

# The role of chance events in career decision making

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## Abstract

Two studies are reported that investigate the role of chance events as influences in career decision making. In study one, the results of a large-scale survey of high-school and university students ( $N = 772$ ) investigating influences on their career decision making are presented. Chance events were reported as influencing the career decisions of 69.1% of the sample. In the second study, the role of locus of control was found to be moderately associated with reporting chance events. More External control individuals tend to report more chance events than their Internal control counterparts. Implications for career choice theory and research are discussed.

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## 1. Introduction

Although chance events have been included in the career development literature for some time, there has been comparatively limited empirical research in this area. However, despite the small number of studies, a surprising number of different terms have been used to explain the core concept. These include: chance (Roe & Baruch, 1967), serendipity (Betsworth & Hanson, 1996), happenstance (Miller, 1983), and

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synchronicity (Guindon & Hanna, 2002). Furthermore, definitions of this concept vary. However, despite the different terminology and subtle definitional differences found in the literature, chance events generally relate to “unplanned, accidental, or otherwise situational, unpredictable, or unintentional events or encounters that have an impact on career development and behavior” (Rojewski, 1999, p. 269).

Most of the research that has been conducted suggests that an individual's career decision making is influenced by chance events to a considerable degree (Betsworth & Hanson, 1996; Hart, Rayner, & Christensen, 1971; Roe & Baruch, 1967; Williams et al., 1998). In early work in this area, Roe and Baruch (1967) found that the participants did not describe their career experiences as a succession of logical choices. Instead, most participants focused on the contingencies and external influences that had influenced the course of their careers.

Hart et al. (1971) examined the career histories of 60 men and the degree of planning, preparation, and chance involved in occupational entry at professional, skilled, and semiskilled levels. On the one hand Hart et al. found that the vocational histories of skilled and semiskilled workers were quite often influenced by chance encounters. For the professional workers, on the other hand, chance had much less influence because they relied on planning and preparation. Betsworth and Hanson (1996) found that of their sample of older adults, 63% of men and 58% of women indicated that their careers were influenced by serendipitous events. Williams et al. (1998) studied the contextual factors surrounding chance events and the perceived impact of chance events on the career choices of academic women in counseling psychology. It was found that at least one serendipitous event had a significant effect on each of the 13 women.

Some research suggests that contingency factors (e.g., awareness of skills and abilities and perception of interests) are more likely to be perceived as having an influence on career pattern than chance factors (Salomone & Slaney, 1981; Scott & Hatalla, 1990). Salomone and Slaney (1981) studied chance and contingency factors influencing career choice in nonprofessional workers. It was found that they were more likely to view their career decisions as rational, based on contingency factors such as personal qualities, than the result of chance. However, the participants did also indicate that some unexpected events influenced their vocational decisions. Scott and Hatalla (1990) conducted a similar study with college-educated women and found that contingency factors were influential in their career patterns. Of the top nine factors, only one, unexpected personal events, was a chance factor. However, this chance factor was perceived as influential by more than 60% of the participants.

The existence of inconclusive research findings with respect to the extent of influence of chance events may be due to the way people perceive their past. In retrospect, individuals may attribute planfulness and rationality to their career decisions that to an outside observer may appear accidental (Salomone & Slaney, 1981; Williams et al., 1998). As Caplow (1954) noted, “error and accident often play a larger part than the subject is willing to concede” (p. 214). According to the Fundamental Attribution Error, people have a tendency to attribute behavior to dispositions rather than to situations (Ross & Nisbett, 1991). The degree to which ascriptions of chance influences on career decision making can be accounted for by attribution style is investigated in this article.

Framing chance events in the context of other factors, as in Salomone and Slaney's (1981) and Scott and Hatalla's (1990) studies, may reduce the amount of influence attributed to chance events as individuals strive to find a rational reason for their decisions and negate the influence of chance. Thus, chance may be underrepresented as participants may have been influenced by chance events, but not reported it as such. In comparison, Betsworth and Hanson (1996) and Williams et al. (1998), who found chance events had a significant impact on career decision making, did not ask participants about planful behavior and events. The exclusive focus on chance events may serve to minimize the tendency to provide post hoc rationalizations of career decisions. The present research attempted to control for retrospective bias by only asking specifically about chance events.

