Negative career feedback and career outcomes: The mediating roles of self-regulatory
processes

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Abstract

We surveyed 413 Chinese university/college students (57.9% female; mean age = 19.01 years, $SD = 1.13$) and tested a self-regulation model. We hypothesized that three types of negative career feedback (on progress, on goal suitability, and on improvements needed) would relate to greater career exploration and career goal shifting via cognitive (self-efficacy), affective (career stress), and motivational (goal commitment) self-regulatory processes. As expected, perceiving more negative feedback on goal suitability and improvements needed was related to higher career goal shifting via higher career stress and lower goal commitment. In contrast to our hypotheses, more negative feedback on progress was related to lower career goal shifting via higher goal commitment, and related to lower career exploration via lower career self-efficacy. These findings highlight the important role of career feedback in young adults' career self-regulation and career outcomes.

Keywords: career feedback; career self-efficacy; career stress; goal commitment; career exploration; career goal shifting

Negative career feedback and career outcomes: The mediating roles of self-regulatory processes

In the career domain, career feedback, which refers to information regarding individuals' career goal progress and goals (Hu, Creed, & Hood, 2016), has been linked to a range of career-related outcomes. Negative career feedback has been shown to be related to greater career distress (Creed, Wamelink, & Hu, 2015), disengagement from career goals, and lowering of career expectations (Hu, Creed, & Hood, 2017). According to career identity control theory (Anderson & Mounts, 2012; Kerpelman & Lamke, 1997), which is consistent with other self-regulation theories (e.g., control theory, Carver & Scheier, 1990; goal setting theory, Latham & Locke, 1991; self-regulation theory, Bandura, 1991; social cognitive career theory, Lent & Brown, 2013), negative feedback can elicit an identity disturbance, which, in turn, can lead to implementing adaptive career strategies and actions. In particular, feedback indicating discrepancies between the person's current state and their career goals (i.e., their goals are unsuitable or unattainable) can elicit reconsideration and self-reflection on the current goal choice, which, in turn, can trigger career exploration activities, such as gathering further information related to possible selves and career options (Anderson & Mounts, 2012; Blustein, Prezioso, & Schultheiss, 1995; Stumpf, Colarelli, & Hartman, 1983) and/or shifting focus, effort, and commitment from one goal to another (i.e., career goal shifting; Anderson & Mounts, 2012; Creed & Hood, 2014; Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Career exploration and career goal shifting are important for young adults to develop a career identity and to facilitate progress towards their future career,

especially when facing setbacks (Anderson & Mounts, 2012). Young people who are able to explore their career possibilities are likely to have fewer difficulties in making a commitment to a career path (Xu, Hou, & Tracey, 2014), and, after graduation, might stay in a job for career satisfaction rather than financial obligations (Anderson & Mounts, 2012). In addition, those young people who are able to disengage from unsuitable/unattainable career goals and find other meaningful goals are likely to avoid experiencing repeated failures and frustrations, and, consequently, increase their likelihood of success in their future career (Wrosch et al., 2003). Following career identity control theory, the goal of the current study was to examine how negative career feedback related to these two important activities: career exploration and goal shifting.

The present study contributes to the existing literature in a number of ways. First, although Anderson and Mounts (2012) tested career exploration as a self-regulatory outcome in response to negative feedback, their experimental study was not able to provide direct evidence for the feedback-exploration link. This means that it remains unclear whether young people indeed undertake more career exploration activities in face of unfavourable feedback. Second, although the general and career self-regulation literature repeatedly refers to goal shifting as a likely consequence of negative feedback (Bandura, 1991; Lent & Brown, 2013), only one study has directly examined it as an outcome, with a specific focus on downward goal change (Hu, Creed, et al., 2017). Therefore, a limited literature and sparse evidence has been available to support the links between career feedback and career exploration and goal shifting. To fill these gaps in the existing literature, we tested a self-regulation model in which negative career feedback related to greater career exploration and goal shifting.

Finally, we also assessed the underlying mechanisms of the feedback-career exploration/goal shifting links. Lent, Ireland, Penn, Morris, and Sappington (2017) provided support for the mediating role of cognitive self-regulation (i.e., career-related self-efficacy and outcomes expectations) between feedback and career exploration, focusing on specific feedback about past exploration actions. Hu, Creed, et al. (2017) provided evidence for the mediating role of affect (i.e., career stress) between negative feedback and downward goal change. Anderson and Mounts (2012), guided by career identity control theory, operationalized identity disturbance as career anxiety, but failed to support the mediating role of anxiety as a link between negative career feedback and career exploration. These studies also were limited to testing only one underlying mechanism at a time. According to the self-regulatory framework of work, young people, in response to negative feedback, allocate cognitive, affective, and motivational resources to progress/adjust their goals (Lord, Diefendorff, Schmidt, & Hall., 2010). This means that cognitive, affective, and motivational self-regulatory processes are likely to mediate jointly between negative career feedback and career outcomes. Thus, to further understand these underlying mechanisms, we tested career-related self-efficacy (i.e., cognitive), career-related stress (i.e., affective), and goal commitment (i.e., motivational) as three parallel mediators of the negative feedback-exploration/goal shifting link. See Figure 1 for the hypothesized model.

