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Vanessa Katharina Jaensch, Andreas Hirschi, Philipp Alexander Freund

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Running Head: PERSISTENT CAREER INDECISION OVER TIME

**Persistent Career Indecision over Time: Links with Personality, Barriers, Self-efficacy,
and Life Satisfaction**

Vanessa Katharina Jaensch*

Leuphana University of Lüneburg, Germany

Andreas Hirschi

University of Bern, Switzerland

Philipp Alexander Freund

Leuphana University of Lüneburg, Germany

Author note.

*Correspondence concerning this article should be addressed to Vanessa K. Jaensch, Leuphana University of Lüneburg, Institute of Strategic HR Management Research and Development, 21335 Lüneburg, Germany, E-Mail: Vanessa.Jaensch@leuphana.de

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Abstract

Taking control over one's career requires the ability to make career decisions; thus, remaining in a state of career indecision is problematic. However, the stability of career indecision has not yet been investigated using advanced statistical modeling approaches. We present two studies of German university students applying three-wave, longitudinal designs. Study 1 investigated the stability of career indecision by means of latent state-trait analysis within two samples with different time lags (Sample 1: $N = 363$, 7 weeks; Sample 2: $N = 591$, 6 months). The results indicated that career indecision was determined by a stable component (i.e., trait career indecisiveness) that was associated with lower core self-evaluations, lower occupational self-efficacy, and higher perceived career barriers. Study 2 ($N = 469$) examined career indecision over one year. We found that the stable career indecision component explained 5% of the variance in student life satisfaction beyond self-evaluated generalized indecisiveness.

Keywords: career indecision, career indecisiveness, latent state-trait analysis

Introduction

People must make occupational decisions over their entire lifespan (Hartung, Porfeli, & Vondracek, 2005). Empirical research suggests that occupational decisions are among the most powerful factors that influence people's lives (Hackett & Betz, 1995). At a minimum, being undecided can hinder people from taking control of their careers (Savickas, 2013). Consequently, career indecision is among the most researched issues in vocational psychology (e.g., Gati, Krausz, & Osipow, 1996), and exploring its persistence and stability over time are crucial issues in this field of research. Compared to career indecision, *indecisiveness* is considered a chronic and stable trait variable, which manifests not only in the process of occupational decision-making but also in other life domains (Osipow, 1999). However, the stable component of career indecision (i.e., career indecisiveness) has hitherto not been investigated with an appropriate research design and methodology. To date, studies investigating the persistence of career indecision over time are rare, and studies assessing indecisiveness have usually employed questionnaires asking participants to directly indicate their indecisiveness. Extending these studies, the present paper uses latent state-trait analysis (LST; Steyer, Schmitt, & Eid, 1999) based on longitudinal data from three samples and different time lags to empirically derive the situation-specific and stable components of career indecision during the early yet critical career development stage at university. We also seek to clarify the links among the stable component of career indecision, personality and career variables as well as psychological well-being (i.e., satisfaction with life). The specific aims of the present paper are to (1) empirically assess the stable component of career indecision, (2) explore how the stable component of career indecision is associated with personality (i.e., core self-evaluations) and career-related variables (i.e., occupational self-efficacy, perceived career barriers), (3) investigate how the stable component of career indecision is related to life satisfaction, and (4) evaluate the combined and unique effects of the stable component of

career indecision and generalized indecisiveness on life satisfaction. Our study contributes to the existing research in several ways. First, we extend the understanding of career indecisiveness by providing new insights into the persistence and stability of career indecision over time. Second, we extend the nomological net of empirically assessed career indecisiveness by exploring correlates to personality characteristics as well as career-related variables. Third, the study clarifies the significance of empirically assessed career indecisiveness by demonstrating its predictive validity in comparison to generalized indecisiveness (assessed at a single measurement point) regarding life satisfaction.

Career Indecision and Indecisiveness

Over the recent decades, a growing number of researchers have investigated career indecision and indecisiveness as well as the distinction between the two (e.g., Santos, Ferreira, & Gonçalves, 2014). *Career indecision* is understood as problems making career-related decisions (Gati et al., 1996) and is regarded as a part of normal vocational development during the process of making these decisions, such as when faced with career transitions from university to work. Among undecided individuals, most are able to resolve this decision problem alone or with the support of career counselors (e.g., Betz & Serling, 1993). Therefore, career indecision is quite transient and typically caused by interpersonal conflicts, barriers, and/or lack of information (Brown & Lent, 2008). *Indecisiveness*, in contrast, is chronic and trait-like and, thus, a more pervasive problem with making decisions across life domains (Osipow, 1999). Research has established that indecisiveness is positively correlated with but distinct from career indecision (Di Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013; Santos et al., 2014). Additionally, a large body of evidence has provided support for the assumption that indecisiveness leads to many deficits in the decision-making process. Research has shown that indecisive individuals need more time to make decisions (Frost & Shows, 1993), are more likely to postpone decisions (Rassin & Muris, 2005), need more

information before making decisions, report lower decision-making self-efficacy (Rassin, Muris, Franken, Smit, & Wong, 2007), and perceive more post-decisional problems (Germeijs & Verschueren, 2011). Additionally, these individuals have more problems choosing college majors and career paths (Gayton, Clavin, Clavin, & Broida, 1994; Germeijs, Verschueren, & Soenens, 2006). Moreover, indecisiveness is closely related to personality variables, such as low self-esteem (Germeijs & De Boeck, 2002), trait anxiety (Germeijs & Verschueren, 2011), and external locus of control (Santos, 2001). In sum, indecisiveness is regarded as a risk factor for failing the task of career decision-making (Germeijs et al., 2006).

Measurement and Temporal Stability of Indecisiveness

Indecisiveness is usually assessed with direct self-reports. For example, the Indecisiveness Scale (IS) developed by Frost and Shows (1993) and the Measurement Scale for Indecisiveness developed by Germeijs and De Boeck (2002) aim to assess the level of indecisiveness by means of direct questions about chronic decision-making problems. For example: “*It seems that deciding on the most trivial thing takes me a long time*” (Frost & Shows, 1993, p. 685). Other researchers used subscales of career indecision measures to assess indecisiveness, sometimes labeled trait indecision (Nauta, 2012) or diffusion (Vondracek, Hostetler, Schulenberg, & Shimizu, 1990).

