I have had a resume for a few years now that I update, but it had a lot of unnecessary information on it that I learned to take off. In terms of a personal statement, that was something I have been dreading writing for a while, as I know that it takes time and dedication to write one that really conveys who you are as a person and student. I appreciated being able to meet with [career counselor] from [our college's] career services and get her feedback on my resume and personal statement"* (Participant 7). One student shared that they valued learning about their results from the CDSE-SF scale, *"One of the most useful things that I have learned is my results from the CDSE questionnaire. This allowed me to become more self-aware and has allowed me to understand areas that need improvement"* (Participant 10). Another student shared how they gained confidence after completing the career development project, *"I did not have very high self-efficacy at the beginning of this semester, but this project has really helped me realize how to communicate my skills and show how I can and have used them" (*Participant 12). Lastly, one student shared, *"Some useful things I learned during this project is how I can use my skills on my resume, how to make SMART goals, and managing applying to grad school"* (Participant 25). Overall, students found the project to be beneficial as they enhanced their resume creation skills and had valuable practice with interview responses. Many also appreciated receiving personalizing feedback on their resumes and felt that the project helped them feel more prepared for the future.

Question 2: How do you feel that you will use the skills that you learned in this project in the future? If you don't feel that you will use these skills in the future, please discuss why you feel that way.

The majority of students expressed that they would use the skills from the project in the future. For instance, one student stated:

> *"I will definitely be implementing the skills I learned in this project. It even allowed me to prepare my personal statement earlier and get it reviewed by a career counselor, which is definitely beneficial in the long run. I was able to receive good feedback and know I must tailor it to each university, as well as include exactly why I want to enter the programs I apply to. Other than that, I was able to finalize the main points of my personal statement, which now only requires minor tweaks. I also was able to explore different programs, so I was able to finalize my choices of the programs I would like to apply to that fit my overall goals. I also was able to finalize my resume, which I was able to utilize to get a job to gain clinical experience"* (Participant 3).

Several students mentioned that they plan to utilize the resources provided by the university's career development center. One student said:

> "*This project helped me improve my interviewing skills, my ability to create a resume, and my knowledge of the resources available in the Career Development Center at [our university]. When I prepare for future interviews, I will likely reference the interview questions assignment. I will utilize the resources offered by the Career Development Center, including mock interviews. I will also use the recommendations from [career*

counselor] regarding resumes and cover letters." Another student added, *"I also think learning about the [career] services at [our institution] is helpful because it can help you with future career goals, for example, doing a mock interview"* (Participant 5).

Overall, students found the skills acquired during the CDL project to be beneficial and expressed their intention to apply these skills in their future career endeavors, some of which planned to leverage support from the university's career development center.

Question 3: What were some of the challenges that you faced while completing this project? Do you have any suggestions for improving this project? If so, please describe.

Many students stated that their biggest challenge while completing this project was managing their time to complete the assignments within each part of the project. For example, this student shared, *"Some of the challenges I faced were underestimating the amount of time I should set aside for each of the parts. If I were to go back, I would spread out my work time a bit more. I don't, however, feel like that was a project problem but more of a me problem"* (Participant 14). Another student shared, *"The only challenge during this project was managing my time, which required consistent effort and dedication"* (Participant 5).

Additionally, students stated that they experienced challenges with identifying and presenting their skills professionally. For example, this student shared, *"The only challenge I have faced with this project was with my own struggles and insecurities when it comes to explaining what I am capable of. At the beginning, I wasn't really sure what to write for the first skills assessment, but now I can do it with a bit more ease. I do not think I would change any aspect of this project since it has helped me so much"* (Participant 2). Another student shared, *"...however at certain points it was difficult for me to properly analyze my traits and strengths"* (Participant 20).

A few students had constructive criticism about the project. This student wished they could have completed both job and graduate school worksheets and applications: *"I liked the set-up of this project, but I wish I was able to be exposed to both the job and graduate options and applications"* (Participant 4). The most mentioned improvement was about the written interview questions. Many students suggested having more questions with fewer word or page limits, like this student who shared: *"One of my recommendations is to assign more questions but require 500-word or half-page responses for the practice interview questions assignment. I had some difficulty reaching a full page with some of my responses, and I think it would have been more beneficial to answer more questions"* (Participant 6). Some students also suggested incorporating mock interviews, a few suggested as extra credit, to practice the verbal communication. This student suggested, *"One suggestion I may have is having individuals be required to do a practice interview with the career center. It would give them insight as to what it is like and further prepare them for a job interview or an interview with a university"* (Participant 8). Another student offered this suggestion, *"Something else I think would have been useful is having to record responses to the practice interview questions instead of typing them, since interview responses are usually given verbally and recording your responses within a certain amount of time (like 2 minutes per question or so) has been something several of my friends have had to do for some of their actual interviews. I think I had too much time to think about my responses when I was writing them, and I was concerned about the length of my response more than the story I would actually think to share if I were responding verbally"* (Participant 10).

Overall, students identified time management and self-appraisal as the biggest challenges during the CDL project and they offered constructive feedback on ways to improve the project.

Question 4: Discuss how you feel about the directions for this project. Were they clear and easy to follow? Were they presented in an organized manner? Did you have questions after reviewing the directions?

The majority of students felt the directions were clear, easy to follow, and organized and any questions were answered by the instructor. For example, this student shared, *"I found the directions of this project to be very clear and organized. I do not think I had very many questions after reading the directions, and if I did, [course instructor] was able to clear them up in person"* (Participant 4). This student shared, *"I did like that the project directions were split into parts, so it was not just one long document with a bunch of directions"* (Participant 5). Another student shared, *"I also really appreciated when [course instructor] would go over the instructions in class and allow for questions if anyone had any regarding the directions"* (Participant 19).

Overall, students felt the directions for the CDL project were easy to follow and presented in an organized manner, which facilitated their engagement and understanding of the material.

Question 5: Considering both the strengths and limitations of this project, how would you rate the overall effectiveness of this project on a scale of 1-5, with 1 being not effective at all and 5 being very effective?

The average rating for the project was 4.12 out of 5, indicating that students found the project beneficial. One student stated, *"It was very helpful in having a picture of what job and graduate school applications will look like and I'm very thankful to have been given the push to create my resume and get it edited"* (Participant 19). Another student shared:

"It was very helpful to think about my future plans and practice skills that will prepare me in the future. Here are some of the specific things I enjoyed most about the project: (1) It allowed me to think through and explore my options regarding graduate programs. Each graduate program is different, so I was able to look into what makes each one unique. (2) I got to think through my "why". In the personal statement and interview portion of the assignment, I spent time reflecting on why I wanted to become a PA. This is very important to not only reflect on, but to put it into words. (3) Throughout the project, I was able to identify my next steps. It is always great to have a plan and a goal in mind as I go through the next year of college. By identifying my values and my goals, I can take the steps necessary to achieve those goals" (Participant 15).

Overall, students felt that the CDL project was effective and provided them with valuable experiences for their professional development.

Discussion

Quantitative results indicated that participating in a semester-long CDL project significantly improved students' confidence in making career decisions. Furthermore, students perceived the project as effective in enhancing their preparedness for their careers due to the diverse skills they developed during the project. Consequently, the findings support the expansion of this CDL project to other undergraduate courses.

The slight, but not significant, increase in students' self-appraisal scores suggests that while there was some improvement in their ability to evaluate their own strengths and weaknesses, the change was not substantial enough to be statistically conclusive. This could indicate that while the CDL project has potential, it may need to be enhanced or adjusted to produce more substantial results in the Self-Appraisal subscale. The modest, non-significant increase in students' occupational information scores indicates that there was some enhancement in their knowledge of various careers; however, the current CDL intervention did not adequately improve students' knowledge about occupations as intended. Understanding the specific aspects of occupational information that students struggle with can inform the development of targeted interventions tailored to address those gaps, which could have a more significant impact on their occupational information scores.

While the project did not include specific activities solely dedicated to goal selection, the process of completing the career or graduate school exploration worksheets inherently supported this aspect. By researching various careers and graduate programs, students gathered extensive occupational information that directly addressed key goal selection questions, such as choosing a career that fits their interests and lifestyle and selecting an occupation from a list of potential options. This approach ensured that students could make informed decisions based on comprehensive data, thereby integrating goal selection into the occupational information activities. The statistically significant increase in goal selection scores suggests that the occupational information activities effectively provided students with the necessary insights and knowledge to make informed decisions, demonstrating that integrating goal selection as an inherent outcome of these activities can be highly impactful. The statistically significant increase in planning scores indicates that these activities enhanced students' abilities to manage key career planning tasks, such as navigating the job interview process and preparing effective resumes. Additionally, the statistically significant increase in problem solving scores indicates that this structured goal-setting approach effectively enhanced students' abilities to address and navigate professional challenges.

The findings of this study expand on previous research concerning CDL and CDSE,[102,103] which indicates that CDL interventions notably enhance CDSE. The researchers in this study utilized career-related PBL as an instructional approach to encourage students to explore and solve real-world problems and challenges in the classroom, emphasizing active hands-on activities, autonomy, and collaboration to develop critical thinking, creativity, and communication skills. Prior research suggests that PBL can improve career aspirations and self-efficacy, particularly in STEM courses.[182] The current study builds on this by demonstrating that career-related PBL increases students' confidence in their career decision-making abilities. By engaging in projects that mirror real-world scenarios, students are better able to visualize their future careers and develop a clearer sense of their professional goals.[182,184–186] Furthermore, the interactive and student-centered nature of PBL helps learners to take ownership of their educational journeys, thus enhancing their overall career readiness.[181] These findings suggest that integrating career-related PBL into the curriculum could be a powerful strategy for educators aiming to equip students with the skills and confidence to navigate their future career paths.

Practical Implications

The findings of this study have significant implications for CDL and career readiness programs, especially in classroom settings. Statistically significant improvements observed in the areas of goal selection, planning, and problem-solving demonstrate the effectiveness of structured, semester-long CDL projects. These results suggest that integrating comprehensive career development activities into the academic curriculum can improve students' career development skills, equipping them with the necessary tools to navigate their professional paths effectively. Integrating these elements into career development curricula could help students develop a stronger sense of direction and preparedness for their future careers. The project's success also highlights the importance of practical, hands-on activities such as resume creation, interview preparation, and career exploration, which provide students with valuable real-world skills. From a student perspective, students had a positive attitude regarding goal achievability. They emphasized resilience and self-belief, suggesting that CDL projects can also foster soft skills such as perseverance, adaptability, and self-confidence. Therefore, career advisors and mentors should consider incorporating goal-setting and reflective practices into their guidance strategies to help students build these competencies. Given the qualitative findings that students felt more prepared for their careers and intended to use the skills acquired in future endeavors, institutions could improve overall career readiness among graduates by implementing such projects. Tracking the long-term outcomes of these interventions could provide further evidence to support these initiatives.

Limitations and Future Research

While this study provides valuable insights into the impact of a semester-long career development project on students' CDSE and preparedness, several limitations need to be acknowledged. One significant limitation is the relatively small sample size used for the quantitative analysis. With only 26 students participating, the generalizability of the findings is limited. A larger sample size would enhance the statistical power of the study and allow for more robust conclusions. Additionally, there was not a control group to account for change associated with time and typical experiences. Future research should aim to include a larger and more diverse sample and include a control group to validate and extend these findings. Another limitation was the potential for social desirability bias, as students might have been inclined to provide responses they perceived as favorable or expected. Although students were encouraged to provide honest feedback about the effectiveness of the project and students received full credit for the feedback, some students might have felt they could not express their genuine thoughts without concern for judgment or repercussions. Future research could use anonymous data collection methods for the feedback of the project to provide assurance to students that their responses will not impact their grades and to encourage students to express their genuine thoughts and experiences with the project. Additionally, future research could use a longitudinal approach to investigate the long-term impact of career development projects on students' trajectories and success over a period of 3-5 years through follow-up surveys and interviews to assess the sustained impact of the intervention.

Conclusions

This study contributes to the growing body of research supporting the integration of CDL into academic curricula. The significant improvements in CDSE and positive qualitative feedback indicate such initiatives are effective at preparing students for their future careers. By adopting and enhancing these practices, educators and institutions can play a crucial role in fostering career readiness and supporting students in achieving their professional goals.

CHAPTER 5: SUMMARY, CONTINUED WORK, FUTURE RESEARCH, AND CONCLUSIONS

Qualitative analysis of online discussions from "Alumni Career Connect," a course-based career development learning teaching approach using an AI platform

Summary

Study one presented findings from an innovative approach to vicarious learning through alumni interviews, which instructors can use to engage students in CDL. This study demonstrated that students who participated in vicarious learning by watching alumni video interviews and engaging in online discussions gained valuable insights into potential career paths related to their degree. They emphasized the importance of building a competitive resume and discussed the significance of achieving success after graduation. Engaging in online discussions fostered their critical thinking skills, challenged their viewpoints, and helped them make more informed decisions. The involvement of students in learning from others' experiences proved beneficial in helping them navigate their career choices and make informed decisions. Furthermore, students highlighted the versatility of their majors, expressing a desire for fields that offer diverse career paths. They also found practical ways to apply their knowledge to excel in their future careers.

Continued and Future Work

Based on the findings from the students' Packback discussion posts and responses, continued work could explore the themes related to their takeaways from the popular press or research articles they discussed, as well as their insights from watching the alumni video interviews. This could reveal the takeaways students find most important based on their discussions, which could help inform curriculum development or different instructional strategies.

Future work should also apply the approach of using alumni video interviews and online discussions, across a wider variety of academic disciplines and educational institutions. By comparing the effectiveness of alumni interviews in fields with clearly defined paths, such as engineering, against those with more diverse opportunities, like liberal arts or business, researchers can gain a comprehensive understanding of the impact. Future studies could explore how different formats of alumni interviews affect student engagement and learning outcomes. For example, live, interactive webinars might engage students differently than recorded video interviews. Studies could also examine the impact of different modes of online discussions – such as threaded discussions, real-time chats, or small group discussions – on students' critical thinking, reflection, and career decision-making processes. This research could help identify best practices for integrating peer discussions into CDL programs.

Longitudinal studies are needed to assess the long-term impact of vicarious learning through alumni interviews on students' career trajectories. Tracking students over several years would reveal how their participation in such programs influences their career choices, job search strategies, and professional success, providing evidence of the benefits of this approach. Lastly, exploring the development and integration of advanced technological tools to support vicarious learning can also be a focus. Virtual reality (VR) or augmented reality (AR) technologies, for example, could simulate real-world career environments, providing students with immersive experiences that complement alumni interviews. Research could assess the effectiveness of these technologies in enhancing student engagement and learning.

Exploring the initial state of undergraduate students' career decision self-efficacy: Qualitative and quantitative insights at the beginning of a career development learning

Summary

The purpose of study two was to use qualitative and quantitative analysis to understand students' career decision self-efficacy at the beginning of a semester-long career development project. The quantitative data revealed that students generally felt confident in their career decision-making skills. However, the qualitative findings painted a more nuanced picture, showing that some students were apprehensive in the process. This discrepancy highlighted an important gap in the literature regarding CDSE that had not been fully addressed through qualitative research. The findings emphasize the importance of addressing both the psychological and practical aspects of career preparation. This study contributes to a more comprehensive understanding of how to support students in their career development journey by understanding students' perceptions of their CDSE and identifying the specific tasks related to career decision-making that need improvement.

Future Work

Building on the findings of study two, future work should delve deeper into the psychological and contextual factors that contribute to students' career decision-making. This could involve qualitative studies that explore personal narratives and experiences to uncover these factors. Given the potential benefits highlighted in this study, developing and testing digital tools, such as interactive platforms and mobile apps, that simulate real-world career decision-making scenarios should be a priority. These resources can provide a safe and accessible environment for students to practice and refine their decision-making skills. Future research could focus on designing these tools, piloting them with students, and evaluating their effectiveness in enhancing career readiness. Another area for future work involves integrating the findings from this study into career development curricula within academic programs and career services. This might include workshops, mentoring programs, and other resources that address concerns identified in the research to ensure students receive consistent career support and guidance throughout their educational journey. Finally, future research could examine how these insights apply to different types of institutions, such as community colleges, other universities, or vocational schools, and different disciplines to ensure the broad applicability and relevance of the interventions and tools developed.

From Classroom to Career: Effectiveness of an Integrated Career Development Learning Project

Summary

The purpose of this study was to determine the impact of a semester-long career development project on students' CDSE by analyzing their CDSE-SF scale scores. Through quantitative analysis, we found that the integration of CDL into curricula significantly increased students' confidence in their career decision-making abilities. Qualitative analysis revealed that students found the project effective and gained valuable skills and guidance for their career development journey. These findings suggest that by embedding CDL activities within the academic curriculum, students not only had structured opportunities to explore career paths, develop essential skills, and reflect on their career goals but also demonstrated increased confidence and preparedness for their future careers.

Continued Work

The professional SMART goals in part 4 of the CDL project have been analyzed and a manuscript, not included in this dissertation, for this data is in preparation. Through qualitative thematic analysis, we found that students set professional goals with clear, measurable objectives, reflecting their ability to define specific targets and criteria for success. The analysis revealed that students exhibited a positive attitude and resilience, demonstrating a strong commitment to achieving both short- and long-term goals. Furthermore, students emphasized the relevance of their professional goals, ensuring alignment with their career aspirations and personal values. They also discussed the importance of leveraging available resources, such as mentorship, networking, and educational opportunities, to facilitate the achievement of their goals. This analysis highlights the effectiveness of the CDL project in fostering goal-setting and enhancing their confidence in tasks related to making career decisions.

Based on student feedback, the CDL project was revised to enhance its effectiveness. These revisions include a shift toward more practical, hands-on activities, such as informational interviews, to provide students with concrete experiences that directly relate to their future career aspirations. The CDSE survey and reflection in part 1 have been removed and instead students will now complete the Focus2 Career Assessment and career or graduate school exploration worksheets, instead of completing the worksheets in part 2. The second part of the project now consists of informational interviewing instead of the worksheets and resume and personal statement/cover letter creation, which is now in the third part. The third part focuses on the creation of an effective resume instead of the practice job or graduate school application and practice written interview questions. The last part now concentrates on practice interview question responses instead of the CDSE scale, career-related goals, and assignment feedback.

Future Work

Future work could involve analyzing themes from students' personal statements and cover letters, as well as themes from their written interview questions. This would provide insights into the key attributes and experiences students highlight as important. Additionally, future research could determine the types of graduate programs or jobs students are applying for and analyze their resumes to identify the skills they have and find important to include on their resumes. This could help inform educational institutions about the alignment between students' self-reported skills and the demands of the job market or academic programs, enabling better career guidance and curriculum development.

Longitudinal studies are essential to evaluate the long-term impact of the integrated CDL curriculum on students' career readiness. By tracking graduates over several years, researchers can assess how effectively the curriculum prepares students for the workforce, influences their career satisfaction, and impacts their long-term career success. Adapting the CDL project to various academic disciplines can extend its benefit to a wider range of students. Each field or study has unique career paths and challenges, so customizing the curriculum to address these specific needs can enhance its effectiveness. Future work should explore how to tailor CDL components to different majors, ensuring all students receive relevant and impactful career preparation.

Research significance & general conclusions

This dissertation entitled, *"Assessing and Evaluating Nutrition Undergraduate Students' Career Decision Self-Efficacy and Career Readiness Using Novel Course-Based Approaches to Career Preparation,"* addresses a notable gap in the literature by utilizing qualitative analysis to explore CDSE. Much of the research on CDSE has relied heavily on quantitative methods, which, while valuable, often fail to capture the nuanced, personal thoughts, perceptions, and beliefs of students during the career decision-making process. Through one qualitative and two mixed methods explorations, all three from students in NTR 302: Introduction to Nutrition Research, Communication, and Careers, the researchers determined that vicarious learning through alumni interviews and career development learning projects integrated into established curricula enhance students CDSE. Overall, there were two significant outcomes of this dissertation research: (1) benefits of vicarious learning through alumni interviews and (2) positive impact of embedded CDL activities.

Benefits of Vicarious Learning Through Alumni Interviews

Vicarious learning through alumni interviews offers a unique opportunity for students to gain practical insights and real-world perspectives directly from professionals who have navigated similar career paths. These interviews allow students to understand the challenges and opportunities that lie ahead, providing a realistic view of what to expect in their professional journeys. By hearing firsthand accounts of career trajectories, successes, and setbacks, students can better prepare for their own careers, develop more nuanced expectations, and build a clearer roadmap for their professional development. This method of learning helps bridge the gap between theoretical knowledge acquired in the classroom and the practical demands of the workplace.