Career feedback, career exploration, and goal shifting

Career feedback and career exploration. Career exploration is an adaptive strategy for young adults, which is related positively to person-job fit (Grotevant, Cooper, & Kramer, 1986), career-related engagement (Creed, Tilbury, Buys, & Crawford, 2011), and meaningful work life (Flum & Blustein, 2000). In young adults, career exploration can be triggered by a number of factors. For example, normative

events such as graduation and entering the job market stimulate realistic and operational thoughts, and, thus, enable exploration of possible selves and environment opportunities and barriers (Anderson & Mounts, 2012). In addition, career exploration can also be initiated in response to an identity crisis or disturbance (Anderson & Mounts, 2012; Kerpelman, Pittman, & Lamke, 1997). That is, when perceiving information that indicates discrepancies between the person's current state (e.g., goal progress, abilities, values) and goals (e.g., aspirations), they might try to eliminate the discrepancies by adjusting or consolidating their self-perceptions and career goals by exploring possible selves and career options.

Anderson and Mounts (2012) were the first to test career exploration as an outcome elicited by negative career feedback. However, in their experimental design, all participants received the same-level of manipulated negative feedback, whereas career exploration was not controlled prior to the experiment. This means that no direct evidence was provided for the link between negative feedback and career exploration. Using a social cognitive career theory perspective, Lent et al. (2017) proposed and provided support for a positive relationship between mastery experiences with past career exploration and decision-making activities and career exploration intentions, indicating that career exploration was initiated by positive feedback. In the current study, instead of feedback on past career exploration, we tested whether negative career feedback on general goal progress and goals would elicit the adaptive action of career exploration, which, theoretically, should help young people re-shape/consolidate their career identity and facilitate them progressing their career direction (Anderson & Mounts, 2012). Therefore, following Anderson and Mounts' (2012) suggestions, we hypothesized that negative feedback would be related to greater career exploration. We operationalized negative career feedback as

feedback on progress being made toward the goal (i.e., feedback on progress), on whether goals were suitable and compatible with the person's personal qualities (i.e., feedback on goal suitability), and on whether improvements were needed to achieve the goal (i.e., feedback on needed improvements; Hu et al., 2016).

Career feedback and career goal shifting. In addition to career exploration, young people can also switch to other career goals in the face of negative feedback (Bandura, 1991; Carver & Scheier, 1990; Latham & Locke, 1991; Wrosch et al., 2003; Lent et al., 2017). This process includes identifying alternative meaningful goals, imbuing value and meaning to those goals, and taking action to reach them (Wrosch et al., 2003). Career goal shifting is highly adaptive, as engaging with other meaningful career goals can help young people reduce psychological distress when it is elicited by past goal failures and prevent them from feeling aimless after goal abandonment (Wrosch et al., 2003).

Although career goal shifting/change is well acknowledged in the general and career self-regulation literature (Creed & Hood, 2014; Lent et al., 2017), very few studies have been conducted to investigate its relationship with career feedback. Only recently, in a two-wave, cross-lagged study, Hu, Creed, et al. (2017) tested career goal shifting (operationalized as an intention to engage with a lower career goal) as an outcome of negative career feedback. They provided evidence that young people who received more negative feedback reported a greater likelihood to pursue a less challenging career goal at a later time. However, young people can engage with a new goal without necessarily lowering their expectations in the same domain; they can also switch to a new career path (e.g., from being a doctor to a psychologist; Wrosch et al., 2003). In addition, goal shifting intentions might not fully reflect actual behaviours. In the current study, we assessed the extent to which young people

engaged with a new and different career goal without specifying the direction of that change. We expected that negative career feedback would be related to greater career goal shifting.

Self-regulatory processes as mediating mechanisms

Career feedback and self-regulation processes. Young adults regulate their cognition, affect, and motivation in response to negative career feedback (Bandura, 1991; Lord et al., 2010). Specifically, when confronted with feedback that indicates unsatisfactory progress or unsuitable or unattainable goals, young adults are likely to re-evaluate their capabilities for achieving their future career goals (i.e., lower their self-efficacy), feel anxious and frustrated about their goal choice (i.e., experience career stress), and be less motivated when pursuing the current goals (i.e., reduce their commitment). Previous literature has demonstrated that negative career feedback related to lower career self-efficacy and greater career stress (Creed et al., 2015; Hu et al., 2016). In addition, negative feedback was found to relate to a greater likelihood of withdrawing effort and commitment from current career goals, implying that negative feedback might be related to lower career goal commitment (Hu, Creed, et al., 2017). Based on these previous findings, we expected that negative career feedback would be related to less career self-efficacy and goal commitment, and greater career stress.

Self-regulatory processes and career exploration and goal shifting. Previous literature on career self-regulation suggests that negative affect, such as career anxiety about decision-making, can elicit career exploration and career goal adjustment so as to reduce the disturbance (Anderson & Mounts, 2012; Kerpelman et al., 1997). According to theories of self-regulation, lower levels of self-efficacy to achieve current career goals, as well as less commitment to these goals, are likely to relate to lower goal persistence and greater goal shifting (Bandura, 1991; Hu, Creed, et al.,

2017). Although these propositions are addressed explicitly in theories, and have been demonstrated in the general performance-oriented literature (Tolli & Schmidt, 2008), to our knowledge, there is no direct evidence available in the career domain. In terms of the relationship between career goal commitment and career exploration, previous literature showed that young people undertook more exploratory activities when they perceived their career goals to be important to them (Anderson & Mounts, 2012), suggesting a positive relationship between commitment and career exploration. Thus, based on this literature, we expected that greater career stress would be related to more career exploration and goal shifting; higher career self-efficacy and career goal commitment would be related to less goal shifting; and greater goal commitment would be related to more career exploration.