A few longitudinal studies have attempted to investigate the stability of self-evaluated indecisiveness over time. Germeijs et al. (2006) found that correlations between measurements of indecisiveness were high across three measurement points during grade 12. Similar results were provided by showing high retest reliability of indecisiveness ($r = .88$) over a 1-month interval (Rassin et al., 2007). Gati, Asulin-Peretz, and Fisher (2012) found high positive correlations between measurements of indecisiveness over 3 years and thereby also supported the notion that indecisiveness is trait-like. The stability of four factors of career indecision, including a trait indecision factor, were investigated by Nauta (2012); the eight-

month retest coefficient of the trait indecision factor was quite stable with $r_{tt} = .76$ ($p < .01$).

Vondracek, Hostetler, Schulenberg, and Shimizu (1990) found that diffusion as a subscale of career indecision was relatively stable over 3 years among a group of high school students.

As is evident from this review, only a few studies have investigated the temporal stability of indecisiveness. Moreover, stability estimates of self-evaluated indecisiveness have invariably been based on correlation coefficients over time and retest reliability coefficients. These methods have some notable limitations because they do not consider that persons provide questionnaire responses in specific contexts or situations that may vary considerably over time. Consequently, an indecisiveness score obtained at a given point in time is always influenced by the characteristics of the person and the situation. Thus, individual differences in direct measures of career indecisiveness are due not only to presumed underlying trait differences but also to situation effects (Steyer et al., 1999). Moreover, psychological measures are never perfectly reliable, which means that obtained scores are also influenced by measurement error. Additionally, the extant studies of the stability of indecisiveness employed measures that asked participants to self-evaluate their chronic indecisiveness instead of empirically evaluating the persistence of decision-making difficulties over time. To account for these limitations and advance our understanding of persistent career indecision (i.e., career indecisiveness), in this paper, we assessed career indecisiveness by means of indirect indicators (i.e., career indecision over time) and a LST analysis, which is a theoretically more appropriate statistical tool. LST allows for the identification of situation-specific fluctuations around an invariant trait as well as of a person-specific, stable trait-component (Geiser et al., 2014). By assessing this stable component of indecision over time, we are able to identify career indecisiveness that is free from situation effects and measurement error. Therefore, the first aim was to empirically evaluate the stable component of career indecision as an indicator of career indecisiveness. Thus, we addressed the following research question.

Research question 1: To what extent is career indecision comprised of a stable component (i.e., career indecisiveness) and a situation-specific component?

The Nomological Net of Career Indecisiveness

The second aim was to explore the nomological net of empirically assessed career indecisiveness by providing new insights into the relation of career indecisiveness with personality characteristics (i.e., core self-evaluations) and career-related variables (perceived occupational barriers and occupational self-efficacy).

Core self-evaluations (CSE) are defined as an appraisal of an individual's worthiness and effectiveness. It is the common core of self-esteem, generalized self-efficacy, locus of control, and neuroticism (Judge, Erez, Bono, & Thoresen, 2003). Previous research has provided the first evidence that CSE seem to be important in the career decision-making process (Di Fabio, Palazzeschi, & Bar - On, 2012). CSE are also reflected in the meta-analytically derived four-factor model assessing the sources of career indecision by Brown and Rector (2008). Individuals with higher levels of self-esteem, self-efficacy, and emotional stability and who believe that they can control their life may be more confident in making occupational decisions and consequently show lower indecisiveness. Empirical findings have confirmed a negative relationship between CSE and career indecision (Di Fabio & Palazzeschi, 2012). In line with this result, we hypothesize the following.

Hypothesis 1: The stable component of career indecision (i.e., career indecisiveness) is negatively related to core self-evaluations.

Next, we included *perceived occupational barriers* in our study because we wanted to take into account environmental factors that are relevant in career development. As stated by Brown and Lent (1996) in their social cognitive career theory, perceived career-related barriers can hinder a person from entering a chosen career even when the person has well-developed interests in that career path. Therefore, the perception of high career barriers may

lead to the inability to make a decision concerning one's career. In line with this assumption, the meta-analysis by Brown and Rector (2008) identified barriers as a major source of career indecision. Additionally, Di Fabio et al. (2013) found a positive association between indecision and perceived barriers. Therefore, we hypothesized the following.

Hypothesis 2: The stable component of career indecision (i.e., career indecisiveness) is positively related to perceived career barriers.

Finally, *occupational self-efficacy* was addressed in this study. Self-efficacy is regarded as a self-evaluation that leads to a belief in one's own abilities to complete tasks or attain a defined level of achievement. In Brown and Rector's meta-analysis (2008), a major factor contributing to career decision-making difficulties reflects a lack of readiness, including a lack of confidence. For example, research showed that career decision self-efficacy acts as a significant predictor of career indecision (e.g., Betz & Klein Voyten, 1997). Thus, we assume that the belief in one's ability to fulfill requirements of a profession (i.e., occupational self-efficacy) may increase readiness and willingness to make a career decision. Conversely, individuals who do not trust their skills may not handle career choices well because this may lead individuals to avoid dealing with decision tasks and therefore remain undecided longer. We thus propose the following hypothesis.

Hypothesis 3: The stable component of career indecision (i.e., career indecisiveness) is negatively related to occupational self-efficacy.

Indecisiveness and Satisfaction with Life

The third aim was to explore how the stable component of career indecision is related to satisfaction with life. Empirical research has provided evidence of a negative relation between self-evaluated indecisiveness and academic major satisfaction (Nauta, 2007) and career choice satisfaction (Gati et al., 2012). Indecisiveness implies a lack of clarity concerning how personal needs can be satisfied or personal goals can be attained. This lack of

purpose and direction can be expected to negatively affect one's overall evolution of life satisfaction. Therefore, we proposed the following hypothesis.

Hypothesis 4: The stable component of career indecision (i.e., career indecisiveness) is negatively related to satisfaction with life.

