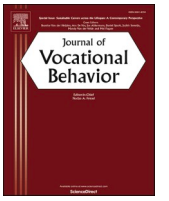
Journal of Vocational Behavior 138 (2022) 103766

Contents lists available at ScienceDirect

Journal of Vocational Behavior

journal homepage: www.elsevier.com/locate/jvb



The effect of pursuing a gender-nontraditional profession on young newcomers' occupational self-efficacy via frequency of evaluative feedback☆

Jan Hofmann *, Lukas Ramseier, Markus P. Neuenschwander

Center for Learning and Socialization, University of Applied Sciences and Arts Northwestern Switzerland, Brugg-Windisch, Switzerland

ARTICLE INFO

Keywords:
Gender-nontraditional profession
Occupational self-efficacy
Evaluative feedback
School-to-work transition.

ABSTRACT

We investigated the effect of young newcomers' pursuit of gender-nontraditional professions on their occupational self-efficacy after starting work via the perceived frequency of evaluative feedback from others in their companies. Our research model was based on social–cognitive career theory and tokenism theory. We surveyed a longitudinal sample of 1269 adolescents (female: 44 %) at the end of compulsory school (ninth grade in Switzerland) and at the end of their first year of work experience as young newcomers. A structural equation model with multigroup comparison by gender showed no gender differences. Young female and male newcomers' pursuit of gender-nontraditional apprenticeship professions significantly affected their occupational self-efficacy after 1 year of work experience, mediated by the perceived frequency of evaluative feedback they received from coworkers. We controlled for the effects of newcomers' preentry occupational self-efficacy and preentry expectations about work conditions, as well as the effect of conscientiousness on occupational self-efficacy after 1 year of work experience. We further controlled for the effect of young newcomers' conscientiousness on perceived frequency of evaluative feedback from others in their companies. Our findings clarify the crucial role of frequent evaluative feedback from coworkers for occupational self-efficacy among young newcomers in gender-nontraditional professions. The longitudinal effect of preentry occupational self-efficacy on occupational self-efficacy after starting work underlines the importance of young newcomers' job preparation.

In gender-nontraditional professions, either female or male employees are in a minority by gender (Flores, Navarro, Smith, & Ploszaj, 2006). Research on gender-nontraditional professions has often used the term *level of gender nontraditionality*, which refers to a continuous scale incorporating the percentages of female and male employees in the profession, taking into account individuals' genders. The level of gender nontraditionality of a profession carries a risk of negative consequences for those who work in these professions. Studies have shown that individuals in gender-nontraditional professions often quit their jobs after a short time and choose professions that are more gender-traditional (Simpson, 2005; Williams, 1992). Social processes in the workplace can explain these negative consequences. According to Taylor (2010), female employees who pursue male-dominated professions perceive less workplace support (e.g., feedback) than female employees in mixed-gender professions. Besides, supportive behaviors also help inform one's

☆ Swiss State Secretariat for Education, Research, and Innovation Grant 1315000504 funded this research.

* Corresponding author at: University of Applied Sciences and Arts Northwestern Switzerland, Bahnhofstrasse 6, CH-5210 Windisch, Switzerland.
E-mail address: jan.hofmann@fhnw.ch (J. Hofmann).

https://doi.org/10.1016/j.jvb.2022.103766
Received 16 November 2021; Received in revised form 25 April 2022; Accepted 16 August 2022
Available online 18 August 2022

self-efficacy (Lent, Brown, & Hackett, 1994). In the context of work, a lack of support from coworkers (e.g., supervisors, peers) may lead to low levels of occupational self-efficacy. Having higher levels of occupational self-efficacy is relevant in work contexts. Recent meta-analyses have shown positive associations for occupational self-efficacy with generativity (Doerwald, Zacher, Van Yperen, & Scheibe, 2021) and with career adaptability (Rudolph, Lavigne, & Zacher, 2017).