Positive Impact of Embedded CDL Activities

Integrating CDL activities into the curriculum significantly increases students CDSE. By embedding these activities within coursework, students are continually exposed to career-related content and experiences that build their confidence and decision-making skills. These activities can include resume building, mock interviews, career workshops, and project-based learning that simulates real-world professional scenarios. As students engage with these components, they develop a deeper understanding of their strengths and weaknesses, learn to articulate their skills effectively, and gain practical experience that is directly applicable to their future careers.

In summary, the findings of this dissertation can be used by educators and curriculum developers to enhance career readiness and decision-making among students. These strategies significantly improve students' career decision self-efficacy and provide practical, real-world insights that prepare them for successful professional journeys.

REFERENCES

1. Burton L, Bero F. Is career education really being taught? *Academic Therapy.* 1984;19(4):389-395. doi:10.1177/105345128401900401

2. Burton LF, Chavez JA, Kokaska CJ. Employability skills: A survey of employers' opinions. *J Rehabil.* 1987;53(3):71-74.

3. Brown WL, Stemmer PM. Michigan's strategy for assessing employability skills. *Michigan State Department of Education.* 1990:1-43.

4. McLaughlin M. Employability skills profile: What are employers looking for? *ERIC Development Team.* 1990:1-6.

5. Taylor A. Employability skills: From corporate "wish list" to government policy. *J Curr Stud.* 1998;30(2):143-164.

6. Robinson JP. What are employability skills? *Alabama Cooperative Extension System.* 2000:1-3.

7. Department of Education, Science, and Training (DEST). Employability skills for the future: A report by the Australian Chamber of Commerce and Industry and the Business Council of Australia for the Department of Education. *Canberra: Science and Training*. 2002:1-65.

8. Finch DJ, Hamilton LK, Baldwin R, Zehner M. An exploratory study of factors affecting undergraduate employability. *Education + Training.* 2013;55(7):681-704. doi:10.1108/ET-07-2012-0077

9. Chamorro-Premuzic T, Arteche A, Bremner A, Greven C, Furnham A. Soft skills in higher education: Importance and improvement ratings as a function of individual differences and academic performance. *Educational Psychology.* 2010;30(2):221-241. doi:10.1080/01443410903560278

10. Lievens F, Sackett P. The validity of interpersonal skills assessment via situational judgment tests for predicting academic success and job performance. *J Appl Psychol*. 2012;97(2):460-468. doi:10.1037/a0025741

11. Andrews J, Higson H. Graduate employability "soft skills" versus "hard" business knowledge: A Europeana study. *Higher Education in Europe*. 2008;33(4):411-422. doi:10.1080/03797720802522627

12. Gray F. Specific oral communication skills desired in new accountancy graduates. *Business Communication Quarterly.* 2010;73(1):40-67. doi:10.1177/1080569909356

13. Bhaerman R, Spill R. A dialogue on employability skills: How can they be taught? *J Career Dev*. 1988;15(1):41-52. doi:10.1007/BF01474094

14. Gault J, Leach E, Duey M. Effects of business internshippps on job marketability: The employers' perspective. *Education + Training*. 2010;52(1):76-88. doi:10.1108/00400911011017690

15. J Gault, J, Schlager T. The benefits of undergraduate business internships: Implications for the student, university, and business community. *J Market Educ.* 2000;22(1):45-53. doi:10.1177/02734753002210

16. APLU releases two reports on gaps in employability skills and Workforce Preparedness Among College Graduates. June 9, 2020. Accessed February 24, 2022. https://www.aplu.org/news-and-media/News/aplu-releases-two-reports-on-gaps-in-employability-skills-and-workforce-preparedness-among-college-graduates

17. Crawford P, Fink W. From academia to the workforce: Critical growth areas for students today. *Association of Public and Land Grant Universities.* 2020:1-80.

18. M Sherer, R Eadie. Employability skills: Key to success. *Thrust.* 1987;17(2):16-18.

19. Cassidy S. Developing employability skills: Peer assessment in higher education. *Education + Training.* 2006;48(7):508-517. doi:10.1108/00400910610705890

20. Cotton K. Developing employability skills. *Northwest Regional Education Research Laboratory*. 2001. http://www.nwrel.org/scpd/sirs/8/c015.html

21. Bates G, Rixon A, Carbone A, Pilgrim C. Beyond employability skills: Developing professional purpose. *JTLGE*. 2019;10(1):7-26. doi:10.21153/jtlge2019vol10no1art794

22. Clarke M. Rethinking graduate emloyability: The role of capital, individual attributes and context. *Stud in High Educ.* 2018;43:1923-1937. doi:10.1080/03075079.2107.1294152

23. Jackson D. Re-conceptualising graduate employability: the importance of pre-professional identity. *High Educ Res Dev.* 2016;35(5):925-939. doi:10.1080/07294360.2016.1139551

24. Clements AJ, Kamau C. Understanding students' motivation towards proactive career behaviours through goal-setting theory and the job demands–resources model. *Stud in High Educ.* 2018;43(12):2279-2293. doi:10.1080/03075079.2017.1326022

25. Briscoe JP, Hall DT, Frautschy DeMuth RL. Protean and boundaryless careers: An empirical exploration. *J Vocat Behav.* 2006;69(1):30-47. doi:10.1016/j.jvb.2005.09.003

26. Strauss K, Griffin MA, Parker SK. Future work selves: How salient hoped-for identities motivate proactive career behaviors. *J Appl Psychol.* 2012;97(3):580-598. doi:10.1037/a0026423

27. Graham SA, Vitale E, Schenck ML. Developing methodologies to integrate content and behavioral skills: A pragmatic approach to curriculum design. *Community Junior College Quarterly of Research and Practice.* 1991;15(3):285-293. doi:10.1080/0361697910150305

28. Lankard B. Employability - The fifth basic skill. *ERIC Clearinghouse on Adult, Career, and Vocational Education.* 1990;104.

29. Meyer E, Newman D. Effects of a commercial self-improvement program on the work adjustment skills of cooperative marketing education students. *JVER*. 1988;13(2):35-51.

30. Berryman S. When American businesses change: The imperatives for skill formation. *National Center on Education and Employment.* 1990:1-14. https://files.eric.ed.gov/fulltext/ED347215.pdf

31. Gregson J, Bettis P. Secondary trade and industrial education work values instruction: Emancipatory or Indoctrinational? *American Vocational Association Convention.* 1991. (ED 341 781).

32. Junge D, Daniels M, Karmos J. Personnel managers' perceptions of requisite basic skills. *Vocational Guidance Quarterly.* 1984;33(2):138-146.

33. Stasz C, Ramsey K, Eden R, DaVanzo J, Farris H, Lewis M. Classrooms that work: Teaching generic skills in academic and vocational settings. *RAND.* Published online 1993.

34. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review.* 1977;84(2):191-215. doi:10.1037/0033-295X.84.2.191

35. Pierce JL, Gardner DG, Cummings LL, Dunham RB. Organization-based self-esteem: Construct definition, measurement, and validation. *AMJl.* 1989;32(3):622-648. doi:10.2307/256437

36. Bowman NA, Levtov AH. Understanding and Using Growth Mindset to Foster College Student Learning and Achievement. New Directions for Teaching and Learning. 2020;2020(164):75-83. doi:10.1002/tl.20426

37. Shavelson RJ, Hubner JJ, Stanton GC. Self-Concept: Validation of construct interpretations. *Review of Educational Research*. 1976;46(3):35.

38. Marsh HW, Pekrun R, Parker PD, et al. The murky distinction between self-concept and self-efficacy: Beware of lurking jingle-jangle fallacies. *J Educ Psychol.* 2019;111(2):331-353. doi:10.1037/edu0000281

39. Beattie S, Woodman T, Fakehy M, Dempsey C. The role of performance feedback on the self-efficacy–performance relationship. *Sport, Exercise, and Performance Psychology.* 2016;5(1):1-13. doi:10.1037/spy0000051

40. Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T. College students: Mental health problems and treatment considerations. *Acad Psychiatry*. 2015;39(5):503. doi:10.1007/s40596-014-0205-9

41. Crites JO. Career maturity. *NCME Measurement in Education*. 1973;4(2):8.

42. Taylor KM, Betz NE. Applications of self-efficacy theory to the understanding and treatment of career indecision. *J Vocat Behav.* 1983;22(1):63-81. doi:10.1016/0001-8791(83)90006-4

43. Betz NE, Luzzo DA. Career Assessment and the Career Decision-Making Self-Efficacy scale. *J Career Assess*. 1996;4(4):413-428. doi:10.1177/106907279600400405

44. Makransky G, Rogers ME, Creed PA. Analysis of the construct validity and measurement invariance of the Career Decision Self-Efficacy scale: A Rasch model approach. *J Career Assess*. 2015;23(4):645-660. doi:10.1177/1069072714553555

45. Choi BY, Park H, Yang E, Lee SK, Lee Y, Lee SM. Understanding Career Decision Self-Efficacy: A Meta-Analytic approach. *J Career Dev.* 2012;39(5):443-460. doi:10.1177/0894845311398042

46. Hackett G, Betz NE. A self-efficacy approach to the career development of women. *J Vocat Behavior.* 1981;18(3):326-339. doi:10.1016/0001-8791(81)90019-1

47. Bandura A. Social foundations of thought and action: A social cognitive theory. *Prentice-Hall*. 1986.

48. Wood R, Bandura A. Social cognitive theory of organizational management. *Acad Manage Rev*. 1989;14(3):361-384. doi:10.2307/258173

49. Bandura A. Social cognitive theory: An agentic perspective. *Annu Rev Psychol.* 2001;52:1-26. doi:10.1146/annurev.psych.52.1.1

50. Lent RW, Brown SW, Hackett G. Toward a unifying social cognitive theory of career, academic interest, choice, and performance. *J Vocat Behav.* 1994;45:279-12. doi:10.1006/jvbe.1994.1027

51. Hansen JC. The measurement of vocational interests: Issues and future directions. In: Handbook of Counseling Psychology. *John Wiley and Sons;* 1984.

52. Zhao WX, Peng MYP, Liu F. Cross-cultural differences in adopting social cognitive career theory at student employability in PLS-SEM: The mediating roles of self-efficacy and deep approach to learning. *Front Psychol.* 2021;12:979. doi:10.3389/fpsyg.2021.586839

53. Tinsley DJ, Faunce PS. Enabling, facilitating, and precipitating factors associated with women's career orientation. *J Vocat Behav*. 1980;17(2):183-194. doi:10.1016/0001-8791(80)90003-2

54. Rogers D. Report on the academy/commission on eietetic registration 2020 needs satisfaction survey. *J Acad Nutr Diet.* 2021;121(1):134-138. doi:10.1016/j.jand.2020.10.018

55. Betz NE. Implications of the null environment hypothesis for women's career development and for counseling psychology. *Couns Psychol.* 1989;17(1):136-144. doi:10.1177/0011000089171008

56. Williamson EG. How to counsel students: A manual of techniques for clinical counselors. *McGraw-Hill Book Company;* 1939. doi:10.1037/13902-000

57. Lent RW, Brown SD. Social cognitive career theory and subjective well-being in the context of work. *J Career Assess*. 2008;16(1):6-21. doi:10.1177/1069072707305769

58. Locke EA, Latham GP. New directions in goal-setting theory. *Curr Dir Psychol Sci*. 2006;15(5):265-268. doi:10.1111/j.1467-8721.2006.00449.x

59. Ironson GH, Smith PC, Brannick MT, Gibson WM, Paul KB. Construction of a job in general scale: A comparison of global, composite, and specific measures. *J Appl Psychol*. 1989;74(2):193-200.

60. Rain JS, Irving ML, Steiner DD. A current look at the job satisfaction/life satisfaction relationship: Review and future considerations. *Hum Relat.* 1991;44(3):287-307.

61. Lent RW, Brown SD, Brenner B, et al. The role of contextual supports and barriers in the choice of math/science educational options: A test of social cognitive hypotheses. *J Couns Psychol.* 2001;48(4):474-483. doi:10.1037/0022-0167.48.4.474

62. Mahfud T, Indartono S, Saputro IN, Utari I. The effect of teaching quality on student career choice: The mediating role of student goal orientation. *Integr Edu*. 2019;23(4):541-555. doi:10.15507/1991-9468.097.023.201904.541-555

63. House JD. Classroom instructional strategies and science career interest for adolescent students in korea: Results from the TIMSS 2003 assessment. *J Instr Psychol.* 2009;36(1):13-19.

64. Okayama M, Kajii E. Does the instructional quality of community-based clinical clerkships influence students' career preferences? *Int J Med Educ.* 2011;2:74-79.

65. Savickas ML. The theory and practice of career construction. In: Career Development and Counseling: Putting Theory and Research to Work. *Wiley;* 2005:42-70.

66. Super DE. A theory of vocational development. *Am Psychol.* 1953;8(5):185-190. doi:10.1037/h0056046

67. Savickas ML, Porfeli EJ. Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *J Vocat Behav.* 2012;80(3):661-673. doi:10.1016/j.jvb.2012.01.011

68. Lent RW, Brown SD. Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *J Couns Psychol.* 2013;60(4):557-568. doi:10.1037/a0033446

69. Chen S, Xue Y, Chen H, Ling H, Wu J, Gu X. Making a commitment to your future: Investigating the effect of career exploration and career decision-making self-efficacy on the relationship between career concern and career commitment. *J Sustain Dev.* 2021;13(22):12816. doi:10.3390/su132212816

70. de Guzman AB, Choi KO. The relations of employability skills to career adaptability among technical school students. *J Vocat Behav*. 2013;82(3):199-207. doi:10.1016/j.jvb.2013.01.009

71. Guan Y, Deng H, Sun J, et al. Career adaptability, job search self-efficacy and outcomes: A three-wave investigation among Chinese university graduates. *J Vocat Behav*. 2013;83(3):561-570. doi:10.1016/j.jvb.2013.09.003

72. Porfeli EJ, Savickas ML. Career Adapt-Abilities Scale-USA Form: Psychometric properties and relation to vocational identity. J *J Vocat Behav*. 2012;80(3):748-753. doi:10.1016/j.jvb.2012.01.009

73. William A, Davidson J. Graduate employability: What do employers think and want? *CIHE.* 2008;19. TNC 96 663.

74. Johnston CS, Luciano EC, Maggiori C, Ruch W, Rossier J. Validation of the German version of the Career Adapt-Abilities Scale and its relation to orientations to happiness and work stress. *J Vocat Behav*. 2013;83(3):295-304. doi:10.1016/j.jvb.2013.06.002

75. Douglass RP, Duffy RD. Calling and career adaptability among undergraduate students. *J Vocat Behav*. 2015;86:58-65. doi:10.1016/j.jvb.2014.11.003

76. Stead GB, LaVeck LM, Hurtado Rúa SM. Career Adaptability and Career Decision Self-Efficacy: Meta-Analysis. *JCD.* Published online April 29, 2021:08948453211012477. doi:10.1177/08948453211012477

77. Işık E, Link to external site this link will open in a new window, Yeğin F, et al. Validation of the Career Adapt-Abilities Scale–Short Form across different age groups in the Turkish context. *IJEVG*. 2018;18(3):297-314. doi:http://dx.doi.org/10.1007/s10775-018-9362-9

78. Duffy RD, Douglass RP, Autin KL. Career adaptability and academic satisfaction: Examining work volition and self efficacy as mediators. *J Vocat Behav*. 2015;90:46-54. doi:10.1016/j.jvb.2015.07.007

79. Shin YJ, Lee ES, Seo Y. Does traditional stereotyping of career as male affect college women's, but not college men's, Career Decision Self-Efficacy and ultimately their career adaptability? *Sex Roles*. 2019;81(1):74-86. doi:10.1007/s11199-018-0976-7

80. Harry N. Personal factors and career adaptability in a call centre work environment: The mediating effects of professional efficacy. *JPA.* 2017;27(4):356-361. doi:10.1080/14330237.2017.1347758

81. Wang Z, Fu Y. Social support, social comparison, and career adaptability: A moderated mediation model. *Soc Behav Pers*. 2015;43(4):649-659. doi:10.2224/sbp.2015.43.4.649

82. Rudolph CW, Lavigne KN, Zacher H. Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. *J Vocat Behav*. 2017;98:17-34. doi:10.1016/j.jvb.2016.09.002

83. Falco LD, Summers JJ. Improving career decision self-efficacy and STEM self-efficacy in high school girls: Evaluation of an intervention. *JCD.* 2019;46(1):62-76. doi:10.1177/0894845317721651

84. National Association of Colleges and Employers. Career readiness: Competencies for a career-ready workforce. *NACE.* Published online 2021.

85. National Association of Colleges and Employers. Development and validation of the NACE career readiness competencies. *NACE*. Published online 2022. https://www.naceweb.org/uploadedFiles/files/2022/resources/2022-nace-career-readiness-development-and-validation.pdf

86. Ho TTH, Le VH, Nguyen DT, Nguyen CTP, Nguyen HTT. Effects of career development learning on students' perceived employability: a longitudinal study. *High Educ.* 2023;86(2):297-315. doi:10.1007/s10734-022-00933-6

87. King Z. Career self-management: Its nature, causes and consequences. *J Vocat Behav*. 2004;65(1):112-133. doi:10.1016/S0001-8791(03)00052-6

88. Watts A. Career development learning and employability. In: Learning and Employability. Learning and Employability. *The Higher Education Academy;* 2006:1-40.

89. Patton W, McMahon M. Career Development and Systems Theory: A New Relationship. *Thomson Brooks/Cole Publishing Co;* 1999:xxii, 287.

90. Watts A. Reshaping career development for the 21st century. In: University of Derby; 1999.

91. McMahon M, Patton W, Tatham P. Managing life, learning and work in the 21st century: Issues informing the design of an Australian blueprint for career development. *Miles Morgan Australia;* 2003:1-18. https://cica.org.au/wp-content/uploads/Managing-Life-Learning-and-Work-in-the-21-Century-MMcM_WP_PT.pdf

92. Smith M, Brooks S, Lichtenberg A, McIlveen P, Torjul P. Career development learning: Maximising the contribution of work-integrated learning to the student experience. *University of Wollongong;* 2009:60. http://www.altc.edu.au/project-career-development-learning-maximising-uow-2007

93. Karmel T, Carroll D. Has the graduate job market been Swamped? *National Institute of Labour Studies*; 2016. http://www.flinders.edu.au/sabs/nsls/publications/working-papers/has-the-graduate-job-market-been-swamped.cfm

94. Watts AG. Careers education in higher education: Principles and practice. *Br J Guid Couns.* 1977;5(2):167-184.

95. Hustler D, Ball B, Carter K, et al. Developing career management skills in higher education. *Cambridge;* 1998:7.

96. Brown S, Butcher V, Drew L, et al. Learning and employability: Pedagogy for employability. *The Higher Education Academy*; 2004:1-36. https://www.qualityresearchinternational.com/esecttools/esectpubs/Pedagogy%20for%20employability.pdf

97. Stanbury D. Careers education benchmark statement. *Association of Graduate Careers Advisory Services (AGCAS);* 2005:28. https://www.agcas.org.uk/write/MediaUploads/Resources/Education%20Liaison/Careers_Education_Benchmark_Statement_2005.pdf

98. Donald WE, Baruch Y, Ashleigh M. The undergraduate self-perception of employability: human capital, careers advice, and career ownership. *Stud High Educ.* 2019;44(4):599-614. doi:10.1080/03075079.2017.1387107

99. Bridgstock R, Grant-Iramu M, McAlpine A. Integrating career development learning into the curriculum: Collaboration with the careers service for employability. *JTLGE.* 2019;10(1):56-72. doi:10.21153/jtlge2019vol10no1art785

100. Donald WE, Ashleigh MJ, Baruch Y. The university-to-work transition: responses of universities and organizations to the COVID-19 pandemic. *PR*. 2022;51(9):2201-2221. doi:10.1108/PR-03-2021-0170

101. Graduate Careers Australia. The report of the 2015 graduate outlook Survey: Perspectives on graduate recruitment. *Graduate Careers Australia Ltd;* 2015. https://www.graduatecareers.com.au/files/wp-content/uploads/2016/07/graduate-outlook-report-2015-final1.pdf

102. Yang JL, McKenzie S. Using career development learning in science and information technology courses to build 21st-century learners. *JCHE*. 2018;66(3):137-145. doi:10.1080/07377363.2018.1525789

103. Yang JL, Polly P, Fath T, Jones N, Power J. ISA model and integrative career development learning in year three science courses. *IJSMTL.* 2016;23(3):33-49. doi:10.18848/2327-7971/CGP/v23i03/33-49

104. Raelin S, Bailey M, Hammann J, Reisberg R. The effect of cooperative education on change in self-efficacy among undergraduate students: Introducing work self-efficacy. *J Coop Educ.* 2011;4(2):17-35.