In addition to assessing the link between empirically derived career indecisiveness and life satisfaction, we also aimed to compare the relationships of career indecisiveness and generalized indecisiveness with life satisfaction. Because indecisiveness is regarded as a pervasive problem with making decisions across life domains (Osipow, 1999), we assumed that career indecisiveness is positively related to, but empirically distinct from, generalized indecisiveness.

Hypothesis 5: The stable component of career indecision (i.e., career indecisiveness) is moderately positively related to self-evaluated generalized indecisiveness.

To evaluate the combined and unique predictive validity of career indecisiveness and generalized indecisiveness, we investigated the relationships of empirically assessed career indecisiveness and directly measured generalized indecisiveness with student life satisfaction. We hence addressed the following research question.

Research question 2: What are the combined and unique effects of career indecisiveness and generalized indecisiveness on student life satisfaction?

Overview of Studies

To investigate our research questions and hypotheses, we conducted two three-wave, longitudinal studies with three independent samples of university students. We surveyed university students because they are confronted with the task of preparing for the university to work transition for which engaging in career preparation and decision-making are important. Moreover, during university, students continually gain career information (e.g., from internships, in class, as a result of career exploration), which can have a significant effect on

their career decision-making. Thus, exploring stable and situation specific components of career indecision seems highly pertinent. Study 1 was concerned with assessing the stable component of career indecision and exploring how career indecisiveness is associated with personality (i.e., CSE) and career-related variables (i.e., occupational self-efficacy, perceived career barriers), addressing Research Question 1 and Hypotheses (H) 1 to 3. Study 1 evaluated data collected from two independent samples, which were each assessed across three measurement points. Study 2 aimed to replicate the findings of Study 1 regarding the stable component of career indecision using a new sample and to extend Study 1 by investigating how the stable component of career indecision is related to life satisfaction and self-evaluated generalized indecisiveness, examining H4 and H5. Additionally, Study 2 was concerned with evaluating the combined and unique effects of career indecisiveness and generalized indecisiveness on student life satisfaction, addressing Research Question 2.

Study 1: Investigating the Stable Component of Career Indecision and its Correlates

Method

Participants and procedure. We surveyed two unique samples of university students enrolled in a mid-sized university in Germany. The same research question and hypotheses were investigated across samples but with different time intervals between the three measurement points (Sample 1: time lags = 7 weeks; Sample 2: time lags = 6 months) so that we were able to provide insights into the generalizability of our results. *Sample 1* consisted of university students enrolled in the first semester of a master's degree in education. We chose a period of 14 weeks (including three measurement waves, each 7 weeks apart) because it covers the duration of one semester. During this semester, our participants spent regular periods working as student teachers at schools, which allowed them to collect valuable information about their future work tasks and environment and is likely to affect their career decision status. They were informed about the survey during a lecture and were then

contacted directly by email ($N = 841$); the response rate was 65%. Participating students were contacted two more times during the semester, each seven weeks apart, which had response rates of 60% and 49%. For the final sample, we retained $n = 363$ participants who participated at T1 and provided at least at one additional measurement, with 228 students participating in both follow-ups. The sample was 87% female, with an average age of 25.25 years ($SD = 4.60$).

In *Sample 2*, we invited students from across a variety of study fields to participate in our online survey. Overall, the sampled university offers over 30 different degree programs. The data collection points spanned one year (with three waves each six months apart) and were expected to cover enough time for changes to occur in participant career development and decision-making status. The sample was obtained by contacting students enrolled in the second or third year of their studies by email ($N = 3,800$); the response rate was 30% ($n = 1,148$). Participating students were contacted again two times, each six months apart, resulting in response rates of 37% and 34%. The final sample, $n = 591$, participated at T1 and provided at least at one additional measurement point, with 225 participating in both follow-ups. This sample was 65% female, with an average age of 23.64 years ($SD = 2.73$) and a mean number of enrolled semesters of 3.73 ($SD = 2.14$). Participants represented a wide range of fields of which the most common were management and entrepreneurship (19%), business psychology (16%), and business administration (14%).

For both samples, a three-wave longitudinal panel design that collected data on career indecision at three measurement points (T1 – T3) was utilized. CSE, perceived career barriers, and occupational self-efficacy were assessed during the first measurement point (T1) in both samples. We evaluated whether students who participated only at T1 differed significantly in the measures assessed at T1 from those who participated in at least one additional wave. For both samples, we compared groups using t-tests and Bonferroni corrections, and the results

showed that the study dropouts did not differ from those who stayed in the study on career indecision, CSE, or occupational self-efficacy. However, dropouts in Samples 1 and 2 were more likely to be male, and in Sample 2, they reported more career barriers and older age. Therefore, some retention bias should be considered for this sample when interpreting the results.

Measures. Table 1 presents the mean scores, standard deviations, and Cronbach's alpha reliability estimates as well as the bivariate correlations of the study variables for both samples on a latent level.

Career indecision. The German version of the 'My Vocational Identity Scale' (Holland, Daiger, & Power, 1980; Jörin, Stoll, Bergmann, & Eder, 2004) was applied with seven items ("I still need to figure out which professional direction I should pursue"; "If I had to decide for an occupation right now, I would be afraid to make the wrong decision"; "I am not yet sure, which occupations I could perform successfully"; "I am not sure if my current choice (education/job/profession) is in fact the right one for me"; "I do not yet exactly know which life goals I want to realize"; "I do not yet exactly know, which job would be fun doing in the long run"; "I am unclear about my own strengths, weaknesses, interests, and abilities") and a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale is an adoption to German with a reduced number of items compared with the original English version (Jörin et al., 2004). For the German language scale, good reliability of $\alpha = .88 - .89$ was found, and construct validity was supported by significant correlations with, for example, career planning among university students (Hirschi & Herrmann, 2013). Although the scale label indicates a measure of identity, its content is basically identical to measures of career indecision. In support of this, Hirschi and Läge (2007) reported a correlation between a career decidedness measure and Holland et al.'s vocational identity scale (negatively scored) of about $r = .80$.