Career decision making encompasses both educational and occupational decisions. Consequently, research on the influence of chance events has studied both students and individuals that have already entered the workforce. However, no research has been conducted to determine if the influence of chance events differs depending on an individual's career stage. The Chaos Theory of Careers (Pryor & Bright, 2003a, 2003b) emphasizes career decision making as the result of short-term decisions made as situations and opportunities arise in the environment, and not the result of long-term rational planning. Therefore, it could be reasonably expected that the influence of chance events will be greater for individuals who have been in the workforce longer as they would have experienced a greater number of such experiences. To investigate this issue, the present study examined reporting of the influence of chance events for both undergraduate students and a sample of older individuals who have already entered the workforce.

Several theorists have suggested that the relationship between personality and chance events needs more exploration (Cabral & Salomone, 1990; Mitchell, Levin, & Krumboltz, 1999; Osipow, 1973). Therefore, in order to determine the influence of chance events on career decision making, knowledge about an individual's personal attributes is required. In particular individuals' perceptions of the degree of chance and control in their career decision would appear to be worth investigating. The personality construct locus of control, as conceptualized by Rotter (1966) and thoroughly discussed by Lefcourt (1966) describes the extent to which individuals attribute the occurrence of environmental events to internal factors under their control (e.g., ability, skill, and effort) or to external factors outside their personal control (e.g., chance factors and difficulty of the task). Individuals with an internal orientation tend to view themselves as having control over and personal responsibility for the direction of their lives. Externals, on the other hand, are more likely to feel themselves powerless to control events. It could be reasonably be expected that chance events are likely to be perceived to play a more influential role in career decision making for individuals with an external locus of control. They may believe they have little control over their vocational decisions and that they are largely influenced by chance events.

Locus of control has been shown to be associated with career planning (Marecek & Frasch, 1977), career indecision (Taylor, 1982), career maturity (Gable, Thompson, & Glanstein, 1976), and self-efficacy for career decision making tasks (Brown, Glastetter-Fender, & Shelton, 2000). Locus of control has also been shown

to be associated with career decision making specifically (Denga, 1984). Denga found that male Nigerian school students with an internal locus of control were likely to choose their occupations based on intrinsic influences (e.g., interest and ability) whereas students with an external orientation were more likely to indicate that chance and good fortune influenced their career preferences. Denga's (1984) study utilized a very restricted sample and thus, further research needs to be done to determine if this relationship exists in other populations. Furthermore, chance events were only one of seven categories of outer-directed influences.

The present study provides more evidence for the role of chance events and tested the hypothesis that there is a relationship between locus of control and the influence of chance events on career decision making. We report two investigations into the incidence of chance events in career decision making. In the first exploratory study we assessed the extent that chance factors were perceived as influencing career decision making. We also specifically hypothesized that more chance events would be reported as a function of educational stage—specifically university students would report more chance events than high school students. We base this prediction on the differential exposure hypothesis that on the whole university students will be older and therefore more likely to have been exposed to more chance events than their younger counterparts. Secondly we argue that high school is a more cloistered and controlled environment than university leading to fewer unplanned experiences. In the second study we wish to confirm the prevalence of chance events in career decision making and to investigate whether Locus of Control could account exclusively for the reporting of chance influences on career development. More specifically, it was postulated that: (1) A significant proportion of participants from both samples will indicate that they have been influenced by chance events. (2) The influence of chance events will be greater in the sample of older participants than an undergraduate sample. (3) There will be a relationship between locus of control orientation and the amount of influence of chance events on career decision making. Participants scoring higher on the locus of control scale (i.e., external direction) will be more likely to indicate they have been influenced by chance events than participants scoring lower on the scale (i.e., internal direction). (4) There will be no relationship between locus of control orientation and the amount of influence of chance events when rating another person's career history.