Despite the importance of occupational self-efficacy for individuals' careers, there is a lack of research on this topic, especially for young employees entering their initial work contexts after graduating school (*young newcomers*; see Takeuchi, Takeuchi, & Yuhee, 2021). Prior studies have indicated that young newcomers' work situation differs in various aspects from other employees' work situations. For example, young newcomers experience higher levels of turnover compared to other employees (Kammeyer-Mueller & Wanberg, 2003). Additionally, young newcomers are at the beginning of their professional careers and depend on support from others in their companies. Experiencing high support at work and developing high levels of occupational self-efficacy is crucial for the later course of their careers. Studies have shown that the occupational self-efficacy of young newcomers in vocational education and training (VET) positively correlated with person-job fit, work engagement, and job satisfaction at a later measurement time (Valero and Hirschi, 2016). Furthermore, occupational self-efficacy acted as protection against emotional burnout (Clauss, Hoppe, Schachler, & O'Shea, 2021) and allowed for the prediction of newcomers' protean career orientation (Steiner, Hirschi, & Wang, 2019).

Knowledge about the predictive role of workplace support and other factors' effect on occupational self-efficacy has the potential to contribute to successful careers of young newcomers in general, but it is even more important for young newcomers in gender-nontraditional professions. Among young newcomers, those in gender-nontraditional professions show higher levels of psychosomatic symptoms and more work absences than young newcomers who are not in a gender minority in their profession (Rottermann, 2017). Fostering young newcomers' occupational self-efficacy in gender-nontraditional professions through workplace support and other factors has the potential to buffer the negative consequences of pursuing a gender-nontraditional profession.

We aimed to examine determinants of occupational self-efficacy for the specific group of young newcomers in gender-nontraditional professions and analyzed the role of social support from coworkers. We investigated the following research question: To what extent does young newcomers' pursuit of gender-nontraditional professions affect their occupational self-efficacy via levels of perceived support by coworkers? Low occupational self-efficacy due to a lack of perceived support among young newcomers in gender-nontraditional professions indicates extra challenges for them that need to be addressed in career counseling and by companies' socialization tactics.

1. Occupational self-efficacy in SCCT and tokenism theory

We build on the social–cognitive career theory of work satisfaction (SCCT; Lent, 2004; Lent & Brown, 2006, 2008) and Kanter's (1977) tokenism theory. Although the SCCT provides a theoretical framework to assess determinants for young newcomers' occupational self-efficacy, it does not specifically include the consequences of pursuing a gender-nontraditional profession. Kanter (1977) described the situation of individuals in gender-nontraditional professions in detail, but did not address the potential negative effects of working in a gender-nontraditional profession for individuals' occupational self-efficacy. Combining these frameworks offers an approach to answer our research question and advance both theories.

In the SCCT, Lent and Brown (2006, 2008) defined self-efficacy in the context of work as *task-specific self-efficacy*, which refers to personal beliefs about one's capability to perform future tasks in the work environment. Similarly, *occupational self-efficacy* refers to the competence that individuals feel concerning their ability to successfully complete the tasks required by their jobs (Rigotti, Schyns, & Mohr, 2008). To answer our research question, we located the concept of occupational self-efficacy at the position of task-specific self-efficacy within the SCCT framework.

1.1. Frequency of evaluative feedback and occupational self-efficacy

According to the theoretical framework, a major determinant of occupational self-efficacy is efficacy-relevant environmental influences (Lent & Brown, 2006). According to Lent and Brown (2006), environmental resources such as modeling, performance feedback, encouragement, and other forms of social persuasion help inform one's self-efficacy. A lack of environmental resources may act as an obstacle, impeding the development of self-efficacy. In work contexts, supervisors and other coworkers are one of the main environmental resources for their fellow employees' occupational self-efficacy: providing encouragement and evaluative feedback on work performance informs employees' occupational self-efficacy (Lent & Brown, 2006). Valero and Hirschi (2019) reported a positive correlation between perceived support from supervisors or coworkers and occupational self-efficacy.

1.2. Gender-nontraditional professions

Most workers experience lower levels of occupational self-efficacy due to a lack of environmental support, such as shortcomings in evaluative feedback on work performance (Lent & Brown, 2006, 2008). However, according to tokenism theory (Kanter, 1977), individuals in gender-nontraditional professions may experience this process more frequently and to a greater extent than individuals who are not a gender minority in their chosen professions. Built on extensive field studies, tokenism theory has formed the theoretical background of numerous studies (see Stichman, Hassell, & Archbold, 2010). According to tokenism theory, minority employees in gender-nontraditional professions are labeled *tokens*. Individuals who are in the majority are called the *dominants* (Kanter, 1977). The proportion of male and female workers in jobs leads to specific dynamics in which dominants perceive tokens through the lens of this skewed gender distribution. More specifically, tokens are subject to perceptual phenomena, with *visibility*—the disproportionate share

of awareness directed at tokens by others (Kanter, 1977)—being key.