Core self-evaluations. The German version of the CSE Scale (Judge et al., 2003) was applied, translated and validated by Stumpp, Muck, Hülshager, Judge, and Maier (2010). The scale contains 12 items (e.g., “*I am confident that I get the success I deserve in life*”) measured on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items stem from four domains: self-esteem, generalized self-efficacy, locus of control, and neuroticism. Stumpp et al. (2010) reported a scale reliability between $\alpha = .81$ and $\alpha = .86$. The criterion-related validity of the original scale is confirmed by results displaying a significant relationship with job satisfaction (Bono & Judge, 2003). The German version also showed adequate factorial structure and positive relationships with objective and subjective career success (Stumpp et al., 2010).

Perceived career barriers. Career barriers were measured using the six-item scale by Hirschi and Freund (2014). Students were asked to indicate to what extent six different factors (e.g., external circumstances and family responsibilities) were perceived as barriers to their career development using a five-point scale ranging from 1 (*not at all*) to 5 (*very much*). Hirschi and Freund (2014) established construct validity by showing significant relationships among perceived career barriers, career decidedness and career planning. Their results also reveal a good internal consistency measure of $\alpha = .77$.

Occupational self-efficacy. Occupational self-efficacy was assessed using the German version of the short occupational self-efficacy scale by Rigotti, Schyns, and Mohr (2008). The scale consists of six items (e.g., “*I feel prepared for most of the demands in my job*”), and answers were provided on a six-point scale ranging from 1 (*not at all true*) to 6 (*completely true*). Rigotti et al. (2008) showed a good reliability measure of $\alpha = .87$ for the German sample and also found evidence of construct validity by documenting significant relationships with job satisfaction and performance as well as organizational commitment among German employees.

Results and Discussion

Analytical approach. To assess the stable component of career indecision (i.e., career indecisiveness) over time, we used LST analyses. LST theory is based on the assumption that individuals' behavior is determined systematically both by their characteristics (i.e., the person's trait) and by the characteristics of the situation (i.e., the situation-specific state). Moreover, the interaction between person and situation plays an important role (Steyer et al., 1999). For a given person, the trait component remains relatively stable, while the state naturally varies over time and situations. Figures 1 and 2 depict the LST models for career indecision. To illustrate the analysis, note that the observed variables (the seven career indecision items) at each measurement occasion can be decomposed in two stages: first, into a latent state and a situation-specific observed residual ε_{ik} and second, the latent states (representing situational and/or interaction effects) can be decomposed into a component that is influenced by the person (representing the stable trait component) and a situation-specific latent residual ζ_k . In statistical terms, the total variance is decomposed into trait variance, state variance, and measurement error variance. First, trait variance captures the stability in individual career indecision over the assessed period. Second, state variance reveals systematic changes in individual career indecision over the given period. Third, the remaining variance component, measurement error, takes into account that psychological states and traits are assessed with imperfectly reliable measures. Such measure unreliability is due to random error variance, which ought not systematically bias the results but should not be ignored (Schmidt & Hunter, 1996). In Table 2, for each item of career indecision, we report (a) the *consistency coefficient* that displays the amount of explained variance explained by interindividual differences due to the latent trait, (b) the *specificity coefficient* that reflects that proportion of variance explained by situation and/or person-situation effects, and (c) the

reliability coefficient as the amount of variance explained by the latent trait and latent state residual (Steyer et al., 1999).

To assess our measurement models, we used Mplus 6.11 software (Muthen & Muthen, 2010) and maximum likelihood estimation that is robust to non-normality of the sampling distribution (MLR). To evaluate and compare model fits, we used two fit indices: the comparative fit index (CFI) and the root-mean-square error of approximation (RMSEA). CFI values of .95 and above are considered acceptable, while RMSEA values close to .06 or less indicate acceptable model fit (Hu & Bentler, 1999). Additionally, we applied the Satorra-Bentler corrected (SB) χ^2 test as a significance test, which is useful when the assumption of normally distributed data is rejected. This index indicates how the model fits the sample data; a significant test result ($p < .05$) indicates that the data differs significantly from the proposed model.

Preliminary analyses. First, we assessed the distinctness of the applied measures and evaluated the quality of the measurement model. We conducted a series of confirmatory factor analyses (CFA) among students who participated at T1 in Samples 1 and 2 and compared the model fit of a single-factor model, several two-factor models (pairing two of the scales versus the third and fourth scale, e.g., career indecision and CSE as one factor and perceived career barriers and occupational self-efficacy as the second factor) and the proposed four-factor model distinguishing career indecision from CSE, perceived career barriers, and occupational self-efficacy. Model comparisons were based on the χ^2 difference test with Satorra-Bentler corrections (Satorra & Bentler, 2001). Overall, the four-factor model provided significantly better fit than the other models (Sample 1: $SB-\chi^2 = 824.44$, $df = 428$, $p < .001$; $CFI = .89$; $RMSEA = .05$; Sample 2: $SB-\chi^2 = 1169.72$, $df = 428$, $p < .001$; $CFI = .87$; $RMSEA = .05$).

Second, we investigated the measurement invariance of our measure. Geiser and colleagues (2014) have highlighted the importance of providing evidence of measurement

invariance over time prior to conducting LST analyses. Establishing measurement invariance ensures that the measure assesses the same construct at different measurement points regarding factor structure and item functioning. Strong factorial invariance requires equivalent factor structures, invariant factor loadings as well as invariant intercepts over time (Horn & McArdle, 1992). We created a series of models including more restrictive assumptions regarding measurement invariance (for more details on the procedure see Lance, Vandenberg, & Self, 2000). For Sample 2, strong measurement invariance of the career indecision measure over time was confirmed. For Sample 1, only configural invariance (invariant unidimensional factor structure over time) was confirmed, which suggests that the substantive meaning of the career indecision measure was not completely stable over time.