105. Jackson D, Wilton N. Developing career management competencies among undergraduates and the role of work-integrated learning. *Teach High Educ.* 21(3):266-286.

106. Bridgstock R. The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *HERD.* 2009;28(1):31-44.

107. Gerard J. Linking in with LinkedIn®: Three exercises that enhance professional social networking and career building. *J Manag Educ.* 2012;36(6):866-897.

108. Watts A. Learning and employability series two: Career development learning and employability. *ESCET and HEA*. 2006;2.

109. Laker D, Laker R. The five-year resume: A career planning exercise. *J Manag Educ*. 2007;31(1):128-141.

110. Pegg A, Waldock J, Hendy-Isaac S, Lawton R. Pedagogy for employability. *York: Higher Education Academy.* Published online 2012.

111. Orrell J. Good practice report, work-integrated learning. *Australia Learning and Teaching Council;* 2011.

112. Smith C. Evaluating the quality of work-integrated learning curricula: A comprehensive framework. *HERD.* 2012;31(2):247-262.

113. Usher A. Measuring work integrated learning: The development of the meta-competency test. *JCEI.* 2012;46(1):5-15.

114. Yang, J.L., Coleman, K., Das, M., Hawkins, N. Integrated career development learning and ePortfolios: Improving student self-efficacy in employability skills in an undergraduate science course. *ICACPL.* 2014;22(1):2328-6318.

115. Johnson JP, Mighten A. A comparison of teaching strategies: lecture notes combined with structured group discussion versus lecture only. *J Nurs Educ.* 2005;44(7):319-322. doi:10.3928/01484834-20050701-06

116. Jahng N. A systematic review of small group communication in post-secondary online courses. *JOFDL*. 2012;16(2):26-40.

117. Prince M. Does active learning work? A Review of the research. *JEE.* 2004;93(3):223-231. doi:10.1002/j.2168-9830.2004.tb00809.x

118. Sibold W. Enhancing critical thinking through class discussion: A guide for using discussion-based pedagogy. *University of Calgary.* Published online 2017.

119. Goodin HJ, Stein D. Deliberative discussion as an innovative teaching strategy. *J Nurs Educ.* 47(6):272-274. doi:10.3928/01484834-20080601-03

120. Pederson C. Effects of structured controversy on students' perceptions of their skills in discussing controversial issues. *J Nurs Educ.* 1992;31(3):101-106. doi:10.3928/0148-4834-19920301-04

121. Burbules NC, Bruce BC. Theory and research on teaching as dialogue. Published online 2001. Accessed February 26, 2024. https://hdl.handle.net/2142/13448

122. Gill D, Griffin A, Launer J. Fostering professionalism among doctors: the role of workplace discussion groups. *Postgrad Med J.* 2014;90(1068):565-570. doi:10.1136/postgradmedj-2013-132165

123. Park C, Kier C, Jugdev K. Debate as a teaching strategy in online education: A case study. *CJLT.* 2011;37(3). https://doi.org/10.21432/T2FW2R

124. Chiang VCL, Leung SSK, Chui CYY, Leung AYM, Mak YW. Building life-long learning capacity in undergraduate nursing freshmen within an integrative and small group learning context. *Nurse Educ Today*. 2013;33(10):1184-1191. doi:10.1016/j.nedt.2012.05.009

125. Fung D, Howe C. Group work and the learning of critical thinking in the Hong Kong secondary liberal studies curriculum. *Camb J Educ*. 2014;44(2):245-270. doi:10.1080/0305764X.2014.897685

126. Garrett M, Schoener L, Hood L. Debate: a teaching strategy to improve verbal communication and critical-thinking skills. *Nurse Educ.* 1996;21(4):37-40. doi:10.1097/00006223-199607000-00015

127. Bristol TJ, Kyarsgaard V. Asynchronous discussion: A comparison of larger and smaller discussion group size. *Nurs Educ Perspect.* 2012;33(6):386-390. doi: 10.5480/1536-5026-33.6.386

128. Fowkes L. The impact of career focused online discussion forums. *CJCD* 2021;20(2):61-68. doi:10.53379/cjcd.2021.141

129. Guiller J, Durndell A, Ross A. Peer interaction and critical thinking: Face-to-face or online discussion? *Learn Instr.* 2008;18(2):187-200. doi:10.1016/j.learninstruc.2007.03.001

130. Schunk DH. Peer models and children's behavioral change. *Rev Educ Res*. 1987;57(2):149-174. doi:10.2307/1170234

131. Gist ME, Mitchell TR. Self-Efficacy: A theoretical analysis of its determinants and malleability. *Acad Manag Rev.* 1992;17(2):183-211. doi:10.2307/258770

132. BarNir A, Watson WE, Hutchins HM. Mediation and moderated mediation in the relationship among role models, self-efficacy, entrepreneurial career intention, and gender. *J Appl Soc Psychol*. 2011;41(2):270-297. doi:10.1111/j.1559-1816.2010.00713.x

133. Home - Packback. Packback Fearlessly Curious: About Packback. Accessed June 4, 2024. https://www.packback.co/about/

134. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77-101. doi:10.1191/1478088706qp063oa

135. Goodell LS, Stage VC, Cooke NK. Practical qualitative research strategies: Training interviewers and coders. *J Nutr Educ Behav*. 2016;48(8):578-585. doi:10.1016/j.jneb.2016.06.001

136. Naeem M, Ozuem W, Howell K, Ranfagni S. A step-by-step Process of thematic analysis to develop a conceptual model in qualitative research. *Int J Qual Methods.* 2023;22:16094069231205789. doi:10.1177/16094069231205789

137. Janesick VJ. Peer debriefing. In: The Blackwell Encyclopedia of Sociology. *John Wiley & Sons, Ltd;* 2015. doi:10.1002/9781405165518.wbeosp014.pub2

138. Özek H, Ferraris A. The role of self-awareness and self-efficacy on career decision-making: An innovative perspective. In: Vrontis D, Weber Y, Thrassou A, Shams SMR, Tsoukatos E, eds. Innovation and Capacity Building: Cross-Disciplinary Management Theories for Practical Applications. *Springer International Publishing;* 2018:207-229. doi:10.1007/978-3-319-90945-5_11

139. Garrison DR, Anderson T, Archer W. Critical thinking, cognitive presence, and computer conferencing in distance education. *AJDE.* 2001;15(1):7-23. doi:10.1080/08923640109527071

140. Lent RW, Ireland GW, Penn LT, Morris TR, Sappington R. Sources of self-efficacy and outcome expectations for career exploration and decision-making: A test of the social cognitive model of career self-management. *J Vocat Behav.* 2017;99:107-117. doi:10.1016/j.jvb.2017.01.002

141. Gushue GV, Scanlan KRL, Pantzer KM, Clarke CP. The relationship of career decision-making self-efficacy, vocational identity, and career exploration behavior in African American high school students. *JCD*. 2006;33(1):19-28. doi:10.1177/0894845305283004

142. Gushue GV, Clarke CP, Pantzer KM, Scanlan KRL. Self-Efficacy, perceptions of barriers, vocational identity, and the career exploration behavior of Latino/a high school students. *Career Dev Q.* 2006;54(4):307-317.

143. Cengage Group. Cengage Group 2023 Graduate report: AI joins the workforce. *Cengage Group.* 2023. https://www.cengagegroup.com/news/press-releases/2023/cengage-group-employability-report/

144. Mileski M, Kruse CS, Lee K, Topinka JB. Perceptions of the value of professional networking by undergraduate students in a school of health administration: A pilot study. *JHAE.* 2016;33(3):461-474.

145. Azhenov A, Kudysheva A, Fominykh N, Tulekova G. Career decision-making readiness among students' in the system of higher education: career course intervention. *Front Educ.* 2023;8:1-12. doi:10.3389/feduc.2023.1097993

146. Gati I, Levin N, Landman-Tal S. Decision-making models and career guidance. In: Athanasou JA, Perera HN, eds. International Handbook of Career Guidance. *Springer International Publishing;* 2019:115-145. doi:10.1007/978-3-030-25153-6_6

147. Wright SL, Jenkins-Guarnieri MA, Murdock JL. Career development among first-year college students: College self-efficacy, student persistence, and academic success. *JCD.* 2013;40(4):292-310. doi:10.1177/0894845312455509

148. Mohammed Z, Kumar S, Padakannaya P. Well-being and career decision-making difficulties among master's students: A simultaneous multi-equation modeling. *Cogent Psychology*. 2021;8(1):1996700. doi:10.1080/23311908.2021.1996700

149. Zhou S, Wu S, Yu X, Chen W, Zheng W. Employment stress as a moderator of the relationship between proactive personality and career decision-making self-efficacy. *Soc Behav Pers*. 2021;49(10):1-13. doi:10.2224/sbp.10735

150. He Z, Zhou Y, Li F, Rao Z, Yang Y. The effect of proactive personality on college students' career decision-making difficulties: Moderating and mediating effects. *J Adult Dev.* 2021;28(2):116-125. doi:10.1007/s10804-020-09359-9

151. Betz NE. Contributions of self-efficacy theory to career counseling: A personal perspective. *CDQ*. 2004;52(4):340-353. doi:10.1002/j.2161-0045.2004.tb00950.x

152. Brown SD, Lent RW. Social cognitive career theory in a diverse world. *J Career Assess.* 2017;25(1):173-180. doi:10.1177/1069072716660061

153. Boyd EM, Fales AW. Reflective learning: Key to learning from experience. *J Humanist Psychol*. 1983;23(2):99-117. doi:https://doi.org/10.1177/0022167883232

154. Fragkos KC. Reflective practice in healthcare education: An umbrella review. *Educ Sci.* 2016;6(3):1-16. doi:/doi.org/10.3390/educsci6030027

155. Helyer R. Learning through reflection: The critical role of reflection in work-based learning (WBL). *J Work-appl Manag.* 2015;7:15-27. doi:10.1108/JWAM-10-2015-003

156. Lane AS, Roberts C. Contextualised reflective competence: a new learning model promoting reflective practice for clinical training. *BMC Med Educ.* 2022;22(1):71. doi:https://doi.org/10.1186/s12909-022-03112-4

157. Hansen M, Pedersen J. An examination of the effects of career development courses on career decision-making self-efficacy, adjustment to college, learning integration, and academic success. *JFE&SIT.* 2012;24(2):33-61.

158. Betz NE, Klein KL, Taylor KM. Evaluation of a short form of the career decision-making self-efficacy scale. *J Career Assess*. 1996;4(1):47-57. doi:10.1177/106907279600400103

159. Betz NE, Taylor KM. Career decision self-efficacy scale (CDSE) manual (Includes Instrument and Scoring Key for Review Only). Published online 2012.

160. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qual Res Sport Exer Health.* 2021;13(2):201-216. doi:10.1080/2159676X.2019.1704846

161. Betz NE, Klein KL. Relationships among measures of career self-efficacy, generalized self-efficacy, and global self-esteem. *J Career Assess*. 1996;4(3):285-298. doi:10.1177/106907279600400304

162. Price SL, McGillis Hall L, Murphy GT, Pierce B. Evolving career choice narratives of new graduate nurses. *Nurs Educ Pract.* 2018;28:86-91. doi:10.1016/j.nepr.2017.10.007

163. Reynolds JR, Burge SW, Robbins CL, Boyd EM, Harris B. Mastery and the fulfillment of occupational expectations by midlife. *Soc Psychol Q.* 2007;70(4):366-383. doi:10.1177/019027250707000407

164. Kurtovic A, Vrdoljak G, Idzanovic A. Predicting procrastination: The role of academic achievement, self-efficacy and perfectionism. *Int J Educ Pscyhol*. 2019;8(1):1-26.

165. Jung YM, Yoo IY. Development and testing of the career decision-making self-efficacy scale for nursing students: a methodological study. *BMC Nursing*. 2022;21(1):231. doi:10.1186/s12912-022-01017-7

166. Kim B, Jang SH, Jung SH, Lee BH, Puig A, Lee SM. A moderated mediation model of planned happenstance skills, career engagement, career decision self-efficacy, and career decision certainty. *CDQ.* 2014;62(1):56-69.

167. Jiang Z, Newman A, Le H, Presbitero A, Zheng C. Career exploration: A review and future research agenda. *J Vocat Behav.* 2019;110:338-356. doi:10.1016/j.jvb.2018.08.008

168. Cheung R, Arnold J. The Impact of career exploration on career development among Hong Kong Chinese university students. *JCSD.* 2014;55(7):732-748.

169. Cheung R, Jin Q. Impact of a career exploration course on career decision making, adaptability, and relational support in Hong Kong. *J Career Assess.* 2016;24(3):481-496. doi:10.1177/1069072715599390

170. Lent RW, Ezeofor I, Morrison MA, Penn LT, Ireland GW. Applying the social cognitive model of career self-management to career exploration and decision-making. *J Vocat Behav*. 2016;93:47-57. doi:10.1016/j.jvb.2015.12.007

171. Flum H, Blustein DL. Reinvigorating the study of vocational exploration: A framework for research. *J Vocat Behav*. 2000;56(3):380-404. doi:10.1006/jvbe.2000.1721

172. Stumpf SA, Colarelli SM, Hartman K. Development of the career exploration survey (CES). *J Vocat Behav*. 1983;22(2):191-226. doi:10.1016/0001-8791(83)90028-3

173. Super DE. A life-span, life-space approach to career development. *J Vocat Behav*. 1980;16(3):282-298. doi:10.1016/0001-8791(80)90056-1

174. Limberg D, Starrett A, Ohrt JH, Irvin MJ, Lotter C, Roy GJ. School counselor and teacher collaboration to enhance students' career development using project-based learning. *Prof Sch Couns.* 2021;24(1_part_3):2156759X211011908. doi:10.1177/2156759X211011908

175. Blustein DL. A context-rich perspective of career exploration across the life roles. *CDQ.* 1997;45(3):260-274. doi:10.1002/j.2161-0045.1997.tb00470.x

176. Savickas ML. Career construction: A developmental theory of vocational behavior. In: *Career Choice and Development*. 149. ; 2002:14-38.

177. Chan CC. The relationship among social support, career self-efficacy, career exploration, and career choices of Taiwanese college athletes. *JoHLSTE*. 2018;22:105-109. doi:10.1016/j.jhlste.2017.09.004

178. Blustein DL. The role of goal instability and career self-efficacy in the career exploration process. *J Vocat Behav.* 1989;35(2):194-203. doi:10.1016/0001-8791(89)90040-7

179. Hirschi A, Läge D. The Relation of secondary students' career-choice readiness to a six-phase model of career decision making. *JCD* 2007;34(2):164-191. doi:10.1177/0894845307307473

180. Reese RJ, Miller CD. Effects of a university career development course on career Decision-making self-efficacy. *J Career Assess.* 2006;14(2):252-266. doi:10.1177/1069072705274985

181. Thomas JW. A review of research on project-based learning. *Autodesk Foundation.* Published online 2000:49.

182. Beier ME, Kim MH, Saterbak A, Leautaud V, Bishnoi S, Gilberto JM. The effect of authentic project-based learning on attitudes and career aspirations in STEM. *JRST.* 2019;56(1):3-23. doi:10.1002/tea.21465

183. STAR method for interviewing and feedback. Accessed August 8, 2024. https://www.ddiworld.com/solutions/behavioral-interviewing/star-method

184. Hixson NK, Ravitz J, Whisman A. Extended professional development in project-based learning. West Virginia Department of Education, *Division of Teaching and Learning;* 2012:1-94.

185. Mulcahy CA, Wertz JA. Using project-based learning to build college and career readiness among diverse learners. *Teach Except Child.* 2021;53(5):341-349. doi:10.1177/0040059920964833

186. Zhang L, Ma Y. A study of the impact of project-based learning on student learning effects: a meta-analysis study. *Front Psychol.* 2023;14:1202728. doi:10.3389/fpsyg.2023.1202728

APPENDICES

Appendix A. Glossary of Terms

Career Adaptability
Career adaptability is the readiness and ability to cope with the changing demands of work and career environments. It involves a proactive approach to managing career transitions and challenges, and includes dimensions such as concern, control, curiosity, and confidence.

Career Decision Self-Efficacy (CDSE)
Career decision self-efficacy (CDSE) refers to an individuals' confidence in their ability to make decisions related to their career development. It encompasses beliefs about successfully engaging in tasks such as career exploration, setting career goals, and making informed career choices.

Career Decision Self-Efficacy (CDSE) Scale
The CDSE Scale is a psychometric tool used to measure an individuals' confidence in their ability to perform tasks necessary for making career decisions. The scale assesses five areas of self-appraisal, gathering occupational information, goal setting planning, and problem-solving.

Career Development Learning (CDL)
Career development learning (CDL) involves educational activities designed to enhance individuals' understanding of career opportunities, self-awareness, and the skills needed for successful career planning and management. It aims to equip students with the knowledge and skills to make informed career decisions.

Career Readiness
Career readiness refers to the level of preparation and competency an individual possesses to enter and succeed in the workforce. It includes both technical skills and soft skills, as well as the ability to apply these skills effectively in real-world settings.

Discussion-Based Learning (DBL)
Discussion-based learning (DBL) is an instructional approach that emphasizes active participation and dialogue among learners. It encourages critical thinking, problem-solving, and the exploration of diverse perspectives through structured discussions.

Employability Skills
Employability skills are a set of transferable skills and key personal attributes that are essential for individuals to be successful in the workplace. These skills include communication, teamwork, problem-solving, adaptability, and time management, and they enable individuals to effectively contribute to their organization and adapt to changing work environments.

Project-Based Learning (PBL)
Project-based learning (PBL) is a teaching method that engages students in learning by actively exploring real-world problems and challenges. Students work on projects over an extended period, which promotes deeper understanding, critical thinking, collaboration, and the application of knowledge to practical situations.

Self-Efficacy
Self-efficacy is the belief in one's own ability to succeed in specific situations or accomplish a task. It plays a crucial role in how goals are approached, challenges are faced, and perseverance is maintained.

- *Vicarious Learning:* A component of self-efficacy that involves learning through observation of others. Witnessing the success of peers can enhance one's belief in their own abilities.
- *Enactive Mastery:* Gaining confidence through personal success experiences. Successfully completing a task strengthens belief in one's capability to tackle similar challenges in the future.
- *Emotional Arousal:* The emotional state that influences one's self-efficacy. Positive emotions can enhance self-efficacy, while negative emotions may decrease it.
- *Verbal Persuasion:* Encouragement and feedback from others that can enhance an individual's self-efficacy. Hearing positive reinforcement can bolster one's belief in their ability to succeed.

Social Cognitive Theory
The Social Cognitive Theory is a framework for understanding behavior that emphasizes the role of observational learning, social experiences, and reciprocal determinism in the development of cognition and behavior. It highlights the importance of self-efficacy in influencing behavior and motivation.

Social Cognitive Career Theory
Social Cognitive Career Theory extends Social Cognitive Theory to the context of career development. It focuses on how individuals form career interests, make educational and occupational choices, and achieve career success through the interplay of self-efficacy beliefs, outcome expectations, and personal goals.

Theory of Career Construction
The theory of career construction is a framework for understanding how individuals construct their career through a process of personal development and self-expression. It emphasizes the role of narrative identity, adaptability, and life themes in shaping career paths.

Appendix B. About Packback and Instructions

What is the purpose of Packback?
Participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online curiosity community where you can be fearlessly curious and ask BIG questions about how what we're studying relates to life and the real world.

For a brief introduction to Packback Questions, watch this video (links to YouTube video).

