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The Future Work Self and Calling: The Mediational Role of Life Meaning

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Abstract

Vocational interest characteristics—interest congruence, interest differentiation, and general interest level (elevation)—are useful indicators for career development. However, research on these issues has primarily focused on adolescents in the transition from school to work and analyzed a limited set of career-related correlates. This study extends this line of research by exploring the relationships of interest congruence, interest differentiation, and interest elevation with several indicators of career preparedness (i.e., career planning, occupational self-efficacy beliefs, career decidedness, and career engagement) among a sample of emerging adults during their university studies in Germany. Data from 239 students representing a wide range of majors were collected via an online questionnaire. Controlling for sociodemographic variables, multiple regression analyses revealed that differentiation was positively associated with career decidedness and career engagement and elevation was positively related to occupational self-efficacy beliefs and career engagement. We discuss the findings regarding the importance of differences in vocational interest characteristics for the career preparedness of university students.

Introduction

Recent studies in vocational psychology and career management have paid increasing attention to the construct of calling, that is, the feeling of a deep, meaningful passion for a particular line of work. Research has consistently found evidence that one's perception of a calling is positively connected with adaptive career development and well-being (Duffy and Dik 2013). However, extant research has predominantly considered calling as an antecedent of various positive outcomes (for a review see Duffy and Dik 2013), focusing on what one can obtain through a calling, rather than what one can do to find or develop such a calling. How individuals can discern a calling is a crucial question because it provides a dynamic perspective on our understanding of callings and also promises applicative knowledge to help people understand their callings. We aim to address this concern in Chinese context. In the context of the rapid economic changes in China, people's vocational lives changed considerably in the last decades, especially for the generation of the One Child Policy (Wong and Slater 2002). Meanwhile, China's college education has also been increasingly shifting from an elitist view to a more mass education. As a result, the number of college graduate in China has increased steadily from 1.14 million in 2001 to 7.27 million in 2014 (China Education Online 2014). Thus, the job market for graduates is highly competitive. In this challenging context, calling may be an important supportive source of enhancing students' and graduates' well-being because a calling can give a sense of direction and purpose to one's career (Dobrow and Heller 2015; Zhang et al. 2015a). Hence, understanding how callings can be discerned in Chinese college students would be of theoretical and practical importance.

To address this question, we use a three-wave longitudinal mediation study to determine which variables can predict the development of one's sense of calling. Conversely, the rare prior longitudinal research on calling has primarily investigated two time points (e.g., Bott and Duffy 2014; Duffy et al. 2014a; Praskova et al. 2014b) or three time points without testing mediation effects (e.g., Duffy et al., 2014b). Our study uses a full time-lagged longitudinal mediation model, which is particularly suited to investigate developmental effects and potential cause-effect relationships in field research (Cole and Maxwell 2003; Preacher 2015).

Specifically, drawing from career construction theory (Savickas 2005; 2013) and proactive motivation models of career development (Parker et al. 2010), we examine the role of the future work self and life meaning in discerning a calling among Chinese college students, using three measurement points over a one-year period. We test whether life meaning mediates the relationship between the future work self and calling over time. In summary, our study makes several explorations. First, we aim at providing a new understanding of the dynamic process of perceiving a calling by testing the time-lagged effects of the future work self and life meaning on the change of calling. Second, we also aim to extend the literature on calling to a Chinese college student sample, which answers the call for more empirical explorations in non-Western cultures (Duffy and Dik 2013). Third, for practitioners and counselors, our study may provide a new understanding of how to support college students in discerning their callings and building meaningful careers.

Calling in an International Context

In early examinations, calling was understood in close connection with its traditional religious roots (Duffy and Dik 2013). However, recent researchers have considered calling to be more secular and multidimensional (e.g., Dik and Duffy 2009; Hagmaier and Abele 2012; Praskova et al. 2014a). For example, Bunderson and Thompson (2009) explored the notion of a neoclassical calling and emphasized the importance of a sense of destiny that was fulfilled by one's gifts and talents. Dobrow and Tosti-Kharas (2011) defined calling as a consuming, meaningful passion that people experience toward particular domains. Although the calling definitions differ slightly from one another, there is considerable overlap. A guiding force or transcendent summons, purpose and meaningfulness, and prosocial orientation are three of the most frequently emphasized components of calling. Respective definitions view calling as a career that is highly personally meaningful, intended to help others or contribute to society, and which stem from internal (e.g., inner voice, true self) or external forces (e.g., higher power, Duffy and Dik 2013; Zhang et al. 2015b). In addition, the active engagement component has also been mentioned in several studies. It emphasizes the active enthusiasm and persistence in fulfilling one's calling (Praskova et al. 2015b, c). Most recently, the concept of calling has also been explored in non-Western cultures (e.g., in Chinese culture, Zhang et al. 2015b, c). Rooted in the notion of calling in traditional and modern Chinese culture, Zhang et al. (2015b) found that there is more emphasis on a sense of duty and a lack of religious connotations in the definition of calling in Chinese culture. However, the broader dimensions of calling corresponded considerably with definitions in Western cultures.

