Exploring Self-Efficacy in the Classroom with a Chaos Theory of Careers Curriculum

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Abstract: Career courses have a long history in higher education (Reardon et al., 2020) and remain an effective means of service delivery (Reese & Miller, 2006); yet, few authors have described the career theories used to develop the course (Reese & Miller, 2006). This study was an exploration of a career course based on the Chaos Theory of Careers (CTC; Bright & Pryor, 2005; Pryor & Bright, 2011) at a medium-sized R1 institution in the northeastern United States. The course was designed to help students understand their own emerging patterns of interest, gain comfort with the uncertain and complex nature of their chosen career, and develop confidence in taking their next steps. Using the Career Decision Self-Efficacy Short Form (CDSE-SF; Betz & Taylor, 2001) as a pretest and posttest, the self-efficacy of 41 undergraduates was measured to evaluate the impact of the course. Participants ranged in age from 18 to 25 years old. Nineteen participants identified themselves as women (46%) and 22 identified themselves as male (54%). A paired-sample *t*-test was done to compare students' self-efficacy before and after the course. Initial results suggest that the course is effective in helping students gain self-efficacy and that CTC can be effectively implemented in a classroom setting. Limitations and implications for practice are discussed.

The Chaos Theory of Careers (CTC; Bright & Pryor, 2005; Pryor & Bright, 2011) is an action-oriented theory that provides a holistic framework looking at career development and decision-making for all individuals (Schlesinger, 2018; Schlesinger & Daley, 2016b). To meet the needs of the dynamic modern market, the educational institutions in many regions—especially in the Asian Pacific—have been turning to courses to prepare their students (Brewer, 2018; Bright & Pryor, 2019; Prematillake & Lim, 2018). Originating in general systems theories from math and science, the authors connected career development to the functioning of the natural world (Pryor & Bright, 2014). The resulting theory describes a process for 21st-century career development that better reflects the reality of modern careers, the diversity of inputs in decision-

making, and the changing ways of working (Schlesinger & Daley, 2016b). In Korea, the CTC has been used to approach the new, nonlinear emergent careers market (Kim & Baek, 2020). Perera and Athanasou (2019) provided a solid view into this dynamic international workforce market and indicated that formality is changing in the workplace, along with an acceleration of digital transformation and automation of processes.

The CTC is best understood by seeing complex dynamical systems in action, viewing careers through a series of systems, looking for emerging patterns, focusing on open systems to enable new shifts, and summarized by three Cs: complexity, chance, and change (Schlesinger & Daley, 2016b).

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Complex dynamical systems illustrate how individuals can see large changes from seemingly small interactions (Pryor & Bright, 2011) and describe how unplanned change unfolds in a nonlinear way to be understood and not feared (Mitchell et al., 1999; Pryor & Bright, 2014). Career is one more natural system with multiple influences where change is continual and 100% certainty or predictability about the future is impossible (Pryor & Bright, 2014).

Counselors view an individual's career through systems or using the mathematical phrase attractors (Bright & Pryor, 2005), with the goal of moving individuals to look for emerging patterns and seek out open systems allowing for chance events to occur (Schlesinger & Daley, 2016a). Barriers to career development can occur when individuals are stuck in closed systems, seeing their options as too narrow (i.e., point attractor), teetering between only two options (i.e., pendulum attractor), or stuck in a loop of activity (i.e., tours attractor; Bright & Pryor, 2005; Schlesinger, 2018). Utilizing action-oriented interventions including solution-focused (De Jong & Berg, 2002), constructivist (Savickas, 1997), and narrative elements (Cochran, 1997), counselors assist students to see patterns and move them towards open-systems thinking (Pryor & Bright, 2011; Schlesinger, 2018; Schlesinger & Daley, 2016a). The open system contains permeable boundaries, has both order and disorder in balance, and is where change and adaptation take hold (Bright, 2016).