Assessing the stable component of career indecision: Career indecisiveness. Table 1 shows that career indecision assessed at three different time points on a manifest level correlated highly within Sample 1 (time lag: 7 weeks) and Sample 2 (time lag: 6 months), providing the first support for a considerable inter-individual stability of career indecision over time. To address our research question and evaluate the stable component of career indecision, we performed LST analysis to determine the trait and situational specific sources of variance that can be identified at different measurement points. For Sample 1, the LST model yielded good fit statistics: $SB-\chi^2 = 244.434$, $df = 165$, $p < .001$; $CFI = .98$; $RMSEA = .04$. A latent trait factor for career indecision was found and accounted for 84%, 95%, and 81% of the variance at T1, T2, and T3, respectively. Hence, only 5% to 19% of the career indecision variance was due to situation-specific effects. For Sample 2, the variance explained by the trait was slightly smaller: a latent trait factor for career indecision was found and accounted for 68%, 82%, and 81% of the variance at T1, T2, and T3, respectively. The model also provided good fit statistics: $SB-\chi^2 = 235.467$, $df = 165$, $p < .001$; $CFI = .99$; $RMSEA = .03$. In Table 2, the consistency, specificity, and reliability coefficients for both

samples are displayed. The consistency coefficients ranged between .36 and .66 for Sample 1 and were lower for Sample 2 (.36 - .51). Specificity ranged between .02 and .16 for Sample 1. At State 2, specificity was especially low for this sample; for Sample 2, specificity was slightly higher (.10 - .22). Reliability coefficients were acceptable to moderate for both samples (.44 - .74). In reply to our research question, the results show that career indecision in our samples consisted of trait and state variance, but high percentages of trait-variance imply that career indecision was not strongly affected by situational effects (due to the strong trait component). For both samples, the results suggested that career indecision has a quite stable component over time, and the career indecision measure captured mostly stable interindividual differences, which is typical for personality assessments.

Relationships between career indecisiveness and other variables. To evaluate Hypotheses 1 to 3 and establish the nomological net of the empirically derived trait career indecisiveness, we investigated the relationships among the trait factor and CSE, perceived occupational barriers, and occupational self-efficacy (see Figure 1). As observed in Table 1, all correlations were significant for both samples. Specifically, we found significant negative relations between the trait component of career indecision and CSE (supporting Hypothesis 1), occupational self-efficacy (supporting Hypothesis 3) as well as positive correlations with perceived career barriers (corroborating Hypothesis 2).

Study 2: Incremental Predictive Validity of Career Indecisiveness for Life Satisfaction

The goal of Study 2 was to explore how the stable component of career indecision is related to life satisfaction beyond generalized indecisiveness.

Method

Participants and procedure. We contacted students ($N = 3,815$) enrolled in different majors at the same university as the students in Study 1. The response rate was 29% ($n = 1,105$) at T1. Participating students were contacted two additional times during the year,

each six months apart, resulting in response rates of 36% and 20%. As in Study 1, all students who participated at T1 and provided at least one additional measurement point were selected for the final analysis ($n = 469$), with 149 participating in both follow-ups. This final sample was 66% female, with an average age of 23.81 years ($SD = 3.10$) and a mean number of enrolled semesters of 3.98 ($SD = 2.29$). Participants represented a wide range of fields of which the most common were management (25%), education (19%), and cultural sciences (18%).

Life satisfaction and self-evaluated generalized indecisiveness were assessed only at T3; career indecision was assessed at each wave. As in Study 1, we evaluated whether students who participated only at T1 differed significantly in career indecision assessed at T1 from those who participated in at least one additional wave. The results showed that the study dropouts did not differ from those who remained on age and gender. However, they reported significantly higher career indecision. Therefore, some retention bias should be taken into account when interpreting the results.

Measures.

Career indecision. We measured career indecision ($\alpha = .88$ at T1; $\alpha = .91$ at T2; $\alpha = .91$ at T3 in the current sample) using the same instrument described for Study 1.

Indecisiveness. To assess self-evaluated, generalized indecisiveness, we applied the IS developed by Frost and Shows (1993) containing 15 items (e.g., “*I often worry about making the wrong choice*”) evaluated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The 15 items were independently translated into German by the first author of this study and a research assistant who are both highly familiar with the construct and highly proficient in English. The final version was produced after resolving any discrepancies between the translations. An exploratory factor analysis revealed a unidimensional structure. However, we decided to exclude the 4 items that address domain-specific indecisiveness (e.g.,

“*I have a hard time planning my free time*”) because we aimed to assess generalized indecisiveness. Moreover, these items showed weak factor loadings ($a < .50$). In the current sample, the Cronbach’s alpha of the final scale was $\alpha = .90$.

Satisfaction with life. Satisfaction with life was evaluated using the five-item German version (Schumacher, 2003) of the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), and the answers were provided on a five-point scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). An example question is “*The conditions of my life are excellent*”. Glaesmer, Grande, Braehler, and Roth (2011) reported a convincing scale reliability of $\alpha = .92$, discriminant validity regarding depressiveness, and a positive association with social support for the German version.

Results and Discussion

As in Study 1, we first established strong measurement invariance over time of the career indecision measure for our sample. We then evaluated the stable component of career indecision to compare these results to results of Study 1. For our sample, the LST model provided good fit statistics: $SB-\chi^2 = 245.863$, $df = 165$, $p < .001$; $CFI = .97$; $RMSEA = .04$. A latent trait factor for career indecision was found and accounted for 70%, 89%, and 41% of the state variance at T1, T2, and T3, respectively. As observed in Table 2, specificity coefficients at State 3 are high, indicating more explained variance due to the situation and/or person-situation interaction at T3. However, this finding is generally compatible with that of Study 1 and further supports the existence of a strong trait factor in career indecision.