Writing amazing questions and answers on Packback will:

- Help you develop writing skills necessary for any career path
- Reinforce the imperative skill of justifying thoughts and claims with credible evidence- and then citing the evidence!
- Enhance critical thinking sought out by employers
- Deepen your understanding of the course content by gaining diverse insights and perspectives from your peers

My goal for using Packback is for us to connect the career videos (links to YouTube playlist) we will watch in this course with the other two themes for the course - nutrition communication and nutrition research.

How We Will Be Using Packback This Semester
You may have used Packback in other courses, in which you were allowed to ask any question, as long as it was related to the course material and met the Packback submission criteria. We use Packback for a different purpose in this course.

We use Packback questions to explore specific questions related to career choices in nutrition highlighted by alumni career videos. Specific directions are listed on Moodle under the "About Packback and Instructions" page, so it is essential that you read these directions carefully. General questions about course content will receive zeros.

Weekly Packback Submissions
Engaged participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about course material. These posts will represent 10% of the final grade.

During ten weeks of the semester will be required to submit one well-written question and one well-written response (to other students' questions). Each of these assignments will be due by 11:59 pm on a designated Monday during the semester.

Question quality is determined by a "Curiosity Score". In order to earn credit for your questions and answers, you must score at least 60 out of 100 possible "Curiosity" points for both questions and answers.

Only 1 question and 1 response will be counted each week. You cannot work ahead or make-up for missed weeks.

Your questions must connect one learning from one the alumni career videos with one of the other two themes for the course – nutrition research or communication. For example, your question might connect a learning from one of the career videos with a research article related to that alum's discipline or with a popular press article about that topic. You can view all the alumni videos here.

Your Packback questions must:

1. Tell us which video you watched. For example, in this post, the video is Emily Bissett's video.

How helpful can it be for nutrition science undergraduate students to participate in research and volunteer opportunities on campus outside of their studies?

When I listened to Emily Bissett speak about her undergraduate experiences and how they connected to her current job, this made me wonder how many other students have had a similar experience. In Emily's case, she participated in the Center for Student Leadership Ethics and Public Service in the alternative service program. This program provided a leadership opportunity which lead to a connection with Timmy Global health, the current organization that she works for. In her case, her volunteer experience in college allowed for her to discover Timmy Global Health which could have never happened if she didn't participate in activities outside of class. According to the Forbes article linked below, over 50% of college graduates believe that "increased access to internships and other professional experiences would have helped them feel better prepared" in terms of career readiness.

Source: **https://www.forbes.com/sites/shelcyvjoseph/2018/08/11/what-every-college-student-should-be-doing-for-career-success/?sh=4cc8097662c4**

2. Identify a theme from the video. In the above referenced post, the theme is about how volunteer opportunities might help lead to future employment in similar areas.

3. Transition from talking about the theme, to discussing a popular press or scientific research article related to the topic. In the above referenced post, the article is from Forbes and cites a stat that "over 50% of college graduates believe that "increased access to internships and other professional experiences would have helped them feel better prepared" in terms of career readiness."

An example of how you might incorporate a scientific research article is found in this post:

Should there be more emphasis on developing better eating habits earlier in life? What can school gardens do for developing better eating habits? Academic performance?

[Originally asked by a student in NTR 302 during a previous semester]

Alumni Kati Scruggs works with the School and Community Gardens Program VISTA which focuses on helping Wake County and developing school and community gardens for children especially. We have looked at a few articles recently about the benefits of garden on children's eating habits. There is quite a bit of positive research about implementing gardens as a preventative measure to chronic diseases. I found a research article about the connection between school gardens and academic performance, creating a more in-depth profile about the positive impacts of school gardens. Research on the impact of school gardens is very complex and there are a lot of parts that can effect children. The article I found also stated that there should be more research on this topic with a more robust study design, meaning there is always room for more research and development.

What kinds of ways should school be implementing school gardens? Should there be more research before making it a requirement? Since there is growing research not only on the development of good eating habits for children but also their academic performance, would schools be more inclined to create a garden? What kind of experiment design would you make to continue this research?

Source: https://pubmed.ncbi.nlm.nih.gov/26149306/

4. Link the article as your Source. Do not link the YouTube video because we all have access to those links. You need to cite the popular press or scientific research article.

In order to receive credit for questions, you must follow this format.

For responses: You may respond to any post and as long as you receive the minimum curiosity score, you will earn points for your responses.

Before you start posting, be sure to read the Community Guidelines found in the tutorial on Packback. If your post doesn't follow the Packback Community Guidelines, there is a chance it will be removed and you won't receive points for that post.

Note: it takes 24 hours for the Packback team to moderate a post and send a coaching email. If by any reason your post is moderated because it does NOT meet the Community Guidelines, you will need to edit and re-publish your post to receive credit for the week. This is why it is important that you complete your Packback questions and responses far before the deadline in case your post is moderated.

Packback assignments will not be accepted late, unless you have a university-excused absence. You also cannot submit assignments early. They must be submitted in the assignment window listed on the Packback website.

How to Register on Packback

You will receive a welcome email from holla@packback.co prompting you to finish registration.

Packback has already created an account for you with your school email, all you need to do is reset your password. This email may be directed to spam or filtered out, so make sure you do a thorough scan of your inbox if you can't find the email.

More Information

If you have ANY questions or concerns regarding Packback throughout the semester, please contact the customer support team at holla@packback.co!

Appendix C. Alumni Career Videos

FBNS Nutrition Alumni Interviews

- Accessioning Technician, Foundation Medicine
- Associate Director, Parion Sciences Inc.
- Bariatric Registered Dietitian, UNC REX Healthcare
- Chief Operating Officer, Jasmin Mediterranean Bistro
- Clinical Mental Health Counseling Graduate Student
- Clinical Trials Assistant
- Dentist, Lane & Associates
- Dietetic Intern
- Director of Baking Operations at Jubala Coffee
- Extension Agent
- Extension Associate, Expanded Food and Nutrition Education Program (EFNEP)
- Fitness Coordinator, US Marine Corps
- Graduate Student, MPH-RD at UNC
- Graduate Student in Nutrition
- Health and Wellness Coach, Carolinas Healthcare System
- Health Promotions Specialist, Blue Cross Blue Shield
- Hospice Nurse
- HR Program Manager, Net App
- Lab Manager, Tethis
- Medical Services Trips Coordinator, Timmy Global Health
- Medical Student, UNC
- Milk Bank Coordinator, Wake Med
- Nutritionist, USDA Food and Nutrition Services, SNAP-Ed
- Nutrition Program Assistant, NC DHHS
- Owner, FitWhit Nutrition
- PhD Student, Emory University
- Physician Assistant, UNC Health Care
- Project Associate, PRA Health Sciences
- Project Coordinator, Health Me Healthy We
- Registered Dietitian, Aramark at UNC Dining
- Registered Dietitian, The Endurance Edge
- Registered Dietitian, NC State Student Health Services
- Researcher, ChildObesity 180
- Research Assistant, Carolina Population Center - Training Programs
- Research Technician, USDA Agricultural Research Service
- Resident, UNC Hospitals
- Sales Representative, Brenntag Mid-South Inc.
- School and Community Gardens Program VISTA
- Sustainability & Nutrition Specialist, NC State Dining and Catering Operations
- University Recruiting Specialist, Net App

Appendix D. Study 1 Coding Manual

<u>How to use this coding manual:</u>

<u>Purpose:</u>
The purpose of this coding manual is to analyze student career-related posts and responses from the discussion platform, Packback. As part of a course assignment for NTR 302: Introduction to Nutrition Research Communication and Careers, students watch online alumni career videos and post a question to Packback that relates a theme from the video to a popular press or scientific research article. This coding manual is designed to demonstrate student's career-related learnings as they relate to career readiness and career decision self-efficacy.

<u>Codes:</u>
The codes listed in the manual are organized categorically. Use the definitions to determine the subject of the questions and response you are analyzing. The codes in this manual are listed in three formats: categorical table format, alphabetical table format and narrative format. The formats are exactly the same, so you can choose your preferred format when coding.

<u>Overlapping Codes:</u>
Some quotes may contain more than one code. For example:

"Whenever I find myself in a conversation with another individual majoring in nutrition science or applied nutrition there is always the discussion of going into pre-med, becoming a RDN, doing physical therapy, or becoming a physician assistant, though after watching the interview conducted with [Research Technician] I see now how the realm of nutrition can be helpful in other fields not relating to medical practices."

This quote would be coded as "Versatility of Nutrition Degree (VND)," "Common Pathways (CP)," and "Lack of Awareness of Career Options (LACO)."

"Minors to me are a way for a student to explore other routes of a career path that may have not been their main focus the first place. For example, I am minoring in Business Entrepreneurship with my Nutrition Science major, because I am interested in opening my own practice. I felt as though an Entrepreneurship minor could be something extremely helpful down the road that I can use that information with alongside all the nutritional information I have learned at NCSU."

This quote would be coded as "Major/Minor Complements (MMC)," "Career Exploration (CE," "Transfer of General Knowledge (TGK)," and "Transfer of Nutrition Knowledge (TNK)."

<u>Not Related:</u>
Some students might not have followed the assignment directions and might have posted questions and responses that are not related to the online alumni career videos. For example, "Will greater exposure to fruits and vegetables to children increase their desirability for those foods? What type of exposure is necessary?" is a question that is not related to the online alumni career videos.

Furthermore, student posts and responses might not be related to the study goals and objectives, and therefore should not be coded. For example, one participant asked, “What are some benefits of working for a nonprofit? [Medical Service Trips Coordinator] video is about her job working as a medical service trip coordinator for Timmy Global Health, a nonprofit. She said that growing up so close to NC State she never thought she would go to school so close to home but she is thankful for her ability to travel through her job and previous service trips. What are some other benefits of working for a nonprofit that can prepare you for other jobs in the future?” While this question mentions preparation for a future, there is not enough content to determine if this is related to study goals and objectives, and therefore should not be coded. You might need to look at the response(s) for a question to determine if the question in context, is related to the study goals and objectives.

One response for that question was, “Nonprofits can be highly rewarding and one big advantage is that you know you’d be working for a good cause. Nonprofits employ a lot of diverse people and often are very bright and unique individuals who wish to work toward a higher goal. This response is not related to the project goals, and therefore should not be coded. Reading this response along with the question, would also help you to determine that the response is not related to the project goals.

It is important to note that when doing sentence-by-sentence analysis, within the same question and response set, you may have some sentences that are not related to the project goals and some sentences that are coded.

This response was modified from the raw data to illustrate a non-related example.

Video Takeaway:
In the posts and/or responses, participants may discuss the online alumni career video and their personal take away from the video. For example, “[Health and Wellness Coach], is a health and wellness coach and explains some key aspects of her job. She uses her nutrition major every day and guides people through many different mediums, of many different topics of physical and mental wellness, through many different activities.” Data related to video takeaways should be coded as VT (video takeaway).

Article/Website Takeaway:
In the posts and/or responses, participants may discuss the theme from the video they chose to watch and how it connects with a popular press article, research article, or reputable website. For example, “I found an interesting article, titled “If food is medicine, why isn’t it taught at medical schools?”, from The Counter. On their About Us page they describe themselves as “... a nonprofit, independent, nonpartisan newsroom investigating the forces shaping how and what America eats.” They also have their code of ethics posted on their website in an easy to find location. Together these have made me feel comfortable using them as a source for this. The article says that med students, on average, spend 1% of their lecture time during med school covering nutrition. This is mainly because med schools have historically developed their programs to focus primarily on biology, behavior and disease, and continue to use this as a framework for their programs to this day.” This data is related to the participants’ takeaway from

the article and the question that was posed. Data related to article/website takeaways should be coded as AWT (article/website takeaway).

When determining whether a sentence should be coded as AWT, look for the following key phrases:

- According to the article…
- According to this website…
- Author last name says that…
- This study found that…

Of note, these phrases do not encompass all of the possible phrases that indicate that a sentence should be coded as AWT, and you should code any sentence that is related to AWT, even if the phrase used is not listed above.

Exemplary Quotations:

As you code the datasets, reflect on if the coded statement is a good quote. A good quote is clearly representative of the code, is somewhat succinct, and is representative of the patterns in the data. If you believe a statement is a good quote, highlight the quote in cyan and a comment to the coded dataset called "EQ – Code Name."

Process of Coding:

Individual Coding:

Read the entire question or response first to determine if the question or response is related to the project goal(s). You will use sentence-by-sentence coding to apply codes to the dataset. Read each sentence carefully to determine what code should be applied to the sentence. If a sentence(s) contains a code, select the sentence(s) and add a comment with the code abbreviation, then highlight the sentence(s) in green. If the sentence does not stand alone, you should include the preceding or succeeding sentence(s). If the sentence(s) are related to video takeaway, select the sentence(s) and a comment with the video takeaway abbreviation, VT, then highlight the sentence(s) in light red 3. If the sentence(s) are related to article/website takeaways, select the sentence(s) and a comment with the article/website takeaway abbreviation, AWT, then highlight the sentence(s) in light purple 2. If you believe a sentence(s) are an outstanding example of the code used, highlight the sentence(s) in cyan and add a comment to the coded dataset called "EQ – Code Name." For example, a quote that is related to Application of Nutrition-Related Knowledge would be coded as, "EQ – ANRK." If sentence(s) contains an article/website takeaway and a code, the sentence(s) should be highlighted in green.

Consensus Coding:

A raw copy of the participant dataset will be used during the consensus coding meetings. The researcher will facilitate discussion to determine the final codes that will be used for analysis. Once the research team has reached consensus on the codes for a question and response set, the researcher will select the entire question or response and add a comment with the code abbreviations and use green highlights to distinguish the data that is relevant to the code(s) in the coding manual. Data that is related to video takeaway will be highlighted in light red 3 to distinguish the data. Exemplary quotes will be highlighted in cyan and will have a comment that follows the format, "Exemplary Quote – Code Name."

<u>Codes in Categorical Table Format:</u>

Code	Abbreviation	Description	Example
Transfer of Knowledge	TK	Transferring general knowledge from undergraduate degree coursework to job, internship, volunteer experience	Applying knowledge from psychology courses in patient communication Applying knowledge from a minor (entrepreneurship) to future career (business owner)
Application of Nutrition-Related Knowledge	ANRK	Participant stating how they have applied nutrition-related knowledge in an experience or how they will apply nutrition-related knowledge in a future career How someone could use nutrition in their career.	A background in nutrition can improve knowledge in the field by recognizing nutrition-related issues. A background in nutrition can help with job-specific tasks in the healthcare field, like nurses helping to track patient intake and output. Nutrition background can help personal trainers or physicians have a general idea on how to make diet-related suggestions.
Degree Coursework	DC	Discussion of coursework taken and application of knowledge from the coursework and/or skills from the coursework	Mention of specific courses like public health, maternal and infant, etc. Also mention of courses outside of nutrition, business, psychology, etc.

Application of Nutrition-Related Skills	ANRS	Applying nutrition-related skills to any experience (job, internship, life)	Ability to create handouts, read nutrition labels, etc.
Professional Skill Development	PSD	Soft skills, critical thinking, time management	Skills learned in an experience like undergraduate research can be transferred to the professional world.
Versatility of Nutrition degree	VND	Many options for careers with a nutrition degree	Public health Researcher Healthcare Sustainability and Nutrition
Lack of Awareness of Career Options	LACO	Lack of awareness of job opportunities for nutrition majors Lack of awareness of job opportunities outside of healthcare (dietetics within healthcare)	Dietetics is most commonly associated with nutrition degree Pre-health common pathway for nutrition major
Interpersonal Communication	IC	Ability to communicate accurately and concisely Clear communication between individuals Community education – group vs individuals Individual communicating to others	Patient provider interactions Dietitian providing nutrition education
Teamwork and Collaboration	TC	Interprofessional collaboration Providers working together for patient Research (lab group) 2 or more working together Group work experience Collaboration amongst peers	SLP working with Dietitian Physician working with Dietitian Physician working with PT, OT, etc. Working in a group on a project Preference of group work vs individual work

University-Related Opportunities	URO	Club involvement Research experience Study abroad, sorority/fraternity involvement, professional organizations Dining Diplomat Teaching Assistant	By joining clubs, you can interact with students of same major and connect with recruiters
Job-Related Experience	JRE	Internships Shadowing Volunteer Opportunities Jobs related to career (©, EMS, Nutrition Assistant, etc.)	Job-Related Experiences allow you to gather knowledge about a career or program and can help you determine what path you want to take. Job-related experiences allow you to get to know people who can be influential in career decision making.
Complements	C	Questions by participants about the best minor to go with a nutrition major Certificates that pair well with a nutrition degree	Psychology complements nutrition Business complements nutrition Sports science Health coaching could be useful certificate for nutrition majors
Profession-Related Duties and Responsibilities	PRDR	Misunderstanding of RDN job description Misunderstanding that RDN and nutritionists are same thing Interchanging terminology (RDN vs Nutritionist) Medical providers role in a healthcare team Discussion of what a profession does as part of their job.	Discussion of what dietitians can talk about with patients or health and wellness coaches providing dietary advice. Family medicine doctor knowing limits of education and referring to a dietitian or other medical professional.

		Think of this code as the job-related duties/skills/responsibilities section on a job posting or a resume. Jobs should be nutrition-related (dietitian, health and wellness coach, chef, etc.) or healthcare-related (physician, OT, PT, dentist, nurse, etc.)	Nurse taking vitals, physician consulting with a patient, chef planning menus.
Professions within Nutrition	PN	Specific professions related to nutrition: health and wellness coaching, dietitian (bariatric, diabetic, private practice), nutritionist	Health and wellness coaches can help people balance their life.
Healthcare Nutrition Education	HNE	Medical school students only receive limited nutrition education Lack of education provided to healthcare professionals (nurses, OT, PT, PA, physician, dentist, etc.)	Medical providers provide dietary advice with limited nutrition knowledge
Career Decision Self-Efficacy	CDSE	Both the confidence and lack of confidence in a career decision or career path. Participant knowing what they want to do and having a plan for how to pursue what they want to do. Lack of confidence in making a career decision or knowing what their future holds.	Unsureness surrounding making a career decision Want to make sure making best career decision
Mental Health	MH	Workplace support University support Support impacts productivity	Nutrition can improve mental health so Dietitian job providers should offer training in

			mental health counseling. Jobs should offer mental health support.
Gap Year	GY	Pros and cons of gap year	Taking a year off to find oneself. Taking a year to prepare for graduate school.
Building Professional Relationships	BPR	Networking Opportunities	Career Fair LinkedIn Shadow experience building professional relationships and network with other industry professionals Club bringing in industry professionals Connecting with professor
Navigating Change	NC	Navigating change at any point (undergraduate and post-undergraduate)	The process of changing majors (emotional) Switch to online classes during COVID Adjustments during the pandemic Changing careers
Discovery/Avoidance	DA	Discovering nutrition as a major Discovering a career option or discovery an opportunity (first-time discovery) Discovering career-related experiences that were otherwise unknown to the participant Avoiding nutrition as a major because of the	Switching from biology to nutrition because they discovered nutrition is a major that leads to healthcare

		assumption that it is not science based	
Open Mindedness	OM	Being open minded to experiences and career options Being open minded to trying new things	Being open minded to new career options after an experience (volunteering or internship)
Misinformation	MI	Source of nutrition-related information coming from social media Social media skills important in future careers Misinformation being spread Misinformation in question/post	Social media can impact eating habits positively and negatively. Social media used to promote company PhD makes an RD more credible
Passion and Interest	PI	Passion fuels career interest Merging interests together Choosing a major/minor or career that combines interests	Nutrition combines passion and career interest Shadowing/internship increased passion Director of Baking Operations at Jubala – combines interests with career
Post Undergraduate Success	PUS	Strategies to be successful after you graduate	What determines success post undergraduate degree? How to be successful post undergraduate degree?
Standout Applicant	SA	How to be a standout job or graduate school applicant Making application materials standout	Making resume standout Specifically discussing application process and how to standout
Diversity, Equity, and Inclusion	DEI	Cultural awareness	Study abroad experiences can provide cultural awareness Dietitians can improve cultural awareness