Accordingly, Zhang et al. (2015c) constructed a three-factor measure in Chinese college students; Guiding Force, Purpose and Meaning, and Altruism were derived as the core components of a calling in Chinese culture.

The Emergence and Change of Calling

Several studies on callings have applied longitudinal designs. Dobrow (2013) surveyed a group of musicians over a period of seven years and found that feelings of social comfort in the music domain were linked to a higher sense of calling over time. Hirschi and Herrmann (2013) found that clarity about career goals and more career planning promoted a sense of calling over time. Duffy et al. (2014a) also confirmed that vocational clarity predicted calling. They further found that the presence of life meaning and the search for life meaning motivated individuals to discern their callings. Similar results were also found in Bott and Duffy's (2014) study, which suggested that a search for life meaning and personal growth predicted the perception of a calling. Duffy et al. (2011) surveyed a group of medical students and found that vocational development and life meaning significantly predicted calling over time. In addition, Duffy et al. (2014b) found that work meaning and career commitment predicted individuals' perceived degree of living a calling over time. These studies have provided an initial understanding of the development of calling. However, there is still a lack of knowledge about the ongoing development process of one's calling and how this development is predicted by other variables beyond the ones that have already been investigated. Moreover, the designs of most extant longitudinal research on calling are not sufficient for testing more advanced models, such as full time-lagged longitudinal mediation models, which require at least three

measurements points. In our study, we accordingly extend previous studies by applying a full time-lagged mediation model in which we examine how life meaning mediates the relationship between clarity about one's future career (i.e., the future work self) and the discernment of one's calling over time.

Life Meaning as a Mediator between One's Future Work Self and Calling

We apply the career construction theory to understand the dynamic process of discerning a calling and build our hypotheses. According to career construction theory, a career is constructed by creating meaning of one's vocational behavior (Savickas 2005, 2013). This active meaning-making process is built upon one's past memories, present experiences, and future aspirations (Savickas 2005). According to career construction theory, people need to clarify their past, present, and future selves to attain meaning in work and in general life. Individuals need to understand why their careers matter by connecting their life themes and meanings with their career. At the same time, meaning and purpose that individuals construct about their self, work, and life can guide their present and future vocational behavior (Savickas 2005). Therefore, the vocational self-concept, especially the future-oriented vocational self-concept, and the resulting meaning-making process are two important parts to an adaptive career according to career construction theory. Career construction theory may provide thus us a framework to understand how callings can emerge because the vocational self-concept and meaning-making may be critical components for understanding calling's dynamic process (Hall and Chandler 2005). In this study, we therefore propose that the future-oriented vocational self-concept (indicated by the future work self) helps

to construct a sense of life meaning, which in turn augments perceptions of calling.

The notion of a future work self is developed based on the concept of the possible self, representing a hoped-for possible self in relation to work (Strauss et al. 2012). In essence, it is future-oriented as it constitutes an individual's desired self-concept in future work life. According to the proactive motivation model of Parker et al. (2010), future-oriented thinking motivates self-initiated proactive behaviors. A future work self may serve as a motivational source by generating a discrepancy between one's current self and the ideal future work self. Empirical research has confirmed that when people have clear knowledge of what they will become in the future, they tend to be more engaged in proactive career behaviors that aim at achieving their future goals (Strauss et al. 2012; Taber and Blankemeyer 2015). Moreover, using a Chinese college student sample, Guan et al. (2014) found that one's imagined future work self significantly predicted career adaptability and job search self-efficacy. Therefore, a clear future work self may play an important role in developing one's calling. Callings have been characterized as arising from both external and internal sources, such as the "true self" or an inner force, which suggests that active self-exploration can be a basis for discerning one's calling (Dik et al. 2015; Hirschi 2011). Notably, Hall and Chandler (2005) suggested that a calling was initially shaped by "knowing why" investments, such as knowing one's self, discovering one's true self, and understanding one's needs. Likewise, Elangovan et al. (2010) asserted that discovering one's calling was grounded in understanding one's actual self and future ideal self. We thus propose the following:

Hypothesis 1: The future work self predicts an increase in calling over time.

