

Finding order and direction from chaos: a comparison of chaos career counseling and trait matching counseling

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Chaos career counseling, based on the Chaos Theory of Careers (R. G. L. Pryor & J. E. H. Bright, 2003a, 2003b), was compared with *trait matching career counseling* and a wait list control. Sixty university students who attended the Careers Research and Assessment Service seeking career advice were randomly assigned to the chaos intervention, the trait matching intervention, or a wait list control group. Both chaos and trait matching counseling had a positive impact; however, chaos counseling had a more lasting effect. Overall, results support using the chaos counseling approach as a valid alternative to trait matching approaches. Implications for counseling practice as well as future research are discussed.

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Trait matching career counseling involves the counselor as the expert "interpreting" inventory-measured individual clients' interests and matching these interests to different occupations (Zytowski, 1999). Liptak (2001) characterized this approach as follows: "[T]he career counselor administers a variety of assessment instruments, identifies traits of the client, and then matches those traits to similar factors in a variety of jobs" (p. 9).

However as Liptak (2001) pointed out, such an approach is not "sufficient for the kind of society in which we live" (p. 9). In an ever-changing environment that is marked by economic, social, and cultural shifts, there has been a move away from the traditional role of career counseling toward the provision of a range of career-related interventions for diverse individuals throughout the life span. Such interventions focus on exploring the meaning that clients place on their careers and emphasize contextual factors that influence career development. Savickas (1997) argued that the trait matching or "actuarial" methods of counseling ignore the essence of the client's unique character.

Despite the regular calls to use alternative approaches to career counseling, there has been little empirical investigation into whether alternative theories and inter-

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ventions produce more effective outcomes for the client than do trait matching interventions. Thus, the aim of our study was to compare the effectiveness of a new approach to career counseling, based on the Chaos Theory of Careers (Pryor & Bright, 2003a, 2003b), with the effectiveness of trait matching career counseling, with its foundation in "matching" individuals to jobs.

TRAIT MATCHING APPROACHES TO CAREERS

The theories and practice of career counseling have been widely based on the logical positivist worldview as a trait-and-factor approach that today is referred to as person-environment fit. Traditional career theorists have tended to view the person and the environment in a trait-oriented manner (Dawis & Lofquist, 1984; Holland, 1987). Such theories, therefore, propose that individuals and environments are relatively predictable and unchanging. Trait matching career counseling consists of diagnosis, psychometric information, and occupational classification and information, with little attention paid to the environment in which the individual interacts or the influences that affect individual career development. Woodd (2000) has critically argued that the predominant interest for the traditional models has been the person rather than a balanced interest in person and environment. Roberts (1977) criticized trait matching counseling assumptions of rationality, questioning whether people actually use reasoning in all career choices. Given the complexity of influences in relation to career development, it is unreasonable to assume that the individual's career development will always be planned, predictable, or logical (e.g., Krumboltz, 1998; Williams et al., 1998).

Savickas (1996) asked, "How do counselors apply theories that are partial and simple to clients who are whole and complex?" (p. 193). Postmodern approaches to assessment in the psychological and counseling setting emphasize the plurality of perspectives, contexts, realities, and meanings (Thorngren & Feit, 2001). There has been a growing awareness of and move toward constructivist approaches to career counseling (Collin, 1996; Richardson, 1996; Savickas, 1996), and the present study is a further extension of this. This shift challenges trait matching views of career and career development, necessitating new ways of thinking about and practicing career counseling. Career counseling is no longer a singular process that is focused on making a job choice; it is, instead, a range of interventions to deal with psychological issues that accompany clients' career concerns (Herr, 1997). As such, the practice of career counseling must be holistic and should consider a broader range of issues in the person's life—not just a narrow set of variables relating to some form of typology.