Visibility increases performance pressure for tokens. They are forced to make extra effort to ensure that their accomplishments are acknowledged and to prove that they are competent in their jobs because supervisors and other coworkers tend to forget information about tokens' experiences and credentials much more quickly than information provided by dominants (Kanter, 1977). According to tokenism theory, supervisors and other coworkers focus more on tokens' secondary attributes (e.g., style of dress) than on their actual performance. Consequently, tokenism theory suggests that tokens are less likely to receive frequent evaluative work performance feedback from coworkers.

Empirical findings on the effects of tokens pursuing gender-nontraditional professions on the frequency of work performance evaluations are scarce, and the small amount of existing evidence is ambivalent. A study with female employees in a large federal bureaucracy concluded that token women did not significantly differ in the social support they received from male supervisors compared to women who were nontokens (South, Bonjean, Markham, & Corder, 1982). South et al. (1982) reported no significant relationship between the proportion of females in work groups and their frequency of contact with male supervisors. In a study with police officers, a greater proportion of male officers felt that they were commended by their coworkers compared to female officers, yet more female officers felt they were commended by supervisors compared to their male colleagues. Differences between female and male officers in this indicator of feedback provision were nonsignificant (Stichman et al., 2010).

Another study that built on tokenism theory showed that pursuing a gender-nontraditional profession results in a lack of workplace support for women in male-dominated professions (Taylor, 2010). However, the same study showed that men perceived relatively high levels of workplace support in female-dominated professions. According to Taylor (2010), this gender-based difference might occur because men in female-dominated professions are still likely to have male supervisors. As supervisors prefer to affiliate with in-group others (i.e., male employees), occupational-minority men are likely to have easier access to supervisors and consequently receive relatively high levels of workplace support (Taylor, 2010). In addition, occupational-minority men are typically welcomed by female coworkers and receive high levels of work support because they are seen as bringing status to female-dominated professions (Taylor, 2010).

We tested the assumption that young newcomers' pursuit of gender-nontraditional professions negatively affects the frequency of perceived work performance feedback from coworkers, which in turn negatively affects their occupational self-efficacy. In line with recent findings by Taylor (2010), we hypothesized that gender moderates this mediation effect. We formulated the following hypotheses:

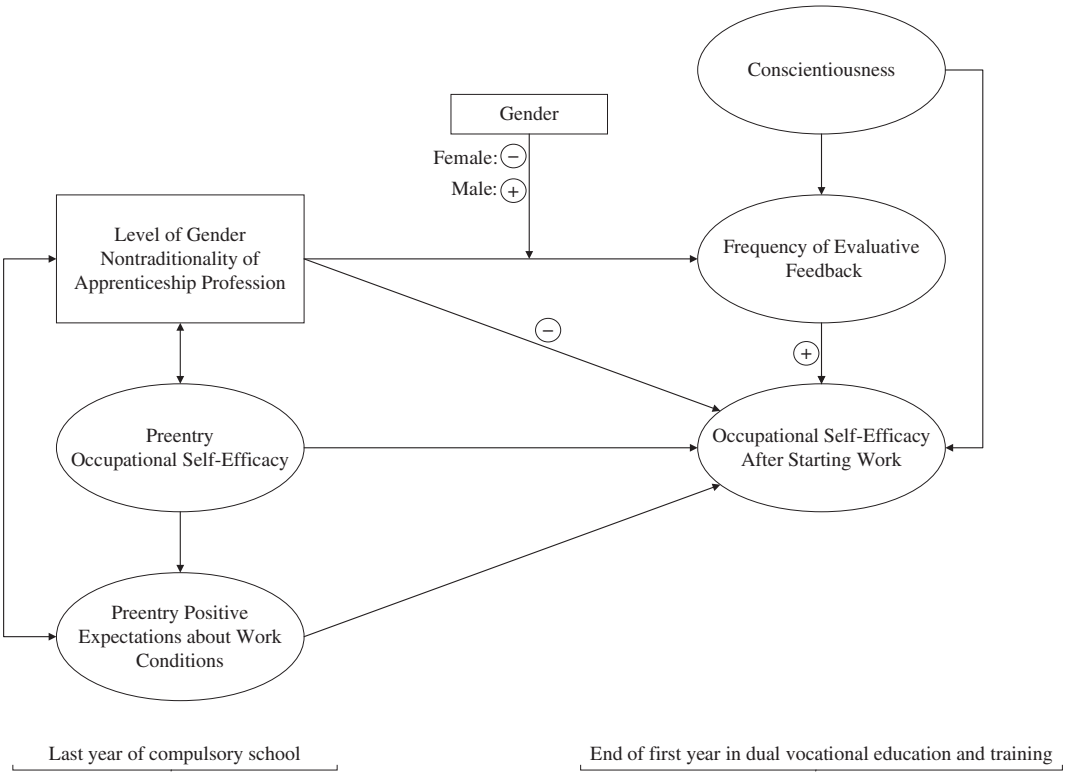


Fig. 1. Research model of the indirect effects of pursuing gender-nontraditional professions on occupational self-efficacy via frequency of evaluative feedback.
Note. Plus and minus symbols refer to hypothesized positive and negative paths, respectively.

Hypothesis 1. The level of gender nontraditionality of young newcomers' chosen professions negatively affects their perceived frequency of evaluative work performance feedback from coworkers (a). We expect this negative effect to be stronger for female than for male newcomers (b). Young newcomers' perceived frequency of evaluative work performance feedback from coworkers positively predicts their occupational self-efficacy after starting work (c).

Hypothesis 2. The level of gender nontraditionality of young newcomers' chosen professions negatively and indirectly affects occupational self-efficacy after starting work via young newcomers' perceived frequency of evaluative work performance feedback from coworkers (a). We expect this negative indirect effect to be stronger for female than for male newcomers (b).

1.3. Control variables

According to the SCCT, occupational self-efficacy does not depend on efficacy-relevant environmental influences alone (Lent & Brown, 2006). Occupational self-efficacy is also influenced by personality traits such as conscientiousness, which also has a positive effect on efficacy-relevant environmental influences. Additionally, Lent and Brown (2006) proposed that expected (and received) work conditions impact one's progress in goal pursuit and therefore affect occupational self-efficacy as well. We controlled for all of these effects as well as the longitudinal effect of occupational self-efficacy in our research model (Fig. 1).

1.3.1. Conscientiousness

In the SCCT, occupational self-efficacy relates to personality traits such as conscientiousness (Judge & Ilies, 2002; Lent & Brown, 2006). Highly conscientious workers tend to be more organized at work (Lent, 2004). Being organized at work increases the chance for performance accomplishments, which has a positive impact on occupational self-efficacy (Bandura, 1997). Accordingly, studies have shown positive effects of conscientiousness on occupational self-efficacy (Maggiori, Johnston, & Rossier, 2016; Spurk & Abele, 2011).

The SCCT suggests that conscientiousness also affects environmental influences such as perceived frequency of evaluative feedback. Because conscientious workers tend to be more organized at work, they are more likely to receive and perceive frequent (positive) evaluations from coworkers. The perception of frequent evaluative feedback positively affects occupational self-efficacy (Lent & Brown, 2008). This finding is in line with Ladd and Henry (2000), who found that conscientiousness correlated significantly positively with perceived coworker support.

In our study, we controlled for the effects of young newcomers' conscientiousness on their perceived frequency of evaluative work performance feedback from coworkers and their occupational self-efficacy after starting work.

1.3.2. Preentry occupational self-efficacy and work conditions expectations

Positively anticipated work conditions, just like occupational self-efficacy, promote and sustain efforts to achieve one's work goals, and thereby positively impact occupational self-efficacy at a later measurement time (Lent & Brown, 2008). Applying these theoretical assumptions to the context of young newcomers entering their initial work context, preentry occupational self-efficacy and preentry positive expectations about work conditions should positively affect goal progress and therefore foster occupational self-efficacy after starting work. Various studies support positive correlations between positive work or career outcome expectations and occupational self-efficacy (Domene, 2012; Gore & Leuwerke, 2000; Meng, Zhang, & Huang, 2014; Valero & Hirschi, 2016).

Regarding the stability of occupational self-efficacy over time, longitudinal studies have shown that occupational self-efficacy highly and positively correlates with occupational self-efficacy at later measurement times (Alisic & Wiese, 2020; Binnewies, Sonnentag, & Mojza, 2009; Gregersen, Vincent-Höper, & Nienhaus, 2014; Hirschi, Jaensch, & Herrmann, 2017; Spurk & Abele, 2014; Van Hootegem et al., 2021).