In the present paper, we specifically expect that the positive effects of future work self-clarity on calling are partially mediated by the positive effects of the future work self on life meaning. Because people are more likely to perceive a feeling of life meaning when they have a clear view of what they want to become in the future, a clear future-oriented self-understanding may provide an important source for discerning an individual's life meaning (Dik et al. 2015; Savickas 2005). Steger (2012) proposed a similar link, asserting that life meaning should relate to one's self-understanding. Pratt and Ashforth (2003) also noted that self-identity can foster meaningfulness, especially through the confirmation of a proactively desired future self. Similarly, Elangovan et al. (2010) proposed that the path to meaningfulness is built upon the convergence of the actual, ideal, and ought selves. Based on these arguments, we propose the following:

Hypothesis 2: The future work self predicts an increase in life meaning over time.

In turn, life meaning might be an important source for the discovery and development of one's calling. Meaningfulness has been consistently considered a key component for understanding calling (Adams 2012; Dik and Duffy 2009). Previous research has prevalently regarded life meaning as a positive outcome of having a calling (e.g., Duffy et al. 2012; Duffy and Sedlacek 2010). People who perceive their career as a calling may be more likely to experience their lives as overall meaningful. However, longitudinal studies also support the idea that life meaning is potentially an antecedent of one's sense of calling (Duffy et al. 2011, 2014a). Indeed, perceiving meaningfulness in life may provide individuals with a better basis

for understanding and finding careers to which they feel called (Duffy et al. 2011). When people know what makes their lives meaningful, they are more likely to discern that meaning in different life domains, such as in a calling for a particular career. Along these lines, Elangovan et al. (2010) have suggested that the urge to find life meaning is critical for the identification of one's calling. Based on these considerations, we propose the following:

Hypothesis 3: Life meaning predicts an increase in the presence of calling over time.

Building upon Hypotheses 1, 2, and 3, we further propose that life meaning acts as a partial mediator in explaining the relationship between the future work self and calling.

Hypothesis 4: Life meaning mediates the positive effects of clarity about the future work self on the presence of calling.

Method

Participants and Procedure

Data were collected among five comprehensive universities in China. We contacted the university staff to obtain their support for our survey and to ensure that the participants can be reached in the follow-up surveys. With the staff's help, a three-wave data collection was conducted, with each wave approximately six months apart at the beginning of a university term. All assessments were conducted as paper-and-pencil questionnaires in class under the supervision of the staff. The same classes were assessed at each measurement wave and students were matched across waves with their student registration numbers. No compensation was offered as an incentive at any of the three waves.

A total of 690 questionnaires were distributed at T1, which resulted in a response rate of 91% ($N = 626$) at T1; 64% ($N = 400$) participated again at

T2; and 48% ($N = 299$) participated at T3. The final sample consisted of 473 college students who provided responses for at least two time points. Most participants (82%) were female. The sample reported a mean age of 19.51 years ($SD = 1.13$, ranging from 17 to 23 years) at T1; 53% of the participants majored in natural sciences, and 47% majored in social sciences; 82% of the participants were freshmen, and 18% were in their sophomore year.

Measures

shows the reliability coefficients, means, and standard deviations for all measures.

Calling. The 11-item Chinese Calling Scale (CCS; Zhang et al. 2015c) was used, which assesses the experience of calling using three dimensions: Guiding Force, Meaning and Purpose, and Altruism. The Guiding Force dimension consists of four items and measures the extent to which individuals feel a guiding influence in the development of their careers (e.g., "I feel that I am destined to pursue my future career"). The Meaning and Purpose dimension consists of three items and measures the degree to which individuals feel that their careers connect to a broader sense of meaning in life (e.g., "My career is one of the means reflecting my life value."). The Altruism dimension contains four items and examines the degree to which individuals tend to help others and make a difference in society through their careers (e.g., "I want to do something beneficial to society via my career"). The items were answered on a five-point scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Zhang et al. (2015c) reported that the alphas of the scale ranged from .77 to .84 among three independent Chinese college student samples. The construct validity of this scale has also been supported by its high correlation with

the scores of the Brief Calling Scale (Zhang et al. 2015c). Zhang et al. also found the CCS to correlate significantly with measures of career decidedness, dispositional hope, the presence of life meaning, and life satisfaction.

Future work self. A Chinese version (Guan et al. 2014) of the four-item scale developed by Strauss et al. (2012) was administered to measure participants' clarity about their future selves in the work domain. Participants were asked to imagine their future selves and rated the salience of the future work selves that they imagined (e.g., "I am very clear about who and what I want to become in my future work"). The five-point scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Strauss et al. (2012) reported the scale's good internal consistency ($\alpha = .92$) and its positive associations with career commitment and proactive career behavior. In studies based on Chinese university graduate samples, this scale was found to have good reliability ($\alpha = .87 - .94$). It was also found that the future work self was significantly related to self-esteem, proactive personality, career adaptability, job search self-efficacy, and employment status (Cai et al. 2014; Guan et al. 2014).