CHAOS APPROACH TO CAREERS

The Chaos Theory of Careers (Pryor & Bright, 2003a, 2003b) identifies four crucial elements in career development and choice that most existing theories fail to take into account adequately. The following four elements are central to the Chaos Theory of Careers:

1. Complexity—of human experience and the range of potential influences on people's careers, in particular the influences of objective and subjective context
2. Change—the dynamic, interactive, and adaptive nature of human functioning in the world and in making career decisions and taking career action
3. Constructiveness—the tendency of humans to construe and construct experiences and perceptions into meaningful and often unique interpretive structures for understanding themselves, their experiences, and their world
4. Chance—the unplanned and unpredictable events and experiences that are often crucial and sometimes determinative in the narrative of people's careers

From a career development perspective, each person can be understood as a complex, unique, nonlinear, adaptive, chaotic, and open system. As a consequence, people are sensitive to change, which can have the result of producing disproportionate and unpredictable effects (Pryor & Bright, 2003a, 2003b). The Chaos Theory of Careers stipulates that the adaptive capacities of individuals are principally manifested through the following:

1. Ongoing learning
2. Interaction with their environmental systems
3. Their capacity to reframe their understanding of self, others, and the world through their experience
4. Purposive action, which indicates the capacity of the individual to function in ordered yet unpredictable ways

In *chaos counseling*, issues of complexity, change, adaptability, uncertainty, and chance are likely to figure prominently (Bright, Pryor, & Harpham, 2005; Pryor & Bright, 2003a, 2003b). Consistent with writers such as Gelatt (1989), the Chaos Theory of Careers does not claim that decidedness is always the best outcome from career counseling—sometimes undecidedness can be the most appropriate and the most adaptive response in a complex, changing, and unpredictable world (Pryor & Bright, 2003a, 2003b).

Chaos career counseling involves qualitative assessment procedures as opposed to the objective assessment procedures used in trait matching career counseling. Goldman (1992) argued that qualitative assessment procedures in the counseling setting have significant advantages, including an active, participative role for the clients; a more holistic and integrative approach than standardized testing, with greater potential for generalization to the client's real world; operation within a developmental framework that encourages clients to learn about themselves; and the potential for greater intimacy in the counseling relationship.

Whiston (2001) stated that the intent of career counseling is to provide a process that will result in some positive change or career-related benefit for the client. Although it is feasible that both the trait matching approach and the chaos approach would meet such an intention, the two approaches to career counseling differ in their focus and, as such, may differ in the extent to which they meet such an intention. Trait matching counseling has a narrow, reductionist

focus and assumes lifelong stability in characteristics. The counselor is the expert and is responsible for providing clients with information, based on objective assessment, about the clients themselves and occupations. Thus, the focus is short-term. By contrast, chaos counseling is exploratory in nature, focusing on increasing the client's self-awareness and broadening his or her perspectives. The client is viewed as an adaptive, chaotic, and open system that is sensitive to change. Reciprocal influences and chance events—past, present, and future—are explored. Accordingly, the focus is longer term.

This exploratory study used an experimental model to investigate the differences between and the outcomes produced by the two approaches to career counseling. The purpose of this study was to determine if chaos career counseling produces different outcomes than those produced by trait matching career counseling.

The following hypotheses are based on the developing perspective that trait matching approaches to career counseling no longer appear to be adequate in meeting the needs of individuals living in an ever-changing environment (e.g., Richardson, 1996; Savickas, 1997):

Hypothesis 1: Individuals in the chaos counseling group would display greater satisfaction both immediately after the career counseling and 1 month later than would individuals in the trait matching counseling group.

Hypothesis 2: Individuals in the chaos counseling group would exhibit fewer irrational career-related thoughts both immediately after the career counseling and 1 month later than would individuals in the trait matching counseling group.

Hypothesis 3: Career decision-making self-efficacy would increase immediately after the career counseling for individuals in both the chaos counseling group and the trait matching counseling group; however, this increase in career decision-making self-efficacy would only be sustained 1 month later by individuals in the chaos counseling group.

METHOD

Design

The present study used a 3 (intervention: chaos, trait matching, and control) \times 3 (time: precounseling [Time 1], immediately after counseling [Time 2], 1 month later [Time 3]) factorial design with repeated measures on the second factor. Participants were randomly assigned to a chaos counseling group, a trait matching counseling group, or a wait list control group. The dependent variables were satisfaction with the career counseling, participants' reported irrational career-related thoughts, and career decision-making self-efficacy.