For many first exposed to CTC, the three Cs of complexity, chance, and change become an easy shorthand to help move from theory into practice (Schlesinger & Daley, 2016b). Complexity describes the multitude of influences on complex dynamical systems (Pryor & Bright, 2011). The types and importance of factors that go into individual career decision-making are too great and personal to categorize them all (Bright, 2016); this also invites individuals' diversity into the career process from the start (Pryor & Bright, 2014). As a result of the complexity, systems are susceptible to chance events, which can result in changes large and small (Pryor & Bright, 2011). The goals for both chance and change are helping individuals to reframe risk, put themselves into situations to learn

more, and gain comfort with uncertainty (Schlesinger & Daley, 2016a).

Since 2003, authors have been refining CTC through theory, research, and practice (Pryor & Bright, 2014). The CTC has been applied in a variety of contexts including high school students in Australia (Borg et al., 2006; Loader, 2011), college students in the United States (Schlesinger & Daley, 2016a), e-sports athletics in China (Meng-Lewis et al., 2021), and career narratives of British, German, and Australian career professionals (Peake & McDowall, 2012). A career course is a natural context to evaluate the elements of CTC, as a course designed around a theoretical framework provides well-reasoned, consensually produced, and empirically tested methods (Reese & Miller, 2006).

Self-Efficacy

Self-efficacy, based on Bandura's (1977) work, describes a person's beliefs regarding his or her ability to perform a given task; this behavior may be predicted through the understanding of self-efficacy expectations. The model of triadic reciprocal determinism (Bandura, 1977) describes self-efficacy expectations that, "interact complexly over time to influence and shape both self-efficacy and performance" (Betz, 2006, p. 4). Low self-efficacy expectations lead to avoiding tasks, while stronger self-efficacy expectations lead to approach behavior (Bandura, 1977). Four sources of information are important parts of self-efficacy to be learned and modified: (a) performance accomplishments; (b) vicarious learning or modeling; (c) verbal persuasion; (d) lower levels of emotional arousal (Bandura, 1977).

Hackett and Betz (1981) applied Bandura's (1977) work to vocational behavior integrating career maturity competencies (Crites, 1978). The resulting CDSE (Taylor & Betz, 1983) measures individuals' confidence to complete tasks related to making career decisions. "In the context of career development in particular, 'approach behavior' describes what we will try, while 'avoidance behavior' refers to things we will not try" (Betz, 2000, p. 206). Increasing students' self-efficacy has been shown to be beneficial in completing several necessary career tasks (Komarraju et al., 2014).

Scholars have shown significant gains in career decision-making self-efficacy and decreases in career indecision following interventions (Betz & Luzzo, 1996). Researchers have also indicated a relationship between self-efficacy and goals such as college persistence (Sandler, 2000).

Career Decision Self-Efficacy Scale

The CDSE, developed by Taylor and Betz (1983) and based on Crites's (1978) theory of career maturity and the Career Maturity Inventory, measures a person's confidence in their ability to accomplish a career decision-making task. The original scale contained 50 items and was later shortened to the 25-item CDSE-SF (Betz et al., 1996; Betz & Taylor, 2001) for ease of use in assessment. The five subscales measure accurate self-appraisal, gathering of occupational information, goal selection, planning, and problem-solving. Students' confidence is assessed on a 5-point scale: scores of 1.0–2.5 indicate little to low confidence, scores of 2.5–3.5 indicate moderate confidence, and scores of 3.5–5.0 indicate good confidence. Scholars have reported the CDSE-SF to be reliable (Betz & Luzzo, 1996). Its internal consistency reliability range has been reported from .73 to .83 for the five-item subscales and .94 for the total score (Betz & Luzzo, 1996). The CDSE-SF has also been rigorously tested and utilized in multiple domestic and international populations (Betz & Taylor, 2001).

Designing a Career Course

Reardon et al. (2020) reported that career courses have a "surprisingly long and robust history" with one of the earliest university career courses appearing in 1921 (p. 3). Today, career courses remain an effective means of service delivery (Reese & Miller, 2006). A standard definition of a career course is a program of instruction which is part of the university curriculum and typically offered for credit, and is not individual or group career counseling or a workshop (Reardon et al., 2020). These kinds of courses are more often incorporating CTC as a means of adapting courses to a nonlinear, dynamic workforce market (Brewer, 2018; Bright & Pryor,

2019; Kim & Baek, 2020; Perera & Athanasou, 2019; Prematillake & Lim, 2018).