## **2. Study 1**

### *2.1. Method*

#### *2.1.1. Participants*

Research participants were 772 high school and university students who completed a survey on career decision making. Of these 105 high school students in years 10, 11, and 12; and the remainder were undergraduate and postgraduate students. There were 30 male and 71 female high school students (four did not complete the gender question). Of the university students, there were 425 females, and 224 male respondents

(18 respondents did not provide details). There were: 193 1st years (71 males, 123 females); 207 2nd years (65 males, 142 females); 106 3rd years (35 males, 71 females); 73 4th years (32 males, 41 females), and 72 postgraduates (24 males, 48 females).

### *2.1.2. Procedure*

The web-based survey was advertised to students via campus advertisements and also via the Careers and Employment website. Students identified themselves as University of New South Wales students by entering their student number. There was no time limit on completing the survey and there was an opportunity to change or amend their responses before submitting. Students could complete the survey at any location using a web-enabled computer. The survey was on-line for a period of 3 months. The survey took approximately 30 min on average to complete. The data collected was stored in data files and later downloaded into SPSS statistical software for analysis.

### *2.1.3. Instrument*

This survey comprised 47 questions that covered: respondent demographics, details of family member education and vocations, career preferences described in accordance with the Australian Standard Classification of Occupations (ASCO, 1997), current training, and respondent perceptions of the influence family, friends, teachers, lecturers, the media, and unplanned events. The survey was divided into eight sections: about you; about your father; about your mother; about your eldest brother; about your eldest sister; about your best friend; your favorite school teachers, and other influences (Influences affecting University course choice—parents, friends, media, and personalities). These were self-ratings of influence (Not applicable, not at all, a little, and a lot). Unplanned events were assessed using the item: “Sometimes an unplanned or chance event can influence a person’s thinking about a career. Did any of the following unplanned events have a significant influence on your career decision making? (Yes/No). Eight events were assessed: A personal or work relationship; Previous work or social experiences; Barriers to your previous career plan; An injury or health problem; Unintended exposure to a type of work or activity that you found interesting; Unintended exposure to a type of work or activity that you did not enjoy; A major change of residence over which you had little or no control; and Any other unplanned event (please specify).

## *2.2. Results*

Preliminary analysis of the effect of gender was carried out by regression analysis. No significant effect of gender was found on any of the variables, hence the data were collapsed across gender. The proportion of respondents who indicated that chance or unplanned events had a significant influence on their career decision making were: a personal or work relationship (44%); previous work or social experiences (60%); barriers to your previous career plan (36%); an injury or health problem (11%); unintended exposure to a type of work or activity that you found interesting (43%); unintended exposure to a type of work or activity that you did not enjoy (33%); a major

change of residence over which you had little or no control (11%); and any other unplanned event (10%). Unplanned previous work or social experiences correlated with  $n$  unplanned personal or work relationship  $\rho = 0.40$ ,  $p < .01$ . Such results confirm not only the perceived incidence of chance occurrences on careers but also the perceived multiple incidence of chance events. Barriers to a previous career plan was significantly correlated with some other chance factors, especially health issues ( $\rho = 0.21$ ,  $p < .01$ ). This suggests that while the range of barriers may be quite wide that unplanned health issues represent a significant component of such perceived unplanned set of barriers. This appears quite reasonable to practitioners who have worked in the vocational rehabilitation field where unplanned motor vehicle and sports accidents and incidents while working along with the effects of ageing impact often dramatically on individuals' vocational potential.

Specifically in relation to health and injury chance influences on career decision making, although a relatively small proportion of our sample (11%), this figure may be seen as surprisingly high given that this sample was predominantly comprised of those under 23 years of age, a demographic group with whom significant health problems are not generally associated.

While work experience has long been used as a method of career counseling many people get involuntary exposure to work. This can be vicariously through friends, family and relatives, through the media or through actually doing jobs that were unplanned or not intended to be a career. In our sample some 43% of respondents indicated that such unplanned positive experiences had influenced their career planning. The converse is to have a negative experience at work. Thirty-three percent of our sample reported such negative unplanned experiences. This highlights an important aspect of chaos theory which is that it encompasses and accounts for negative influences on career decision making. Many theoretical and assessment approaches tend to emphasize positive influences and look for evidence of a pull towards the influence as evidence of its potency. However, along with writers such as [Gottfredson \(1981\)](#) and [Tversky \(1972\)](#) we believe that avoiding the negative in decision making is likely to be at least as important as obtaining the positive and indeed will frequently be more important for particular individuals.