Participants

Sixty participants from The University of New South Wales, 48 women (80%) and 12 men (20%), volunteered to participate in the study. Of the 60 participants, 47

were undergraduates (78%), and 13 were graduate students (22%). Participants ranged in age from 19 to 41 years, with a mean age of 23.7 years ($SD = 3.5$). Participants were selected on the basis of expressing uncertainty about their vocational future or having difficulty making career decisions. An advertisement was placed on The University of New South Wales Careers and Employment Service Web site, and printed posters were displayed around the campus of The University of New South Wales.

Instruments

Client information form. This questionnaire requested demographic information such as age, gender, degree clients were pursuing, student level, educational background, occupation of each parent, work experience, career information, and clients' expectations of career counseling.

Interview schedules. Two interview schedules were constructed for the purpose of standardizing the semistructured interviews. The trait matching interview covered the following areas: expectations of career counseling, current situation (both study and work), strengths and weaknesses, likes and dislikes, vocational interests, and career options considered. The chaos interview consisted of the following: expectations of career counseling, influences that led to current situation (both study and work), themes and patterns of influence on career decision making, unplanned events, and what constitutes their "ideal" vocation. The Circle of Influence Task worksheet (Bright & Pryor, 2003) was presented during the chaos interview to enhance participants' thinking regarding influences on their career development. The initial interviews lasted approximately 30 minutes.

The Congruence Personality Scale-Form 1 (CPS-1; Pryor & Taylor, 1994). This is a five-factor theory personality inventory that is composed of adjectives that people use frequently to describe themselves and others. Participants were asked to rate how often they would use the adjective to describe themselves. The CPS-1 has alpha reliabilities ranging from .86 to .92. Factor analysis supported its construct validity, and occupational data supported its discriminant validity for career counseling (Pryor & Taylor, 1994). The CPS-1 took approximately 10 to 15 minutes to complete. The inventory was scored, and the participant received a normed profile. This instrument was used for the trait matching counseling group.

The Occupational Search Inventory-Form 3 (OSI-3; Pryor, 2001). The OSI-3 is a vocational interest questionnaire that is based on Roe's (1956) occupational taxonomy and is intended to assist people in exploring their vocational interests and to relate them to specific kinds of occupations. In completing the questionnaire, participants were asked to rate to what extent they liked activities in the five interest domain categories of work tasks, work environments, leisure activities, occupational preferences, and work skills. The OSI-3 has alpha reliability scores ranging from .83 to .88. Its construct validity is supported by high predicted correlations with the Self-Directed Search (Pryor, 2001). The OSI-3 took approximately 20 minutes to complete. The questionnaire was scored, and an OSI code was generated that was used to match participants to specific occupations. This instrument was also only used with the trait matching counseling group.

The Congruence Personality Scale-Form 3 (CPS-3; Pryor, 2003). The CPS-3 is a card-sort activity that consists of words or phrases that people use to describe themselves or others (similar to the CPS-1). Participants were first asked to sort the cards according to how often each word described them. Then, collaboratively the counselor and participant identified patterns and common themes in the cards. Responses were recorded. Next the participant sorted the cards according to how often they would "like" each word to describe them. The task was exploratory and aimed at increasing self-awareness; identifying patterns, common themes, and influences; establishing characteristics to be reduced/developed; and identifying barriers to making these changes. The CPS-3 took approximately 30 minutes to complete and was used with participants in the chaos counseling group.

The Congruence Interest Sort (CIS; Pryor, 1995). This is a card-sort activity designed to assess an individual's personal/vocational interests. It is also based on Roe's (1956) occupational taxonomy. It was not used to "match" vocational interests to occupations; rather, it was exploratory in nature, and the primary goal of such an instrument was to increase the participant's self-awareness. On each card was a statement about an activity that people sometimes do. Participants were asked to sort the cards according to the attractiveness of each activity. Then, collaboratively, the counselor and participant identified patterns and common themes running through the cards. Responses were recorded. Participants were also asked about other activities that they found attractive but that were not included in the cards. The CIS took about 30 minutes to complete and was used with members of the chaos counseling group.