Common Pathway(s) for Nutrition Degree	CPND	Two common pathways for Nutrition Degree: Pre-health is commonly associated with Nutrition Degree Dietetics pathway is commonly associated with Nutrition Degree	Someone thinks that because their major is in nutrition they are going to be a dietitian. Background knowledge that nutrition majors often are pre-health.
Pre-Health Pathway	PHP	Biology is a common pathway for pre-health or pre-med majors	Declaring bio as a major because there is an assumption that's the only way to get to work in healthcare
Career/Graduate School Exploration	CGSE	Learning, researching, and/or evaluating career opportunities and ways to pursue the careers of student choice Exploring options for graduate school How to select a grad school that's the best fit	Writing resumes and cover letters, conducting mock interviews, exploring possible careers. Mention of career exploration. "Computer Based" career exploration not "hand on" career exploration
Uncertainty	U	Uncertainty on what to major or minor in, how to get where you want to go, how to find a career, how to prepare oneself for graduate school.	How can one prepare themselves both academically and career-wise?
How to Get Involved	HGI	Want to get involved with research, job opportunities, internships, and volunteering, but don't know where to start.	What are some ways for a student to get involved with undergraduate research

Codes in Alphabetical Table Format

Code	**Abbreviation**	**Description**	**Example**
Application of Nutrition-Related Knowledge	ANRK	Participant stating how they have applied nutrition-related knowledge in an experience or how they will apply nutrition-related knowledge in a future career How someone could use nutrition in their career.	A background in nutrition can improve knowledge in the field by recognizing nutrition-related issues. A background in nutrition can help with job-specific tasks in the healthcare field, like nurses helping to track patient intake and output. Nutrition background can help personal trainers or physicians have a general idea on how to make diet-related suggestions.
Application of Nutrition-Related Skills	ANRS	Applying nutrition-related skills to any experience (job, internship, life)	Ability to create handouts, read nutrition labels, etc.
Building Professional Relationships	BPR	Networking Opportunities	Career Fair LinkedIn Shadow experience building professional relationships and network with other industry professionals Club bringing in industry professionals Connecting with professor
Complements	C	Questions by participants about the best minor to go with a nutrition major	Psychology complements nutrition Business complements nutrition Sports science

		Certificates that pair well with a nutrition degree	Health coaching could be useful certificate for nutrition majors
Career Decision Self-Efficacy	CDSE	Both the confidence and lack of confidence in a career decision or career path. Participant knowing what they want to do and having a plan for how to pursue what they want to do. Lack of confidence in making a career decision or knowing what their future holds.	Unsureness surrounding making a career decision Want to make sure making best career decision
Career/Graduate School Exploration	CGSE	Learning, researching, and/or evaluating career opportunities and ways to pursue the careers of student choice Exploring options for graduate school How to select a grad school that's the best fit	Writing resumes and cover letters, conducting mock interviews, exploring possible careers. Mention of career exploration. "Computer Based" career exploration not "hand on" career exploration
Common Pathway(s) for Nutrition Degree	CPND	Two common pathways for Nutrition Degree: Pre-health is commonly associated with Nutrition Degree Dietetics pathway is commonly associated with Nutrition Degree	Someone thinks that because their major is in nutrition they are going to be a dietitian. Background knowledge that nutrition majors often are pre-health.
Discovery/Avoidance	DA	Discovering nutrition as a major Discovering a career option or discovery an opportunity (first-time discovery)	Switching from biology to nutrition because they discovered nutrition is a major that leads to healthcare

		Discovering career-related experiences that were otherwise unknown to the participant Avoiding nutrition as a major because of the assumption that it is not science based	
Degree Coursework	DC	Discussion of coursework taken and application of knowledge from the coursework and/or skills from the coursework	Mention of specific courses like public health, maternal and infant, etc. Also mention of courses outside of nutrition, business, psychology, etc.
Diversity, Equity, and Inclusion	DEI	Cultural awareness	Study abroad experiences can provide cultural awareness Dietitians can improve cultural awareness
Gap Year	GY	Pros and cons of gap year	Taking a year off to find oneself. Taking a year to prepare for graduate school.
How to Get Involved	HGI	Want to get involved with research, job opportunities, internships, and volunteering, but don't know where to start.	What are some ways for a student to get involved with undergraduate research
Healthcare Nutrition Education	HNE	Medical school students only receive limited nutrition education Lack of education provided to healthcare professionals (nurses, OT, PT, PA, physician, dentist, etc.)	Medical providers provide dietary advice with limited nutrition knowledge

Interpersonal Communication	IC	Ability to communicate accurately and concisely Clear communication between individuals Community education – group vs individuals Individual communicating to others	Patient provider interactions Dietitian providing nutrition education
Job-Related Experience	JRE	Internships Shadowing Volunteer Opportunities Jobs related to career (©, EMS, Nutrition Assistant, etc.)	Job-Related Experiences allow you to gather knowledge about a career or program and can help you determine what path you want to take. Job-related experiences allow you to get to know people who can be influential in career decision making.
Misinformation	MI	Source of nutrition-related information coming from social media Social media skills important in future careers Misinformation being spread Misinformation in question/post	Social media can impact eating habits positively and negatively. Social media used to promote company PhD makes an RD more credible
Mental Health	MH	Workplace support University support Support impacts productivity	Nutrition can improve mental health so Dietitian job providers should offer training in mental health counseling. Jobs should offer mental health support.
Navigating Change	NC	Navigating change at any point (undergraduate and post-undergraduate)	The process of changing majors (emotional) Switch to online classes during COVID

			Adjustments during the pandemic Changing careers
Open Mindedness	OM	Being open minded to experiences and career options Being open minded to trying new things	Being open minded to new career options after an experience (volunteering or internship)
Pre-Health Pathway	PHP	Biology is a common pathway for pre-health or pre-med majors	Declaring bio as a major because there is an assumption that's the only way to get to work in healthcare
Passion and Interest	PI	Passion fuels career interest Merging interests together Choosing a major/minor or career that combines interests	Nutrition combines passion and career interest Shadowing/internship increased passion Director of Baking Operations at Jubala – combines interests with career
Professions within Nutrition	PN	Specific professions related to nutrition: health and wellness coaching, dietitian (bariatric, diabetic, private practice), nutritionist	Health and wellness coaches can help people balance their life.
Profession-Related Duties and Responsibilities	PRDR	Misunderstanding of RDN job description Misunderstanding that RDN and nutritionists are same thing Interchanging terminology (RDN vs Nutritionist) Medical providers role in a healthcare team Discussion of what a profession does as part of their job.	Discussion of what dietitians can talk about with patients or health and wellness coaches providing dietary advice. Family medicine doctor knowing limits of education and referring to a dietitian or other medical professional.

		Think of this code as the job-related duties/skills/responsibilities section on a job posting or a resume. Jobs should be nutrition-related (dietitian, health and wellness coach, chef, etc.) or healthcare-related (physician, OT, PT, dentist, nurse, etc.)	Nurse taking vitals, physician consulting with a patient, chef planning menus.
Professional Skill Development	PSD	Soft skills, critical thinking, time management	Skills learned in an experience like undergraduate research can be transferred to the professional world.
Post Undergraduate Success	PUS	Strategies to be successful after you graduate	What determines success post undergraduate degree? How to be successful post undergraduate degree?
Standout Applicant	SA	How to be a standout job or graduate school applicant Making application materials standout	Making resume standout Specifically discussing application process and how to standout
Teamwork and Collaboration	TC	Interprofessional collaboration Providers working together for patient Research (lab group) 2 or more working together Group work experience Collaboration amongst peers	SLP working with Dietitian Physician working with Dietitian Physician working with PT, OT, etc. Working in a group on a project Preference of group work vs individual work
Transfer of Knowledge	TK	Transferring general knowledge from undergraduate degree	Applying knowledge from psychology

		coursework to job, internship, volunteer experience	courses in patient communication Applying knowledge from a minor (entrepreneurship) to future career (business owner)
Uncertainty	U	Uncertainty on what to major or minor in, how to get where you want to go, how to find a career, how to prepare oneself for graduate school.	How can one prepare themselves both academically and career-wise?
University-Related Opportunities	URO	Club involvement Research experience Study abroad, sorority/fraternity involvement, professional organizations Dining Diplomat Teaching Assistant	By joining clubs, you can interact with students of same major and connect with recruiters
Versatility of Nutrition degree	VND	Many options for careers with a nutrition degree	Public health Researcher Healthcare Sustainability and Nutrition

<u>Codes in Narrative Format</u>

<u>Application of Nutrition-Related Knowledge (ANRK)</u>

Definition: Applying nutrition-specific knowledge to any experience (job, internship, life) or to one's own life.

Example:

- "Book" knowledge – interpreting scientific literature, creating research posters, etc.
- Nutrition knowledge is applicable in day-to-day personal life

<u>Application of Nutrition-Related Skills (ANRS)</u>

Definition: Applying nutrition-related skills to any experience (job, internship, life)

Example:

- Ability to create handouts, read nutrition labels, etc.

<u>Building Professional Relationships (BPR)</u>

Definition: Network opportunities to build relationships with professionals.

Example:

- Career Fairs, LinkedIn, Alumni Events, etc.
- Shadow experience – building professional relationships and networking with other industry professionals
- Club Involvement – Clubs invite industry professionals to events
- Connecting with professors and/or advisors

<u>Complements (C)</u>

Definition: Questions (or responses) about the best minor to complement a nutrition major. Certificates that pair well with a nutrition degree.

Example:

- Psychology, Business, Sports Science, Entrepreneurship, etc.
- Health coaching could be useful certificate for nutrition majors

<u>Career Decision Self-Efficacy (CDSE)</u>

Definition: Both the confidence and lack of confidence in a career decision or career path. Participant knowing what they want to do and having a plan for how to pursue what they want to do. Lack of confidence in making a career decision or knowing what their future holds.

Example:

- Unsureness surrounding making a career decision
- Want to make sure making best career decision

Career/Graduate School Exploration (CGSE)
Definition: Learning, researching, and/or evaluating career opportunities and ways to pursue careers of a student's choice. Exploring options for graduate school. How to select a grad school that's the best fit.

Example:
- Writing resumes, cover letters, or participating in mock interviews
- Exploring possible career options
- Mention of career exploration
- "Computer Based" career exploration vs "hands on" career exploration (job-related experience)

Common Pathways for Nutrition Degree (CPND)
Definition: Two common pathways for nutrition degree: pre-health and dietetics

Example:
- Someone thinks that because their major is in nutrition they are going to be a dietitian.
- Background knowledge that nutrition majors often are pre-health.

Discovery/Avoidance (DA)
Definition: Discovering nutrition as a major. Discovering a career option or discovering an opportunity (first-time discovery). Discovering career-related experiences that were otherwise unknown to the participant. Avoiding nutrition as a major because of the assumption that it is not science based.

Example:
- Switching from biology to nutrition because they discovered nutrition is a major that leads to healthcare.

Degree Coursework (DC)
Definition: Discussion of coursework taken and application of knowledge from the coursework and/or skills from the coursework.

Example:
- Mention of specific courses like public health, maternal and infant, etc.
- Also mention of courses outside of nutrition, business, psychology, etc.

Diversity, Equity, and Inclusion (DEI)
Definition: Presence of differences within a given setting, ensuring that a program or process (application) is fair, and ensuring a sense of belonging. Being aware of one's cultural values, beliefs, and/or biases.

Example:
- Study abroad experiences can provide cultural awareness
- Dietitians can improve cultural awareness

Gap Year (GY)
Definition: Should students take a gap year? What are the pros and cons of a gap year?

Example:
- Taking a break to determine education and career an individual wants to pursue
- Taking time to travel or discover oneself
- Time to prepare for graduate school applications

How to Get Involved (HGI)
Definition: Want to get involved with research, job opportunities, internships, and volunteering, but don't know where to start.

Example:
- What are some ways for a student to get involved with undergraduate research?

Healthcare Nutrition Education (HNE)
Definition: Medical school students only receive limited nutrition education. Lack of education provided to healthcare professionals (nurses, OT, PT, PA, physician, dentist, etc.).

Example:
- Medical providers provide dietary advice with limited nutrition knowledge.

Interpersonal Communication (IC)
Definition: Ability to communicate accurately and concisely; clear communication between individuals; individual communicating to others; communication via email, phone call, or presentation.

Example:
- Patient provider interactions
- Active Listening Skills
- Dietitian providing nutrition education or physician providing diagnoses
- Openness, empathy, and/or positive attitude
- Negotiation Skills

Job-Related Experience (JRE)
Definition: Internships, job shadowing, volunteer opportunities, jobs related to potential career

Example:
- Job-Related Experiences allow you to gather knowledge about a career or program and can help you determine what path you want to take. Job-related experiences allow you to get to know people who can be influential in career decision making.

Misinformation (MI)
Definition: Source of nutrition-related information coming from social media. Social media skills are important in future careers. Misinformation being spread. Misinformation in question/post

Example:
- Social media can impact eating habits positively and negatively.
- Social media used to promote company
- PhD makes an RD more credible

Mental Health (MH)
Definition: Workplace support, university support, support can impact productivity

Example:
- Nutrition can improve mental health so dietitian job providers should offer training in mental health counseling.
- Jobs should offer mental health support.

Navigating Change (NC)
Definition: Navigating the change from high school to college or navigating the change from college to post-graduate life. Navigating through life changes during an individual's life.

Example:
- Changing majors
- Adjustments during the pandemic
    - Switching to online classes during the COVID-19 pandemic
- Changing careers
- Moving away from home

Open Mindedness
Definition: Being open minded to experiences and career options. Being open minded to trying new things.

Example:
- Being open minded to new career options after an experience (volunteering or internship).

Pre-Health Pathway (PHP)
Definition: Biology is a common pathway for pre-health or pre-med majors.

Example:
- Declaring bio as a major because there is an assumption that's the only way to get to work in healthcare.

Passion and Interest (PI)
Definition: Passion fuels career interest. Career opportunities that combine education and passions/interests. Merging interests together. Choosing a major/minor or career that combines interests.

Example:
- Nutrition combines passion and career interest
- Shadowing or internship experiences increases passion
- Director of Baking Operations at Jubala – combines interest with career

Professions within Nutrition (PN)
Definition: Specific professions related to nutrition: health and wellness coaching, dietitian (bariatric, diabetic, private practice), nutritionist.

Example:
- Health and wellness coaches can help people balance their life.

Profession Related Duties and Responsibilities (PRDR)
Definition: Misunderstanding of RDN job description. Misunderstanding that RDN and nutritionists are same thing. Interchanging terminology (RDN vs Nutritionist). Medical providers role in a healthcare team. Discussion of what a profession does as part of their job. Think of this code as the job-related duties/skills/responsibilities section on a job posting or a resume. Jobs should be nutrition-related (dietitian, health and wellness coach, chef, etc.) or healthcare-related (physician, OT, PT, dentist, nurse, etc.).

Example:
- Discussion of what dietitians can talk about with patients or health and wellness coaches providing dietary advice.
- Family medicine doctor knowing limits of education and referring to a dietitian or other medical professional.
- Nurse taking vitals, physician consulting with a patient, chef planning menus.

Professional Skill Development (PSD)
Definition: Problem solving, critical thinking, time management, flexibility and adaptability, active listening, leadership, decision making, organization, etc.

Example:
- Skills learned in an experience like undergraduate research can be transferred to the professional world.

Post-Undergraduate Success (PUS)
Definition: Strategies to be successful after graduation.

Example:
- What determines success post undergraduate degree?
- How to be successful post undergraduate degree?

Standout Applicant (SA)
Definition: How to be a standout job or graduate school applicant? How to make application materials stand out?

Example:
- Making a resume standout
- Specifically discussed the application process and how to standout

Teamwork and Collaboration (TC)
Definition: Interprofessional collaboration; providers working together for patient benefit; research lab group; 2 or more individuals working together.

Example:
- SLP working with Dietitian
- Physician working with Dietitian, PT, OT, etc.
- Working in a group on a project
- Preference of group work vs individual work

Transfer of Knowledge (TK)
Definition: Transferring general knowledge from undergraduate degree coursework to job, internship, volunteer experience.

Example:
- Applying knowledge from psychology courses in patient communication
- Applying knowledge from a minor (entrepreneurship) to future career (business owner)

Uncertainty (U)
Definition: Uncertainty on what to major or minor in, how to get where you want to go, how to find a career, how to prepare oneself for graduate school.

Example:
- How can one prepare themselves both academically and career-wise?

University-Related Opportunities (URO)
Definition: Club involvement, research experience, study abroad, sorority/fraternity involvement, professional organizations, dining diplomat, teaching assistant, etc.

Example:
- By joining clubs, you can interact with students of same major and connect with recruiters.

Versatility of Nutrition Degree (VND)
Definition: An undergraduate degree in nutrition can provide a foundation for many career options within and outside of healthcare. An undergraduate degree in nutrition can provide students with freedom to explore a variety of career options.

Example:

- Public Health
- Researcher, Research Technician, Research Assistant, etc.
- Healthcare – Physician, Physician Assistant, Occupational Therapist, Dentist, Nurse, Pharmacist, etc.
- Sports Medicine – Orthopedics, Athletic Trainer, Physical Therapist, etc.
- Sustainability in Nutrition
- Food and Nutrition Services
- Nutrition Education
- Registered Dietitian
- Business and Industry – Nutraceutical companies, Pharmaceutical companies, Food manufacturers, etc.

Appendix E. Study 2 and 3 Recruitment Materials

Recruitment Email

Dear Students,

My name is Catherine Hill, and I am a PhD student in Dr. Cooke's lab. I am sending this email on behalf of one of my fellow students, Christina Chapman, who is conducting research on career self-efficacy & career readiness in nutrition science.

This semester you will complete a four-part semester-long project related to career self-efficacy & career readiness in nutrition science, as part of the required coursework for NTR 302: Introduction to Nutrition Research, Communication, and Careers; however, your participation in this study is completely voluntary.

The student researcher (Christina Chapman) and faculty mentor (Dr. Natalie Cooke) will not know whether or not you agreed to participate in the research study until after final grades have been submitted. In order to ensure confidentiality, if you agree to participate, the data from the assignments will be de-identified. This means that only the student researcher will have access to the raw data and any published data will be de-identified and anonymous. There are also no known risks involved in this research.

In other words, your grade on these assignments and in the course overall is independent of whether or not you agree to participate in this research project. You are required to complete this assignment as part of the coursework for NTR 302, but your participation in this project is completely voluntary. You may also choose to withdraw your participation from the study at any time, during or after the semester has ended.

Because Dr. Cooke and the student researcher will not know whether or not you have agreed to participate until after final grades have been submitted, please email me with any questions or concerns about the research project at catherine.hill@ncsu.edu.

If you are interested in participating in this study, please click the link below to provide your consent.

https://ncsu.qualtrics.com/jfe/form/SV_1TWNcnvmsOnE8BM

Sincerely,
Catherine Hill

Follow-Up Email to Students Currently Enrolled

Dear Students,

I visited your class on [date] and I am sending this email to remind you about participating in the research study that, if you consent, will use data from the four-part semester-long project you are working on. As a reminder, the student researcher (Christina Chapman) and faculty mentor (Dr. Natalie Cooke) will not know whether or not you agreed to participate in the research study until after final grades have been submitted. In other words, your grade on these assignments and in the course overall is independent of whether or not you agree to participate in this research project.

Your participation in this study is completely voluntary and there are no known risks involved in this research. If you have any questions regarding the research study, you can contact me.

If you are interested in participating in this study, please click the link below to provide your consent.

https://ncsu.qualtrics.com/jfe/form/SV_1TWNcnvmsOnE8BM

Sincerely,
Catherine Hill

Follow-Up Email to Students Previously Enrolled

Dear Students,

My name is Christina Chapman, and I am a PhD student in Dr. Cooke's lab, and I was also your graduate teaching assistant for NTR 302: Introduction to Nutrition Research, Communication, and Careers.

As part of the required coursework for NTR 302, you completed a four-part semester-long project related to career self-efficacy and career readiness in nutrition science. This project relates to the research I am conducting on career self-efficacy and career readiness in nutrition science. I am seeking your permission to participate in a research study that uses your data from the four-part semester-long Career Development Project. You were required to complete this assignment as part of the coursework for NTR 302, but your participation in this project is completely voluntary. You may also choose to withdraw your participation from the study at any time, even if you have already provided consent for your data to be used for this research study.

In order to ensure confidentiality, if you agree to participate, the data from the assignments will be de-identified. This means that only the student researcher (Christina Chapman) will have access to the raw data and any published data will be de-identified and anonymous. There are also no known risks involved in this research.

If you are interested in participating in this study, please click the link below to provide your consent.

https://ncsu.qualtrics.com/jfe/form/SV_38BX9Iok0r0epb8

Sincerely,
Christina Chapman

Recruitment Video Script

Hi Everyone!

