

Career goal engagement following negative feedback: Influence of expectancy-value and perceived feedback accuracy

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Abstract This study addresses the effects of negative attainability feedback on the shift from engagement to disengagement from a career goal. It was hypothesized that negative attainability feedback regarding study choice may lead to both goal engagement and goal disengagement and that this relation is mediated by self-efficacy, motivational beliefs, and by the perceived accuracy of feedback. Results confirmed that negative feedback led to goal disengagement and, to a lesser extent, to continued engagement. Perceived accuracy of feedback was an important mediator, as was motivation. Self-efficacy did not predict either goal management strategies.

Résumé. *L'engagement dans un objectif de carrière à la suite d'un feedback négatif : L'influence de la valeur attendue et de la précision perçue du feedback.* Dans cette étude nous évaluons les effets de feedbacks négatifs concernant la réalisation d'un but sur le passage de l'engagement au désengagement vers un objectif de carrière. Nous faisons l'hypothèse que, dans le cadre d'un choix d'études, un feedback négatif sur la réalisation de son but peut amener une personne à un engagement ou un désengagement par rapport à son objectif. De plus, cette relation serait modérée par l'auto-efficacité, les croyances motivationnelles et la précision perçue du feedback. Les résultats confirment qu'un feedback négatif entraîne un désengagement par rapport à l'objectif fixé et, dans une moindre mesure, au maintien de cet engagement. La précision perçue du feedback est un médiateur

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important tout comme la motivation. L'auto-efficacité n'a pas permis de prédire les stratégies de gestion d'objectifs.

Zusammenfassung. Laufbahnziel-Engagement nach negativem Feedback: Einfluss der Erwartungen und der wahrgenommenen Genauigkeit des Feedbacks. Diese Studie beforcht die Auswirkungen von negativem Feedback bezüglich der Erreichbarkeit eines Laufbahnziels auf das Engagement in Richtung des Laufbahnzieles. Es wurde postuliert, dass ein negatives Feedback bezüglich der Zielerreichung bei der Studienwahl sowohl zu Engagement als auch zu Disengagement führen kann und dass diese Beziehung durch die Selbstwirksamkeit, motivationale Überzeugungen sowie durch die wahrgenommene Genauigkeit des Feedbacks meditiert wird. Die Ergebnisse bestätigten, dass negatives Feedback zu Ziel-Disengagement und in geringerem Maße zu fortgesetztem Engagement führte. Die wahrgenommene Genauigkeit des Feedbacks war ein wichtiger Mediator, ebenso die Motivation. Selbstwirksamkeit konnte das Laufbahnziel-Verhalten nicht voraussagen.

Resumen. Compromiso con las metas de carrera tras recibir retroalimentación negativa: Influencia de las expectativas, valor de la meta y la percepción sobre la retroalimentación recibida. Este estudio aborda los efectos que puede tener la retroalimentación negativa sobre la consecución de metas, en el cambio del compromiso con una meta de carrera hacia un alejamiento de la misma. Se planteó la hipótesis de que la retroalimentación negativa sobre decisiones académico-profesionales, entre ellas la elección de estudios, puede conducir tanto a afianzar el compromiso con la meta de carrera, como a la desvinculación con la misma y que esta relación está mediada por la autoeficacia, las creencias motivacionales y la percepción de la precisión de la retroalimentación. Los resultados confirmaron que la retroalimentación negativa llevó al alejamiento de la meta y, en menor medida, al compromiso continuado. La percepción sobre la precisión de la retroalimentación fue un mediador importante, al igual que la motivación. La autoeficacia no predijo la estrategia de gestión de metas.

Keywords Career goal disengagement · Attainability feedback · Expectancy-value

Introduction

Choosing and pursuing a career goal is often experienced as a daunting task. During the career choice process, adolescents need to take into account their personal abilities, interests, and values and weigh them against the demands and benefits of educational or job choices. They may need to compromise on a career goal because of contextual (e.g., distance, availability of study program) or personal (e.g., intellectual, motivational) constraints. This idea of compromise between aspirations and reality is well embedded in theories of occupational choice such as the theory of circumscription and compromise (Gottfredson, 1981) and the career construction

theory (Savickas, 2005). It is also a central premise of more general goal-setting models [e.g., Bandura's social cognitive theory (1991) and Carver and Scheier's control model (1990)], which state that behaviour and goal-setting are guided by a feedback loop in which there is a continual evaluation of the attainability of goals. When there is a discrepancy between the desired and the actual state, the behaviour and/or the goal is adapted to align them.