Life meaning. We used the Chinese version of the Meaning in Life Questionnaire (MLQ; Steger et al. 2006; Wang and Dai 2008). This questionnaire included 10 items to assess both the presence of and the search for life meaning. For the purpose of the current study, only the five items of assessing the presence of life meaning were used (e.g., "My life has a clear sense of purpose."). The response scale ranged from 1 (*absolutely untrue*) to 7 (*absolutely true*). Studies reported the strong reliability of the MLQ Presence scale in Western samples ($\alpha = .81$ to $.92$ and one-month test-retest reliability of $r = .70$; Steger et al. 2006) and in a

Chinese sample ($\alpha = .85$; Wang and Dai 2008). Steger et al. (2006) also reported high correlations between the MLQ Presence score and the scores of other meaningfulness measures (e.g., the Purpose in Life Test). Previous studies have found scores from the Chinese scale to relate to dispositional hope, calling, vocational clarity, and life satisfaction (Zhang et al., 2015c).

Analytical Approach

To test the mediation model, which suggests that life meaning plays a mediational role in the relationship between the future work self and calling over time, we applied a full time-lagged mediation analysis, as suggested by Cole and Maxwell (2003) and Preacher (2015). We used Mplus (version 7, Muthén & Muthén 1998-2012) with the robust maximum likelihood estimation MLR to conduct the analyses. The constructs were specified as latent variables, which were indicated by their respective items or dimensions: future work self (four items), the presence of life meaning (five items), and calling (three dimensions). To assess the model fit, we used several indices. First, the Satorra-Bentler corrected χ^2 -test statistic ($S-B\chi^2$) was applied to evaluate the specified model's acceptability. Second, a number of fit indices were used: the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root-mean-square error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). It has been suggested that values greater than or equal to .90 for CFI and TLI and values lower than or equal to .08 for RMSEA and SRMR indicate a good fit (Bentler 1990; Weston and Gore 2006). The model comparisons were based on the corrected scaled difference test developed by Satorra and Bentler (2001).

Results

Preliminary Analyses

First, we tested the potential impact of "missingness" by creating a dummy variable that separated the participants who participated in all three waves from those who participated in only two waves (Little 2013). We found that missingness was nonsignificantly related to future work self, life meaning, and calling at T1 ($p > .05$) or to study major ($\chi^2 = .13, p = .72$). However, participants with missing values were significantly younger ($M = 19.34$ vs. $19.69, t = -.350, p < .001$). Attrition was also significantly higher among males ($\chi^2 = 6.48, p < .01$). Adopting this method, we additionally created a dummy variable that separated the participants who participated in only T1 with those who participated in at least two waves. We found this missingness pattern was also nonsignificantly related to future work self, life meaning, and calling at T1 ($p > .05$) and to gender ($\chi^2 = 1.38, p = .24$), grade ($\chi^2 = .13, p = .72$), and study major ($\chi^2 = .10, p = .76$). These results mean that missingness was not systematically associated with the study variables but with demographic variables, which suggested that the pattern of missingness may be missing at random (MAR; Enders 2010). To address missingness, we adapted a full information maximum likelihood (FIML) to estimate the missing data. FIML is recommended because it yields less biased estimates than the traditional approach (e.g., listwise deletion, mean imputation). Thus, FIML is particularly preferable for longitudinal studies in which missing data are common (Graham 2009). Table 1 displays the correlation coefficients of all study variables. As hypothesized, future work self, life meaning, and calling were all moderately

Table 1

Correlations, Reliabilities, Means, and Standard Deviations of the Assessed Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Future work self T1	3.33	.81	<i>.85</i>								
2. Future work self T2	3.33	.75	.58	<i>.85</i>							
3. Future work self T3	3.40	.67	.43	.44	<i>.80</i>						
4. Life meaning T1	4.69	1.00	.47	.33	.21	<i>.80</i>					
5. Life meaning T2	4.75	.97	.38	.47	.28	.49	<i>.81</i>				
6. Life meaning T3	4.72	.90	.32	.36	.36	.40	.63	<i>.82</i>			
7. Calling T1	3.66	.57	.42	.27	.23	.45	.26	.28	<i>.83</i>		
8. Calling T2	3.62	.52	.29	.41	.24	.33	.44	.31	.45	<i>.81</i>	
9. Calling T3	3.61	.50	.19	.30	.26	.26	.45	.35	.47	.56	<i>.80</i>

Note. Numbers in diagonal in *italic* are the Cronbach's alpha reliability coefficients. T1 = Time 1, $N_{T1} = 473$; T2 = Time 2, $N_{T2} = 400$; T3 = Time 3, $N_{T3} = 299$. All correlations are significant at the $p < .01$ level.

correlated with each other at each time point (from .26 to .47, $p < .01$).