Questionnaires and measured variables. Participants received questionnaires that measured the impact and outcomes of the counseling experience. All questionnaires took approximately 10 minutes to complete. Questionnaire 1 was given prior to the session (i.e., pretest), Questionnaire 2 was given immediately after the career counseling (i.e., posttest), and Questionnaire 3 was completed by participants 1 month later (i.e., follow-up). Questionnaire 1 contained two scales: the Irrational Career-Related Thoughts scale (ICRT) and the Career Decision-Making Self-Efficacy scale (CDMSE; Taylor & Betz, 1983). Questionnaire 2 contained three scales: the Satisfaction scale, the ICRT, and the CDMSE. Questionnaire 3 was identical to Questionnaire 2. Details of each scale are given below.

Satisfaction scale. Participants' satisfaction with the career counseling approach was measured using an eight-item scale developed for the study. The internal consistency estimate (coefficient α) for the Satisfaction scale for the total sample was .86. This measure assessed participants' perceptions and experiences of the career counseling intervention. It consisted of eight Likert-type items addressed to factors that contribute to and/or demonstrate satisfaction with the career counseling experience. A sample item is "I would recommend this career counseling experience to a friend." Participants responded to the items using a 5-point scale that ranged from *strongly disagree* (1) to *strongly agree* (5). High scores represent greater satisfaction. Factor analysis was used to identify the underlying dimensions along which participants evaluated their satisfaction with the career counseling intervention. Based on the results of a principal components analysis with eigenvalues greater

than 1 specified, two factors were extracted. The first factor accounted for 52.34% of the total variance. Examination of the items that loaded highly on this factor indicated that this factor was assessing satisfaction with the outcome of career counseling. The items that loaded highly on the first factor were therefore averaged to create a new variable (and corresponding subscale) labeled "satisfaction with outcome" at both Time 2 (immediately after the counseling intervention) and Time 3 (1 month after the counseling intervention). The measure of satisfaction with outcome at both Time 2 and Time 3 was found to be reliable (Cronbach's alpha = .86 and .83, respectively). The second factor accounted for 13.8% of the total variance, and the items that loaded highly on this factor appeared to be assessing satisfaction with the content of career counseling. The items that loaded highly on this second factor were averaged to create a new variable (and corresponding subscale) labeled "satisfaction with content" at both Time 2 and Time 3. The measure of satisfaction with content at both Time 2 and Time 3 was found to be reliable (Cronbach's alpha = .74 and .71, respectively).

ICRT. Participants' irrational career-related thoughts were measured using an 11-item scale developed for the study. The Cronbach's alpha coefficient of the scale for the total sample was .73. These items built on previous work on irrational career-related thoughts encountered in vocational counseling that seem to contribute to indecision and frustrations in vocational choice (Nevo, 1987). For example, many people turn to vocational counseling because they believe that there is one occupation that will suit them and fulfill all their aspirations. A sample item from the scale modeled on this previous work is "There is only one vocation in the world that is right for me." Participants responded to the items using a 5-point Likert scale that ranged from *strongly disagree* (1) to *strongly agree* (5). High scores indicate a greater degree of irrational career thoughts. Exploratory factor analysis was used to identify if the items were measuring the irrational career-related thoughts constructs. Based on the results of a principal components analysis with eigenvalues greater than 1 specified, three factors were extracted. The first factor accounted for 31.5% of the total variance. Examination of the items that loaded highly on this factor revealed that this factor was assessing the degree to which individuals believed that there was only one true vocation for them. The items that loaded highly on this first factor were therefore averaged to create a new variable (and corresponding subscale) labeled "irrational career-related thoughts about one vocation" at Time 1, Time 2, and Time 3. Scores on the Irrational Career-Related Thoughts About One Vocation at Time 1, Time 2, and Time 3 subscale were found to be reliable (Cronbach's alpha = .80, .78, and .79, respectively). The second factor accounted for 15.52% of the total variance, and items that loaded highly on this factor were assessing irrational career thoughts about decision making. The items that loaded highly on this second factor were averaged to create a new variable (and corresponding subscale) labeled "irrational career-related thoughts about decision making." At Time 1, Time 2, and Time 3, this subscale was found to be reliable (coefficient alpha = .74, .72, and .74, respectively). The third factor accounted for 12.15% of the total variance. The items that loaded highly on this factor appeared to be assessing the strength of desire to make firm and clear

decisions about future careers as opposed to keeping an open mind to different possibilities. A new variable (and corresponding subscale) labeled "irrational career-related thoughts about being open" at Time 1, Time 2, and Time 3 was created. The subscale of Irrational Career Thoughts About Being Open at Time 1, Time 2, and Time 3 was acceptable in terms of reliability (Cronbach's alpha = .76, .67, and .68, respectively).