My name is Catherine Hill, and I am a PhD student in Dr. Cooke's lab. I am making this video on behalf of one of my fellow students, Christina Chapman, who is conducting research on career self-efficacy & career readiness in nutrition science.

This semester, you will complete a four-part semester-long project related to career self-efficacy & career readiness in nutrition science, as part of the required coursework for NTR 302: Introduction to Nutrition Research, Communication, and Careers.

The student researcher (Christina Chapman) is conducting a research project for her dissertation under the direction of Dr. Cooke on career self-efficacy and career readiness and is seeking your permission to use your assignments for her dissertation. It is very important to note that your participation in this study is completely voluntary.

The student researcher (Christina) and faculty mentor (Dr. Cooke) will not know whether or not you agreed to participate in the research study until after final grades have been submitted. In order to ensure confidentiality, if you agree to participate, the data from the assignments will be de-identified. This means that only the student researcher will have access to the raw data and any published data will be de-identified and anonymous. There are also no known risks involved in this research.

In other words, your grade on these assignments and in the course overall is independent of whether or not you agree to participate in this research project. You are required to complete this assignment as part of the coursework for NTR 302, but your participation in the student researcher's project is completely voluntary. You may also choose to withdraw your participation from the study at any time, during or after the semester has ended.

You will be receiving an email from me with this information and a link to provide your consent if you are interested in voluntarily participating in this research project.

Because Dr. Cooke and the student researcher will not know whether or not you have agreed to participate until after final grades have been submitted, please email me with any questions or concerns about the research project at catherine.hill@ncsu.edu.

Thank you for your time and consideration, and I hope you have a great semester.

Appendix F. Study 2 and 3 Informed Consent Forms

Title of Study: Evaluating Undergraduate Students' Career Decision Self-Efficacy and Career Readiness, IRB #25609
Principal Investigator(s): Dr. Natalie Cooke, nkcooke@ncsu.edu, 919-515-0287
Funding Source: None
NC State Faculty Point of Contact:
Collaborating Researchers: Christina Chapman, cmchapm3@ncsu.edu, Dr. Suzie Goodell, lsgoodel@ncsu.edu, 919-515-7624, Catherine Hill, catherine.hill@ncsu.edu, 919-515-7073

What are some general things you should know about research studies?

You are invited to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate, and to stop participating at any time without penalty. The purpose of this research study is to gain a better understanding of nutrition students' confidence in their ability to make a career decision. We will do this through a semester-long project to help develop your career readiness skills and build your career decision self-efficacy.

You are not guaranteed any personal benefits from being in this study. Research studies also may pose risks to those who participate. You may want to participate in this research because you may want your data to help develop future course materials to help students build career readiness skills to help them enter the workforce. You may not want to participate in this research because you do not want your data being used for research purposes.

Specific details about the research in which you are invited to participate are contained below. If you do not understand something in this form, please ask the researcher for clarification or more information. A copy of this consent form will be provided to you once you agree to participate in this research study. The copy of your responses will be emailed to you from Qualtrics and you can email Catherine Hill to obtain a copy, if needed. If, at any time, you have questions about your participation in this research, do not hesitate to contact the researcher(s) named above or the NC State IRB office. The IRB office's contact information is listed in the What if you have questions about your rights as a research participant? section of this form.

What is the purpose of this study?
The purpose of the study is to evaluate the effectiveness of a career development project on students' career-decision self- efficacy (CDSE) and career readiness.

How many people will be in the study?
There will be approximately 70-125 eligible participants in this study.

Am I eligible to participate in this study?
In order to be a participant in this study, you must agree to be in the study and participants must be 18 years of age or older. Participants must be a current NC State undergraduate student that

completed the career development assignment as course requirements for NTR 302 in Spring 2023 or Summer 2023. You cannot participate in this study if you do not meet the inclusion criteria or you have not previously completed the career development assignment as course requirements for NTR 302.

What will happen if you take part in the study?

If you agree to participate in this study, you will be asked to do all of the following:

1. Answer the following questions to determine if you want to participate in this study.
2. All students must complete the course project as part of the course requirements; however, your participation in this study is entirely voluntary and will not affect your final grade. Once your final grades have been provided to the registrar, the researchers will then determine who consented to participate in the study. Data analysis will not be conducted until after the semester has concluded and all grades have been sent to the registrar.

The total amount of time that you will be participating in this study is less than 5 minutes to complete the consent forms. While your participation in this study is entirely voluntary, all students must complete the course project as part of the course requirements.

Risks and Benefits

There are minimal risks associated with participation in this research. There are no direct benefits to your participation in the research. The indirect benefits are that the findings will inform the development of future career-readiness interventions and, therefore, future students will benefit from the results of this study.

Right to withdraw your participation

You can stop participating in this study at any time for any reason. If you would like to stop participating in this study during the semester, please contact the recruitment researcher, Catherine Hill, catherine.hill@ncsu.edu and 919-515-7073. If you would like to stop participating in this study after the semester, please contact the student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632, or you can also contact the faculty advisor for this research, Natalie Cooke at nkcooke@ncsu.edu and 919-515-0287. If you choose to withdraw your consent and to stop participating in this research, you can expect that the researcher(s) will redact your data from their data set, securely destroy your data, and prevent future uses of your data for research purposes wherever possible. This is possible in some, but not all, cases

Confidentiality, personal privacy, and data managements

Trust is the foundation of the participant/researcher relationship. Much of that principle of trust is tied to keeping your information private and in the manner that we have described to you in this form. The information that you share with us will be held in confidence to the fullest extent allowed by law.

Protecting your privacy as related to this research is of utmost importance to us. There are very rare circumstances related to confidentiality where we may have to share information about you. Your information collected in this research study could be reviewed by representatives of the

University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety. In other cases, we must report instances in which imminent harm could come to you or others.

How we manage, protect, and share your data are the principal ways that we protect your personal privacy. Data that will be shared with others about you will be de-identified. De-identified.

De-identified data is information that at one time can directly identify you, but that we will record this data so that your identity will be separated from the data. When the research concludes, there will be no way your real identity will be linked to the data we publish. For this research, the de-identified data will be from the course assignments that you complete as part of the semester- long project for NTR 302: Introduction to Nutrition Research, Communication, and Careers.

Future use of your research data

If you consent to participate in this study, your information, even with identifiers removed, will not be stored or distributed for future research studies. If you consent to participate in this study, you will be redirected to a broad consent form in which you can choose to consent to your information, even with identifiers removed, to be used in future research studies. Your decision to provide broad consent does not impact whether you consent to participate in this research study, i.e., you can consent to participate in this research study, while not agreeing to provide broad consent. Broad consent is used to help maximize the benefits of your participation in this project, by further contributing to science and our community. If you agree to provide broad consent. Your de-identified information will be stored for future research and may be shared with other people.

Compensation

There is no compensation for participating in this study.

What if you are a student?

Your participation in this study is not a course requirement and your participation, or lack thereof, will not affect your class standing or grades.

What if you have questions about this study?

If you have questions at any time about the study itself or the procedures implemented in this study, during the semester, you may contact the recruitment researcher, Catherine Hill at catherine.hill@ncsu.edu and 919-505-7073 . If you have questions at any time about the study itself or the procedures implemented in this study, after the semester has concluded, you may contact the student researcher, Christina Chapman at cmchapm3@ncsu.edu, and 402-740-5632. After the semester has concluded, you can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515- 0287.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB (Institutional Review Board) office. An IRB office helps participants if they have any issues regarding research activities. You can contact the NC State University IRB office at IRB-Director@ncsu.edu, 919-515-8754, or fill out a confidential form online at https://research.ncsu.edu/administration/compliance/research- compliance/irb/irb-forms-and-templates/participant-concern- and-complaint-form/

Consent to Participate

1. Are you 18 years of age or older?
    a. Yes
    b. No
2. Are you currently enrolled in NTR 302: Introduction to Nutrition Research, Communication, and Careers?
    a. Yes
    b. No
3. By electronically signing this consent form, I am affirming that I have read and understand the above information. All of the questions that I had about this research have been answered. I have chosen to participate in this study with the understanding that I may stop participating at any time without penalty or loss of benefits to which I am otherwise entitled. I am aware that I may revoke my consent at any time.

    Do you consent to consent to the data from the career development assignment being used for research purposes?

    a. First and Last Name <insert Qualtrics fill in the blank>
    b. Today's Date <insert Qualtrics fill in the blank>

Yes No

NC STATE UNIVERSITY

Title of Study: Evaluating Undergraduate Nutrition Students' Career Decision Self-Efficacy and Career Readiness, IRB #25609
Principal Investigator(s): Dr. Natalie Cooke, nkcooke@ncsu.edu, 919-515-0287
Funding Source: None
NC State Faculty Point of Contact:
Collaborating Researchers: Christina Chapman, cmchapm3@ncsu.edu, Dr. Suzie Goodell, lsgoodel@ncsu.edu, 919-515-7624, Catherine Hill, catherine.hill@ncsu.edu, 919-515-7073

What are some general things you should know about research studies?

You are invited to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate, and to stop participating at any time without penalty. The purpose of this research study is to gain a better understanding of nutrition students' confidence in their ability to make a career decision. We will do this through a semester-long project to help develop your career readiness skills and build your career decision self-efficacy.

You are not guaranteed any personal benefits from being in this study. Research studies also may pose risks to those who participate. You may want to participate in this research because you may want your data to help develop future course materials to help students build career readiness skills to help them enter the workforce. You may not want to participate in this research because you do not want your data being used for research purposes.

Specific details about the research in which you are invited to participate are contained below. If you do not understand something in this form, please ask the researcher for clarification or more information. A copy of this consent form will be provided to you once you agree to participate in this research study. The copy of your responses will be emailed to you from Qualtrics and you can email Catherine Hill to obtain a copy, if needed. If, at any time, you have questions about your participation in this research, do not hesitate to contact the researcher(s) named above or the NC State IRB office. The IRB office's contact information is listed in the *What if you have questions about your rights as a research participant?* section of this form.

What is the purpose of this study?
The purpose of the study is to evaluate the effectiveness of a career development project on students' career-decision self-efficacy (CDSE) and career readiness.

How many people will be in the study?
There will be approximately 70-125 eligible participants in this study.

Am I eligible to be a participant in this study?
In order to be a participant in this study, you must agree to be in the study and participants must be 18 years of age or older. Participants must be a current NC State undergraduate student that completed the career development assignment as course requirements for NTR 302 in Spring 2023 or Summer 2023.

You cannot participate in this study if you do not meet the inclusion criteria or you have not previously completed the career development assignment as course requirements for NTR 302.

What will happen if you take part in the study?
If you agree to participate in this study, you will be asked to do all of the following:

1. Answer the following questions to determine if you want to participate in this study.
2. All students must complete the course project as part of the course requirements; however, your participation in this study is entirely voluntary and will not affect your final grade. Once your final grades have been provided to the registrar, the researchers will then determine who consented to participate in the study. Data analysis will not be conducted until after the semester has concluded and all grades have been sent to the registrar.

The total amount of time that you will be participating in this study is less than 5 minutes to complete the consent forms. While your participation in this study is entirely voluntary, all students must complete the course project as part of the course requirements.

What will happen if you take part in the study?
If you agree to participate in this study, you will be asked to do all of the following:

1. Answer the following questions to determine if you want to participate in this study.
2. All students must complete the course project as part of the course requirements; however, your participation in this study is entirely voluntary and will not affect your final grade. Once your final grades have been provided to the registrar, the researchers will then determine who consented to participate in the study. Data analysis will not be conducted until after the semester has concluded and all grades have been sent to the registrar.

The total amount of time that you will be participating in this study is less than 5 minutes to complete the consent forms. While your participation in this study is entirely voluntary, all students must complete the course project as part of the course requirements.

Risks and benefits
There are minimal risks associated with participation in this research. There are no direct benefits to your participation in the research. The indirect benefits are that the findings will inform the development of future career-readiness interventions and, therefore, future students will benefit from the results of this study.

Right to withdraw your participation
You can stop participating in this study at any time for any reason. If you would like to stop participating in this study during the semester, please contact the recruitment researcher, Catherine Hill, catherine.hill@ncsu.edu and 919-515-7073. If you would like to stop participating in this study after the semester, please contact the student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632, or you can also contact the faculty advisor for this research, Natalie Cooke at nkcooke@ncsu.edu and 919-515-0287. If you choose to withdraw your consent and to stop participating in this research, you can expect that the researcher(s) will redact your data from their data set, securely destroy your data, and prevent future uses of your data for research purposes wherever possible. This is possible in some, but not all, cases.

Future use of your research data
If you consent to participate in this study, your information, even with identifiers removed, will not be stored or distributed for future research studies. If you consent to participate in this study, you will be redirected to a broad consent form in which you can choose to consent to your information, even with identifiers removed, to be used in future research studies. Your decision to provide broad consent does not impact whether you consent to participate in this research study, i.e., you can consent to participate in this research study, while not agreeing to provide broad consent. Broad consent is used to help maximize the benefits of your participation in this project, by further contributing to science and our community. If you agree to provide broad consent. Your de-identified information will be stored for future research and may be shared with other people.

Compensation
There is no compensation for participating in this study.

What if you are a student?
Your participation in this study is not a course requirement and your participation, or lack thereof, will not affect your class standing or grades.

What if you are a student?
Your participation in this study is not a course requirement and your participation, or lack thereof, will not affect your class standing or grades.

What if you have questions about this study?
If you have questions at any time about the study itself or the procedures implemented in this study, during the semester, you may contact the recruitment researcher, Catherine Hill at catherine.hill@ncsu.edu and 919-505-7073 . If you have questions at any time about the study itself or the procedures implemented in this study, after the semester has concluded, you may contact the student researcher, Christina Chapman at cmchapm3@ncsu.edu, and 402-740-5632. After the semester has concluded, you can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515-0287.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB (Institutional Review Board) office. An IRB office helps participants if they have any issues regarding research activities. You can contact the NC State University IRB office at IRB-Director@ncsu.edu, 919-515-8754, or fill out a confidential form online at https://research.ncsu.edu/administration/compliance/research-compliance/irb/irb-forms-and-templates/participant-concern-and-complaint-form/

Are you 18 years of age or older?

- ◯ Yes
- ◯ No

Are you currently enrolled in NTR 302: Introduction to Nutrition Education, Communication, and Careers?

- ◯ Yes
- ◯ No

By electronically signing this consent form, I am affirming that I have read and understand the above information. All of the questions that I had about this research have been answered. I have chosen to participate in this study with the understanding that I may stop participating at any time without penalty or loss of benefits to which I am otherwise entitled. I am aware that I may revoke my consent at any time.

Do you consent to consent to the data from the career development assignment being used for research purposes?

- ◯ Yes
- ◯ No

→

Appendix G. Study 2 and 3 Broad Consent Form

****If students select yes on Informed Consent Form, they will be directed to this Broad Consent Form****

This form asks you to make an important choice about the use of your re-identifiable information. It asks you to decide if you are willing to give your consent to the use of your re-identifiable information for future research.

If you agree, researchers in the future may use your re-identifiable information. In many different research studies over an indefinite period of time without asking your permission again for any specific research study. This could possibly help other people or contribute to science. If you do not agree to allow your re-identifiable information to be used for future research, your information will not be kept for future use by anyone. This form explains in more detail what saying “yes” or “no” to this use of your information will mean to you.

If you say “Yes” on this form

The researcher(s) will store, use and share your re-identifiable information and may do so for the purpose of medical, scientific, and other research, now and into the future, for as long as they are needed. This may include sharing your re-identifiable information with other research, academic, and medical institutions, as well as other researchers, drug and device companies, biotechnology companies, and others.

If you say “yes”, there are no plans to tell you about any of the specific research that will be done with your re-identifiable information

By saying “yes,” your re-identifiable information may be used to create products or to deliver services, including some that may be sold and/or make money for others. If this happens, there are no plans to tell you, pay you, or give any compensation to you or your family.

The main risk in saying “yes” is that your confidentiality could be breached. Through managing who has access to your re-identifiable information and through regularly updated data security plans, we will do our best to protect your re-identifiable information from going to people who should not have it.

Another risk is that if you say “yes,” your re-identifiable information could be used in a research project to which you might not agree to if you were asked specifically about it. You will not personally benefit from saying “yes” in this form. Saying “yes” in this form is not a condition of participating in the "Evaluating Undergraduate Nutrition Students’ Career Decision Self-Efficacy and Career Readiness " nor of your enrollment or employment at any institution.

If you say “no” or do not complete this form

The researcher(s) and institution(s) identified above will not store, use, or share your re-identifiable information beyond the purposes stated in the previous consent form that you agreed to and signed for the "Evaluating Undergraduate Nutrition Students’ Career Decision Self-Efficacy and Career Readiness " study.

If you want to withdraw your consent

You can stop participating at any time for any reason by stopping any research activity that you are doing or by contacting the student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632. You can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515-0287. You can expect that the researcher(s) will redact your re-identifiable information from their data set, securely destroy your data, and prevent future uses of your re-identifiable information for research purposes wherever possible. This is possible in some, but not all, cases.

If you have questions

Please ask the research team to explain anything in this form that you do not clearly understand. Please think about this broad consent and/or discuss it with family or friends before making the decision to say “Yes” or “No.”

If you have any questions about this broad consent, please contact the: student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632. You can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515-0287.

If you want to discuss your rights as a person who has agreed to, refused, or declined to respond to an offer of broad consent or believe that your rights were violated as a result of your agreeing to this broad consent, please contact the NC State IRB Director at IRB-Director@ncsu.edu, 919-515-8754, or fill out a confidential form online at https://research.ncsu.edu/administration/participant-concern-and-complaint-form/.

Please select one option and provide your name and today's date.

- I say yes. The future use of my data and this broad consent addendum is clear to me. I agree that my re-identifiable: information can be used for other research studies. My participation is voluntary. I can withdraw my consent at any time without any penalty or loss of benefits to which I am otherwise entitled.
- I say no. The broad consent addendum is clear to me. I do not give permission for my re-identifiable information to be kept or used for other research studies. You can still participate in this research if you say no on this form.

First and Last Name <insert Qualtrics fill in the blank>
Today’s Date <insert Qualtrics fill in the blank>

NC STATE UNIVERSITY

This form asks you to make an important choice about the use of your re-identifiable information. It asks you to decide if you are willing to give your consent to the use of your re-identifiable information for future research.

If you agree, researchers in the future may use your re-identifiable information. In many different research studies over an indefinite period of time without asking your permission again for any specific research study. This could possibly help other people or contribute to science. If you do not agree to allow your re-identifiable information to be used for future research, your information will not be kept for future use by anyone. This form explains in more detail what saying "yes" or "no" to this use of your information will mean to you.

If you say “Yes” on this form

The researcher(s) will store, use and share your re-identifiable information and may do so for the purpose of medical, scientific, and other research, now and into the future, for as long as they are needed. This may include sharing your re-identifiable information with other research, academic, and medical institutions, as well as other researchers, drug and device companies, biotechnology companies, and others.

If you say “yes”, there are no plans to tell you about any of the specific research that will be done with your re-identifiable information

By saying “yes,” your re-identifiable information may be used to create products or to deliver services, including some that may be sold and/or make money for others. If this happens, there are no plans to tell you, pay you, or give any compensation to you or your family.

The main risk in saying “yes” is that your confidentiality could be breached. Through managing who has access to your re-identifiable information and through regularly updated data security plans, we will do our best to protect your re-identifiable information from going to people who should not have it.

Another risk is that if you say “yes,” your re-identifiable information could be used in a research project to which you might not agree to if you were asked specifically about it. You will not personally benefit from saying “yes” in this form. Saying “yes” in this form is not a condition of participating in the "Evaluating Undergraduate Nutrition Students’ Career Decision Self-Efficacy and Career Readiness " nor of your enrollment or employment at any institution.

If you say “no” or do not complete this form

The researcher(s) and institution(s) identified above will not store, use, or share your re-identifiable information beyond the purposes stated in the previous consent form that you agreed to and signed for the "Evaluating Undergraduate Nutrition Students' Career Decision Self-Efficacy and Career Readiness " study.