Regarding the relationship between career self-efficacy and career exploration, although several studies have investigated this link (e.g., Betz & Vuyten, 1997; Lent et al., 2017; Sawitri, Creed, & Zimmer-Gembeck, 2015), they tested the relationship with career self-efficacy for decision-making. In our study, we assessed the relationship with a broader measure of career self-efficacy, which is more relevant for general career-related behaviours, although it is related to career decision-making self-efficacy (Schyns & von Collani, 2002). Based on this rationale, we expected that higher career-related self-efficacy would be related to greater career exploration.

Self-regulatory processes as mediators. The mediating roles of the self-regulatory processes between negative career feedback and career-related outcomes have been proposed in theories and have been partially supported in the existing literature (Lord et al., 2010). For example, negative career feedback elicited greater downward goal change via increasing career stress (Hu, Creed, et al., 2017), and reduced emotional well-being via lowering career self-efficacy (Hu, Hood, & Creed, 2017). In addition,

positive feedback elicited greater exploration intentions via increasing career self-efficacy in decision-making and outcomes expectation (Lent et al., 2017). In the present study, we assessed a self-regulation model in which the three self-regulatory processes (cognitive, affective, and motivational) mediated concurrently between negative career feedback and the career outcomes of career exploration and goal shifting. As we only captured one construct for each possible self-regulation mechanism, we conservatively expected that the three mediators would partially explain the potential relationships between negative feedback and the two outcomes.

Control variables

Theories of self-regulation suggest that person (e.g., ability) and contextual (e.g., SES) factors influence how young people regulate their cognition, affect, motivation, and behaviours in career development (Bandura, 1991; Lent & Brown, 2013). Specifically, young people who are more academically competent and who are from higher SES families are more likely to have more positive career experiences (e.g., more positive learning experiences, less stress, higher self-efficacy and outcome expectations; Latham & Locke, 1991; Patton & Creed, 2007; Thompson & Dahling, 2012), engage more with their academic and career-related goal activities (Greene & Miller, 1996), and have more access to information and resources to help them explore career possibilities and make career decisions (Gibbons & Shoffner, 2004; Perry, Liu, & Pabian, 2009). Therefore, in testing the proposed model of career feedback, we controlled for students' academic ability and SES when they were related to the self-regulatory processes and career outcomes.

Summary of hypotheses

In line with career identity control theory and the general self-regulatory framework, we expected that negative career feedback would relate to greater career

exploration and goal switching via cognitive, affective, and motivational self-regulatory processes. We tested the following hypotheses:

Hypotheses 1 - 2: Negative career feedback (on progress, goal suitability, and improvements needed) would relate to greater career goal shifting (H1a, H1b, and H1c, respectively) and greater career exploration (H2a – H2c);

Hypotheses 3-5: Negative career feedback would relate to greater career stress (H3a – H3c), lower career self-efficacy (H4a – H4c), and lower career goal commitment (H5a – H5c);

Hypothesis 6: Career goal commitment would relate to lower career goal shifting (H6a) and greater career exploration (H6b);

Hypothesis 7: Career stress would relate to greater career goal shifting (H7a) and greater career exploration (H7b);

Hypothesis 8: Career self-efficacy would relate to lower career goal shifting (H8a) and greater career exploration (H8b);

Hypotheses 9-10: Career goal commitment would mediate the relationships between negative career feedback and greater goal shifting (H9a – H9c) and career exploration (H10a – H10c);

Hypotheses 11-12: Career stress would mediate the relationships between negative career feedback and greater goal shifting (H11a – H11c) and career exploration (H12a – H12c); and

Hypotheses 13-14: Career self-efficacy would mediate the relationships between negative career feedback and greater goal shifting (H13a – H13c) and career exploration (H14a – H14c).

Method

Participants

Participants were 459 young adults recruited from three universities and two vocational colleges in Nanjing, China. Of these, 46 were excluded due to failing attention check questions or having extensive missing values or patterned responses in the survey, leaving a final sample of 413 students (57.9% female; mean age = 19.01 years, $SD = 1.13$; 64.9% first-year students). There was no missing data in this final sample. Participants were drawn from a range of disciplines (e.g., public health, pharmacy, Chinese medicine, psychology, engineering, education). To obtain a proxy for academic ability, we collected and standardized the students' college entrance scores ($M = 500$; $SD = 100$; range = 185 - 680). We also obtained a report of SES by computing the sum of both parents' educational level (1 = *primary school or lower* to 6 = *masters or above*) and job status (1 = *unemployed, casual labourer, job-waiting, non-technical worker, and peasant* to 5 = *professional higher managerial staff and private owners*; Shi & Shen, 2007). The mean SES was 10.33 ($SD = 3.60$; range = 4 - 19), lying in the middle of the possible range (i.e., 4 - 22; Shi & Shen, 2007).

Measures

We used standard translation/back translation methodology (Jones, Lee, Phillips, Zhang, & Jaceldo, 2001) to convert all measures from English to Mandarin Chinese (except for the feedback scale, which was developed in Mandarin Chinese; Hu et al., 2016) by the first author, who is a Chinese national, bilingual, and a career development researcher. These were then back-translated to English by a bilingual research assistant, who is also a Chinese national. All three authors compared the back-translated English version with the originals and made adjustments where needed. Unless otherwise noted, all scales used a 6-point Likert-like format (1 =

strongly disagree to 6 = *strongly agree*), and higher summed scores reflect higher levels of the construct. All items on career feedback, career-related self-efficacy, and career goal commitment were answered with respect to the following generic stem: “You might have various career goals, but when answering these items, think about the most important career goal that you are currently striving for”.