CDMSE (Taylor & Betz, 1983). The CDMSE was used as a measure of self-efficacy in this study, given its prevalence in research on career interventions with university students (Blustein, 1989; Fukuyama, Probert, Neimeyer, Nevill, & Metzler, 1988; Luzzo & Day, 1999). This 50-item measure is designed to assess the degree to which individuals have confidence in their ability to successfully complete tasks related to making career decisions. The CDMSE consists of five 10-item subscales (Self-Appraisal, Problem Solving, Goal Selection, Gathering Occupational Information, and Planning) that assess career choice competencies in those areas. Respondents used a 5-point Likert scale, ranging from 1 (*no confidence at all*) to 5 (*complete confidence*), to indicate their perceived efficacy in successfully completing the tasks. Scores for each subscale were obtained by summing responses to the 10 items; a maximum score was 50. Summing the subscale scores yields an overall CDMSE score; the maximum overall score was 250. High scores reflect high self-efficacy expectations for career decision making. Sample items include "Accurately assess your abilities" and "Change occupations if you are not satisfied with the one you enter." A number of articles have examined the psychometric properties of the CDMSE scale (e.g., Betz, Klein, & Taylor, 1996; Gati, Osipow, & Fassa, 1994; Luzzo, 1996). Reliabilities were measured for the current study and were .94 overall and .78, .74, .79, .81, and .85, respectively, for the subscales.

Procedure

The first author conducted the career counseling interventions and administered the outcome measures to each participant individually. To ensure consistency throughout the study, the first author was the sole career counselor. Prior to their appointment, all participants were e-mailed the client information form, which they were asked to complete and to bring to the first session. At the beginning of the session, participants were given initial information about the study in writing and signed informed consent sheets. Prior to the career counseling, participants were asked to complete Questionnaire 1. Participants in the chaos and trait matching counseling groups then received the assigned career counseling intervention that lasted approximately 1½ hours. Participants in the control group (the wait list group) were asked to return after 1½ hours.

To ensure equivalence across career counseling intervention approaches, both approaches consisted of three activities: an initial interview, a personality task, and an interest task. Trait matching counseling consisted of the initial interview, the CPS-1, and the OSI-3. After completion of both inventories, participants received feedback about their personality profile and their OSI code, which was then used to match participants to specific occupations. The feedback across both measures took approximately 30 minutes. Chaos counseling consisted of the initial interview, the CPS-3,

and the CIS. The feedback for the members of the chaos counseling group was ongoing because of the collaborative nature of the card-sort activities.

After completion of both types of career counseling, participants were asked to complete Questionnaire 2. The control group participants were also asked to complete Questionnaire 2 when they returned after 1½ hours. Finally, participants were thanked, and all participant questions were answered as part of the debriefing. All participants received a postage-paid return envelope that contained Questionnaire 3.

One month after the career counseling, all participants in the chaos and trait matching groups were e-mailed and asked to complete Questionnaire 3 and return it by mail to the first author. The control group participants were also e-mailed and asked to complete Questionnaire 3 and were invited to set up an appointment for career counseling. Fifty participants returned Questionnaire 3, which represented a response rate of 83%.