Given their long history, career courses have been the subject of several meta-analyses. In a comprehensive review, Reardon et al. (2020) looked at 116 studies with more than 32,000 participants covering the years 1976 to 2019. Ninety-three percent of the studies reported positive gains in output variables including career thoughts, career decision-making, career decidedness, vocational identity, and others (Reardon et al., 2020). Additionally, Reardon et al. (2020) reported the expansion of courses into multiple academic disciplines and the expansion to international contexts.

In China, the rapid expansion of university enrollment has created problems in the job market, resulting in an increase in career planning and employment guidance offerings, with employment guidance courses as a popular method of delivery (Sun & Yuen, 2012). In a Malaysian study, Lam and Santos (2018) found a career course was effective in reducing overall levels of career indecision and career decision-making difficulties by increasing career decision self-efficacy. Wang et al. (2010) created a group training for students in China demonstrating significant gains in career decision-making self-efficacy in an experimental versus control group. Cheung and Jin (2016) found a career course in Hong Kong fostered greater career exploration behavior in students. Despite the abundance of career course research, few authors have described the career theories used to develop the course material in a career course (Reese & Miller, 2006).

Given the effectiveness of career courses, when presented with the opportunity to create a course at our institution, staff first began by grounding the course in an underlying career theory. The new course, titled "Work, Career, and Life," was created as a 6-week elective module, part of a revamped set of core university requirements at the authors' institution. The course was grounded in the theoretical framework from CTC (Pryor & Bright, 2011) and supported by instructor practice. As a foundation, the team of career staff utilized a previously created workbook which collected resources providing an overview of CTC and

exercises for individual and group work (Hiatt Career Center, 2018). To achieve CTC goals, constructivist, narrative, and solution-focused interventions are integrated into a holistic practice (Pryor & Bright, 2011; Schlesinger & Daley, 2016a). The career team previously adopted CTC as a framework for practice within the office and had experience applying CTC in individual and group settings. In the "Work, Career, and Life" course, (a) students navigated an individualized process of self-reflection; (b) gained confidence with and inspiration from change; (c) acquired lifelong foundational skills; (d) recognized responsibilities to themselves and a wider community within the complex web of decision-making related to career exploration, choice, and participation.

Method

Through this study, the researchers sought to explore the effectiveness of a career course based on CTC. The course was designed to help students understand their own emerging patterns of interest, gain comfort with the uncertain and complex nature of their chosen career, and develop confidence in taking their next steps. Based on the goals of CTC (Pryor & Bright, 2011; Schlesinger & Daley, 2016a), the goals established for these classes and goals in previous CTC research (McKay et al., 2005), the CDSE-SF (Betz & Taylor, 2001) was selected as an appropriate instrument to evaluate the course. Before the beginning of class, the 25-item CDSE-SF (Betz & Taylor, 2001) survey was administered as a pretest for students to complete to assess where students were in their comfort with career decision-making. To gather posttest data, the 25-item CDSE-SF was readministered on the last day, after the instruction had completed. As we demonstrate, CTC as an action-oriented framework is well aligned with the scales of the CDSE. One key underlying goal in CTC is for individuals to gain comfort with uncertainty and the confidence to reframe risk and put themselves into situations to learn more (Schlesinger & Daley, 2016a).

Participants

Participants consisted of 41 undergraduate students enrolled in a medium-sized R1 institution (i.e., a doctoral university with very high research activity in the Carnegie Classification of Institutions) in the northeastern United States. The sample was drawn from students enrolled in one of three sections over two semesters of Work, Career, and Life, a 6-week career course that is an elective module part of Health, Wellness, and Life Skills classes. Participants who completed both pretest and posttest ranged in age from 18 to 25 years old ($M = 20.56$ $SD = 1.45$). 19 participants identified themselves as women (46%) and 22 identified themselves as male (54%). Self-identified ethnicity included 20 White/European Americans (49%), six Black/African Americans (15%), eight Asian American/Pacific Islanders (20%), six Hispanic or Latinos/Latinas, and one Not Disclosed (2%).