This management of behaviour and goals is addressed in theories of developmental regulation such as the dual-process framework (Brandtstädter & Rothermund, 2002) and the motivational theory of life-span development (Heckhausen, Wrosch, & Schulz, 2010). Both theories provide a framework to understand the dynamic processes by which goals are adapted. A discrepancy between an actual and a desired state can be reduced either by trying to change the situation to align more closely with the goal (goal engagement) or by adjusting the goal to meet the situational constraints (goal disengagement). The dual-process framework refers to the first process as assimilation and to the latter as accommodation (Brandtstädter, 2009). The assimilative processes are aimed at effective goal pursuit and thus goal engagement. Yet, when there is repeated failure or when a goal becomes unattainable, accommodative processes become more beneficial. Evidence shows that disengagement from unattainable goals benefits health (Miller & Wrosch, 2007) and well-being (Wrosch, Scheier, Carver, & Schulz, 2003). Creed and Hood (2014) also found favourable effects of disengagement capacity in the career development context: students with a higher capacity to disengage from unattainable goals experienced less career distress.

However, for a student or a prospective student it is extremely difficult to evaluate whether a career goal is really unattainable and when exactly it is better to give up. For some, changing a specific career plan and switching to another study major is particularly challenging (Creed, Wamelink, & Hu, 2015; Fischer, Jonas, Frey, & Schulz-Hardt, 2005; Hammond, Michael, & Luke, 2017). This situation in which people are caught between further goal pursuit and disengagement has been conceptualized as an *action crisis* (Brandstatter, Herrmann, & Schuler, 2013). This critical phase often occurs when individuals have already invested into their goal, but suffer from setbacks and/or a substantial loss in the perceived desirability of the goal.

To date, little is known on how a person goes from goal engagement to disengagement (Heckhausen et al., 2010). Notwithstanding a few recent exceptions (Ghassemi, Bernecker, Herrmann, & Brandstatter, 2017; Hu, Creed, & Hood, 2017), this self-regulatory challenge has received scant attention in the career context (Praskova, Creed, & Hood, 2013).

This study addresses this gap in the literature on goal engagement and disengagement in the early career context. Although it is generally accepted that goal management is guided by a feedback loop, the question on how negative feedback about goal attainability influences career goal engagement and disengagement remains unanswered. We hypothesize that goal engagement and disengagement following feedback about early career decisions, namely study choice, will be mediated by expectancy and value variables and by the perceived accuracy of the feedback.

Expectancy and value

Two important factors are assumed to influence the ease of disengagement (Brandstädter & Rothermund, 2002). First, the subjective attainability of a goal and, second, its personal importance and centrality. These factors are in line with the expectancy-value theory of achievement motivation (see e.g., Eccles & Wigfield, 2002) in which achievement choices are a function of the expectancy of success and the value of the goal, which are influenced by ability beliefs, perceived difficulty, and self-schemes. These are, in turn, shaped by previous experiences and socialization (Wigfield & Eccles, 2000). In the context of early career goal management, this implies that disengaging from a career goal would be less likely when it is perceived as important and when the expectancy of success is high.

During the early career choice process, making a proper estimate of the likelihood of success is not evident. Students on the verge of making educational and/or early career choices lack previous experiences within the higher education context, which hinders the evaluation of attainability and makes realistic goal-setting difficult. To overcome this obstacle, students actively seek feedback on whether their goal is suitable and which plans and actions are appropriate (Creed et al., 2015; Hattie & Timperley, 2007; Kerpelman, Pittman, & Lamke, 1997). They seek advice from peers, parents, teachers, career guidance counsellors, or online assessment instruments.