Measurement Model

To confirm that the study variables were correlated but distinct, we compared a three-factor model that distinguished future work self, life meaning, and calling at T1 with a one-factor model in which all indicators loaded onto one factor at T1. The one-factor model was a poor fit ($S-B\chi^2 = 600.27$; $df = 54$; $CFI = .68$; $TLI = .61$; $RMSEA = .15$ [90% CI: .14, .16]; $SRMR = .09$). The model fit of the three-factor model was acceptable ($S-B\chi^2 = 157.83$; $df = 51$; $CFI = .94$; $TLI = .92$; $RMSEA = .07$ [90% CI: .06, .08]; $SRMR = .06$) and significantly better than that of the one-factor model ($\Delta S-B\chi^2 = 598.63$; $df = 3$; $p < .001$). We further compared the three-factor model with three other possible two-factor models (e.g., calling and life meaning loaded on one factor and future work self loaded on another factor). The model fit of the three-factor model was also significantly better than the other three two-factor models. These findings support the measurement model and indicate that the three study variables were distinct. All items and dimensions displayed loadings on their hypothesized factors of .40 or higher.

Next, a longitudinal invariance analysis was conducted to test whether the measures had the same meaning and structure across time points (Cole and Maxwell 2003). Metric invariance (factor loading invariance) has been recommended to be sufficient to conduct meaningful analyses in longitudinal studies (Cole and Maxwell 2003; Little 2013). The baseline model allowed the same indicators to be correlated across time points (e.g., guiding force at T1 correlated with guiding force at T2 and at T3) and also allowed latent study variables to be

correlated within each time point (e.g., future work self at T1 correlated with life meaning at T1 and calling at T1). This model showed a good fit ($S-B\chi^2 = 777.70$; $df = 522$; $CFI = .95$; $TLI = .94$; $RMSEA = .03$ [90% CI: .03, .04]; $SRMR = .06$). Constraining the factor loadings to be equal across time points did not significantly decrease the fit ($S-B\chi^2 = 800.82$; $df = 540$; $CFI = .95$; $TLI = .94$; $RMSEA = .03$ (90% CI: .03, .04); $SRMR = .06$; $\Delta S-B\chi^2 = 23.18$; $df = 18$; $p = .18$). This finding indicated that the factor loadings of the study variables were time invariant. Thus, metric longitudinal invariance was supported.

Lagged Mediation Model

Before we ran the lagged model, we first included the available demographic variables (gender, age, grade, and major category) at T1 to test their potential impact on T1 future work self, T1 life meaning, and T1 calling, as a "downstream" effect (Little et al. 2007). Controlling for these variables did not affect the path coefficients and their significances. We thus did not include these variables in the final model (Becker 2005).

Next, to test the stability of the latent variables, we specified an autoregressive model by including each variable's autoregressive effects over time but excluding the cross-lagged paths. The correlations between the variables at each time point were freely estimated. This autoregressive model fit well ($S-B\chi^2 = 882.80$; $df = 562$; $CFI = .94$; $TLI = .93$; $RMSEA = .04$ [90% CI: .03, .04]; $SRMR = .09$). We then included lagged paths to test our hypotheses. The lagged paths from future work self to calling were not significant for any of the assessed time lags (T1 future work self - T2 calling, $\beta = .05$, $t = .54$, $p = .59$; T2 future work self - T3 calling, $\beta = .02$, $t = .19$, $p = .85$; T1 future work self - T3 calling, $\beta = -.06$, $t = -.51$, $p = .61$), thereby disconfirming Hypothesis 1. The path from T1

future work self to T2 life meaning was significant, which supports Hypothesis 2. However, T2 future work self did not significantly relate to increased T3 life meaning ($\beta = .14, t = 1.60, p = .11$), nor did T1 future work self significantly relate to increased T3 life meaning ($\beta = .09, t = 1.13, p = .26$). Confirming Hypothesis 3, the path from T2 life meaning to T3 calling was significant. However, this finding was not generalizable for the paths from T1 life meaning to T2 calling ($\beta = .13, t = 1.18, p = .24$) or T1 life meaning to T3 calling ($\beta = .10, t = 1.00, p = .32$). The final model, which contained the autoregressive and significant lagged paths (see Figure 1), fit the data well ($S-B\chi^2 = 869.29; df = 560; CFI = .94; TLI = .93; RMSEA = .03 [90\% CI: .03, .04]; SRMR = .08$) and showed a significantly better fit than the autoregressive model ($\Delta S-B\chi^2 = 13.26; df = 2; p < .01$).