If you want to withdraw your consent

You can stop participating at any time for any reason by stopping any research activity that you are doing or by contacting the student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632. You can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515-0287. You can expect that the researcher(s) will redact your re-identifiable information from their data set, securely destroy your data, and prevent future uses of your re-identifiable information for research purposes wherever possible. This is possible in some, but not all, cases.

If you have questions

Please ask the research team to explain anything in this form that you do not clearly understand. Please think about this broad consent and/or discuss it with family or friends before making the decision to say "Yes" or "No."

If you have any questions about this broad consent, please contact the: student researcher, Christina Chapman, at cmchapm3@ncsu.edu and 402-740-5632. You can also contact the faculty advisor for this research, Dr. Natalie Cooke, at nkcooke@ncsu.edu and 919-515-0287.

If you want to discuss your rights as a person who has agreed to, refused, or declined to respond to an offer of broad consent or believe that your rights were violated as a result of your agreeing to this broad consent, please contact the NC State IRB Director at IRB-Director@ncsu.edu, 919-515-8754, or fill out a confidential form online at https://research.ncsu.edu/administration/participant-concern-and-complaint-form/.

Please select one option and provide your name and today's date.

- ○ I say yes. The future use of my data and this broad consent addendum is clear to me. I agree that my re-identifiable: information can be used for other research studies. My participation is voluntary. I can withdraw my consent at any time without any penalty or loss of benefits to which I am otherwise entitled.
- ○ I say no. The broad consent addendum is clear to me. I do not give permission for my re-identifiable information to be kept or used for other research studies. You can still participate in this research if you say no on this form.

First and Last Name

Today's Date

We thank you for your time spent taking this survey.
Your response has been recorded.

Appendix H. Study 2 and 3 Project Overview

Career Development Project Instructions

This project is worth a total of **175 points out of the 1000 points for the semester.**

This semester you will work on a multi-part project that will help you build and develop skills to help you become successful in the job search process. According to the National Association of Colleges and Employers (NACE), career readiness is a foundation from which to demonstrate requisite core competencies that broadly prepare the college educated for success in the workplace and lifelong career management. For new college graduates, career readiness is key to ensuring successful entrance into the workforce. Career readiness is the foundation upon which a successful career is launched. It also provides a framework for addressing career-related goals and outcomes of curricular and extracurricular activities. There are eight career-readiness competencies identified by NACE, each of which can be demonstrated in a variety of ways. Visit the link below to review the eight competencies and their definitions.

https://www.naceweb.org/uploadedfiles/files/2021/resources/nace-career-readiness- competencies-revised-apr-2021.pdf

Assignment Learning Goals:

1. Students will build career readiness skills by improving their communication skills.
2. Students will produce a professional resume suitable for use in pursuing internships, jobs, and/or graduate school.
3. Students will practice an effective method for answering interview questions through a written practice interview.
4. Students will reflect on their strengths and weaknesses in relation to their career development skills.
5. Students will demonstrate a broader understanding of potential career paths aligned with their skills, values, and interests.

What follows is an overview of the four parts to the Career Development Project, to allow you to understand the steps you will complete this semester. Please also refer to the specific instructions for each assignment, which are found on Moodle, attached to the submission link for each assignment.

Step 1: Pre-Skills Assessment Exercise (~ 1 hour to complete) (25 points total)

1. Skills Inventory (5 points)
    a. In this skills inventory activity, you will be selecting skills based on your level of competence and interest in ten skill theme areas (e.g., strategic planning, decision- making) which fall under each theme. Skills can be developed and applied to all aspects of our lives including education, internships, volunteering, jobs, careers, and leisure activities. When exploring skills, it is important to identify which skills you like to use most often, or in which skills you feel most confident. In addition, it is important to identify skills you would like to develop to help you achieve your career goals. There are three types of skills:
        i. Transferable – skills based on natural talents and abilities, which are transferable to different career fields and work functions
        ii. Knowledge-Based – skills developed through education, training, and hands-on experience
        iii. Personal Attributes – skills developed throughout one's lifetime.
2. Career Decision Self-Efficacy Scale (10 points)
    a. The Career Decision Self-Efficacy Scale (CDSE) measures an individual's degree of belief that they can successfully complete tasks necessary to making significant career decisions. This 25-question scale will help you to determine your confidence level in using appropriate skills to make a career decision.
3. Career Decision Self-Efficacy Scale Reflection (10 points)
    a. You will receive an individual report on your CDSE scores. There are a number of general steps that you can take to develop your CDSE. As a perceptual judgment, efficacy can be enhanced. Using this individual report, you will reflect on your scores for the five CDSE-SF scales. Reflecting on your experience can help to determine how your self-efficacy in certain areas can be evolved and can help to develop self-efficacy in new areas.

Step 2: Practice Job or Graduate School Application (~10 hours to complete) (55 points total)

1. Career or Graduate School Exploration Worksheet (15 points)
    a. Career exploration is simply learning about various occupations and their "fit" with your unique career preferences (e.g., the skills, interests, and values you want satisfied by your career). Graduate or professional school can be a requirement for a career field and even if it is not, in some circumstances individuals choose to pursue additional education for personal growth. Taking the time to research programs, learn about admission requirements, and complete the application process can be overwhelming. However, by researching programs now, you have the ability to make this process much less overwhelming. The resources below are to help both graduate school applicants and job applicants guide you through the decision making and application processes.
        i. **If you are planning to apply for a job to start employment after graduation**, use the following resources to brainstorm a list of two to five jobs that might be relevant to your skills, interests, and/or academic

major. From that list, choose one job that interests you and fill out the career exploration worksheet based on that job.

1. *How to Start the Job Search:* Brittany Grant, an intern in CALS Career Services, created a video on how to start the job search process, using a program called CareerShift.
2. Focus2: Learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. Create an account with your NC State email address and complete all sections.
3. Career Goal Statement Activity: Choosing a career path is one of the big challenges in adulthood. We offer many services to support you as you identify your goals. Students can make appointments with Career Coaches and take classes on career exploration. Start by completing this Career Goal Statement Activity.
4. ONET Interest Profile: ONET Interest Profile can help you find out what your interests are and how they relate to the world of work. You can find out what you like to do.

ii. **If you are planning to apply to start graduate school after graduation**, use the following resources to brainstorm a list of two to five programs that might be of interest to you. From that list, choose one program that interests you and fill out the graduate school exploration worksheet based on that graduate program.

1. Pre-Professional Services offers advising and programming to help prepare pre-health and pre-law students for admission to and success in professional programs for health and legal careers.
    a. Pre-Health Services
    b. Pre-Law Advising

b. **Important:** During this step of exploration, you may choose to complete both the graduate school and career exploration worksheets, to fully explore your options of either pursuing employment directly after graduation or pursuing continuing education through graduate school. However, you are only required to turn in one worksheet – either for a job or for a graduate school. After completing these exploration activities, for the purpose of this project, you must decide whether you are planning to start employment after graduation or attend graduate school after graduation. You will follow that path for the rest of the parts of this assignment. **The directions are different for these two paths, so please read carefully.**

2. Resume and Cover Letter/Personal Statement (40 points)
    a. Prior to filling out the job application, you will need to prepare a resume and cover letter (for a job) or personal statement (for graduate school).
    b. Resume (10 points)
        i. Your resume communicates your accomplishments and skills you have to offer. It is used when applying for internships, co-ops, and full or

part- time jobs. It may also be requested as part of graduate school, scholarship, and/or fellowship applications. You will use the skills that you identified in the Skills Inventory that you completed in Part 1 to complete a Resume Skills Activity to generate ideas for your resume.

c. Appointment with CALS Career Services (10 points)
   i. After you have created a polished draft of your resume, you will attend a 30-minute appointment with CALS Career Services where they will review your resume. Then, you will revise your resume based on the feedback from your appointment to make your resume polished and professional. You will need to save a copy of your resume to upload it to the Job Application in Part 4. You are required to submit verification of the appointment with CALS Career Services on the job or graduate school application.

d. Cover Letter/Personal Statement (20 points)
   i. Depending on whether you are applying for a job or graduate school, they may ask for a cover letter (for a job) or personal statement (for graduate school). A cover letter accompanies your resume when you send it to a prospective employer. It conveys your sincere interest in the position and/or organization. It emphasizes a few key points in your background that are relevant to the opportunity. A personal statement is a chance to get noticed for the unique qualities and skills that you have. It's an important part of the application process for graduate school and is an opportunity to talk about yourself and your passions, outside of your educational background.

Step 3: Job/Graduate School Application and Interview Preparation (~ 6 hours to complete) (75 points total)

1. Practice Job/Graduate School Application (25 points total)
   a. The purpose of an application is to obtain verifiable information about job seekers or graduate school applicants, and it acts as a fair screening process to narrow down the applicant pool. Completing lengthy job or graduate school applications may feel tedious, but thoroughly answering all questions presents an opportunity to explain why you're the perfect candidate for the job or graduate program. Another purpose of a job or graduate school application is to assess the candidate's work ethic and conscientiousness. Employers and graduate schools expect applicants to read each question and answer thoroughly, so you want to avoid skipping over questions or guessing at dates.
   b. You will complete a practice job or graduate school application to help you prepare for an actual job or graduate school application you will complete in the future. As part of this application, you will be asked to upload your (1) resume and (2) either cover letter (job applicants) or purpose statement (graduate school applicants). In order to complete this application, you will need to first complete part B of this step so that you can have your resume ready to upload. You will also need to prepare your cover letter or personal statement prior to completing the rest of the application.
2. Practice Interview Questions (50 points)

   a. An interview is your opportunity to shine. Knowing what to expect and preparing for it will give you confidence and allow you to perform to the best of your ability. A practice interview is a simulation of an actual job or graduate school interview. It provides job seekers and graduate school applicants with an opportunity to practice for an interview and receive feedback on their interviewing skills. In this part of the assignment, you will answer five interview questions that will allow you to develop a method for answering questions using the STAR method. Preparation is one of the keys to a successful interview.
      i. Need to prepare for an upcoming interview? ePACK has a practice interview resource that is available 24/7. Login to ePACK > click "Pathways and Other Resources" > click 'Practice Interview'. You can practice virtual interviewing anytime and watch the recording and/or request feedback from others

Step 4: Post-Skills Assessment Exercise (~2 hours to complete) (20 points total)

For the last part of the assignment, you will complete the CDSE scale again and then complete a goal-setting activity. The purpose of this part of the assignment is to help you reflect on how your career readiness skills have improved over the course of the semester, and to help you determine areas for improvement moving forward in your career/graduate school journey.

1. Career Decision Self-Efficacy Scale (10 points)
   a. The Career Decision Self-Efficacy Scale (CDSE) measures an individual's degree of belief that they can successfully complete tasks necessary to making significant career decisions. This 25-question scale will help you to determine your confidence level in using appropriate skills to make a career decision.
2. Career-Related Goals (5 points)
   a. Using the report you will receive after completing the CDSE survey for the second time this semester, you will set three professional goals for yourself. Setting goals is essential to advancing your career and feeling fulfilled by your job. Once you clearly define your professional goals, you can develop a plan to achieve them. Think about where you would like to be in one year or in five years. What experiences will help you achieve that? What interests and skills would you like to use in your career? To help you write effective goals you will use the SMART goals system.
3. Post-Assignment Evaluation (5 points)
   a. Now that you have completed this semester-long career preparation assignment, we would like to gather feedback to understand your thoughts and perspectives on the project. There are no right or wrong answers; your honest feedback is greatly valued.

Please read the directions and rubrics for each individual aspect of this project very carefully. Also pay careful attention to assignment due dates, which are listed in both the syllabus and on Moodle.

Career Development Project (Part 1 of 4)
Pre-Skills Assessment Grading Rubric

Step 1: Skills Inventory (5 points)

Criteria	Points Value	Points Received
Skill #1	0.25	
Skill #1 Places and/or Experiences	0.25	
Skill #1 Ways to Demonstrate	0.5	
Skill #2	0.25	
Skill #2 Places and/or Experiences	0.25	
Skill #2 Ways to Demonstrate	0.5	
Skill #3	0.25	
Skill #3 Places and/or Experiences	0.25	
Skill #3 Ways to Demonstrate	0.5	
Skill #4	0.25	
Skill #4 Places and/or Experiences	0.25	
Skill #4 Ways to Demonstrate	0.5	
Skill #5	0.25	
Skill #5 Places and/or Experiences	0.25	
Skill #5 Ways to Demonstrate	0.5	

Step 2: CDSE Scale (10 points)

Complete CDSE Scale = 10 points
Did not complete CDSE Scale = 0 points

Step 3: CDSE Reflection (10 points)

Criteria	Points Value	Points Received
Addressed strengths and weaknesses	**2**	
Reflection on how strengths were developed and how to apply that to weaknesses	**2**	
Reflection on accuracy of results/emotions surrounding results	**2**	
Additional reflection demonstrating critical thinking skills	**2**	
Reflection was one page, single-spaced and used professional writing	**2**	

<u>Career Development Project (Part 2 of 4) Rubrics</u>

Criteria	**Points Available**	**Points Received**	**Comments**
Career Exploration Worksheet or Graduate School Exploration Worksheet	15 points		
Cover Letter or Personal Statement	20 points		
Resume	10 points		
CALS Career Services Appointment	10 points		
Total Points	**55**		

<u>Career Exploration Worksheet</u>

Step 1: Identify possible career options (5 points)

Table is complete and provides sufficient detail = 5 points (N/A is acceptable answer for alumni/professionals)
Table is partially complete and/or provides insufficient detail = 2.5 points
Table is missing and/or substantial detail is missing = 0 points

Step 2: Research career options (10 points)

Table is complete and provides sufficient detail = 10 points
Table is partially complete and/or provides insufficient detail = 5 points
Table is missing and/or substantial detail missing = 0 points

Job Title	0.5 points
Description of Position *Main duties and responsibilities*	1 point
Education/Skills Required for this Position	3+ skills listed - 1.5 points 2 skills listed - 1 point 1 skill listed - 0.5 points

	0 skills listed - 0 points
Related Education/Skills that YOU Have	3+ skills listed - 1.5 points 2 skills listed - 1 point 1 skill listed - 0.5 points 0 skills listed - 0 points
Average Salary for this Occupation	1 point
Employment Outlook (Projected Growth)	0.5 points
Your Interest, on a Scale of 1 to 10; *i.e., 1 = no interest; 10 = extremely interested*	0.5 points
How Practical a Fit is this Position? *1 = not at all practical; 10 = extremely practical*	0.5 points
Next Steps *Courses you should take* *People you should talk to* *Companies you should follow* *Experiences you should obtain*	3+ steps listed - 1.5 points 2 steps listed - 1 point 1 step listed - 0.5 points 0 steps listed - 0 points

Graduate School Exploration Worksheet

Step 1: University Information and Contact Details

Table is complete and provides sufficient detail = 5 points
Table is partially complete and/or provides insufficient detail = 2.5 points
Table is missing and/or substantial detail missing = 0 points

Step 2: University Application Process

Table is complete and provides sufficient detail = 10 points
Table is partially complete and/or provides insufficient detail = 5 points
Table is missing and/or substantial detail missing = 0 points

<u>Career Development Project - Cover Letter or Personal Statement = 20 points</u>
Option for Cover Letter (20 points)

	Cover letter should get you the interview (5 points)	**Cover letter could land you an interview. This is an average letter (borderline case). (3 points)**	**Cover letter needs significant improvement and would be discarded during screening.**
Business format and overall quality of writing ability	This letter uses correct business format with date and addresses at the top, and a signature at the bottom. This letter is clear and concise, and grammatically correct. There are no spelling errors.	**This letter uses correct business format with date and addresses at the top, and a signature at the bottom. There are minimal grammar and spelling errors. While its content is decent, this letter does not convince an employer to call.**	Business formatting is not used in this letter. There is no address or date at the top. This letter is not signed. There are multiple grammar and spelling errors. The content of this letter does not make sense to the reader
Section 1: Introduction	This section identifies the position for which you are applying and explains why you are interested in this job. You have described how you heard about the opening. The wording is creative and catches an employer's attention quickly.	**This section identifies the position you are seeking. This letter does not describe how you heard about the opening. You vaguely describe why you are interested in this job. This section is bland and might not catch someone's attention fast enough.**	This section does not clearly identify what position you are seeking. There is no description of how you heard about the position or why you are interested. This letter definitely will not grab an employer's attention and keep him or her reading.
Section 2: Identification of skills and experiences as related to position	This letter identifies one or two of your strongest qualifications and clearly relates how these skills apply to the job at hand.	**This letter identifies one of your qualifications, but it is not related to the position at hand. This letter restates**	This letter does not discuss any relevant qualifications. You have not related your skills to the position for which you are

	This letter explains specifically why you are interested in the position and this type of job, company, and/or location.	**what is on your resume with minimal additional information. You explain why you are interested in the position but are too vague.**	applying. This letter does not state why you are interested in the position, company, and/or location.
Section 3: Closing	This letter refers the reader to your resume or any other enclosed documents. This letter thanks the reader for taking time to read the letter. You are assertive as you describe how you will follow up with the employer in a stated time period.	**You thank the reader for taking time to read this letter. You do not refer the reader to your resume or application materials. This letter assumes that the employer will contact you to follow up.**	**This letter does not thank the reader for taking time to review this letter. There is no reference to a resume or other materials. This letter does not mention any plan for follow up.**

Option for Personal Statement Rubric (20 points)

Introduction Immediately engages interest creatively, for example, using “narrative hook,” interesting story, or anecdote. Welcomes the reader to get to know you.	**Excellent (5 points)**	**Competent (4 points)**	**Needs Development (3 points)**	**Poor (2 points)**	**Missing (0 points)**
Fit and Reflective Examples Makes a coherent, strong case for how the student fits the requirements of the program. Provides several reflective examples from academic, professional, or personal experiences.	**Excellent (10 points)**	**Competent (8 points)**	**Needs Development (6 points)**	**Poor (4 points)**	**Missing (0 points)**

Organization/Language/Grammar Avoids cliches, trite statements, or generic, vague, or impersonal language. The style is clear and brief and uses active verbs and active voice. There are no spelling or grammar errors. Personal statement is clean and neat, written in a multi-paragraph essay format, and uses professional font. There is an introduction, main body, and closing. The personal statement is not lengthy and does not use unnecessary words. The personal statement conveys a clear message.	**Excellent (5 points)**	**Competent (4 points)**	**Needs Development (3 points)**	**Poor (2 points)**	**Missing (0 points)**

Resume: 10 points

Overall Style and Appearance Contact information is clear and easy to find. Resume appears professional, is easy to read, well organized, and has consistent formatting. Resume fills the page, but is not overcrowded.	**Excellent (3 points)**	**Needs Development (1 points)**	**Missing (0 points)**
Content - Education and Experience This section includes current institution with location, graduation date, major/degree, GPA, and any relevant coursework.	**Excellent (3 points)**	**Needs Development (1 points)**	**Missing (0 points)**
Content - Experience This section contains information related to the intended career field. Places of work, location, titles, and dates are included for each position. Descriptions are clear and well marketed in the form of bullet statements.	**Excellent (3 points)**	**Needs Development (1 points)**	**Missing (0 points)**
Language/Grammar Avoids cliches, trite statements, or generic, vague, or impersonal language. The style is clear and brief and uses active verbs and active voice. There are no spelling or grammar errors.	**Excellent (1 points)**		**Needs Development (0 points)**

Appointment with CALS Career Services

Uploads confirmation that appointment was scheduled and/or attended - 10 points
No confirmation that appointment was scheduled or attended - 0 points

Career Development Project (Part 3 of 4) (75 points)

Job or Graduate School Application (25 points)
Personal Information (Name and Email Address): 3 points
Current School

1. School Name - 2 points
2. Area(s) of Study - 2 points
3. Years Attended - 1.5 points

Current Class in School and Expected Graduation Year: 1.5 points
Employment History

1. Employer Name - 2 points
2. Job Title - 2 points
3. Position responsibilities/duties - 5 points
4. Start and End Date - 2 points
5. Reason for leaving (if applicable) - 0 points
6. Hours/Week - 2 points
7. Type of position (job, internship, volunteer) - 2 points

Interview Preparation Rubric (50 points)

Weight (50 points total)							
20%	**Answer #1:** Application of STARR method to guide writing. Provides examples within the response to demonstrate application of critical thinking skills. Clear connection between the response and position applying to.	**10**	**8**	**6**	**4**	**2**	**0**
20%	**Answer #2**: Application of STARR method to guide writing. Provides examples within the response to demonstrate application of critical thinking skills. Clear connection between the response and position applying to.	**10**	**8**	**6**	**4**	**2**	**0**
20%	**Answer #3**: Application of STARR method to guide writing. Provides examples within the response to demonstrate application of critical thinking skills. Clear connection between the response and position applying to.	**10**	**8**	**6**	**4**	**2**	**0**

20%	**Answer #4:** Application of STARR method to guide writing. Provides examples within the response to demonstrate application of critical thinking skills. Clear connection between the response and position applying to.	**10**	**8**	**6**	**4**	**2**	**0**
20%	**Answer #5:** Application of STARR method to guide writing. Provides examples within the response to demonstrate application of critical thinking skills. Clear connection between the response and position applying to.	**10**	**8**	**6**	**4**	**2**	**0**
	Formatting: Was your paper 7 pages (single spaced, 10-point font)? Page 1: Cover page- Did you include your name and assignment title at the top of the first page? Did you adequately describe the type of interview for which you are preparing? Pages 2-6: Did you copy and paste each question before your answer to the question? Did you limit your answers to 1 page for each question? Page 7: Did you copy and paste the rubric at the end of the document?			**0**	**-2**	**-4**	**-6**

5 (Excellent): All criteria were addressed, and the response indicates that the applicant would be a top-tier candidate.