Still, even when available, some students ignore feedback. They persist in engaging with a career goal in spite of feedback that the goal is unattainable. Again, self-efficacy and value seem to influence the acceptance of this kind of feedback. For example, just as self-efficacy influences goal management, it affects the reactions to negative feedback (Ilgen & Davis, 2000). We hypothesize that negative feedback will influence self-efficacy and motivation, which in turn will predict goal management strategies.

Reactions to feedback

There is ample evidence that feedback, especially when negative, is difficult to accept. Feedback that is inconsistent with expectancies is often discarded. For example, Sinclair and Cleland (2007) found that low achievers were less likely to collect feedback than high achievers. Often, those most in need of feedback seem to engage the least with the feedback they receive (Harrison et al., 2013), a phenomenon that is explained in cognitive dissonance theory (Festinger, 1957). Dissonance arises when people are faced with evidence that their assumptions, desires, or predictions are incorrect (Chen, Crossland, & Luo, 2015), including receiving feedback that a study goal is unattainable. Dissonance leads to psychological discomfort, which people typically reduce by discrediting and neglecting the feedback (Fischer et al., 2005). In the context of employee selection procedures for example, Schmitt, Oswald, Kim, Gillespie, and Ramsay (2004) found that poorly performing examinees evaluated the test as invalid and irrelevant to the job.

This principle of dissonance reduction is adopted in the control theoretical perspective (Carver & Scheier, 1990), wherein negative feedback provokes feelings

of resistance, which in turn encourages continued goal engagement, either by discarding the feedback or by signalling that more effort is needed.

According to social cognitive theory (Bandura, 1991), on the other hand, negative feedback decreases people's confidence and thus their success expectations which leads them to disengage from the goal. Research has shown that people indeed lower their goals after receiving negative feedback (see e.g., Ilies & Judge, 2005; Krenn, Wurth, & Hergovich, 2013), or abandon their goal altogether (Kluger & DeNisi, 1996).

Thus, different goal-setting models predict opposing reactions to negative feedback and research findings show a complex pattern. Individual and situational differences seem to influence feedback reactions (Eva et al., 2012).

In the context of early career guidance, it is highly relevant to study the processes involved in these reactions. Many students will come to realize that their educational goal is unattainable (Boudrenghien, Frenay, & Bourgeois, 2012). They are better off disengaging from their goal early on or preferably even before starting their study trajectory, rather than persisting unsuccessfully. Several sources provide students and prospective students with attainability feedback but this feedback is often discarded. The present study assesses how negative attainability feedback influences career goal disengagement. Its results might support the development of personalized feedback strategies that promote adequate early career goal management.

Current study

This study differs in important ways from previous research. First, although the benefits of goal disengagement have been demonstrated, the processes and factors that influence disengagement are still unclear (see Heckhausen et al., 2010). Especially studies in ecologically valid settings are rare (Rakoczy, Harks, Klieme, Blum, & Hochweber, 2013; Tomasik & Silbereisen, 2012). Moreover, there is limited research about disengagement from career goals during the study choice process (Creed & Blume, 2013), and we know little about the role that feedback plays in career development (Creed et al., 2015). Many studies on feedback reactions have focused on the impact of characteristics of feedback delivery, whereas it is equally important to consider feedback from the perspective of the receiver (Eva et al., 2012) and how it affects subsequent action and behaviour. Finally, most of the feedback literature is focused on feedback that fosters performance improvement. Consequently, little is known on how to give feedback to promote disengagement from goals.

In this study, we examine the effect of negative attainability feedback on early career goal management. Can negative attainability feedback encourage career goal disengagement at the start of the university trajectory? How do students react to negative attainability feedback as opposed to positive attainability feedback: by increasing their efforts (assimilation and engagement as proposed by control theory) or by exploring other options (accommodation and disengagement as suggested in social cognitive theories)? And to what extent are these management strategies mediated by self-efficacy, motivation, and the perceived accuracy of feedback? It is

hypothesized that negative feedback will lead to goal engagement in some students (control theory) and to disengagement in others (social cognitive theory). We propose that both continuing to engage with and disengaging from a career goal following negative feedback will be explained by expectancy, value, and perceived accuracy of feedback. It is expected that receiving negative feedback will have positive indirect effects on assimilation and negative indirect effects on accommodation via self-efficacy and motivation. The assumption is that receiving negative feedback impairs self-efficacy and motivation, and in turn, that self-efficacy and motivation will positively relate to assimilation and negatively to accommodation. Following control theory, we hypothesize that receiving negative feedback has negative indirect effects on both goal engagement (assimilation) and disengagement (accommodation) via the perceived accuracy of the feedback. See Figure 1 for a graphical representation of hypothesized relations.