Based on the results of the lagged analyses, we used the Bayesian estimation, which was especially recommended in longitudinal mediation models (Preacher and Selig 2012), to calculate the potential indirect effect of T1 future work self on T3 calling through T2 life meaning (Muthén 2010; Yuan and MacKinnon 2009). We found the indirect effect to be significant ($b = .021; p < .01; 95\% CI = .003, .048$), which supports the mediational effect of life meaning, as postulated in Hypothesis 4.

Alternative Model Testing

The nature of our design also allows the testing of several alternative time-lagged models about the relationship among future work self, life meaning, and calling. For example, calling might be an antecedent rather than an outcome of the other two variables. Studies have found calling to positively predict career-related outcomes, such as career planning (Hirschi and Herrmann 2013), career adaptability (Praskova et al. 2014b), and personal growth (Duffy et al. 2014a). Elangovan et

al. (2010) also suggested that calling may refine one's self-perception. Moreover, according to previous research (see Duffy and Dik 2013), life meaning might also be an outcome of calling. We evaluated these possibilities by testing lagged paths over different time lags, using calling as the independent variable. However, our results did not support any of these effects (T1 calling \rightarrow T2 future work self, $\beta = -.06, p = .52$; T1 calling \rightarrow T2 life meaning, $\beta = -.08, p = .45$; T1 calling \rightarrow T3 future work self, $\beta = .15, p = .12$; T1 calling \rightarrow T3 life meaning, $\beta = .07, p = .42$; T2 calling \rightarrow T3 future work self, $\beta = -.05, p = .72$; T2 calling \rightarrow T3 life meaning, $\beta = -.06, p = .54$; T1 life meaning \rightarrow T2 future work self, $\beta = .04, p = .68$; T2 life meaning \rightarrow T3 future work self, $\beta = .11, p = .30$).

Discussion

The purpose of this study was to explore the possible antecedents of perceiving a calling among Chinese university students. Drawing from prior empirical research, career construction theory (Savickas 2005), and the proactive motivation model (Parker et al. 2010), we proposed and tested the longitudinal relationship of future work self, life meaning, and calling with a three-wave longitudinal design. This research design enables a full panel mediational analysis and provides a stronger foundation from which to explore temporal relationships among constructs. Using a time-lagged analysis, our results suggested that the future work self predicts increased life meaning, which, in turn, predicts increased calling. However, our results did not support the reverse paths, through which calling predicts an increased future work self via the mediational role of life meaning. These findings add notable insights to the literature that explores the predictors of calling and helps explain how people might discover or develop their callings. This