Negative career feedback. We used the 24-item Feedback on Career Goal Inventory (Hu et al., 2016) to assess negative feedback on progress (e.g., “People tell me that I am not working hard enough to get into my chosen career”), on goal suitability (e.g., “I am told that my preferred career choice will not let me display my real talents”), and on improvements needed (e.g., “I find it hard to get constructive career advice from others”). This scale has good internal reliability (Cronbach’s α s from .77 to .83 for the three subscales) and validity (e.g., positive associations with negative feedback on career progress from significant others and career progress-goal discrepancy; Hu et al., 2016). In our sample, alphas were .85 (progress), .82 (goal suitability), and .89 (improvements needed).

Career-related self-efficacy. We used the 8-item Occupational Self-Efficacy Scale (Schyns & von Collani, 2002) to assess young adults’ career-related self-efficacy (e.g., “Thanks to my resourcefulness, I know how to handle unforeseen situations regarding my chosen career”). Participants responded on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*), with higher summed scores indicating higher levels of self-efficacy. Schyns and von Collani (2002) reported sound internal reliability (Cronbach’s α = .88) and provided support for validity of the scale (e.g., positive associations with general self-efficacy and self-esteem). Hu et al. (2016) also reported good reliability (α = .80) in Chinese university students, and found that career self-efficacy related to lower levels of

negative career feedback and career stress. In the current sample, alpha was .85.

Career-related stress. We used the 5-item Career Ambiguity Subscale from the Korean College Stress Inventory (Choi et al., 2011) to assess young adults' anxiety and uncertainty over their future career (e.g., "I feel frustrated because I doubt what I am planning for my future is what I really want"). Participants responded on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*), with higher summed scores indicating higher levels of career stress. This subscale has good internal reliability (α s = .89 to .92) and validity (e.g., positive associations with poor self-identity; Choi et al., 2011). This subscale has been used previously with Chinese students (Hu et al., 2016), where it was found to have sound reliability (α = .85) and validity (e.g., positive association with negative career feedback and career goal abandoning). In our sample, alpha was .86.

Career goal commitment. We adapted the 7-item Goal Commitment Scale (Hollenbeck, Williams, & Klein, 1989) to assess young adults' commitment to their current career goals (e.g., "I am strongly committed to pursuing this GPA goal" was changed to "I am strongly committed to pursuing my career goal"). Hollenbeck et al. (1989) reported sound internal reliability (Cronbach alpha = .88) and provided support for the validity of the scale (e.g., positive association with academic performance). Using a Chinese sample, Fung (2012) also reported acceptable reliability (α = .67) and validity of this scale (e.g., positive association with job performance). In our sample, alpha was .78.

Career goal shifting. We adapted the 6-item Goal Reengagement Scale (Wrosch et al., 2003) to assess the extent to which participants were pursuing other career goals (e.g., "I am starting to work on other new goals" was modified to "I am starting to work on other new career goals"). The original scale has sound internal reliability

(Cronbach's $\alpha = .86$) and validity (e.g., positive association with reengagement in specific alternative goals; Wrosch et al., 2003). The pattern of intercorrelations between career goal shifting and the other variables in the current study also provided support for the validity of the scale (i.e., goal shifting related to higher levels of negative feedback and career stress, and lower levels of goal commitment; see Table 1). In our sample, alpha was .90.

Career exploration. We used 11 items from the Career Exploration Survey (Stumpf et al., 1983) to assess young adults' self-exploration (e.g., "I have been focusing my thoughts on me as a person") and environmental exploration (e.g., "I initiated conversations with knowledgeable individuals in my chosen career area"). The items were answered with respect to the stem: "In relation to your career exploration in the past three months...". The 11-item scale has been used worldwide and shown to be a reliable ($\alpha = .79$ to $.90$) and valid instrument (e.g., positive associations with general interest, career commitment, and career adaptability, and a negative association with career decision-making difficulties; Hirchi, 2009; Xu et al., 2014). In our sample, alpha was .88.

Procedure

Ethical approval was granted by the authors' university ethics committee. The administration departments of the five tertiary institutions involved granted permission to approach course convenors and, with their approval, collect data during the students' class time. The first author explained the study to students in their classes and distributed paper-and-pencil questionnaires. Volunteer respondents completed and returned the questionnaires in class. Participants could enter a draw to win a CNY¥500 shopping voucher.

Results

Data management

We used SEM (maximum likelihood estimation; AMOS 24) to test the hypothesized mediation model in which negative feedback (i.e., feedback on progress, on goal suitability, and on improvements needed) was related to career exploration and goal shifting via career self-efficacy, career stress, and career goal commitment. Prior to the SEM analyses, items for all scales (except for career-related stress, which was represented by its individual 5 items) were parceled to form a smaller number of observed indicators by conducting separate exploratory factor analyses for each scale, rank ordering the items based on the factor loading, and allocating a mixture of high and low loading items to their respective parcels (3 for each latent construct; Little, Cunningham, Shahar, & Widaman, 2002). Alphas for the parcels ranged from .59 to .80, which is rated as acceptable (Kishton & Widaman, 1994).