Predictive validity of career indecisiveness. To evaluate Hypotheses 4 and 5 regarding how trait career indecisiveness is related to life satisfaction and generalized indecisiveness, we computed correlations between those constructs on a latent level. The correlation coefficient between trait career indecisiveness and life satisfaction was $r = -.31$, $p < .001$ (supporting Hypothesis 4) and between trait career indecisiveness and generalized

indecisiveness was $r = .35, p < .001$ (supporting Hypothesis 5). To answer our research question and test whether the predictive effect of trait career indecisiveness is comparable to the effect of generalized indecisiveness, we conducted a series of regression analyses of the latent constructs. First, we investigated the predictive validity of self-evaluated generalized indecisiveness, which was found to be a significant predictor of life satisfaction ($\beta = -0.30; p < .001; R^2 = 0.09, p < .05$). Second, we tested whether trait career indecisiveness captures the variance in student life satisfaction beyond generalized indecisiveness (see Figure 2). The effect of trait career indecisiveness on life satisfaction ($\beta = -0.24; p < .01$) remained significant after controlling for generalized indecisiveness ($\beta = -0.22; p < .01$). A total of 14.0% of the variance ($p < .05$) in life satisfaction was explained by the stable component of career indecision and generalized indecisiveness combined. Therefore, trait career indecisiveness explained 5% of the variance in life satisfaction beyond generalized indecisiveness.

General Discussion

The general goal of the present paper was to investigate the stable component of career indecision (i.e., career indecisiveness) among university students. Although client indecision is of major concern in career counseling, the methodologies for assessing indecisiveness in existing research have some notable limitations. Only a few longitudinal studies have examined indecisiveness over time, and these studies have only assessed indecisiveness using questionnaires directly asking participants to indicate their indecisiveness. Hence, the general aim of our study was to evaluate the empirically assessed stable component of career indecision (i.e., career indecisiveness) over time and to investigate its relationships with personality-, career-, and well-being-related variables. We examined three different groups of students over different periods to improve the generalizability of our results.

Assessing the Stable Component of Career Indecision: Career Indecisiveness

In Study 1, we addressed the research question of the extent to which career indecision is comprised of a stable component using LST analyses (cf. Steyer et al., 1999). Our analyses enabled us to draw a broader picture of career indecision and indecisiveness and extended existing research on the persistence and stability of generalized indecisiveness (e.g. Gati et al., 2012; Germeijs et al., 2006). The key finding across samples and time lags was that career indecision is influenced by a stable component and is less affected by situational influences. Comparison of the trait components in Sample 1 (time lag: 7 weeks) and Sample 2 (time lag: 6 months) reveals that for the shorter time interval, the trait component was somewhat larger. In sum, the results provide evidence of the trait-like nature of career indecisiveness that has been frequently assumed in the literature (Hartman, Fuqua, & Hartman, 1983; Osipow, 1999) but not clearly established due to shortcomings in the applied research methodologies.

Relationships between Career Indecisiveness and other Variables

As hypothesized, we found a negative correlation between the latent trait of career indecision and CSE similar to previous findings on career indecision (Di Fabio et al., 2012), confirming that a negative appraisal of individual worthiness is associated with more career decision-making problems. However, our study goes significant beyond previous studies because we could show a relation between CSE and an empirically derived stable component of career indecision over time. This could imply that negative self-perceptions lead to problems in career decision-making. However, our studies do not permit claims about causality and it also is possible that problems in career decision-making could lead to negative self-perceptions.

Our study also reflects previous findings of a positive relationship between career indecision and perceived career barriers (Patton, Creed, & Watson, 2003). Extending previous research, our study clarified the link between perceived career barriers and trait career

indecisiveness by revealing a positive relationship between these constructs. This suggests that the perception of career barriers is associated with an inability to make career decisions that is pervasive over at least short-term periods. Finally, career indecisiveness was negatively correlated with occupational self-efficacy, meaning that indecisive students show lower self-efficacy regarding their own abilities. This result suggests that students who believe in their own ability might show higher readiness to make career decisions. Conversely, individuals who do not trust their skills seem not to handle career choices well because they might avoid decision tasks and therefore remain undecided longer. Whether perceived barriers and low occupational self-efficacy are causes of career indecisiveness can, however, not be determined with our studies.

Predictive Validity of Career Indecisiveness for Life Satisfaction

Study 2 aimed to explore how the stable component of career indecision is related to self-evaluated generalized indecisiveness and life satisfaction. First, as expected, the results showed that career indecisiveness was positively related to generalized indecisiveness. Additionally, our regression analyses revealed that, as hypothesized, trait career indecisiveness was a significant predictor of student life satisfaction, indicating that problems in making decisions regarding one's career influence subjective well-being in terms of life satisfaction. This finding expands existing research on the link between career decision difficulties and career-related satisfaction, for example, and satisfaction with chosen majors in college (Nauta, 2007). We showed that career indecisiveness is also significantly related to overall life satisfaction, meaning that students who are indecisive are more likely to be unsatisfied with their whole life. Considering that occupational decisions are among the important factors that influence people's lives (Hackett & Betz, 1995), this result highlights the potentially destructive nature of career indecisiveness for individual well-being. Finally, we extended the nomological net and provided a new in-depth understanding of the

usefulness of the construct of career indecisiveness by demonstrating its incremental predictive validity beyond generalized indecisiveness (assessed at a single measurement point) regarding student life satisfaction.

Limitations

Some limitations apply for our studies. First, the nature of our samples limits the generalizability of the results. Due to the German educational system, university students have already made a number of career decisions prior to entering university (e.g., decided on a major, chose a university education and not vocational training). Consequently, the range and scope of career indecision might be more limited than in college samples from other countries. This might have affected the degree of stability in career indecision over time. Additionally, a majority of participants was female, especially in Study 1. Moreover, most of those who dropped out after the initial measurement point were male in Study 2 and dropouts were also systematically higher in career indecision at the first measurement point. Therefore, selection bias for the final sample in the examined variables should be taken into account. Second, a time of 14 weeks (Study 1) and even one year (Study 2) is rather short for estimating more chronic forms of indecision. Moreover, some authors (e.g. Kenny & Zautra, 1995) recommend a minimum of four assessments to separate trait from state variance. Additionally, only configural invariance for Sample 1 of Study 1 was established. Therefore, the results of these LST analyses need to be interpreted with caution (Geiser et al., 2014). A third limitation of the study is that we did not assess career decision multidimensionally. For a more fine-grained understanding of career indecision, the assessment of different dimensions of career indecision would be important. Finally, future research could investigate additional factors in order to generate a more complete picture of the causes and consequences of chronic career indecision, for example, career information deficits (Brown & Rector, 2008).