RESULTS

Satisfaction

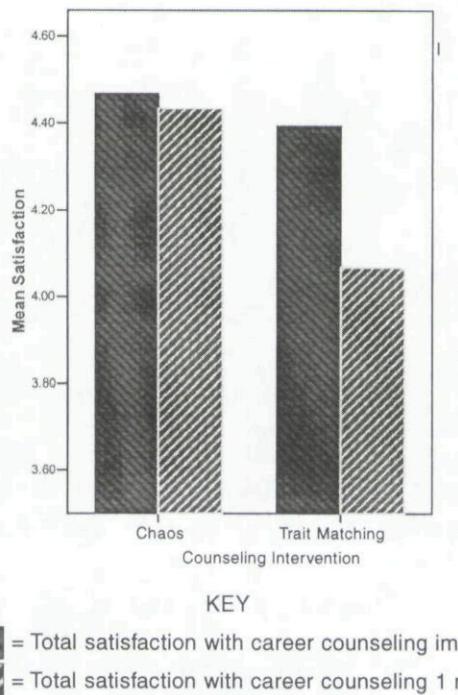
To test Hypothesis 1, the effect of the career counseling intervention on measures of satisfaction was assessed with a 2 (intervention: chaos counseling, trait matching counseling) \times 2 (occasion: Time 2, Time 3) analysis of variance (ANOVA) with repeated measures on the second factor. Bonferroni planned contrasts were tested, and the familywise error rate was controlled at .05.

All participants reported being similarly satisfied across groups at Time 2 ($F = 1, 63, p > .05$). However, there was a significant interaction between the counseling intervention and the time of measurement, $F(1, 28) = 10.16, p < .05$. Specifically, overall satisfaction declined between Time 2 and Time 3 for participants in the trait matching counseling group but remained constant for participants in the chaos counseling group (see Figure 1). Thus, the effects of chaos counseling on overall satisfaction appear to be more lasting than the effects of trait matching counseling.

The effects of chaos career counseling and trait matching career counseling on more specific measures of satisfaction (i.e., satisfaction with content and satisfaction with outcome) were also assessed and revealed a similar pattern of results. Satisfaction levels at Time 2 were not significantly different for either satisfaction with content, $F(1, 28) = 1.49, p > .05$, or satisfaction with outcome, $F(1, 28) = 1.23, p > .05$. However, satisfaction dropped more on both measures across time for the trait matching counseling group than it did for the chaos counseling group. This was a nonsignificant trend on the Satisfaction With Content subscale, $F(1, 28) = 1.13, p > .05$, and a significant difference on the Satisfaction With Outcome subscale, $F(1, 28) = 10.77, p < .05$. Thus, the effects of chaos counseling on satisfaction with outcome appear to be more lasting than the effects of trait matching counseling.

ICRT

To test Hypothesis 2, participants' scores on the ICRT were entered into a 3×3 ANOVA, with intervention (chaos counseling, trait matching counseling, control group)



Comparison of Total Satisfaction With Counseling Immediately After the Session and 1 Month Later for Chaos and Trait Matching Counseling Groups

and occasion (Time 1, Time 2, Time 3) as the factors. Bonferroni planned contrasts were used, and the familywise error rate was controlled at .05. On the overall ICRT, there was no significant main effect of counseling intervention, $F(2, 47) = 0.44, p > .05$. On average, all participants reported fewer irrational career thoughts at Time 2 ($M = 2.26, SD = 0.50$) and Time 3 ($M = 2.21, SD = 0.55$) than they did at Time 1 ($M = 2.50, SD = 0.49$), $F(1, 47) = 24.44, p < .05$; $F(1, 47) = 24.29, p < .05$, respectively. It is interesting that there were significant interactions between the counseling intervention and the occasion of measurement (see Figure 2). Specifically, overall irrational career thoughts declined between Time 1 and Time 2 for participants in the trait matching counseling group, $F(1, 47) = 7.45, p < .05$, and in the chaos counseling group, $F(1, 47) = 16.45, p < .05$. Furthermore, at Time 3, irrational career thoughts continued to decline for those in the chaos counseling group, $F(1, 47) = 8.83, p < .05$, whereas for those in the trait matching counseling group, $F(1, 47) = 5.73, p < .05$, they increased. Thus, career counseling reduces irrational career thoughts at Time 2; however, the effect of chaos counseling on reducing irrational career thoughts is more lasting than the effect of trait matching counseling, whose recipients appear to relapse into irrational cognitions about careers. When the component subscales