We first ran a measurement model to confirm that the latent variables could be represented by their parcels/items and were independent of one another. To confirm the hypothesized mediation effects, we then tested a direct effects model that only included the direct paths from the three feedback dimensions to the outcome variables (to confirm that there was a significant effect of X on Y without the presence of M), and an indirect effects model with the addition of the three mediators (to confirm significant effect of X on M, and M on Y). The following fit indices were used: chi-square (χ^2 ; with 15 observed variables and a sample > 250, a significant χ^2 is expected; Hair, Black, Babin, & Anderson, 2010), the normed chi-square ($\chi^2/df < 3.0$ is considered a good fit), the Comparative Fit Index (CFI > .92), the Tucker-Lewis Index (TLI > .92), and the Root Mean-Square Error of Approximation (RMSEA < .07; Hair et al., 2010).

Preliminary analyses

First, we examined variables for skewness (all standardized skew statistics were between -1 and 1) and kurtosis (all < 3), finding no problems. We then tested the measurement model, which showed a good fit: $\chi^2(289) = 545.81, p < .001, \chi^2/df = 1.89$, CFI = .96, TLI = .95, RMSEA = .05 [.04, .05]. There were no cross-loadings of note, all standardised regression weights were significant ($p < .001$; range = .63 to .95), and the correlations among the latent variables mirrored those among the scale totals (see Table 1). Each feedback subscale was correlated with all variables ($ps < .001$), with one exception: negative feedback on progress was not related to career goal shifting ($r = .07; p > .05$). Contrary to our expectation, all three feedback dimensions were correlated with lower levels of career exploration, indicating that young people were less likely to undertake career exploration activities in the face of negative career feedback. Career goal commitment, career self-efficacy, and career stress were related to the two outcomes ($ps < .05$), with one exception: career self-efficacy was not associated with career goal shifting ($r = -.07; p > .05$). In addition, contrary to our hypothesis, career stress was related negatively to exploration, meaning that young people were less likely to explore possible selves and career options when feeling anxious and frustrated about their goal choice and career future. Regarding the control variables, SES showed no bivariate association with any other variable and did not affect our conclusions when included in the structural model; thus, we reported the results without SES as a covariate. In contrast to our expectations, academic ability was related to more negative career feedback ($rs = .12$ to $.14, ps < .05$) and career-related stress ($r = .15, p < .01$), and related to less career-related self-efficacy ($r = -.44, p < .001$) and career exploration ($r = -.18, p < .01$), indicating that students who performed better in their entrance examination

were more likely to perceive unfavourable career-related experiences. Academic ability, thus, was added as a covariate in subsequent analyses.

Mediation analyses

The direct effects model was a good fit: $\chi^2(92) = 160.44, p < .001, \chi^2/df = 1.74$, CFI = .98, TLI = .98, RMSEA = .04 [.03, .05]. There were significant, positive paths from negative feedback on goal suitability and on improvements needed to career goal shifting ($\beta = .32$ and $.23$, respectively, $ps < .001$); however, contrary to expectation, the path from feedback on progress to goal shifting was negative ($\beta = -.23, p < .001$). As the relationship between these two variables was not significant in the bivariate analysis, this negative association might reflect the effects of statistical suppression (MacKinnon, Krull, & Lockwood, 2000), and needs to be treated cautiously. The covariate of academic ability had one significant path to career self-efficacy ($\beta = -.36, p < .001$). Hypothesis H1, thus, was partially supported. In addition, both feedback on progress ($\beta = -.17, p < .05$) and improvements needed ($\beta = -.26, p < .001$) were related to less career exploration, whereas feedback on goal suitability showed no association with career exploration ($\beta = -.06, p > .05$), partially supporting H2.

The structural model in which the three feedback dimensions only contributed indirectly (via career self-efficacy, career goal commitment, and career stress) to career goal shifting and career exploration also had a good fit: $\chi^2(299) = 569.10, p < .001, \chi^2/df = 1.90$, CFI = .96, TLI = .95, RMSEA = .05 [.04, .05]. To this model, we added the direct paths from the feedback dimensions to the outcome variables to determine the strength of the mediation. The model including both indirect and direct paths showed an improved fit over the structural model: $\Delta \chi^2(6) = 18.53, p < .05$. In this revised model, there were significant negative paths from feedback on goal

suitability and improvements needed ($\beta = -.69$ and $-.20$, respectively, $ps < .01$), and a positive path from progress ($\beta = .15$, $p < .05$) to career goal commitment ($R^2 = .54$). Thus, H3 was partially supported. In addition, we found significant paths from the three feedback dimensions to career stress ($R^2 = .61$; $\beta = .12$ for progress, $.44$ for goal suitability, and $.35$ for improvements needed, $ps < .05$) and career self-efficacy ($R^2 = .38$; $\beta = -.35$ for progress, and $-.23$ for goal suitability, $ps < .001$), with one exception: negative feedback on improvements needed was not related to self-efficacy ($\beta = -.06$, $p > .05$). Thus, H4 was confirmed, whereas H5 was partially supported. Also, feedback on progress ($\beta = -.17$, $p = .04$), career goal commitment ($\beta = -.36$, $p < .001$), and career stress ($\beta = .19$, $p = .01$) had significant direct paths to career goal shifting ($R^2 = .24$); H6a and H7a were supported, but not H8a. Feedback on improvements needed ($\beta = -.21$, $p = .01$) and career self-efficacy ($\beta = .33$, $p < .001$) each produced significant direct paths to career exploration ($R^2 = .25$); indicating there was support for H8b, but not H6b or H7b. See Figure 2 for these paths.