A major change of residence over which individuals have little or no control is a relatively neglected topic within careers theory. There are many people who have to change residence with little or no influence in the decision. As well as those changing locations to secure employment when a work opportunity arises, children and young students fit into this category. Furthermore spouses of partners working for national and international companies can experience what is known in human resource circles as Trailing Spouse Syndrome. This is the negative affective state of the people who have relocated with their partner, but are then left to fend on their own and to acculturate whereas their partner enjoys a relatively high level of support in this connection. Military families also can experience this nomadic life with the accompanying career dislocation. In our sample 11% of respondents said such a move had influenced their career plans. Again while a relatively small proportion, it still represents a significant number of individuals. It is an area that would benefit from much greater attention and one that is not captured adequately in current theories of career choice.

A between subjects analysis of variance was conducted to test the hypothesis that chance events are reported more frequently by students further progressed in their education (High School, 1st year (yr) undergraduate (ug), 2nd yr ug, 3rd yr ug, and 4th yr ug and postgraduate). There was no overall significant difference as a function of educational stage  $F(5,750) = 2.02, p > .05$ . Nor were any of the post hoc comparisons of frequency of chance event reports between one educational stage and the next significant.

### 2.3. Discussion

Two clear findings emerge from this study. First, the perceived prevalence of chance events influencing career decisions is widespread even in a sample with a mean age of 23 years. The majority of our sample reported experiencing chance events. This indicates to us that all theories of career choice need to pay closer attention to chance events. Further the results from this study also reveal that at least some individuals report multiple chance influences on their career decision making. The range and diversity of chance influences as revealed in our data demonstrate the complexity of the range of potential influences on individuals' career decision making. This in turn supports systems theory formulations of careers which endeavor to incorporate and give an account of complexity, such as those of [Patton and McMahon \(1999\)](#) and the Chaos Theory of Careers ([Pryor & Bright, 2003a, 2003b](#)).

Second, reporting of chance events appeared not to be related to the students' stage of education. The differential exposure hypothesis would suggest that the longer one lives, the more the opportunity to experience an unplanned event. However, the differences between students at different stages of education may not have been great enough to detect a difference. It is plausible that increased reporting of chance events may be evident in older populations, or those further progressed down their career path. Ultimately, a study is required to address this point.

Having established a relatively high level of reporting of chance events, it is appropriate to try to further understand why this is so. Before accepting that these data represent a true reflection of the incidence of serendipity in career decision making, it is imperative to investigate whether these data can be explained in terms of attributional processes. Specifically, whether a tendency to view personal events as stemming from causes beyond the individual's locus of control, is associated with the reporting of chance events in career decision making. Study 2 addresses this question.

## 3. Study 2

### 3.1. Method

#### 3.1.1. Subjects

For this study, two groups of participants were used: undergraduate students from the University of New South Wales (UNSW) and a sample of older adults, with



greater career experience. The undergraduate sample comprised of 97 students at UNSW enrolled in Psychology 1. Two participant's results were discarded due to incomplete responses, yielding 95 usable questionnaire packs. Of these 95 participants, there were 34 males (36%) and 61 females (64%). The participants ranged in age from 16 years to 42 years (Mean = 19.7,  $SD = 3.18$ ). In return for participation students were provided with course credit.

The second group of participants was a sample of older adults. Adults recruited for this study came from a variety of professional backgrounds and had at least two years full-time professional work experience. Participation was entirely voluntary. Participants were given the questionnaire packs and returned them by reply paid envelopes. Of the 70 questionnaire packs distributed, 40 (57%) completed packs were returned. These participants ranged in age from 24 years to 50 years (Mean = 32.3,  $SD = 6.1$ ) with 14 females (35%) and 26 males (65%). The participants all had previous professional work history, ranging from 2 to 25 years working professionally (Mean = 9.6,  $SD = 5.8$ ).