Course Instructors

The three courses were taught over two semesters by two different instructors. Both instructors are seasoned career counselors with an average of 6.75 years of experience between them. One instructor has a Master of Arts in Higher Education and the other has a Juris Doctorate of Law. Both instructors followed the same syllabus and lesson plan to ensure that courses were taught in the same fashion, with identical activities and discussions for consistency. Instructors crafted the syllabus together prior to the start of class, and any adjustments to the course were communicated prior to each lesson. A two-way repeated measures analysis of variance (ANOVA) revealed no statistically significant differences between the three classes on the pre/post total scores of the CDSE-SF (Betz & Taylor, 2001).

Course Description

The Work, Career, and Life course was delivered in a seminar format structured to support students at all levels of experience to navigate the individualized process of career exploration and decision-making. The course was open to students in all majors, but primarily marketed to first- and

second-year students. The class met once a week for 90 minutes over 6 weeks.

Three primary questions addressed in the course are: (a) who you are, (b) what meaningful work is to you, and (c) how you get there. This was an active and experiential seminar with guided reflection, homework assignments, reflective writing, and group conversations. Reflective writing and career documents accounted for 60% of student grades, with the rest being part of class discussions, reading assignments, and participation.

The process of designing this course began with establishing learning goals based on CTC goals. As a result of completing this course, students should be able to:

- Recognize that complex multiple factors influence the career decision-making process.
- Apply strategies to feel comfortable with uncertainty and respond flexibly to changing interests and circumstances.
- Identify unanticipated events as catalysts for growth, exploration, and decision-making in career evolution.
- Understand workplace professionalism, including topics of diversity, professional communication, and workplace ethics.
- Design a personal career narrative and resume to communicate their career skills and interests.

The course addressed CTC topics through classroom discussions and activities with each week's topics building on the last and introducing new interventions. In this section, the major topics, discussions, and assignments for each week are reviewed.

Week 1 focuses on students' self-assessment and introduces the CTC concept of complexity (Pryor & Bright, 2014) to students. Students begin to recognize the multitude of factors in their career decisions, and discussion of this complexity helps them to focus on the links and allows for an exploration of skills, strengths, and past successes (Schlesinger & Daley, 2016a). The goal is to focus on all the dimensions that influence a student's self-concept, decision-making, and choice when determining their career development (Pryor & Bright, 2014). The primary activity in this session is a visual mapping exercise that helps students explore the number of different selves and serves as an introduction to uncertainty for the rest of the seminar. The Mind Map (Brooks, 2009) exercise begins with students quickly writing down items of significance to them and then searching for connections to the words and phrases to consider their own past patterns. Through discussions and reflections, they analyze and connect themes together that help assess their skills, interests, and values; both career and non-career items result in a visual representation of all the factors which held importance in their lives (Brooks, 2009). This constructivist visual mapping exercise is a foundation to help students find and make connections while teaching them to identify new patterns. As a homework assignment at the end of Week 1, students are introduced to TypeFocus (Wood, 2019) online software, enabling students to take versions of the Myers-Briggs Type Indicator and the Strong Interest Inventory.

The focus in Week 2 is on meaningful work while exploring definitions of work and career. Students review and discuss results from the personality and interest assessments to build upon their understanding of patterns. The use of career assessments helps students focus on the patterns of interest and add to their career vocabulary (Schlesinger & Daley, 2016a). Through group activities, students learn how individuals define work and career in highly personal ways over a lifetime. Building on the newly acquired vocabulary from the personality and interest assessments, students explore a personal definition of meaningful work. The primary exercise in Week 2 is the Odyssey Plan (Burnett & Evans, 2016), which sets the stage for a reflective writing exercise later in the course. The Odyssey Plan is a visual exercise helping students craft three separate career plans outlining the steps they need to achieve that plan. Plan A focuses on their current career path, Plan B addresses what would happen if their first career path disappears and they have to start over, and Plan C allows them to focus on what they would do if they had no limitations and could not fail (Burnett & Evans, 2016). This exercise continues the earlier discussion of complexity and introduces again chance and change. Through small group discussions, students assess key

differences in each plan and what skills they need in order to be prepared. Students also discuss what action steps were created; through analyzing each plan, students are prompted to recognize overarching patterns and identify valuable career-related experiences (Burnett & Evans, 2016).