From this analysis, career goal commitment and career stress potentially mediated the paths from the three feedback dimensions to career goal shifting, and career self-efficacy potentially mediated the path from negative feedback on progress to career exploration. We assessed these indirect effects by running 1000 bias-corrected bootstrap samples in AMOS. As we had multiple independent variables and mediators, we also probed the specific indirect effects using RMediation, which computes CIs for each indirect effect on the basis of the distribution of the product of regression coefficients (Tofighi & MacKinnon, 2011). Taken together, support was found for career goal commitment and career stress as mediators between negative feedback and career goal shifting, and career self-efficacy as a mediator between feedback and career exploration. In particular, goal commitment and stress mediated the positive

paths from career feedback on goal suitability (CI_{95} : .16 to .61 and .01 to .27, respectively; indirect effects = .25 and .08, respectively) and improvements needed (CI_{95} : .01 to .09 and .01 to .09, respectively; indirect effects = .07 and .07, respectively) to goal shifting (total effect = .30 for goal suitability and .25 for improvements needed). Goal commitment also mediated between negative feedback on progress and goal shifting (CI_{95} : -.09 to -.01; indirect effect = -.05; total effect = -.22), whereas stress was not a significant mediator (CI_{95} 's included zero). Thus, H9 and H11 were partially supported, but not H13. In addition, only career self-efficacy was found to mediate the link between negative feedback on progress and exploration (CI_{95} : -.21 to -.03; indirect effect = -.11; total effect = -.16); only H14 was partially supported, whereas no evidence was found for H10 and H12.

Discussion

Previous literature has linked career feedback to young adults' career self-regulation and career outcomes (Anderson & Mounts, 2012; Creed et al., 2015; Hu, Creed, et al., 2017; Hu, Hood, et al., 2017; Lent et al., 2017). Based on career identity control theory and the self-regulatory framework of work (Anderson & Mounts, 2012; Lord et al., 2010), the current study extended this research by focusing on two career outcomes of career exploration and career goal shifting, and by examining the potential underlying mechanisms (via career self-efficacy, career stress, and goal commitment) of the links between negative career feedback and these two outcomes. Our findings mostly supported the mediation model, although some hypotheses did not hold.

Career feedback and career outcomes

As expected, when the three dimensions of career feedback were tested together, negative feedback on goal suitability and improvements needed were related to

greater career goal shifting. Consistent with career identity control theory (Anderson & Mounts, 2012), this suggests that young people are more likely to take adaptive actions of switching their effort and commitment to an alternative goal when perceiving that their current goals are unsuitable or unattainable. Contrary to our expectation, negative feedback on progress was related to less goal shifting, despite this being non-significant at the bivariate level. Cohen and Cohen (1983) explained that suppression effects exist when $r_{xy} < r_{zy} \times r_{xz}$. In our case, the factor correlation between negative feedback on progress and goal shifting ($r = .07$) was less than the values of .17 and .15, which resulted from the product of the factor correlation between negative feedback on progress and the other two feedback dimensions (respectively) multiplied by the factor correlation between the other two dimensions and goal shifting (respectively). An alternative explanation is that the component of feedback on progress that is independent of the other two feedback types (i.e., that is unrelated to feedback that referred to an unsuitable/unrealistic goal) directly points out improvements needed to regulate behaviours to achieve the goal, such as exerting more effort. This might focus the person's attention on the current goal and, thus, lower their interest in shifting to another goal. Future research needs to test whether this result is replicable.

Also contrary to our expectation, feedback on progress and on improvements needed were related to less career exploration, suggesting that young people were less likely to gather information about their possible selves and career options in the face of negative feedback indicating a lack of progress and strategies to improve. However, the path from feedback on goal suitability to exploration became non-significant in this multivariate context, indicating that the shared variance between this type of feedback and career exploration was accounted for by the other two feedback types.

When considered in conjunction with the negative relationship between feedback on progress and shifting to other goals, it seems plausible that more negative feedback on progress initiates more engagement and effort in progressing the current career goals, rather than prompting the exploration of, and engagement in, other goals. Considering that feedback on goal suitability and improvement needed both related to greater shifting to different career goals, our results suggest that students engage with other career goals in response to this feedback without extensive career exploration.

The mediating roles of self-regulatory processes

Consistent with previous studies (Anderson & Mounts, 2012; Creed et al., 2015; Kerpelman et al., 1997), all three types of negative feedback were related to greater career stress, indicating that young people were more likely to experience anxiety and uncertainty about their career future when confronted with negative feedback. In addition, feedback on goal suitability and improvements needed were related to lower goal commitment; notably, feedback on goal suitability contributed 50% of the variance to goal commitment. This means that these two types of feedback, especially feedback indicating a goal misfit, might de-motivate young adults in pursuing their current goals, which is reasonable, as the feedback indicates that the current goals are inappropriate and/or unattainable. However, when the other two feedback dimensions were controlled, negative feedback on progress related to greater commitment. This is consistent with our explanation for the negative relationship that was found between feedback on progress and goal shifting; that is, when perceiving feedback emphasizing a lack of effort and focus, young adults might be more likely to regulate their behaviours in line with the feedback, such as exerting more effort and commitment to career goals. Future research is needed to test whether this result is replicable and confirm whether young people do take different strategies in response

to different types of negative feedback and which ones are more likely under different conditions (Bandura, 1991; Carver & Scheier, 1990). Future research also should examine the conditions under which young people react more “positively” to unfavourable feedback (i.e., engage more with the goal), and what internal and external factors might influence this relationship.