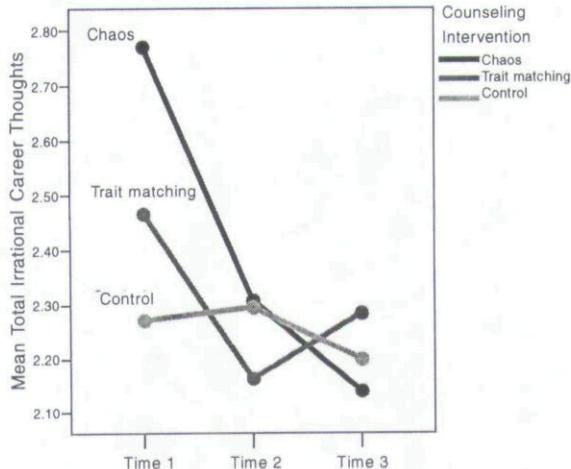


FIGURE 2

Mean Irrational Career Thoughts Score Across Counseling Groups Over Time

Note. Time 1 = precounseling; Time 2 = immediately after counseling; Time 3 = 1 month later.

for the ICRT were examined, Irrational Career-Related Thoughts About One Vocation and Irrational Career-Related Thoughts About Decision Making followed the same pattern of results as the overall scale. However, for Irrational Career-Related Thought About Being Open at Time 1, Time 2, and Time 3, there was no significant main effect of counseling intervention ($p > .05$), suggesting that participants in the chaos counseling group did not report significantly fewer irrational career thoughts than participants in the trait matching counseling group or the control group. In addition, there was no significant main effect of time ($p > .05$), indicating that, averaged across groups, participants did not report fewer irrational career thoughts about being open at Time 2 or Time 3. Thus, it appears that career counseling did not reduce irrational career thoughts about being open.

CDMSE

To test Hypothesis 3, the effect of the career counseling intervention on measures of career decision-making self-efficacy was assessed using a 3 (intervention: chaos counseling group, trait matching counseling group, control group) \times 3 (occasion: Time 1, Time 2, Time 3) ANOVA with repeated measures on the second factor. Bonferroni planned contrasts were tested, and the familywise error rate was controlled at .05.

On the overall CDMSE, there was no significant main effect of counseling intervention ($p > .05$). However, on average, all participants reported at Time 2 having more confidence in their ability to complete tasks ($M = 196.74$, $SD = 22.34$) than they did at Time 1 ($M = 185.24$, $SD = 25.9$), $F(1, 47) = 30.7$, $p < .05$. Furthermore, they reported having even more confidence at Time 3 ($M = 201.53$, $SD = 22.73$)

than they did at Time 2, $F(1, 47) = 6.19, p < .05$. There was a significant interaction between the counseling intervention and the occasion of measurement. Specifically, confidence in participants' ability to successfully complete tasks related to making career decisions increased between Time 1 and Time 2 for both the chaos counseling group, $F(1, 47) = 12.83, p < .05$, and the trait matching counseling group, $F(1, 47) = 7.12, p < .05$, while remaining constant for those in the control group. In addition, this increase in confidence was sustained at Time 3 for both the chaos counseling group, $F(1, 47) = 12.03, p < .05$, and the trait matching counseling group, $F(1, 47) = 4.87, p < .05$.

The effects of chaos and trait matching counseling on the specific subscales of the CDMSE (i.e., Goal Selection, Planning, Problem Solving, Self-Appraisal, and Gathering Occupational Information) were also assessed. For the sake of brevity, we merely summarize these analyses, which were remarkably consistent. There were increases on each measure at Time 2 for the trait matching and chaos counseling groups but not for the control group (with the exception of Problem Solving, where there was only a significant increase for the chaos counseling group, and Gathering Occupational Information, where all groups increased significantly). These improvements continued at Time 3 for the chaos counseling group, with the exception of Goal Selection, where the trait matching counseling group also showed sustained improvement.

DISCUSSION

This study has revealed some potentially important results for the status of the Chaos Theory of Careers applied to career counseling. The pattern of results across all of the measures is clear. Both chaos counseling and trait matching counseling were better than no counseling. However, the impact of the trait matching counseling was generally more short-lived or modest when compared with the chaos counseling. Finding these differences in a study with limited statistical power is important, because Holland, Magoon, and Spokane (1981) reported that a variety of career interventions yield similar treatment effects. The current results suggest that chaos counseling may have a longer lasting, longer term impact.