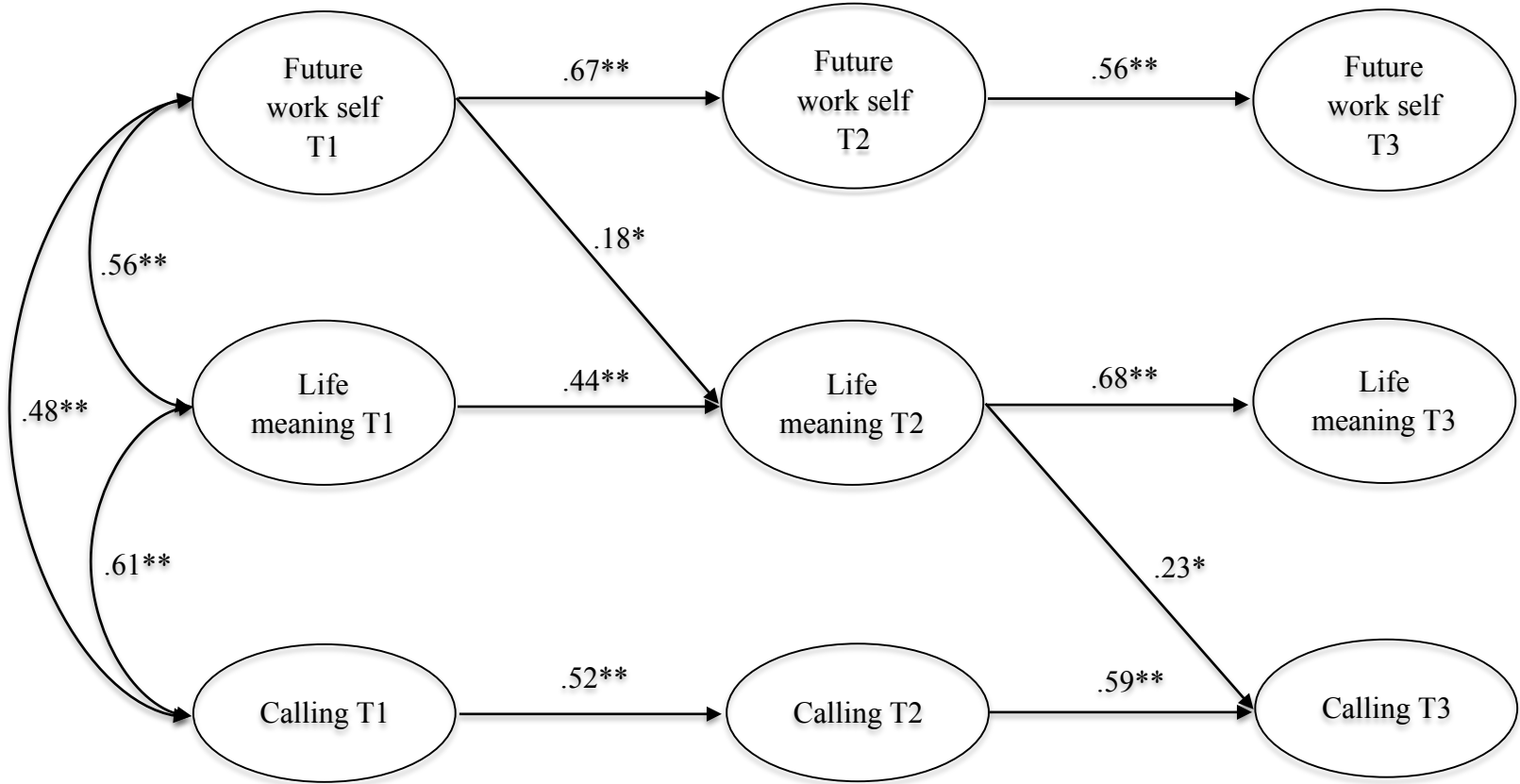


Figure 1. The final model of future work self, life meaning, and calling. Only significant paths were included in the final model. Correlations among variables within T2 and T3 were significant but are not reported. $N = 473$. $*p < .05$. $**p < .01$.

understanding is important because a calling relates to various positive career-related outcomes (Duffy and Dik 2013). Understanding the emergence of calling may help individuals to achieve such career outcomes and help career counselors to advise individuals about the best ways to realize such outcomes.

Our results support the effects of the future work self on one's increased life meaning and, in turn, one's increased calling over time. The future work self refers to a self-concept that particular relates to one's hope for a future work role (Strauss et al. 2012). According to career construction theory, a clear vocational self-concept and a connection with a broader personal meaning provide an important basis for developing an adaptive career (Savickas 2005). Our findings imply that these tenets of career construction theory are particularly meaningful for understanding the development of a calling. First, our results suggest that future work self clarity is important for the presence of a calling. This finding also corroborates theoretical assumptions that self-clarity is a basis for discovering one's calling. For example, Hall and Chandler (2005) suggested that knowing oneself and one's needs shapes one's calling. Similarly, Elangovan et al. (2010) suggested that understanding one's actual self, ideal self, and ought self was the foundation for discovering one's calling. In other words, clarity about one's present and future selves, especially in the work domain, may be an initial step towards discovering and developing one's calling. The future work self plays an important role in motivating proactive career behaviors and career adaptability (e.g., Strauss et al. 2012; Guan et al. 2014), possibly due to an observed discrepancy between one's present self and the imagined ideal future work self. According to

career construction theory (Savickas 2013), a clear future self might promote a goal, purpose, and meaning to attain an ideal future and thereby motivate the experience of having life meaning. Further, promoting life meaning may precede proactive career activities, such as career planning, that could help to develop one's calling (Hirschi and Herrmann 2013).

Previous research has typically positioned life meaning as one of the positive outcomes of one's sense of calling (see Duffy and Dik 2013; Duffy et al. 2014a; Praskova et al. 2014b). However, our findings are in line with another longitudinal study that found that life meaning acted as a predictor of the existence of a calling (Duffy et al. 2014a). Perceiving purpose and meaningfulness in life may provide individuals with a better basis to understand and find the careers to which they feel called (Duffy et al. 2011). Indeed, empirical research has found that searching for life meaning predicts one's increased calling over time (e.g., Bott and Duffy 2014; Duffy et al. 2014a). Therefore, when people experience meaning in their lives, they seem to be more likely to discern their callings in their careers.