At a more descriptive level, we are interested to evaluate to what extent students who received negative attainability feedback are activated by their feedback report by putting in more effort for their studies, by participating in guidance activities, or by considering to change majors.

Method

Participants and general set-up

This study was set in Flanders, a region in Belgium where the educational system is characterized by virtually unlimited open access. Students with any secondary education qualification can enrol in almost any study major, with very few exceptions such as medicine and dentistry, without specific requirements like passing a selection exam or obtaining a certain GPA. At the start of the academic year, 4809 new incoming undergraduate students at a large Flemish University filled out an online test battery called SIMON-C, which is the competencies assessment of a larger study orientation tool “SIMON” (Study Skills and Interest Monitor). SIMON consists of two main components that aid students and prospective students

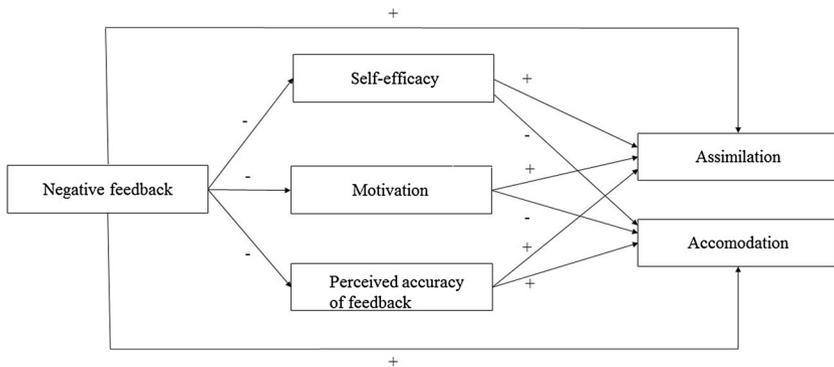


Figure 1 Model of hypothesized relations

in choosing a suitable study program: an interest assessment (SIMON-I, Fonteyne, Wille, Duyck, & De Fruyt, 2017) and a competencies assessment, which was used in this study (SIMON-C, Fonteyne, Duyck, & De Fruyt, 2017). This latter component is aimed at the identification of a small group of students, usually about 10% that lack the necessary skills to pass their first year of higher education. In contrast with high-stake admission tests, SIMON-C's discriminatory power lies at the lower end of the ability range, which is consistent with the politically determined open access policy to higher education: only students who almost certainly lack the very basic abilities to succeed get a clear warning, yet students who might be able to pass get the benefit of doubt and are not discouraged. Therefore, based on the literature on predictors of academic achievement and retention, tests of very basic skills that are necessary prerequisites to pass in higher education were selected to include in the battery. These are basic reasoning skills, basic mathematical knowledge, vocabulary knowledge, reading comprehension, motivation, self-efficacy, metacognition, test anxiety, self-control, and grit.

When these tests are completed, SIMON-C generates a personalized and program-specific chance of success, which has previously been validated using historical data of over 15,000 students in all 11 faculties of Ghent University. Validation was performed by applying recursive feature elimination and cross-validation to each study program separately. Recursive feature elimination allowed the selection of variables that are predictive of achievement in the first academic year. After model identification, two different cut-scores were selected: one that allows to identify students at risk of failure, without wrongfully classifying passing students and a second cut-score that identifies students with a high probability of passing. A sensitivity value of 95% for the low chance group and of 70% for the high chance group was selected. Thus, the threshold for high passing probability has less predictive power because students may have all the required prerequisites to pass, but still fail because of situational, emotional, or behavioural impediments during their first academic year. After the model and the cut-scores were established, they were evaluated using cross-validation. Parameter estimates of the model were forced onto a testing sample, and the diagnostic values of the model were evaluated for the low and the high chance groups. If, again, a sensitivity of 95% in the low-chance group and 70% in the high-chance group was found, the model and the identified cut-scores were retained. Thus, in SIMON, negative feedback (i.e., a low chance of passing) is given to students who have a 95% likelihood of failing and positive feedback (i.e., a high chance of passing) refers to students who have a 70% chance of passing. Respondents who do not fall within these two groups are classified in the "average" group, which means that the prediction of passing is difficult. These students were not included in this study.