### 3.1.2. Measures

Participants were given a questionnaire pack, containing three sets of materials to be completed. The instruments consisted of the Locus of Control Behaviour Scale (Craig, Franklin, & Andrews, 1984) and a Chance Event Survey, constructed for the purposes of the present study. In addition, participants were asked to read a magazine article on a prominent Australian entertainer's career path and to answer two questions relating to the influence of chance events.

### 3.1.3. Locus of control of behavior scale

Locus of control was assessed with Craig et al.'s (1984) Locus of Control of Behaviour (LCB) Scale. Reviews of the locus of control construct emphasize the need for the development of specific locus of control scales (Lefcourt, 1976; Rotter, 1975). Rotter (1975) noted that his Internal–External Scale (1966), which has been widely used for research in this area, was developed as a broad gauge instrument, which necessarily could not provide accurate situational specific predictions. Unfortunately, there is no specific scale measuring personal control over career choices that is suitable for the sample in the present study. The LCB Scale (Craig et al., 1984) was selected because it was designed specifically to measure perception of control over personal behavior, which is relevant for career decision making. Furthermore, unlike Rotter's I–E Scale (1966), the LCB Scale does not include items that deal with belief in control over political institutions and world affairs, which is not relevant for the current research. Another point in favor of the LCB Scale is its continuous scale measurement format, compared to the forced-choice of Rotter's I–E Scale (1966). A continuous scale is preferable for statistical analysis, as the Chance Event Survey is also a continuous scale.

The LCB Scale is a 17-item, Likert-type scale on a six-point scale ranging from strongly disagree (0) to strongly agree (5). The items were constructed on the basis of Rotter's (1966) theory of locus of control. The scale is scored in the same direction as the Rotter's I–E Scale, that is, high scores indicate externality.



The psychometric characteristics of the LCB Scale were described by Craig et al. (1984). Test–retest reliability coefficients were reported at 0.90 for a one-week interval and 0.73 for a six-month interval. The LCB Scale has acceptable internal reliability, with a coefficient  $\alpha$  of 0.79 in a study of 100 students. Data on the discriminant and convergent validity of the LCB Scale were also reported. Convergent validity was established by correlating the LCB Scale scores of a sample of 123 university students with their scores on the Rotter's I–E Scale (Rotter, 1966). Substantial correlations were found to exist,  $r = .67$  for males, and  $r = .66$  for females. Furthermore, since the LCB is specifically concerned with locus of personal control, it should discriminate between Rotter's personal and political control items. On the above 123 students, the correlations were 0.70 and 0.31 for males and 0.67 and 0.37 for females, respectively. These correlations yield evidence of adequate construct validity. The LCB Scale was shown to be unrelated to sex or age and only lowly correlated to social desirability ( $r = .2$ ). An extensive review of the LCB Scale is found in Craig et al. (1984).

#### 3.1.4. Chance event survey

The Chance Event Survey was constructed for the purposes of this study. The survey consists of demographic items and two questions. The first question requires participants to rate the overall influence of chance events on their career choices. It uses a three-point Likert-type scale, the response categories being designated “great,” “some,” and “no” influence, based on the scale used by Salomone and Slaney (1981). The second question asks participants to rate the influence of 15 categories of chance events on their career choices, using the same rating scale as in question one. Betsworth and Hanson's (1996) 11 categories of chance events were used as the basis for the categories in this survey. However, slight modifications were made on the basis of research that suggested other categories (Crites, 1969; Salomone & Slaney, 1981; Scott & Hatalla, 1990). The list of chance events includes both positive and negative events. The final 15 categories of chance events were: (i) Professional or personal connections, e.g., which led to information about jobs, informal recommendations, job offers, etc.; (ii) Unexpected advancement; (iii) Right place/right time; (iv) Influences of marriage and family; (v) Encouragement of others, e.g., encouragement to acquire education and experience, set higher goals, or pursue a new field; (vi) Influence of previous work/volunteer experiences; (vii) Military experiences; (viii) Temporary position became permanent; (ix) Obstacles in original career path; (x) Influence of historical events, e.g., economic situation, natural disaster; (xi) Unintended exposure to a type of work or activity that you *did* find interesting; (xii) Unintended exposure to a type of work or activity that you *did not* find interesting; (xiii) Unexpected personal event, e.g., death of spouse, injury or health problem; (xiv) Unexpected financial support or problems; and (xv) Any other unexpected event (please describe):