In addition, as expected, we found negative relationships between feedback on progress and goal suitability and career self-efficacy, indicating that young people might lower their self-beliefs about their career capacity when perceiving feedback that indicates a lack of progress and goal misfit. We found no independent relationship between feedback on improvements needed and self-efficacy in this multivariate model, suggesting that the shared variance between this type of feedback and self-efficacy was accounted for by feedback on progress and goal suitability.

Career stress and career goal commitment were, as expected, related to more or less career goal shifting, respectively. This indicates that the young adults were more likely to shift their engagement to another goal when experiencing greater anxiety and uncertainty about their current goal choice; in contrast, they were less likely to do so when they were more committed to the current goal. However, contrary to our expectation, career self-efficacy showed no association with goal shifting, indicating that lowered career self-efficacy might not directly elicit engagement with other goals.

When negative feedback and the other self-regulatory processes were controlled, self-efficacy was related positively to career exploration as expected. This means that when the young adults felt more competent in achieving career goals, they were more likely to engage in career exploration activities. Although both goal commitment and career stress showed significant bivariate relationships with exploration, these were no longer significant, indicating that the shared variance between these two

self-regulatory processes and career exploration was accounted for by other variables in the model, notably career self-efficacy and feedback on improvements needed.

Our findings indicated that career goal commitment and career stress carried the effects of feedback on goal suitability and improvements to career goal shifting. This suggests that, when the young people received negative feedback about their goal suitability and improvements needed, they were more likely to experience greater anxiety about their goal choice, lower their commitment to the current goal, and, in turn, switch their commitment to another goal. In contrast, when they perceived feedback that more effort and engagement were needed to reach the goal, they were more likely to commit to the goal, and, thus, less likely to shift to another goal. Future research needs to replicate this finding, however, as this outcome might be due to suppression effects.

Career self-efficacy did not mediate between negative feedback and career goal shifting, indicating that decreased self-efficacy in career capacity induced by negative feedback might not elicit engagement in another goal. Future research should test other aspects of self-efficacy, such as career decision-making self-efficacy as that might be more specific to career goal shifting. Also, future research might consider other potentially mediating cognitive self-regulatory processes, such as appraisals of the goal attainability and desirability (Ghassemi, Bernecker, Herrmann, & Brandstätter, 2017).

Career self-efficacy did, however, mediate between negative feedback on progress and career exploration. This helps explain the unexpected finding that negative feedback was related to less, rather than more, career exploration: that is, when confronted with feedback indicating a lack of progress, young people experience lower self-confidence in their general career capacity, which, in turn, makes them less

active in career exploration activities. However, self-efficacy could not explain the negative relationship between negative feedback on improvements needed and exploration. In addition, neither goal commitment nor stress mediated between negative feedback and career exploration. This leaves room for future research to explore other potential underlying mechanisms of the feedback-exploration link. It would be especially important to explore whether and when career feedback yields a positive relationship with career exploration, considering that career exploration might be a crucial step before setting an appropriate alternative goal.

Limitations and future research

Some limitations are acknowledged, which also highlight potential future research. First, while the current study included young people from different universities and colleges in China, it was conducted in a specific collectivist setting. The findings of the study need to be confirmed in different countries and cultures including individualist Western cultures. Second, we noted that when testing the structural model, academic ability (i.e., the covariate) was, contrary to our expectation, related to lower career-related self-efficacy. Previous studies found that college entrance exam scores did not predict university students' career experiences (e.g., career optimism, career decision-making self-efficacy; Garcia, Restubog, Bordia, Bordia, & Roxas, 2015). These inconsistent results potentially indicate that students' university/college entrance exam scores do not fully reflect their academic performance (Wu & Zhong, 2014). Future research, thus, needs to directly measure career-focused abilities or the students' college GPA. Third, the study was cross-sectional, and, thus, the direction of the relationships tested in the model, while theory driven, could not be confirmed. For example, we tested paths from negative feedback through self-efficacy to career exploration. It is possible, for example, that

young people who explore their possible selves and career options more are more confident in their capacity to realize their career goals, and, thus, seem more “on track” and receive less negative feedback on their progress and goals. Thus, it could be that more career exploration leads to greater career self-efficacy, which then leads to perceiving less negative feedback. Longitudinal and experimental studies are needed to confirm the causal directions.

In addition, we found that negative feedback related to more career goal shifting, but less career exploration. It remains unclear why and how some students might respond to negative feedback by engaging in another goal without exploration. Is it because they think they do not need to explore? For example, they might just lower their career expectation to a related goal in the same career domain that does not necessitate exploration (e.g., from “being a top neurologist” to “finding a job in a hospital”). We did not examine the nature of the alternative goals. Future research could specify these possibilities in measures of career goal shifting and career exploration. For example, goal shifting could be specifically operationalized to encompass downward goal revision within the same domain versus switching to another career area (Wrosch et al., 2003). Similarly, exploration could include dimensions of further exploration of the current career goal area, as well as exploration of other career areas (Anderson & Mounts, 2012).