Three weeks after the start of the academic year, the students participating in the study received a personal feedback report. This report entailed detailed scores on each of the competences and measures, along with elaborate information on remedial courses to improve skills in order to pass their first year at the university. The report also provided the personalized estimate of how likely it was that the student would successfully pass that specific study program. In the cohort that was examined, 9.3% ($N = 448$) of the students were informed that their chance of

passing the first year was low, i.e., lower than 5%, and 6.1% ($N = 291$) of students were informed that their chance of passing was high, i.e., higher than 70%. The evidence for the validity of this assessment was also included in the feedback reports. The majority of the students (84.6%, $N = 4070$) received a feedback report which clearly stated that their prediction of success was difficult. These students still received their personal scores and information on remedial courses, but they were not included in the study.

One month after receiving their personalized feedback report, data were collected by inviting students to evaluate the received report. This evaluation also included measures of self-efficacy, motivation, perceived accuracy of feedback and of goal engagement and disengagement. The evaluation was completed by 1849 students (response rate = 38.4%) who were representative for the entire cohort in terms of study programs and language background. The response rate varied as a function of the feedback that the students had received. Response rates were 30.8% for students in the middle category, 25.7% for students with a low chance of success ($N = 117$) and 39.4% for students with a high chance of passing ($N = 121$). Only the responses from students who had received a low or a high chance of success were included in this study. Thus, the final sample consisted of 238 respondents. The mean age was 18.7, which is a typical age for first enrolment in higher education in Flanders, and females (62.6%) were somewhat overrepresented relative to the general population but not relative to the student population. The study was approved by the faculty ethics committee and students gave written consent for their participation.

Measures

All items were measured on a 4-point scale (ranging from *totally disagree* to *totally agree*).

Self-efficacy

Sel-efficacy was measured using the item “How certain are you that you are going to pass your study program?”, whereas value was assessed with the item “How important is it for you to take this study program?”.

Perceived accuracy of feedback

Perceived accuracy of feedback (PAF) consists of perceived fairness, usefulness, and acceptance (Strijbos, Pat-El, & Narciss, 2010b), which were assessed using subscales from the perceived accuracy of feedback scale (Strijbos, Narciss, & Dünnebier, 2010a). These are the fairness subscale (three items, e.g., “I consider this feedback fair”), the usefulness subscale (three items, e.g., “I consider this feedback helpful”), and two items from the acceptance subscale (e.g., reversed item “I reject this feedback”). Unidimensionality was evaluated with confirmatory factor analysis using the Lavaan package in R (Rosseel, 2012). All items loaded on one factor (CFI = .99) with a Cronbach alpha value of .92.

Goal engagement and disengagement

The assimilation and accommodation scale (Haratsis, Creed, & Hood, 2015) was adapted to fit the study context. Students were instructed to focus specifically and only on the effects of the feedback report by queuing them with “Because of the feedback I received...”. For each of the subscales, 10 statements followed (e.g., assimilation “...I will double my efforts”, and accommodation “...I will focus on a different study program”). The two-factor structure was supported by confirmatory factor analysis. Adequate internal validity coefficients for the assimilation and accommodation scales have been reported in young adults, .91 and .93, respectively, in Haratsis et al. (2015) and .88 and .93, respectively, in Haratsis, Creed, and Hood (2016). Cronbach’s alphas in the current sample were .88 for assimilation and .95 for accommodation.

Participation and effort

We also asked whether students participated in study guidance activities (one item), whether they would put more effort into their studies (one item) and whether they had considered changing majors (one item), as a result of the feedback report.