The final option (xv) was used to capture any chance event not included in the above list. Responses to this question were classified as either: belonging to one of the existing categories, a new example of a chance event not already listed, or not an example of a chance event.

Classifications were made on the basis of the literature in this area and checked with an independent judge. If responses were classified as either belonging to an existing category or not a chance event, the response was not included in the total score. However, if the response was a chance event not already included in the survey, the response was included in the total score.

In scoring the Chance Event Survey, a separate score is calculated for both question one and two. For scoring, zero points are awarded for no influence, two points for some influence, and four points for great influence. The total score for each question is computed by adding the individual item scores. For question two, as well as a total score, the number of chance events categories that participants selected as having either a great or some influence is also calculated. This provides another way to examine the extent of influence of chance events.

### 3.1.5. *Scenario*

The third instrument, developed specifically for the present study, was a copy of a magazine article on the career path of John Burgess, a prominent Australian entertainer. The passage is followed by two questions asking participants to rate their perception of the influence chance events had on career decisions he made at two separate occasions. This task uses the same scale as the Chance Event Survey. A total score is calculated, using the same scoring system as previously. The rationale for including this task was that if Locus of Control accounted for the reporting of chance events in participants' career development, it should not have the same effect when participants are reporting on another's career development chance influences because their attributions in the latter were external to themselves.

## 3.2. *Results*

### 3.2.1. *Preliminary analyses*

Preliminary analysis of the effect of gender was carried out by regression analysis. No significant effect of gender was found on any of the variables, hence the data were collapsed across gender. Prior to testing the hypotheses stated for this study, the scores on all the variables were compared for the two samples. Table 1 contains the means, standard deviations and the results of *t* test comparisons on all the variables for each sample. No significant differences were found between the two samples on any of the Chance Event Scale variables or the scenario variable, hence the two samples were combined in subsequent analyses. However, the younger sample scored significantly higher than the older sample on the LCB Scale (i.e., greater external locus of control orientation),  $t(133) = 4.31, p < .05$ .

Reliabilities of the two scales used in the study were also calculated. The internal consistency reliabilities of the LCB Scale and the Chance Event Scale were calculated on the combined sample ( $N = 135$ ), with coefficient  $\alpha$ s of .82 and .66, respectively.

### 3.2.2. *Main analysis*

For Question 1 of the Chance Event Scale, 74% of participants indicated that overall they had been influenced by chance events to some extent, with a further

Table 1

Means, standard deviations, and *t* test comparisons of variables by sample

Variable	Younger sample ( <i>n</i> = 95)		Older sample ( <i>n</i> = 40)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>
LCB Scale	29.80	9.19	22.55	8.21	133	4.31*
Chance Event Scale—Q1 <sup>a</sup>	2.08	1.05	2.26	0.95	131	-.91
Chance Event Scale—Q2 total score	21.35	7.72	19.55	8.41	133	1.20
Chance Event Scale—breadth of influence	7.94	2.47	7.20	2.68	133	1.54
Scenario	6.21	1.53	5.90	1.63	133	1.06

Note. The higher the score is for LCB Scale, the greater the external locus of control orientation.

<sup>a</sup> *N* = 133 due to missing data.

\* *p* < .05.

16% of participants indicating they had been influenced to a great extent. Only 10% of participants indicated that chance events had had no influence on their past career decisions. Another way to investigate this is to examine the breadth of chance events that have influenced participants' career decisions. For the combined sample, participants indicated that their career decisions had been influenced by an average of 7.72 chance event categories (*SD* = 2.55). This confirms the finding from Study One about the perceived multiple incidence of chance influences on career decision making.