In the present study, we controlled for the effects of young newcomers' preentry occupational self-efficacy and preentry expectations about work conditions on their occupational self-efficacy after starting work.

2. Methods

2.1. Participants

We tested our research model using data from our multiwave research project "Effects of Tracking" (Research Project Website). In the multiwave research project, we asked adolescents from four Swiss cantons to fill out questionnaires at multiple points during compulsory school and upper secondary education. In Switzerland, compulsory education ends after ninth grade. Afterward, the Swiss education system offers various postcompulsory educational paths. About 45 % of adolescents choose an apprenticeship and move directly into dual VET (Babel & Lagana, 2016). In the research project "Effects of Tracking," two waves covered this transition from compulsory school to dual VET and thus provided insights into young newcomers' situations before and after entry into initial work contexts.

In Wave 4, completed in 2015, adolescents were in ninth grade (Time 1 [T_1]; female: $n = 1258$, male: $n = 1105$, without gender indication: $n = 13$, total: $N = 2376$). In Wave 5, completed in 2016, adolescents were at the end of their first year of upper secondary education (Time 2 [T_2]; female: $n = 490$, male: $n = 318$, without gender indication: $n = 0$, total: $N = 808$). The T_2 sample consisted of T_1 participants exclusively. The T_1–T_2 response rate was 34 % (female: 39 %, male: 29 %). These two waves cover a period of 1 year in upper secondary education. After 1 year in upper secondary education, individuals have already completed a substantial part of their education and gained some experiences in their new contexts.

To test our model, we selected those individuals who chose to enter dual VET after the ninth grade ($N = 1269$, female: $n = 553$, male: $n = 714$, without gender indication: $n = 2$; mean age in $T_2 = 16$ years). Of those individuals, 396 (female: $n = 201$, male: $n = 195$, without gender indication: $n = 0$) participated in T_1 and T_2; 873 individuals (female: $n = 352$, male: $n = 519$, without gender indication: $n = 2$) only participated in T_1.

Young newcomers worked in a variety of apprenticeship professions. Broken down into the International Standard Classification of Occupations' major groups (International Labour Organization, 2012), the percentages of young newcomers in the major groups were: managers: <1 % (female: <1 %; male: <1 %), professionals: 8 % (female: 4 %; male: 11 %), technicians and associate professionals: 17 % (female: 23 %; male: 12 %), clerical support workers: 15 % (female: 19 %; male: 11 %), service and sales workers: 25 % (female: 42 %; male: 12 %), skilled agricultural, forestry, and fishery workers: 3 % (female: 1 %; male: 5 %), craft and related trades workers: 32 % (female: 10 %; male: 48 %), plant and machine operators and assemblers: <1 % (female: <1 %; male: <1 %), elementary occupations: <1 % (female: <1 %; male: <1 %), armed forces occupations: 0 % (female: 0 %; male: 0 %).

We tested for missing response patterns between those who participated in both T_1 and T_2 and those who only participated in T_1 by conducting *t*-tests with SPSS (Version 25) for all T_1 items we used in the study. No response biases emerged. According to Graham (2009), structural equation models with a full-information maximum-likelihood missing data feature (as applied in this study) may be used in conjunction with longitudinal data as long as missing data procedures preserve variances, covariances, and means (i.e., estimates without bias). The absence of response biases indicates that the use of missing response procedures in conjunction with our longitudinal data produced reliable outcomes (Graham, 2009; Little & Rubin, 2020).

2.2. Procedure

Participants filled out online questionnaires in their classrooms during school (T_1) or at home (T_1, T_2). For participants who filled out the online questionnaire in their classrooms during school at T_1, teachers supervised the survey after receiving a detailed manual. At the end of the school year, teachers filled out a questionnaire on the students' chosen educational pathways. At T_2, participants received a personalized password to access the online survey, and the researchers phoned them if they had not completed it after 10 days. Participants received an unconditional incentive prior to T_2. All questionnaires met the ethical standards, and we obtained informed consent. Surveyed people explicitly and voluntarily agreed to participate.