Week 3 centers on the concept of chance (Pryor & Bright, 2014) and the importance of purposefully being open to possibility. Students review the concept of complexity to define their values; the concept of chance is introduced and is defined as "the loss of predictability and the impact of unplanned events on individuals' lives and careers" (Pryor & Bright, 2014, p. 6). As students have spent 2 weeks gaining a better understanding of self-knowledge, they are now encouraged to gain comfort with ambiguity and change to explore their next steps in their careers. Integrating concepts and questions from Planned Happenstance (Mitchell et al., 1999), class discussions focus on students' chance events that led to short- and long-term goals in previous real-life experiences. Students are prompted to write down an unexpected event that happened to them and what the result was for three to five career and non-career-related events so they can reflect on experiences. Using a variation of a narrative-inspired career lifeline (Cochran, 1997), students also review their own personal and academic timeline. Through these discussions, students share their experience of unexpected events and they begin to recognize how change affects their daily life. The ability to gain comfort with different levels of risk in any given situation begins to move the student from closed systems thinking to an open systems thinking mindset, which allows them to expand the conversation into what risk means in career decision-making (Pryor & Bright, 2007). For the homework in Week 3, students begin to craft informational interview questions, the assignment due in Week 5 is central to reinforcing concepts of complexity, chance, and change (Schlesinger & Daley, 2016a).

At the start of Week 4, discussion begins with checking in on students' understanding and growing comfort with the unexpected to focus on change (Pryor & Bright, 2014). To begin to tie complexity and chance together, change is introduced as both part of career and everyday life. When first introduced to change, many students fear that it is a negative, but in the right mindset, it is better to be viewed as potential and an influential dimension of work and careers (Brooks, 2009; Mitchell et al., 1999). This week explores ways to view change as an advantage through problem solving, flexibility, resiliency, and growth—all key career development skills. Students are introduced to a cognitive activity to address maladaptive thinking about risk and change. Integrating elements of Solution-Focused Interviewing (De Jong & Berg, 2002) and the Right Mind Thinking exercise (Brooks, 2009) helps students reflect past situations and consider their thoughts, beliefs, actions, expectations, attitude, behavior, performance, and learning. Students are tasked to choose a moment in their life that forced them to change course and adjust their attitude about the event. This exercise addresses students' negative thinking and helps them frame the experience in a positive light (Brooks, 2009). To add perspective, an alumni speaker shares their career narrative around chance and change this week, setting up the informational interview homework activity. Informational interviews, a frequent staple of career exploration, allow students to speak with professionals and gain insight into their careers providing an opportunity for vicarious and observational learning. Through reflection, alumni stories, and the informational interviews they conduct, students begin to recognize how to make the most out of an experience that was initially negative and address change in their life and career.

Continuing with reflective exercises, Week 5 dives into career paths and introduces personal and professional workplace values. Group and individual discussions review change in the workplace and how that affects individuals' attitude about work and career. Referring to the past weeks of alumni examples and students' informational interviews, students discuss attitudes towards change, recognize motivators of change, and the outcomes of change. Through these conversations, students define professionalism and professional behaviors as well as explore ethical considerations in a work context. Examples of ethical considerations include giving notice, setting

expectations in their current role, and changes to find fulfillment in work. This week makes use of a homemade constructivist values-based card sorting activity consisting of two-sided cards, with work values on one side and definitions on the other side. The card sort cultivates awareness of the intersection of personal and professional identities in work environments. Students narrow down the cards to find their top values, promoting discussions and reflection on their values and how to seek them out in a professional setting.

The final week synthesizes what students have learned about themselves from the previous weeks' topics and helps them put everything together. Students bring in current drafts of career documents (resumes and cover letters) and work collaboratively to articulate career goals, develop career narratives, and shape ideas about next steps. Students' career narratives are extended to address crafting resumes and cover letters, creating personal elevator pitches, and writing LinkedIn in profiles. These activities help students integrate what they have learned about themselves and their career narratives into career documents. As a final homework assignment, students craft career documents for review and review resources to begin or continue a purposeful career strategy.