Contrary to expectations, the influence of chance events was not greater in the older sample than the younger sample. As shown in Table 1, there were no significant differences between the two samples on any of the Chance Event Scale variables. It is possible that a person's explanatory style changes with age in ways to mitigate against finding the predicted difference. However, if the sample is split evenly into two groups containing "Low" and "High" locus of control scores, there is no significant difference in the number of chance events reported by the younger and older sample in either the Low Locus of Control Group ( $F = 0.075$ ,  $p > .05$ ) or the High Locus of Control Group ( $F = 0.573$ ,  $p > .05$ ).

To examine the relationship between locus of control orientation and chance events, a series of Pearson product-moment correlation coefficients were computed for scores on the LCB Scale and the Chance Event Scale variables. The correlation analysis was conducted on the combined sample only. A product interaction variable, sample  $\times$  locus of control, was computed to test whether the relationship between locus of control and the Chance Event Scale variables was the same for both samples. Regression analyses using the product interaction variable as the predictor variable and the Chance Event Scale variables as the dependent variables were conducted. A significant interaction was not found for any of the chance event variables, indicating the relationship was the same for both samples, hence separate analyses were not necessary.

The analysis yielded a small, significant positive correlation between the LCB Scale score and Question 1 in the Chance Event Scale ( $r = .29$ ,  $p < .01$ ). This indicates that as the LCB Scale score increases (i.e., in the external direction) the overall influence of chance events on career decisions increases. The analysis also yielded small, significant positive correlations between the LCB Scale score and the total

score for Question 2 ( $r = .28, p < .01$ ) and for the breadth of influence of chance events ( $r = .30, p < .01$ ). This indicates that as locus of control orientation becomes more external, both the significance and breadth of influence of chance events increases. For this sample the significance of the chance events and the number of different chance categories endorsed as being influential were highly correlated (.92). The scale had only three ratings of influence (none, some, and great) and as endorsements of “some” or “great” were used to calculate the breadth of influence score, it is not surprising they are so highly correlated. In future studies, a more fine grained rating of influence would increase the chances of measuring significance and breadth as independent dimensions.

For the older sample, regression analysis indicated there was no significant effect of the number of years worked on any of the Chance Event Scale variables.

It was hypothesized that there would be no relationship between locus of control orientation and the amount of influence of chance events, when rating another person's career decisions. As expected, a significant relationship was not found between locus of control and the scenario ( $r = .09, p > .05$ ).

### 3.3. Discussion

The main result of this study was that locus of control accounted for approximately 8–9% of the total variance in reporting of chance events. This suggests that while explanatory style needs to be considered when studying chance events in this way, it does not account for the high levels of reporting of chance events. While explanatory style does not account for all of the chance reporting, it may be sufficient to mask any differences in chance reporting as a function of age. This point needs further research.

The expected increase in reporting of chance events as a function of age did not materialize. This needs further research attention. It is possible that an age effect exists, but our study did not have the power to measure it. The older sample was on average only 10 years older than our younger sample. It is possible that this difference is not sufficient to measure an effect of age. It is also possible that a person's explanatory style changes with age in ways to mitigate against finding the predicted difference. Our younger sample was more external in their explanatory style and this would be consistent with reporting more chance events. [Nehrke, Hulicka, and Morganti \(1980\)](#) reported locus of control becoming more internal across the age range 14 years to 80+ years. Similarly, [Houts and Warland \(1989\)](#), report that there was a negative linear relationship between age and locus of control (people become more internal). However, the mean number of chance events reported did not differ for the age groups when the Locus of control score was broadly controlled by comparing the groups within low and high locus of control categories.

## 4. General discussion

The present study aimed to provide more evidence for the influence of chance events on career decision making. Results from study 1 indicate that the majority

of our sample believed that chance events had influenced their career decision making. This result was replicated using a different sample in study 2. Thus together, these results are consistent with and extend those reported by [Betsworth and Hanson \(1996\)](#) who found that chance events were an important factor in career decision making. Perhaps we should be surprised that we did not find even more widespread reporting of chance events. [Krumboltz \(1998\)](#) argues that serendipitous events are “ubiquitous.” Indeed he goes so far as to suggest that (at least in the profession of careers counselors) that every person has experienced a chance event that influences their career. The results reported here provide further evidence from a large sample of the widespread perception of chance events as an influential factor in career decision making.