2.3. Instruments

We assessed young newcomers' chosen apprenticeship professions, preentry occupational self-efficacy, and preentry expectations about work conditions at T_1. We collected information on the perceived frequency of evaluative work performance feedback, occupational self-efficacy after starting work, and conscientiousness at T_2. We assessed gender in both waves. No change emerged in the indication of gender between waves. Therefore, we combined indications to reduce missing values in the variable.

2.3.1. Gender

Study participants reported their gender by answering the item “Please indicate your gender.” Two genders were assessed, female (0) and male (1).

2.3.2. Level of gender nontraditionality of apprenticeship profession

In the questionnaire, we asked participants' teachers to name the chosen apprenticeship profession of each of their students. The teachers typically are well acquainted with the path their students will take and thus are a reliable source of valid information. If the teachers did not specify, we used the apprenticeship profession the participants indicated. We used the corresponding International Standard Classification of Occupations-08 code for unit groups (International Labour Organization, 2012) for each profession. Based on this code, we added the percentage of people of the opposite gender represented in the profession to each apprenticeship profession mentioned. For young female newcomers, we used the percentage of male employees in the profession; for young male newcomers, we used the percentage of female employees in the profession. Higher values in this variable thus indicate higher percentages of people of the opposite gender represented in the chosen apprenticeship profession, which means a higher level of gender nontraditionality of the young newcomers' apprenticeship profession. As a reference, we used the percentages of female and male employees in each profession in 2011 (i.e., at the start of the research project “Effects of Tracking”; (Research Project Website) according to Swiss population data (Federal Statistical Office, 2018). Values ranged from 0 (0 % of young newcomers of the opposite gender are represented in the chosen apprenticeship profession) to 1 (100 % of young newcomers of the opposite gender are represented in the chosen apprenticeship profession). For example, a young female newcomer has chosen “baker” as an apprenticeship profession. “Baker” belongs to the unit group *bakers, pastry–cooks and confectionary makers*. According to Swiss population data for the year 2011, 58 % of all employees in this unit group were male and 42 % were female. Accordingly, the value of the variable for the young female newcomer was 0.58.

Although some researchers integrated cutoff values into their studies' methodologies and categorized professions accordingly (Sax & Bryant, 2006), others just designated professions as being *gender traditional* or *gender nontraditional* while measuring the proportion of genders in professions on a continuous scale (Flores et al., 2006). In the present study, we adopted the latter strategy because it does not impose the use of an arbitrary cutoff. In our sample, the mean value of an apprenticeship profession's gender nontraditionality level was 0.3 ($SD = 0.3$; female: $M = 0.3$, $SD = 0.3$; male: $M = 0.2$, $SD = 0.3$).

2.3.3. Preentry occupational self-efficacy

We assessed study participants' preentry occupational self-efficacy as a latent construct labeled *Occupational Self-Efficacy* T_1 using six items from the Occupational Self-Efficacy Scale by Rigotti et al. (2008). An example item was "Whatever comes my way in my job, I will be able to handle it." The response scale ranged from 1 (*not true at all*) to 6 (*totally true*). Previous use of the scale showed Cronbach's alpha estimates between 0.85 and 0.90. In our sample, the mean value was 4.5 ($SD = 0.7$, $\alpha = 0.88$; female: $M = 4.5$, $SD = 0.7$, $\alpha = 0.87$; male: $M = 4.6$, $SD = 0.7$, $\alpha = 0.89$).

2.3.4. Preentry positive expectations about work conditions

We used seven items to assess study participants' positive preentry expectations about work conditions (e.g., "When you have a job, you will be treated fairly by your boss"). Participants responded on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The seven items were part of the Work Valences Scale by Porfeli, Lee, and Weigold (2012), who reported Cronbach's alpha estimates of 0.83. The mean value in our sample was 4.4 ($SD = 0.5$, $\alpha = 0.87$; female: $M = 4.4$, $SD = 0.4$, $\alpha = 0.84$; male: $M = 4.4$, $SD = 0.5$, $\alpha = 0.88$).

2.3.5. Frequency of evaluative feedback

Young newcomers reported the perceived frequency of evaluative feedback that coworkers provided on their work performance. They responded to four items (e.g., "How often did people in your company tell you their opinion on your learning progress during the past four weeks?") on a scale by Ashford and Black (1996). Possible responses ranged from 1 (*never*) to 5 (*almost always*). Previous use of this scale showed alpha estimates of 0.90 or above (Ashford & Black, 1996). The mean value in the present study was 3.3 ($SD = 0.9$, $\alpha = 0.85$; female: $M = 3.2$, $SD = 0.9$, $\alpha = 0.89$; male: $M = 3.3$, $SD = 0.8$, $\alpha = 0.80$).