Feedback

It consisted of a categorical variable that expresses the program-specific estimate of the likelihood of passing (see above and Fonteyne, Duyck, et al., 2017). In this sample, which included students from all faculties, 49.2% received a low chance of passing. Men more often received negative feedback (57.3%), whereas the majority of woman (55.7%) received positive feedback. This is a reflection of real group differences as woman tend to outperform men academically (Voyer & Voyer, 2014).

Results

All analyses were performed using SPSS24 and AMOS22. Means and correlations for the variables in the negative and positive feedback groups are listed in Table 1. One case was identified as a multivariate outlier through Mahalanobis distance with $p < .001$. This case was deleted, leaving 237 students for further analysis.

The proposed multiple mediator model with standardized coefficients is shown in Figure 2. The model fitted the data well, as indicated by several fit indices (Tabachnick & Fidell, 2007): $\chi^2(4, 237) = 6.60, p = .16$; CFI = .99; NFI = .98; RMSEA = .05.

As hypothesized, negative attainability feedback was significantly and negatively related to self-efficacy (unstandardized coefficient = $-0.25, p < .01$) and motivation (unstandardized coefficient = $-0.21, p < .01$). Yet, only 4% of the variance in expectancy and 3% of the variance in value was accounted for by negative attainability feedback. Of these variables, only motivation had an effect on goal

Table 1 Means and correlations for negative and positive feedback groups

Negative feedback	<i>M (SD)</i>	Assimilation	Accommodation	Self-efficacy	Motivation	PAF
	49.2%	-.13	.26**	-.19**	-.17**	-.75**
Assimilation	28.26 (4.63)	1				
Accommodation	15.50 (5.42)	.04	1			
Self-efficacy	2.42 (0.66)	.18	-.10	1		
Motivation	3.37 (0.60)	.15	-.34**	.09	1	
Perceived accuracy of feedback (PAF)	21.15 (5.10)	.34**	.43**	-.01	-.18*	1

Positive feedback	<i>M (SD)</i>	Assimilation	Accommodation	Self-efficacy	Motivation	PAF
	50.8%					
Assimilation	28.83 (4.13)	1				
Accommodation	14.14 (4.77)	-.20*	1			
Self-efficacy	2.55 (0.70)	.01	-.06	1		
Motivation	3.47 (0.61)	.33**	-.32**	.08	1	
Perceived accuracy of feedback (PAF)	24.88 (3.16)	.33**	-.10	.26**	.17	1

* $p < .05$

** $p < .01$

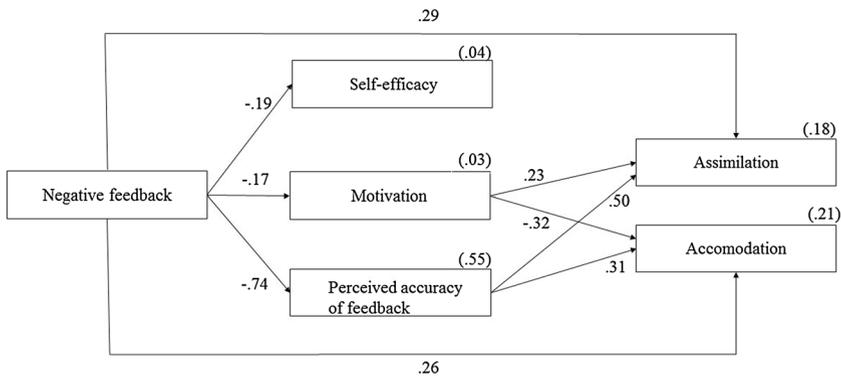


Figure 2 Model with standardized estimates. Only significant paths are shown. Squared multiple correlations are between brackets

management strategies (unstandardized coefficients of 1.79, $p < .001$ for assimilation and -2.84 , $p < .001$ for accommodation). Contrary to our expectations, self-efficacy did not significantly predict either goal management strategies (unstandardized coefficients of 0.23, $p = .58$ and -0.64 , $p = .18$, respectively). This suggests that value, but not self-efficacy is a mediator between negative attainability feedback and assimilation and accommodation.