Finally, in our study, we did not find any mediators between negative feedback on improvements needed and career exploration, and goal commitment only partially mediated between feedback on progress and career goal shifting. Therefore, future research needs to investigate other potential mediating mechanisms. For example, other cognitive (e.g., appraisals of goal attainability and desirability, career decision-making self-efficacy, outcomes expectation; Ghassemi et al., 2017; Lent et

al., 2017) and affective variables (e.g., disappointment; Elicker et al., 2010) might also act as mediators. In addition, it would also be important to investigate the boundary conditions of these relationships. General and career self-regulation theories have proposed that personal (e.g., general personality, feedback orientation; Bandura, 1991; Lent et al., 2017; Linderbaum & Levy, 2010), contextual (e.g., social support; Lent et al., 2017), and goal-based characteristics (e.g., goal importance, goal certainty; Anderson & Mounts, 2012) shape the way people respond to feedback and influence their career outcomes. For example, young people who feel more obligated to respond to feedback (i.e., higher feedback accountability) are more likely to regulate their behaviours or goals in line with feedback (*Smither, London, & Richmond, 2005*), whereas those who are learning oriented/improvement focused might be more likely to learn from and utilize negative feedback in adaptive self-regulation (e.g., career exploration, goal shifting). These possibilities need to be tested in future research.

Practical implications and conclusion

The findings of the study also have implications for practice. Although engagement in another career goal could be adaptive when current career goals are unsuitable, career counsellors need to help young people evaluate whether this is the best strategy in their own case. Understanding the person's underlying self-regulation processes will also be helpful in this evaluation. In particular, counsellors can help young people identify the type of negative feedback they are receiving. Our findings suggest that feedback indicating goal misfit and a lack of strategies is related to less goal commitment and more career stress, with, in turn, engagement in another goal. In this situation, counsellors are encouraged to facilitate the client to assess the credibility of the feedback via, for example, seeking more feedback from different, available sources, reflecting on how they interpret and process the feedback (e.g.,

whether they might be overly focused on the negative part of the feedback), identifying the barriers that hinder their progress in goal pursuit, and identifying resources that could be employed to overcome these barriers. If the goal is still considered attainable, specific strategies to improve their current state need to be developed. If the goal is indeed not suitable or attainable for the person, helping them set a more appropriate goal and preventing them from repeated failures is a crucial task for career counsellors. Career exploration is a necessary and beneficial step before people set a new goal. However, our findings suggested that when confronted with negative feedback, young people were less active in career exploration, partially because they experienced less self-confidence in their career abilities. Career counsellors, in this case, need to help young people restore self-efficacy and engage in exploration of their abilities and other career possibilities, which, in turn, should help them make a better career choice.

In conclusion, the present findings suggest that negative career feedback on goal suitability and improvements needed is related to greater engagement in another goal via increasing the person's career-related stress and decreasing their goal commitment; whereas negative feedback on progress is related to a reduced likelihood to shift to another goal via increasing commitment to the current goal, and related to a reduced likelihood to explore because of decreasing self-efficacy. This demonstrates that the relationships between negative feedback and career outcomes differ depending on the type of feedback, the type of career outcome, and the underlying self-regulatory mechanisms. Understanding these different pathways is important to effectively assist young people to successfully manage negative career-related feedback.

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Table 1

Descriptive Statistics, Zero-Order Correlations (Below Diagonal) and Correlations among Latent Variables (Above Diagonal); N = 413.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Age	19.01	1.13	-	-	-	-	-	-	-	-	-	-	-	-
3. SES	10.33	3.60	-.02	-.16**	-	-	-	-	-	-	-	-	-	-
4. Academic ability	500.00	100.00	-.11*	-.09	.07	-	.14*	.12*	.14*	-.03	-.44***	.15**	.10	-.18**
5. Feedback on progress	26.22	6.60	-.11*	-.09	.05	.13**	-	.54***	.57***	-.34***	-.57***	.56***	.07	-.35***
6. Feedback on goal suitability	23.08	5.42	-.02	.10	.03	.12*	.52***	-	.56***	-.72***	-.49***	.71***	.32***	-.30***
7. Feedback on improvement	27.00	7.24	-.11*	-.23**	.05	.14**	.51***	.51***	-	-.50***	-.45***	.67***	.27***	-.39***
8. Career goal commitment	28.10	4.41	.06	.10	-.07	-.04	-.21***	-.49***	-.38***	-	.36***	-.62***	-.44***	.27***
9. Career self-efficacy	29.43	5.28	.06	.10	-.06	-.42***	-.50***	-.44***	-.39***	.21***	-	-.48***	-.07	.45***
10. Career stress	15.46	4.53	-.02	-.10	.01	.14**	.50***	.65***	.57***	-.45***	-.41***	-	.35***	-.34***
11. Career goal shifting	20.63	5.53	-.02	-.10	.04	.09	.07	.31***	.26***	-.39***	-.07	.32***	-	.12*
12. Career exploration	31.29	7.51	.01	.08	-.01	-.17**	-.32***	-.26***	-.35***	.18***	.39***	-.29***	.12*	-

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

Figure 1. Hypothesized model: The relationships between negative feedback and career exploration and career goal shifting were mediated by self-regulatory processes of career self-efficacy, career stress, and career goal commitment.

Figure 2. Solid lines indicate significant paths; dashed lines indicate non-significant paths. Standardised beta weights are reported. * $p < .05$; ** $p < .01$; *** $p < .001$.

Highlights

- We tested a cross-sectional, self-regulation model of career feedback
- Negative feedback was related positively to career goal shifting
- Negative feedback was related negatively to career exploration
- Career stress and goal commitment mediated between feedback and goal shifting
- Career self-efficacy mediated between feedback and career exploration

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