4 (Great): A few of the criteria were not addressed, and if all of the criteria were addressed, the applicant would be a top-tier candidate.

3 (Very Good): Some of the criteria were not addressed and the answer did not provide enough depth to demonstrate skills and experiences. The response indicates that the applicant would be a mid-tier candidate.

2 (Fair): Many of the criteria were not addressed making the answer incomplete because there was not enough depth to demonstrate skills and experiences. The response indicates that the applicant would be a mid-tier candidate.

1 (Poor): Most of the criteria were not addressed and the response missed the key point of the question. The response indicates that the applicant would be a lower-tier candidate.

0 (Missing): The response is not related to the question chosen and there was a lack of critical thinking to demonstrate that the applicant is qualified for the position.

Career Development Project (Part 4 of 4) (20 points)

Step 1: CDSE Scale (10 points)

Complete CDSE Scale = 10 points
Did not complete CDSE Scale = 0 points

Step 2: Professional Goals (5 points)

Criteria	Points Value	Points Received
Professional goal #1 is a realistic SMART goal	1	
Professional goal #2 is a realistic SMART goal	1	
Professional goal #3 is a realistic SMART goal	1	
Demonstration of critical thinking skills in goals that were set	2	

Step 3: Post-Assignment Reflection (5 points)

Criteria	Points Value	Points Received
Response #1 provides adequate feedback	1	
Response #2 provides adequate feedback	1	
Response #3 provides adequate feedback	1	
Response #4 provides adequate feedback	1	
Response #5 provides adequate feedback	1	

Appendix I. Study 2 Coding Manual

<u>How to use this coding manual:</u>

Purpose:
The purpose of this coding manual is to analyze student career decision self-efficacy (CDSE) scale reflections. As part of a course assignment for NTR 302: Introduction to Nutrition Research Communication and Careers, participants completed a four-part career development project. For the first part of the project, participants complete a skill inventory, then take the CDSE survey, and lastly complete a reflection on the results from the CDSE survey. This coding manual is designed to demonstrate student's career-related learnings as they relate to career readiness and career decision self-efficacy,

Codes:
The codes listed in the manual are organized alphabetically in a table format. Use the definitions to determine the subject of the questions and response you are analyzing.

Five Subscales of the Career Decision Self-Efficacy Survey
In the reflections from the CDSE survey, participants reflect on their results for the five subscales of the CDSE survey: Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning, and Problem-Solving. For example, "Based on my results, my overall areas of strength were in the areas of occupational information (3.8), planning (3.6), and problem solving (3.6)."

This data is related to the participants' scores from the CDSE survey and should be coded as "Areas of Strength (AS): Gathering Occupational Information (GOI), Planning (P), and Problem Solving (PS)."

Overlapping Codes:
Some quotes may contain more than one code. For example:

"I expected a low score in self-appraisal because I am not 100% confident in what I want to do as a career. It is tough because I am still so young and my interests have been changing a lot over time."

This quote would be coded as "Self-Appraisal (SA)," "Indecisiveness (I)," "Factors Impacting Self-Efficacy (FISE)," and "Passions and Interests (PI)."

"My most confident area was occupational information. This makes sense because I have done my research, conducted some informational interviews (from dietitians and a therapist), and job shadowed."

This quote would be coded as "Gathering Occupational Information (GOI)," "Expected Results (ER)," and "Building Professional Relationships (BPR)."

Exemplary Quotations:
As you code the datasets, reflect on if the coded statement is a good quote. A good quote is clearly representative of the code, is somewhat succinct, and is representative of the patterns in the data. If you believe a statement is a good quote, highlight the quote in cyan and a comment to the coded dataset called "EQ - Code Name."

Process of Coding:

Individual Coding:
Read the entire question or response first to determine if the question or response is related to the project goal(s). You will use sentence-by-sentence coding to apply codes to the dataset. Read each sentence carefully to determine what code should be applied to the sentence. If a sentence(s) contains a code, select the sentence(s) and add a comment with the code abbreviation, then highlight the sentence(s) in orange. If the sentence does not stand alone, you should include the preceding or succeeding sentence(s). If the sentence(s) are related to areas of strength, select the sentence(s) and a comment with the areas of strength abbreviation, AS, then highlight the sentence(s) in green. If the sentence(s) are related to areas of weakness, select the sentence(s) and a comment with the areas of weakness abbreviation, AW, then highlight the sentence(s) in light red 3. If you believe a sentence(s) are an outstanding example of the code used, highlight the sentence(s) in cyan and add a comment to the coded dataset called "EQ - Code Name." For example, a quote that is related to Building Professional Relationships would be coded as, "EQ - BPR."

Consensus Coding:
A raw copy of the participant dataset will be used during the consensus coding meetings. The researcher will facilitate discussion to determine the final codes that will be used for analysis. Once the research team has reached consensus on the codes for a question and response set, the researcher will select the entire question or response, and add a comment with the code abbreviations and use orange highlights to distinguish the data that is relevant to the code(s) in the coding manual. Data that is related to areas of strength will be highlighted in green and data that is related to areas of weakness will be highlighted in light red 3 to distinguish the data. Exemplary quotes will be highlighted in cyan and will have a comment that follows the format, "Exemplary Quote - Code Name."

Codes

Code	Abbreviation	Description	Example
Application Preparation	AP	Resume building Mock interviews Interview Preparation	How to be a standout job or graduate school applicant Making application materials standout
Areas of Strength	AS	Areas where participant feels more confident and/or has scored higher	Practicing specific skills daily leads to being stronger in those areas
Areas of Weakness	AW	Areas with lower confidence scores for participants.	Takes time to improve upon weaker areas
Balance	B	Balance between overestimating and underestimating skill ability Career-decision balance	Balance between salary and enjoyability of a career
Building Professional Relationships	BPR	Networking Opportunities Utilizing campus resources	Shadow experience building professional relationships and network with other industry professionals Connecting with professor or advisor Informational interviews with dietitians
Confidence	C	General confidence in tasks and decisions	Gaining confidence in major choice after watching alumni videos
Career Choice	CC	Next step after career exploration Process of choosing a career path which	Selection of a particular path in terms of a career

		involves choices regarding the education and training for a given career	Choosing a career at an early age and sticking with it
Career Exploration	CE	Learning, researching, and/or evaluating career opportunities and ways to pursue the careers of student choice Career planning and researching	Many factors that go into career choice (i.e., salary vs enjoyability of career)
Career-Related Problem Solving	CRPS	Measures how confident you are in your ability to choose the best solutions to resolve your career problems	Problems arising from having multiple career interests/passions
External Influences	EI	Pressure from outside sources to be successful Judgment/opinions from others	Influence of parents and comparing child's career to parents' careers
Expected Results	ER	Expected scores from CDSE Not surprised by scores from CDSE	
Factors Impacting Self-Efficacy	FISE	Personal matters Age First-generation college student Emotional factors (fear, anxiety, worry)	Higher efficacy in personal matters because of confidence developed through intentional planning and researching Self-efficacy can increase as one gets older Fear of rejection (i.e., graduate program, job application, personal, etc.)

			Worrying about whether a decision is right or wrong
Growth and Development	GD	Self-reflection increased confidence when comparing younger self to where at now	Reflection has shown development in career planning Have come a long way with career planning Being proud of skill development
Gathering Occupational Information	GOI	Measures how confident you are in your knowledge of what workers in different occupations do	Basic and easy skill to understand ("Simple" Skill) Evaluating and understanding the credibility of occupational information online
General Problem Solving	GPS	Determining a problem and potentially the cause of a problem. Identifying, prioritizing, and selecting alternatives for a solution.	Avoids problem solving because confrontation is involved Confident in problem solving when it's related to personal matters Problem solving in general is objective but problem solving with personal matters is subjective Strategies for improving areas of weakness
Goal Selection	GS	From CDSE survey: Measures how confident you are in your ability to match yourself with the occupation for which you are best suited	
Indecisiveness	ID	Indecisiveness with self-appraisal	The test resulted in the realization of indecisiveness when self-evaluating

		Indecisiveness with choosing a career	Worrying about final decision Not confident in what career would be best fit
Intentions and Effort	IE	Intentions to improve in low confidence areas Level of effort - where effort is directed	To improve low confidence areas, have to prioritize those areas
Job-Related Experience	JRE	Internships Shadowing Volunteer Opportunities Jobs related to career (CNA, EMS, Nutrition Assistant, etc.)	Internships can help advance career
Major Exploration/Selection	MES	Finding major that best fits interests Confident in choosing nutrition major	Researching majors and their potential careers or opportunities. Choosing a major.
Navigating Change	NC	Navigating change at any point (undergraduate and post-undergraduate) Being flexible in unexpected situations	Changing career path or interest
Planning	P	Planning from the CDSE survey	My areas of strength were in planning.
Planning for Future and Career	PFC	From CDSE survey: Measures how confident you are in your ability to start and progress within a given career General pathway for a career	Enjoyment in planning and organizing future

Passions and Interests	PI	Passion fuels career interest Easier to problem solve when it's something passionate about	Interests change over time
Problem Solving	PS	Problem solving from the CDSE survey	My areas of strength were in problem solving.
Post Undergraduate Success	PUS	Strategies to be successful after you graduate Career advancement	Career advancement and growth after graduation from undergraduate/graduate program
Unexpected Results	UR	Unexpected scores from CDS Surprised by scores from CDSE	Surprised by scores but encouraged by the results from the CDSE survey
Versatility of Nutrition Degree	VND	Many options for careers with a nutrition degree	Learning from alumni videos there are a variety of careers with nutrition degree

Appendix J. Study 3 Coding Manual

How to use this coding manual:

Purpose:
The purpose of this coding manual is to analyze student career decision self-efficacy (CDSE) scale reflections. As part of a course assignment for NTR 302: Introduction to Nutrition Research Communication and Careers, participants completed a four-part career development project. For the last part of the project, participants complete the CDSE survey, set three professional SMART goals, and lastly provide feedback on the career development project. This coding manual is designed to demonstrate student's career-related learnings as they relate to career readiness and career decision self-efficacy,

Codes:
The codes listed in the manual are organized alphabetically in a table format. Use the definitions to determine the subject of the questions and response you are analyzing.

Overlapping Codes:
Some quotes may contain more than one code. For example:

"This goal is very relevant to me because health coaching is something I could see myself doing as a career, and just having the certification will make me more competitive when looking for a job."

This quote would be coded as "Relevance (R)" and "Standout Applicant (SA)."

"I only have one year left of school, so I have one year left to find an internship before I graduate. I do still think that this is do-able considering how many connections NC State has in the field of nutrition."

This quote would be coded as "Long-Term Goal (LTG)," "Opportunities and Resources Available (ORA)," and "Stepping Stone (SS)."

Exemplary Quotations:
As you code the datasets, reflect on if the coded statement is a good quote. A good quote is clearly representative of the code, is somewhat succinct, and is representative of the patterns in the data. If you believe a statement is a good quote, highlight the quote in cyan and a comment to the coded dataset called "EQ - Code Name."

<u>Process of Coding:</u>

Individual Coding:

1. Broad Coding for Entire Dataset
    1. You will review the entire dataset to determine if the goals are relevant professional SMART goals or if the goals are not related to professional goals. If the dataset contains relevant professional goals, you will code the entire dataset "Relevant Professional Goals" (RPG). If the dataset contains some professional goals and some goals that are not professional goals, you will code the entire dataset "Mix of Professional and Non-Professional Goals" (MPNPG). If the dataset contains goals that are not relevant professional goals, you will code the entire dataset "Not-Relevant or Non-Professional Goals" (NRNPG). Then you will review the entire dataset to determine if the participant followed the SMART goal system. If the participant followed the SMART goal system, you will code the entire dataset "Followed SMART Goal System" (FSGS). If the participant did not follow the SMART goal system, you will code the entire dataset "Did Not Follow SMART Goal System" (DNFSGS).
2. Coding for Overall Goals
    1. In this step of coding, you will determine the level of depth for each SMART goal. If there was adequate depth in participants goals, you will code the goal "Adequate Depth" (AD). If there is inadequate depth in participants goals, you will code the goal "Lack of Depth" (LD). Then, you will review the goals to determine if they are short-term goals (STG) or long-term goals (LTG).
3. Narrow Coding for Each Part of the SMART Goal
    1. In the last step of coding, you will use sentence-by-sentence coding to apply codes to the dataset. Read each sentence carefully to determine what code should be applied to the sentence. If a sentence(s) contains a code, select the sentence(s) and add a comment with the code abbreviation. If the sentence does not stand alone, you should include the preceding or succeeding sentence(s). If you believe a sentence(s) are an outstanding example of the code used, highlight the sentence(s) in cyan and add a comment to the coded dataset called "EQ - Code Name." For example, a quote that is related to Building Professional Relationships would be coded as, "EQ - BPR."

Consensus Coding:

A raw copy of the participant dataset will be used during the consensus coding meetings. The researcher will facilitate discussion to determine the final codes that will be used for analysis. Once the research team has reached consensus on the codes for a question and response set, the researcher will select the entire question or response, and add a comment with the code abbreviations for the code(s) in the coding manual. Exemplary quotes will be highlighted in cyan and will have a comment that follows the format, "Exemplary Quote - Code Name."

Codes

Code Name	**Abbreviation**	**Definition**	**Example**
Adequate Depth	AD	Adequate depth in participants goals.	
Application Process	AP	Preparing for application process	Emphasis on preparation process (e.g., preparing a resume, mock interviews, etc.) Applying to research opportunities Applications, tests, interviews for any internship, volunteer position, job, graduate program, etc.
Building Professional Relationships	BPR	Networking Opportunities Increasing relationships and contacting people in potential career field Making connections in general	Career Fair or LinkedIn Shadow experience building professional relationships and network with other industry professionals Connecting with professor or advisor Making meaningful connections with other peers or professionals
Career and Graduate School Exploration	CGSE	Learning, researching, and/or evaluating career opportunities and ways to pursue the careers of student choice Exploring options for graduate school	Mention of career exploration. “Computer Based” career exploration not “hand on” career exploration

		How to select a grad school that's the best fit	Exploration can improve skills and knowledge in a career choice
Did Not Follow SMART Goal System	DNFSGS	Participant did not follow the SMART goal system	
Expand Knowledge	EK	Wants to broaden knowledge in future career field	Attending professional conferences or workshops in the field of nutrition to expand knowledge in the field Enhancing research knowledge through conferences, coursework, or workshops
Field-Related Experience	FRE	Learning, researching, and/or evaluating career opportunities and ways to pursue the careers of student choice Gaining experience in field of interest before entering workforce	Student goal to obtain an internship in the field of interest (nutrition). Obtain career-related experience Student wants to gain research experience because research is current career choice
Followed SMART Goal System	FSGS	The participant followed the SMART goal system when creating their goals.	
Graduating	G	Goal of graduating undergrad to further career onward	Graduating with honors Graduating with a certain GPA
Goal Measured by People Contacted	GMPC	Measuring a goal based on how many people a student contacts	Identifying and applying to different research opportunities

			Goal measured by number of people contacted for an internship
Goal Measured by Knowledge and Success	GMKS	Goals are measured based on personal success in courses, work, etc. Goals measured by knowledge gained	Goal measured by success in certification course or a grade in a course Evaluating how much was learned after an internship
Improvement	I	Success/goals measure by development and enhancing skills or growth	Increasing GPA
Interpersonal Communication	IC	Improving oral communication skills Improving communication with advisor Communicating with potential job prospects Communicating by contact people	
Lack of Depth	LD	Not clearly articulating goal Lacking depth in how to measure success Overall lack of depth and clarity in SMART goals	
Long-Term Goal	LTG	Goal completed longer than next semester	Enter workforce in career of interest Graduate with honors Get accepted to graduate school

Mix of Relevant and Non-Professional Goals	MPNPG	Some of the goals are considered professional goals and some are not	One goal is to graduate, graduate with a certain GPA, or graduate by a certain time. But another goal in the same dataset is about attending graduate school.
Not-Relevant or Non-Professional Goals	NRNPG	The goals in the dataset are not considered relevant or professional goals	The goals are related to graduation and not beyond graduation.
Obtain Job	OJ	Start a job right after graduating undergrad in the field of study (nutrition).	
Opportunities and Resources Available	ORA	Goals are attainable through resources available	Speaking with faculty or advisors to get recommendation letters University-related resources (i.e., clubs and research with faculty)
Preparation	P	Practicing for an interview, studying for an exam, etc.	
Positive Attitude	PA	Continuing to work hard even when opportunities don't work out	
Performance/Academic Confidence	PAC	Feeling sure in ability to perform well Confident in academic ability	Confident in their ability to perform well on the exam Confident in ability to achieve a goal (achieve it in a certain time frame)
Pursuing Further Education	PFE	Further education after undergraduate degree to pursue future career goal	Master's Degree PA school Med School Vet School

		Goal to attend graduate school to further education towards future career goals	Dentistry PT/OT
Professional Skill Development	PSD	A skill that is essential to achieving the goal A skill that one needs to become a better version of themselves Gaining new skills prior to entering the workforce or graduate school Take necessary steps towards improving skills related to future career goals	Soft Skills Time Management Organization Flexibility and Adaptability Watching videos and taking online courses to improve counseling skills Healthcare-related professional skills: taking blood pressure, drawing blood, etc.
Relevant Professional Goals	RPG	Goals are relevant to future career and education aspirations	Internship is related to future career in nutrition education ***Only code overall and on "relevant" part of SMART goal***
Research Experience	RE	Obtain or participate in research experience during undergraduate career	Likely wanting to bolster resume by participating in research experience Opportunity to participate in research can broaden career opportunities Enhancing research skills
Reliant on Authoritative Figure	RAF	Relies on someone higher up to tell them what to do and make	Reliant on college counselor to tell them

		sure tasks are completed correctly.	what they need to do to graduate
Short-Term Goal	STG	Goal completed prior to next semester	Obtain health coach certificate over the summer to become a health coach Deadline for Spring ‘23: August 2023 Deadline for Summer ‘23: December 2023 Deadline for Fall ‘23: May 2024
Standout Applicant	SA	How to be a standout job or graduate school applicant Making application materials standout Wants to increase certifications and resume skills to stand out during application processes	Making resume standout Specifically discussing application process and how to standout Gain health coach certification to stand out in application process against applicants who don’t have it
Stepping Stone	SS	Goal is a stepping stone to achieving a larger goal Taking necessary steps towards future career goals	Internship, exams, certification, patient hours, grad school, etc.
Starting Small to Gain Confidence	SSGS	Starting with smaller tasks and groups of people to gain confidence to work towards larger goals and tasks in the future	Practicing public speaking to a small group of people before moving to larger audiences
Tracking Progress	TP	Keeping track of progress made	Recording patient hours for graduate school

		Keeping track of deadlines and assignments, and keeping things neat	
Value of Experience	VE	Goals are measured based on the value of the experiences gained during undergraduate career.	
Working Towards Goals	WTG	Taking necessary steps to work towards a specific goal	Improving GPA by studying and attending tutoring sessions Taking steps to prepare for graduate/job application (e.g., seeking out opportunities, building relationships, maintaining GPA)