However, the hypothesis about direct paths from the future work self to calling across different time lags could not be supported. Hall and Chandler (2005) suggested that identity changes reinforce one's sense of calling. The effects of such changes potentially occur only over longer periods of time or in work transitions, and future studies might investigate the effects of longer time lags (e.g., over 2 to 3 years). Moreover, contrary to some previous research, our results did not support an alternative view that calling is an antecedent of one's increased life meaning (e.g., Duffy et al. 2014a; Praskova et al. 2014b). More replicating research would be needed to further

examine these inconsistent findings. In addition, our results did not support that calling predicts an increase in future work self-clarity. However, there may be more indirect paths that could be explored in future studies. For example, Hall and Chandler (2005) argued that the link between calling and identity change is through goal setting and effort processes towards achieving psychological satisfaction, which would, in turn, affect one's self-identity. Thus, the effect of calling on the clear identification of a future work self may be complex. Future research may need to further explore this connection.

Taken together, our findings supported the mediational role of the presence of life meaning in the relationship between the future work self and the discernment of a calling over time. These findings correspond to the career construction theory (Savickas 2013) and further confirm Hall and Chandler's (2005) assertion that calling is shaped by "knowing why" investments, such as self-knowledge about one's needs and future self. Based on our results, a clear self-understanding about one's future work life and the resulting perceptions of life meaning may be two important steps to follow in discerning a career calling.

Limitations and Future Research

Several possible limitations of the present study should be considered when interpreting our findings. First, our sample was predominantly female, which might have biased the results. However, studies in the US, Europe, and China have found that gender is not related to the presence of a calling (e.g., Duffy and Sedlacek 2010; Hagmaier and Abele 2012; Hirschi 2011; Zhang et al. 2015c), which has also been confirmed in the present sample. Still, a more gender-balanced sample would be preferable in future research. Second, although we controlled

several demographic variables (i.e., gender, age, grade, and major category), other possible contextual variables should be tested in future research to more comprehensively understand the process of developing a calling. For example, family income level may affect university graduates' career orientations by emphasizing salary or spiritual satisfaction, which may further affect their sense of meaningfulness and calling. Third, our results might depend on the specific time lags that were chosen for our analysis. It is possible that shorter (e.g., one month) or longer time lags (e.g., several years) would lead to different results. We recommend that future research test how different time lags affect the linkage between calling and its antecedents and outcomes. Fourth, we found mixed results that the cross-lagged paths were not confirmed across the different time lags. This might suggest a limited generalizability and replicability of the findings. However, inconsistent findings are not uncommon in multi-wave cross-lagged studies. For example, the three-wave studies on calling of Hirschi and Herrmann (2013) as well as Duffy et al. (2014b) both reported inconsistent results across time points in their cross-lagged models. It is hence important that future research replicates our results. Finally, our findings were based on a sample of Chinese university students. The generalizability of our findings to other contexts should therefore be made with caution. Because the notion of a calling seems to be deeply rooted in a specific cultural context, we advocate more research on calling across diverse cultures.

Practical Implications

Our findings have implications for career interventions that aim to help individuals discern their callings. The findings of the current study suggest that the future work self and life meaning

are two important factors for the discernment of one's calling. Therefore, counselors may need to focus on promoting their clients' self-understanding, as it relates to their future work lives, and helping them develop feelings of meaningfulness in their lives.

Based on career construction theory, self-construction is an important component in developing an adaptive career, such as finding a connection between present and future selves and actively shaping the future through adaptive career behaviors (Savickas 2005, 2013). Self-construction activities would be helpful in establishing a clear self-knowledge about one's future work life. Although emphasizing the importance of self-knowledge for discerning and developing one's calling is not new (e.g., Duffy et al. 2014a; Hall and Chandler 2005; Hirschi and Herrmann 2013), our findings more specifically suggest that a clear view about one's future work identity is an important step in developing one's calling. Thus, interventions could help clients to augment their self-clarity and reflexivity by focusing on and developing their possible selves in their *future* careers and by exploring how their abilities, needs, and interests are important in this regard. The career construction interview based on career construction theory (Savickas 2013) could be applied to do so. This self-exploration interview may promote clarity of one's future work life and thereby provide a general feeling of purpose and meaning in life.

Dik et al. (2015) also advocated the important role of focusing on purpose and meaning in career development applications. Especially for interventions focusing on the concept of calling, helping clients to increase their life meaning should be important because callings strongly emphasize the personal and social meaning of

work (Dik et al. 2015). Thus, counselors could encourage clients to clarify what is important in their lives and what makes their lives meaningful, which could help them to realize their purpose and meaning in life. Our results suggest that this meaningfulness could, in turn, motivate a proactive tendency to discern a calling in one's career. We believe that this "meaning construction" process could be a significant component in developing a subjectively meaningful career, particularly for Chinese college students. In China, the highly competitive job market for university graduates provides both challenges and opportunities. It is thus extremely important for them to engage in self-directed career explorations, identity clarifications, and the creation of personally meaningful careers and lives.

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