Practical Implications and Conclusion

The most notable contribution of our studies to career counseling is the finding that career indecision consists of both trait and state components and that these can be measured and might require different counseling approaches. Because some part of career indecision is a state, it is likely that this will improve with time due to self-guided career exploration and planning as students advance in their university years. Career counselors could assist this process by providing career information and self-assessments for students. However, a large part of career indecision is relatively stable. This means that many students will not be able to resolve their career indecision simply by advancing through their university experience. It also suggests that these students would need more profound counseling than just providing information or a simple self-assessment. Addressing the stable component of career indecision needs to address negative self-views, perceived barriers, and self-efficacy.

Moreover, the study highlighted the significance of the trait of career indecision by demonstrating its relation with life satisfaction. Counselors should be aware of this association when assisting clients. It seems possible that general life dissatisfaction is at least partially due to persistent problems in career decision-making. Additionally, chronic career indecision might negatively impact student satisfaction with life. This calls for holistic career counseling approaches that integrate career and non-career issues to increase student's overall well-being.

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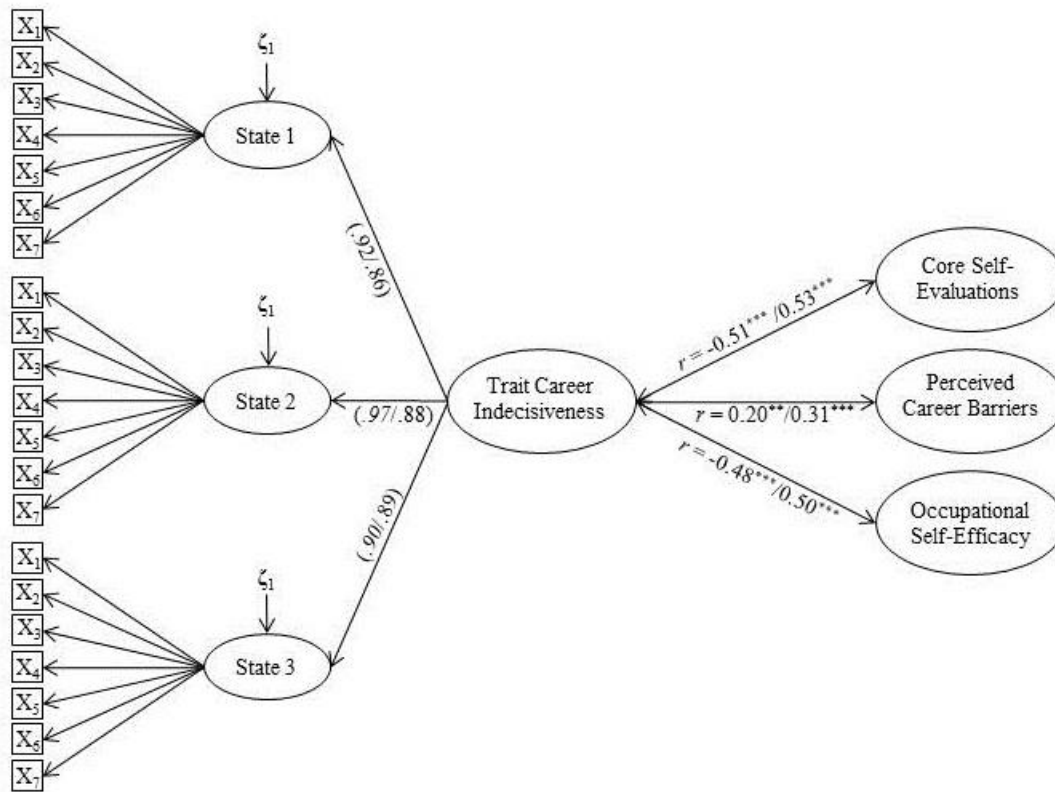
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Figure 1

Study 1: Latent State-Trait Model of Career Indecision and Latent Correlations to CSE, Perceived Career Barriers, and Occupational Self-Efficacy



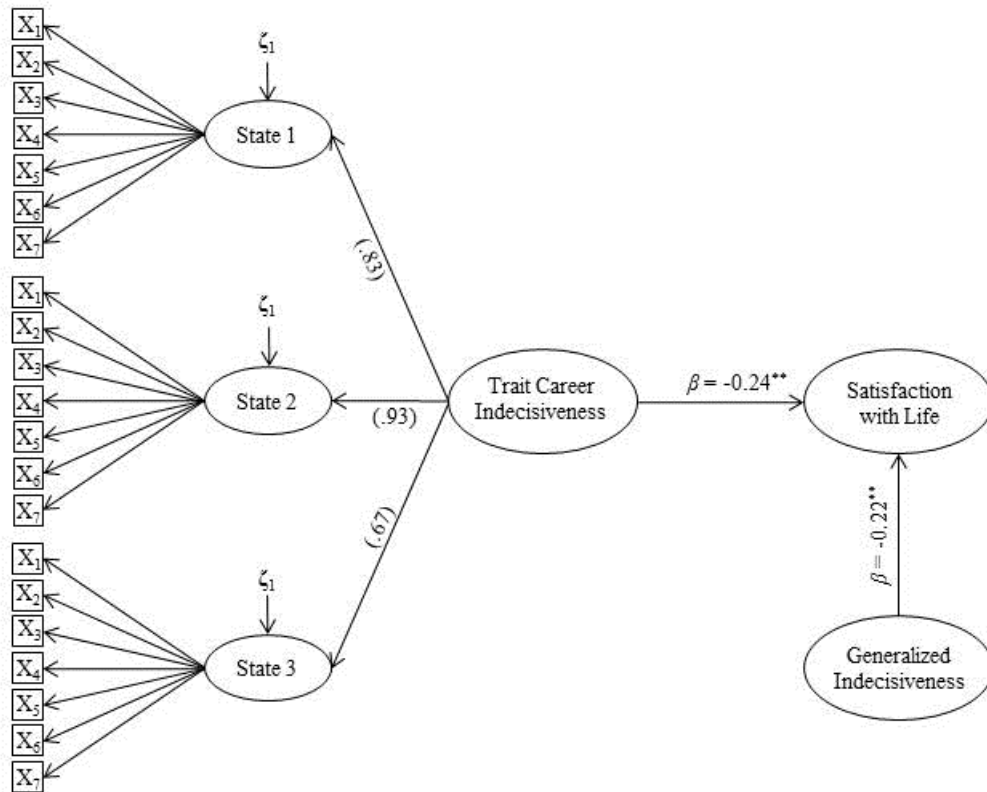
Sample 1: $\chi^2(915) = 1535.087, p = .000$; CFI = .92; RMSEA = .04; Sample 2: $\chi^2(915) = 1833.832, p = .000$; CFI = .90; RMSEA = .04