Negative feedback, as expected, was negatively related to the perceived accuracy of the feedback (unstandardized coefficient = -7.59 , $p < .001$). In turn, the perceived accuracy of feedback significantly predicted both assimilation and accommodation (unstandardized coefficients of 0.45 , $p < .001$ and 0.33 , $p < .001$, respectively). Thus, perceived accuracy of feedback potentially mediated between feedback and goal management strategies.

We further assessed the indirect effects of the proposed mediators (self-efficacy, value, and perceived accuracy of feedback) following guidelines by Preacher and Hayes (2008). We used the Amos bootstrapping procedure (1000 samples) to calculate 95% bias-corrected confidence intervals (CIs). The effect of negative attainability feedback on assimilation was fully mediated by value and perceived accuracy of feedback, as indicated by 95% CIs that did not contain zero, CI $[-0.91, -0.07]$ and CI $[-5.21, -2.00]$, respectively). Value, CI $[-3.77, -0.88]$ and perceived accuracy of feedback, CI $[0.21, 1.15]$, mediated the relationship of negative feedback with accommodation, but this relationship remained significant, indicating partial mediation. The examination of pairwise contrasts of indirect effects showed that the indirect effect through perceived accuracy of feedback was larger than the indirect effect through value with a CI of $[1.69, 4.92]$ for assimilation and a CI of $[1.76, 4.53]$ for accommodation.

Negative attainability feedback had a significant positive direct effect on career goal management. Its effect on accommodation (standardized coefficient = $.42$, $p < .001$) was higher than that on assimilation (standardized coefficient = $.29$, $p < .001$), $F(1, 236) = 17.76$, $p < .000$. Negative feedback had significant negative indirect effects on assimilation (standardized coefficient = $-.43$, $p < .001$) and accommodation (standardized coefficient = $-.16$, $p < .001$) through perceived accuracy of feedback.

In total, one fifth (21%) of the variance in accommodation and 18% of the variance in assimilation was accounted for by variables in the model. 55% of the variance in perceived adequacy of feedback was accounted for by the receipt of negative attainability feedback.

Over two thirds (68.5%) of the students who received negative feedback reported that they were activated by their feedback report. Another 29.1% said that they participated in study guidance activities, 15.4% had considered changing majors, and 59.8% indicated they would put more effort into their studies as a result of the report.

Discussion

During the study choice process, it is very difficult for students to evaluate the suitability of a specific study program in terms of attainability. In a system with open access to study majors, many students enrol in a program that turns out to be not attainable for them. In the study context, 37.5% of the undergraduates drop out before the end of the first academic year (Lacante et al., 2001). These students would be better off realizing early in their academic trajectory, and preferably even

before they start, that their chances of success are very low so they can direct their efforts towards a more suitable study program.

When guidance counsellors or teachers try to communicate this message, such feedback is often discarded. In light of career counselling, it is important to know whether such information has an effect on career goal management. This could support the development of optimized personalized feedback strategies.

To investigate this, we examined whether receiving negative attainability feedback based on a validated test battery with shown predictive validity of academic achievement (see Fonteyne et al., 2017) affected career goal management strategies, here operationalized as assimilation (goal engagement) and accommodation (goal disengagement). We also assessed whether expectancy-value variables and the perception of feedback mediated effects on career goal management.

Following expectancy-value theory, we proposed that negative attainability feedback would lead to lower assimilation and higher accommodation via self-efficacy and motivation. Negative feedback indeed had a significant negative relation with both self-efficacy and motivation. Lower motivation led to lower assimilation, and to higher accommodation. Contrary to our expectations, we found no significant effect of self-efficacy on either accommodation or assimilation. Whereas social cognitive theories would suggest highly self-efficacious students are more likely to persist in the presence of goal-performance discrepancies (Williams, Donovan, & Dodge, 2000), we found no such effect.

There was a direct negative effect of negative feedback on its perceived accuracy, which is in line with control theory and previous research in other contexts. This study demonstrates that this effect is also present in the context of early career goal management: when attainability feedback is negative, its relevance and credibility suffers. The discrepancy between a prior engagement to a study program and receiving negative attainability information creates dissonance which leads students to discard the credibility of the feedback. This effect was quite strong: over half of the variance in perceived accuracy of feedback was accounted for by the receipt of negative feedback. In turn, when feedback was perceived as less accurate, this had negative effects on both accommodation and assimilation. There was a significant indirect negative effect of receiving negative feedback on goal management strategies, which was mediated by perceived accuracy of feedback.