Regarding Hypothesis 1, the findings support the prediction that the chaos counseling group would be more satisfied than would the trait matching counseling group 1 month after the intervention. Contrary to our other prediction, there were no differences in levels of satisfaction immediately after the intervention. On reflection, this is not surprising. The chaos intervention was contrary to the expectations of 45% of the clients who expected to be given specific job recommendations. The interventions that were attempted in the chaos counseling group were more complex than the trait matching interventions and required the client to think deeply and to reflect and act on his or her new knowledge. These processes take time, and the outcomes of these processes make take even longer. More specifically, it was satisfaction with the outcome of the career counseling as opposed to the content that caused the lasting effect with the chaos intervention. This suggests that in-

creasing self-awareness is more satisfying for a longer period of time than the trait matching "test and tell" approach. Similar results were found by Croteau and Slaney (1994), who compared the effects of interest-based and card-sort-based career interventions. The lack of deterioration in satisfaction for participants in the chaos counseling group may indicate a significant advantage of chaos counseling over other career counseling approaches. It would be beneficial for future research to investigate whether changes in satisfaction are apparent at later stages.

Hypothesis 2 predicted that participants in the chaos counseling group would exhibit fewer irrational career-related thoughts after the counseling than would participants in the trait matching group. Both intervention groups showed a significant reduction in levels of irrational career thoughts; however, this benefit was maintained after 1 month only for participants in the chaos group. Because the chaos intervention emphasizes issues such as change, influences, adaptability, uncertainty, and chance, participants may have become more comfortable with the idea that their career development would not always be planned, predictable, or logical. This reduction in irrational career thoughts should enable individuals to become more successful in career-related activities and career decision making (Reed, Reardon, Lenz, & Leierer, 2001). The current results provide an insight into the nature of the fundamental difference between the two interventions. Trait approaches are fundamentally outcome oriented—the best match. Chaos approaches are process oriented—coping with a complex, changing, and unpredictable reality on an ongoing basis. Chaos theory does not stress effecting a particular outcome, but, instead, it focuses on preparing and equipping people to meet the career development challenges of the 21st century. It is not a solution but a strategy. It is about empowering for the future rather than providing an answer in the present. The results confirm this in that the return to "irrationality" illustrates that providing a match in the trait matching model does not necessarily alter people's long-term perspective.

Regarding Hypothesis 3, all the participants reported higher overall career decision-making self-efficacy after the career counseling intervention than before. This is consistent with previous research (Fukuyama et al., 1988; Luzzo & Day, 1999; Luzzo, Funk, & Strang, 1996). However, these benefits were sustained 1 month later only for the chaos group. A possible explanation for this is that the trait matching intervention was counselor directed, and participants were presented with information about themselves, whereas the chaos intervention was exploratory, and participants arrived at their own conclusions. Thus, in the chaos intervention, participants may have internalized the information, thereby causing their increase in confidence to be more lasting.

Limitations are likely in any form of counseling evaluations. The first limitation of this research was that the counseling was conducted by one person (the first author) who was aware of the hypotheses. It is plausible that the quality of the counseling provided was therefore different for each group; however, scores on immediate postcounseling measures were very similar and nonsignificant across both the chaos and the trait matching counseling groups, suggesting that any such performance differences were subtle. A second limitation is that it could be questioned whether the trait matching approach to counseling that was used was a fair

representation of common practice. To assuage such a doubt, the procedures and method of the trait matching approach in this study were closely modeled on the procedures used routinely in the University of New South Wales Careers Research and Employment Service and in other practice settings with which we are familiar.

In summary, this study demonstrated that both trait matching and chaos approaches to career counseling are successful in increasing career decision-making self-efficacy and reducing irrational career thoughts. The results of our study indicate that chaos counseling is an effective technique that holds the promise of improvements for clients on important career issues. Further empirical work, theoretical development, and practical application will serve to explicate further the applicability of the Chaos Theory of Careers to career development theory and practice.

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