Notes: left: Sample 1; time-lags = 7 weeks; $N = 363$ /right: Sample 2; time-lags = 6 months; $N = 561$. For reasons of clarity, item residual variables ε for career indecision variables are not shown in the figure. ζ_1 to ζ_3 = Latent state residuals of career indecision for the three measurement points indicating the variability due to the situation and the person \times situation interaction. Entries in parentheses are the standardized factor loadings. X_1 to X_7 indicate the items of the career indecision scale.

Figure 2

Study 2: Latent State-Trait Model of Career Indecision and Latent Regression Model

Explaining Satisfaction with Life (N = 469)



$\chi^2(602) = 1139.374, p = .000; CFI = .91; RMSEA = .05$

Notes: For reasons of clarity, item residual variables ε for career indecision variables are not shown in the figure. ζ_1 to ζ_3 = Latent state residuals of career indecision for the three measurement points indicating the variability due to the situation and the person \times situation interaction. Entries in parentheses are the standardized factor loading.

Running head: PERSISTENT CAREER INDECISION OVER TIME

Table 1*Study 1: Summary of Latent Intercorrelations, Means, and Standard Deviations among the Assessed Constructs*

		1	2	3	4	5	6	7	<i>N</i>	<i>M</i>	<i>SD</i>
1 Career Indecision	T1	(.88/.88)	.78***	.78***	-.50***	.27***	-.47***	-	590	17.94	6.14
2 Career Indecision	T2	.91***	(.91/.88)	.83***	-.39***	.23***	-.43***	-	423	17.96	6.23
3 Career Indecision	T3	.83***	.89***	(.92/.88)	-.40***	.23***	-.43***	-	392	18.24	6.32
4 Core Self-Evaluations	T1	-.46***	-.50***	-.49***	(.85/.86)	-.51***	.74***	-.53***	587	45.15	7.05
5 Perceived Career Barriers	T1	.19*	.17**	.25***	-.47***	(.67/.73)	-.29***	.31***	586	12.03	3.99
6 Occupational Self-Efficacy	T1	-.50***	-.45***	-.40***	-.66***	-.16	(.81/.80)	-.50***	588	25.57	4.00
7 Trait Career Indecisiveness		-	-	-	-.51***	.20**	-.48***			-	-
<i>N</i>		363	325	266	363	363	363				
<i>M</i>		13.36	12.98	13.30	45.59	12.00	25.82				
<i>SD</i>		5.34	5.53	5.92	6.71	3.66	3.76				

Note. Below diagonal: Sample 1 (time-lags = 7 weeks): *N* = 363; above diagonal Sample 2 (time-lags = 6 months): *N* = 591; entries in parentheses

in diagonal are the Cronbach's alpha reliability coefficients (*left: Sample 1/right: Sample 2*).

* $p < .05$; ** $p < .01$; *** $p < .001$

Running head: PERSISTENT CAREER INDECISION OVER TIME

Table 2*Study 1 and Study 2: Consistency (CON), specificity (SPE), and reliability (REL) coefficients*

		Study 1: Sample 1			Study 1: Sample 2			Study 2		
		CON	SPE	REL	CON	SPE	REL	CON	SPE	REL
State 1	Item 1	.53	.10	.63	.43	.20	.64	.43	.18	.62
	Item 2	.62	.12	.74	.46	.22	.68	.46	.19	.65
	Item 3	.57	.11	.68	.43	.20	.63	.45	.19	.63
	Item 4	.44	.09	.53	.36	.17	.53	.35	.15	.50
	Item 5	.36	.07	.44	.37	.17	.54	.41	.17	.58
	Item 6	.53	.10	.63	.43	.20	.63	.46	.20	.66
	Item 7	.40	.08	.48	.41	.19	.60	.41	.17	.58
State 2	Item 1	.59	.03	.62	.47	.13	.60	.51	.10	.62
	Item 2	.66	.04	.70	.49	.14	.63	.53	.11	.64
	Item 3	.60	.03	.63	.51	.14	.65	.56	.11	.68
	Item 4	.58	.03	.61	.38	.10	.48	.40	.08	.48
	Item 5	.45	.02	.48	.41	.11	.52	.43	.09	.52
	Item 6	.59	.03	.62	.47	.13	.60	.49	.10	.59
	Item 7	.46	.02	.48	.43	.12	.55	.50	.10	.60
State 3	Item 1	.58	.16	.74	.45	.13	.59	.36	.37	.73
	Item 2	.54	.15	.69	.49	.14	.63	.38	.40	.78
	Item 3	.53	.15	.68	.51	.15	.66	.37	.39	.77
	Item 4	.43	.12	.55	.38	.11	.50	.30	.31	.61
	Item 5	.41	.12	.53	.39	.11	.50	.30	.31	.61
	Item 6	.57	.16	.73	.48	.14	.62	.37	.38	.75
	Item 7	.43	.12	.55	.42	.12	.54	.33	.34	.67

HIGHLIGHTS

- Career indecision showed a stable trait component (i.e., career indecisiveness) among German university students
- Stable career indecision was associated with lower occupational self-efficacy beliefs and higher perceived career barriers
- Stable career indecision negatively correlated with core self-evaluations
- Trait career indecisiveness explained 5% of variance in life satisfaction beyond generalized indecisiveness