On the other hand, the direct effect of negative feedback on both goal management strategies was positive and stronger than the indirect effects, which suggests that giving negative feedback is not futile and may lead to action. Similarly, Hu et al. (2017) showed that negative feedback on goal suitability prompted goal disengagement and Ghassemi et al. (2017) found that low goal attainability predicted an increase in action crisis. These results suggest that negative feedback may trigger a process of cognitive dissonance or provoke an action crisis, although more research is needed on the specific conditions in which feedback becomes incontrovertible and an action crisis is induced.

The effects of negative feedback were stronger for accommodation than for assimilation. Giving negative attainability feedback triggers enrolling students to put more effort into their studies, but even more so, it encourages them to explore other

options that might be more viable for them. Either way, the effect for their own academic trajectory can be beneficial.

These results suggest that giving negative feedback does promote both goal engagement and goal disengagement, but also that this effect is somewhat undermined by the perceived accuracy of the feedback. This illustrates the importance of devoting special attention to how feedback is delivered and perceived, especially and specifically in the context of early career goal management. A lot of the feedback research has focused on persistence or continued engagement after receiving feedback. Still, in the context of unattainable career goals it would be especially interesting to examine what feedback characteristics are important to encourage goal disengagement. For example, feedback specification may be relevant. Carroll, Shepperd, and Arkin (2009) found that students who received fully specified threatening feedback in a laboratory setting were significantly less committed to entering a fictitious program ($d = 0.82$) and they had significantly lower admission expectations ($d = 1.62$). It may also be relevant to study interactions between feedback characteristics and individual differences. For example, it is possible that highly motivated or self-efficacious students require fully specified feedback reports in order to be activated, whereas highly anxious students consider to change their career paths after receiving more moderate feedback.

Future research may also address some limitations of this study. For self-efficacy and motivation, only one item was used. A more thorough examination of expectancy and value beliefs may reveal other patterns. Second, the career goal management strategies were examined in students who were enrolled in a study program and therefore had already identified with their chosen career path. This increases the chance of ignoring advice that contradicts their ambitions (Dobrow & Tosti-Kharas, 2012). The question remains whether prospective students would react in similar ways to such negative attainability feedback. For such a group, accommodation effects may be much stronger, because they entail less cost (time, financial, logistic) relative to a choice already made. Third, students received feedback based on an online assessment of their competencies. It may also be interesting to examine how the current findings relate to feedback received from relevant others, as there is an increasing emphasis on the role of social influences on career development (Ginevra, Nota, & Ferrari, 2015). Parents and peers are important for career exploration and information-seeking behaviours (see e.g., Felsman & Blustein, 1999; Kracke, 2002). Domene, Shapka, and Keating (2006) even showed that most students turn to parents and not to career counsellors for career issue assistance. Findings on the relative impact of online career advice would advance our knowledge of career choice processes, especially when different sources of advice (online, counsellors, parents, peers) are inconsistent. Since inconsistent feedback can lead people to view negative feedback as idiosyncratic (Dobrow & Tosti-Kharas, 2012; London & Smither, 2002), it would be interesting to examine what sources of information are deemed more reliable.

Finally, because of the cross-sectional design of our study, it is not possible to evaluate whether the attainability feedback will have long-term effects. Previous research indicates that initial negative feedback leads to an increase instead of to a

withdrawal of effort (Nease, Mudgett, & Quiñones, 1999). It would be interesting to see whether and when negative feedback leads to more accommodation in the long run. For example, it is possible that receiving negative feedback at the start of higher education strengthens the effect of receiving disappointing exam results. Yet, such longer term effects require a longitudinal follow-up of students.

In any case, whether it is by doubling their efforts or by considering other study programs, this study shows that giving negative attainability feedback does activate (68.5% of the) students early on in their academic trajectory. This relatively small intervention (sending a feedback report), seems to have a large impact.

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