Research Design

As a result of the goals of CTC (Pryor & Bright, 2011; Schlesinger & Daley, 2016a), those established for the course in the current study, and those considered in previous CTC research (McKay et al., 2005), the CDSE-SF was selected as the most appropriate instrument to evaluate the course. As with CTC, career decision self-efficacy focuses on both the content and the process of career choice (Betz, 2000; Pryor & Bright, 2011). The CTC interventions (Pryor & Bright, 2011; Schlesinger & Daley, 2016a) tie directly to career decision self-efficacy, as the goals for both chance and change are helping individuals to reframe risk, put themselves into situations to learn more, and gain comfort with uncertainty (Schlesinger & Daley, 2016a). The cognitive, affective, and biological influences of self-efficacy (Bandura, 1977) describe, in part, the complexity of factors that Pryor and Bright (2011) considered as a key

tenant of CTC. The domains of Crites's (1978) career maturity competencies of self-appraisal, occupational information, goal selection, planning, and problem-solving are all session goals for practitioners working with a CTC framework (Schlesinger & Daley, 2016a). Additionally, the CDSE-SF scale problem-solving relates to the idea of generating additional options if the first is not successful (Betz & Luzzo, 1996). This is a key concept in CTC, as well as the most prominent learning goal in the course: to feel comfortable with uncertainty and respond flexibly to changing interests and circumstances (Pryor & Bright, 2011; Schlesinger & Daley, 2016a). McKay et al. (2005) also previously recognized the importance of the CDSE scale and utilized it as one measure to assess CTC. The CDSE-SF provides insights into student learning and allows for the evaluation of the course goals.

Results

A paired-sample t-test was conducted to compare students' self-efficacy before and after the course. Overall career decision-making, as measured by the CDSE-SF, increased after the career course. There was a significant difference in the pretest score ($M = 3.3$, $SD = 0.5$) and posttest ($M = 4.1$, $SD = 0.5$, $t(40) = 8.5$, $p < .001$). The overall effect size of $d = .58$, as Cohen (1988) proposed, shows a moderate effect size. Reliability analyses indicate the internal consistency for the present sample on the total scale at .90. Examining the subscales of the CDSE-SF, problem-solving showed the greatest effect size of $d = .74$, with pretest ($M = 3.2$, $SD = 0.6$) and posttest ($M = 4.0$, $SD = 0.6$). This improvement (.79, 95% CI [0.53, 1.0]), as with the other subscales, was statistically significant ($t(40) = 6.6$, $p < .001$). The results for each subsequent scale are summarized in Table 1, self-appraisal pretest ($M = 3.1$, $SD = 0.6$) and posttest ($M = 4.0$, $SD = 0.6$); occupational information pretest ($M = 3.3$, $SD = 0.6$) and posttest ($M = 4.0$, $SD = 0.5$); goal selection items pretest ($M = 3.4$, $SD = 0.6$) and posttest ($M = 4.1$, $SD = 0.6$); planning pretest ($M = 3.3$, $SD = 0.7$) and posttest ($M = 4.1$, $SD = 0.5$).

Discussion

The results of this study suggest that our CTC-based course accomplished its goals and the course-based CTC interventions are effective at improving the career decision-making self-efficacy of students. As CTC interventions were utilized each week of the course, students were introduced to an increasing complexity of activities that built their career skills. Students' positive gains demonstrated in the effect sizes on subscales of the CDSE-SF also substantiated the effectiveness of the CTC interventions utilized. The greatest statistically significant effect size appears on the subscale for problem-solving, followed by planning and occupational information. This aligns with the course's objectives to answer the questions of what meaningful work is and how students get there. On the CDSE-SF, problem-solving relates to the idea of generating additional options if the first is not successful (Betz & Luzzo, 1996). This is a key concept in CTC and the most prominent learning goal in the course: to feel comfortable with uncertainty and respond flexibly to changing interests and circumstances. Students were able to synthesize their findings at the end of the 6-week course through crafting application materials for their career interests and utilized a CTC activity, the Odyssey Plan (Burnett & Evans, 2016), to help identify their next steps. This capstone style activity allowed students to reflect on their course experience, reflect on their learning, and plan for a variety of next steps. Despite the brief nature of the intervention, delivered over 6 weeks, each of the scales showed statistically significant results with moderate effect sizes in line with the established learning goals. Not all effects of the increase in self efficacy can be ascribed to the CTC interventions, the limitations are described below. However, our results are in line with previous research showing gains in self-efficacy (Betz & Luzzo, 1996), effectiveness of career courses reducing career indecision (Lam & Santos, 2018; Wang et al., 2010), and application of CTC to a student population (McKay et al., 2005). This study serves as one example of CTC in action for an undergraduate population, illustrating the effectiveness of CTC and extending the literature of the usage of CTC.