Our second study looked at attributional processes in the reporting of chance events. Whilst there was evidence that locus of control accounted for some of the variance in reports of chance events, this trait does not appear to account for all of our data. This does not rule out other possible biases which may be contributing to our data. There is a large literature on the inaccuracy of retrospective accounts. For instance [Bright and Burton \(1994, 1998\)](#) demonstrated that a subject’s ability to provide accurate retrospective accounts of their performance on a cognitive task could not account for their task performance. Very often in these studies participants reported that they relied on chance—that is they claimed to be guessing and felt that performance on the task was beyond their control. Subsequent research using different retrospective protocols found subjects could report more accurately on their performance and hence had a greater level of control (e.g., [Newell & Bright, 2002](#)). This raises the possibility that reporting of chance events may be somewhat labile and dependent upon how people are asked about their career decisions. It may be that people are sensitive to suggestion, and questions framed in terms of chance events may elicit inflated frequency reports. Conversely, the tendency to provide post hoc rationalizations of behavior, for instance cognitive dissonance ([Festinger, 1957](#)) indicates the opposite tendency to underreport such events. Furthermore, the relative number of chance events experienced compared to planned events, or the sequencing of chance and planned events could all possibly influence the experience and reporting of chance events. Clearly further work is required to better understand the nature of chance events and validity of techniques used to elicit information about them.

Both theorists and researchers have much to consider and investigate about chance events as influences on career decision making. However, even from the limited evidence collected to date, a clear pattern of chance events having frequent and profound influences on careers emerges that cannot be adequately accounted for in terms of attributional disposition. This in turn poses significant challenges to traditional career theories and at least with respect to injury, points to possibilities of incorporating vocational rehabilitation approaches into the mainstream of career development theory and practice. Traditional models of career development require significant adaptation to account for chance events. One possibility is for traditional theories to operationalize error terms within their models to reflect chance events. However, while such an approach may provide a more realistic assessment of the accuracy of the linkage between interests and choices at the group level, such an

approach would not capture the possibly profound influence of a chance event upon an individual. Within social learning and contextual approaches (e.g., Lent, Brown, & Hackett, 1994), again, the challenge will be to incorporate chance events as an integral part of each source of influence on career decision making. Some learning theorists are already considering the positive benefits of capitalizing on chance (e.g., Krumboltz, 1998). These process driven approaches are likely to prove more fruitful because they go beyond the acknowledgement of chance as a nuisance variable or error and start to explore the nature of chance events more fully. Given their apparent ubiquity, dismissing chance events as merely error, will continue the tradition of providing accounts of career behavior so far removed from the actual career development experience of individuals and their counselors, that such accounts will remain fundamentally irrelevant to both.

We believe that the results of the current research are most parsimoniously explained within the framework of our Chaos Theory of Careers (Pryor & Bright, 2003a, 2003b). The results indicate that the majority of respondents in both studies perceive chance events to have significantly influenced their career decision making. This alone makes any interpretation within matching model frameworks problematic because such accounts must characterize these events as noise or error terms. However, the sheer frequency and significance of these events would give rise to error terms of a similar magnitude of influence as the other causal agents in such theories. In other words it would necessarily reduce the explanatory power of such theories to close to zero. In contrast chaos theory places unpredictability as well as order at the heart of its explanation of career development. Chaotic accounts have no difficulty incorporating this level of chance events as they are seen as inherent in the process.

Second, the results of this current research indicate that the events being reported cannot be readily reduced to the products of explanatory processes of attribution theory. Nor can they be characterized as contextual influences. The rate of reporting of chance events is too high for them to be easily attributed to contextual factors unless a permanent and major contextual factor is unpredictability. In such a case the contextual models would begin to resemble strongly a chaotic system.

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