Limitations

While the initial results are promising, it is important to acknowledge the study's limitations as the focus was on this career course. The sample size ($n = 41$) was small, and, because enrollment in the course was voluntary, the self-selecting bias may have impacted the results. Additionally, the nature of the class may attract students with enhanced motivation. While the diversity of the sample was nearly representative of the institution, greater diversity would enhance the results. Additionally, two instructors taught the three courses; while the content was aligned and the instructors worked together, differences in style or course structure may affect outcomes. The pretest and posttest design did not include a control group, as a result the authors were unable to distinguish the effect of naturally occurring variables from the intervention. Overall, given the positive results, future program improvements and studies are warranted. Suggestions for future research include repeating this study with a larger more diverse sample size, repeating the measurements over time, and incorporating a control group to confirm internal validity.

Implication for Practice

Delivering a career course situated with a framework built on CTC and effective in increasing self-efficacy has implications for students and career practitioners and extends the literature for researchers around the globe, especially those in Asian Pacific countries (Kim & Baek, 2020; Prematillake & Lim, 2018). Students are at the center of career services work. This study provided an example of how a theoretically framed and intentional career class, based on CTC, can increase career decision self-efficacy, leading to approach behavior and greater confidence in career decisions. While the current context was a career course, lessons and exercises can be adapted to individual and group work benefiting students and practitioners looking for tested and effective means of career counseling. Additionally, the findings demonstrated the effectiveness of brief career interventions, providing support for using

theoretically aligned interventions in multiple contexts.

Despite the abundance of career courses and research of effective teaching methods (Reardon et al., 2020), there is a lack of literature on CTC within college career courses. Reese and Miller (2006) also cited the need for future studies looking at additional theories within a classroom setting. While CTC has gained traction in new contexts (Borg et al., 2006; Loader, 2011; Meng-Lewis et al., 2021; Peake & McDowall, 2012; Schlesinger & Daley, 2016a), translating a new theory into practice can be a barrier for practitioners. This study extended the examples of CTC used in a university context and built on extant research to demonstrate one effective example for practitioners. Additionally, examples presented here show how to integrate CTC effectively in a group setting allowing practitioners to scale services and increase career services' visibility within their institution. This study partnered the research on effective career courses (Reardon et al., 2020) with CTC (Pryor & Bright, 2011; Schlesinger & Daley, 2016b) building on scholarship in both areas. Conducting research within the career center and on practitioner provided services also bridges the scholar-practitioner gap and adds credibility to the work of career services.

Looking internationally, Sun and Yuen (2012) noted that there was too little theory underlying career services in universities in China, yet other Asian regions established systems aligned with the local context and built on theory. Prematillake and Lim (2018) reveal that unplanned and complex influences play a major role in graduates' first-time job search. In Korea, CTC has been used for careers courses to help students approach a dynamic, nonlinear market for their careers (Kim & Baek, 2020). Given the usefulness of career courses to reach large audiences of students, and the need for career development in China, studies such as this may provide one example of effective integration of a career theory in the classroom. CTC is a more modern theory of career development that may be readily adaptable for audiences across the globe.

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Appendix

Table 1

Paired-Samples Means, Standard Deviations, and Effect Sizes for Career Decision Self-Efficacy Short Form (CDSE-SF)

	Pretest		Posttest			Effect Size
	M	SD	M	SD	p	Cohen's d
Self-Appraisal	3.1	0.6	4.0	0.6	<.001	0.64
Occupational Information	3.3	0.6	4.0	0.5	<.001	0.65
Goal Selection Items	3.4	0.6	4.1	0.6	<.001	0.62
Planning	3.3	0.7	4.1	0.5	<.001	0.67
Problem Solving	3.2	0.6	4.0	0.6	<.001	0.74
Total	3.3	0.5	4.1	0.5	<.001	0.58