2.3.6. Occupational self-efficacy after starting work

We assessed young newcomers' occupational self-efficacy one year after starting work as a latent construct labeled *Occupational Self-Efficacy* T_2 using the same six items that we used for assessing preentry occupational self-efficacy (Rigotti et al., 2008). We adjusted the items' wording to address the fact that the young newcomers had started working (e.g., "Whatever comes my way in my job, I am able to handle it"). In our sample, the mean value was 4.5 ($SD = 0.6$, $\alpha = 0.82$; female: $M = 4.5$, $SD = 0.6$, $\alpha = 0.79$; male: $M = 4.5$, $SD = 0.7$, $\alpha = 0.84$).

2.3.7. Conscientiousness

We measured conscientiousness using six items (e.g., "I keep my things neat and clean") on a 6-point Likert scale ranging from 1 (*not true at all*) to 6 (*totally true*). We took the items from the NEO Five-Factor Inventory by Körner et al. (2008), who reported Cronbach's alpha estimates between 0.78 and 0.82. Our sample showed a mean value of 4.8 ($SD = 0.7$, $\alpha = 0.82$; female: $M = 4.8$, $SD = 0.7$, $\alpha = 0.84$; male: $M = 4.7$, $SD = 0.7$, $\alpha = 0.80$).

2.4. Analytical procedure

We examined the research model using a structural equation model (SEM) with multigroup comparison between genders in Mplus (Version 8.1). We first tested for metric invariance between the waves of measurement for occupational self-efficacy in the total sample and among young female and male newcomers separately. In simultaneous confirmatory factor analyses (SCFA), we then tested all measurement models for configural invariance and metric invariance between genders. We determined configural invariance using various model fit indices. We used the comparative fit index, the root mean square error of approximation (RMSEA), and standardized root mean square residuals (SRMR) as indicators for the model fit. A comparative fit index (CFI) value greater than or equal to 0.95 indicates an acceptable fit. As for the RMSEA and SRMR, values lower than or equal to 0.08 and 0.10, respectively, are considered indications of an acceptable fit (Schermelleh-Engel, Moosbrugger, & Müller, 2003). When the indices' values did not meet the criteria, we modified the models parsimoniously step-by-step by adding residual correlations on the basis of modification indices and item wording. If the modification indices pointed out a need for adjustment in one of the occupational self-efficacy measurement models, we adjusted the other occupational self-efficacy measurement model correspondingly for consistency purposes. We tested for both metric invariances using the Satorra-Bentler scaled χ^2 difference test. When χ^2 difference tests produced significant results, we applied the modification which minimized the χ^2 difference value the most. We applied step-by-step modifications in accordance with the principle of parsimony.

Next, we calculated zero-order correlations with all (latent) variables we used in the analyses for young female and male newcomers separately. Except for the apprenticeship profession's gender nontraditionality level, we treated all constructs as latent variables. We calculated correlations for each pair of variables in separate models in Mplus.

In the SEM, we applied measurement models from the invariance tests, and we specified paths in accordance with the proposed research model. Because frequency of evaluative feedback is part of the contextual influences, we specified it in accordance with the SCCT to be uncorrelated with preentry occupational self-efficacy and preentry positive expectations about work conditions. We also specified conscientiousness to be uncorrelated with the level of gender nontraditionality of the apprenticeship profession, preentry occupational self-efficacy, and preentry positive expectations about work conditions. In line with the SCCT, we specified a path from young newcomers' preentry occupational self-efficacy to their preentry expectations about work conditions. Between all other control variables, we specified correlations. We used the maximum likelihood estimation with robust standard errors, which computes missing parameters' most likely values given the data available for the respective cases. This method was appropriate after the examination of skewness and kurtosis (Boomsma, 2000).

We used the same index criteria to determine model fit for the SEM as we did for the configural invariance test. When the indices' values did not meet the criteria, we parsimoniously modified the models step-by-step and changed structural model parameters on the basis of modification indices. As for both metric invariance tests, we tested paths for differences between young female and male newcomers using the Satorra-Bentler scaled χ^2 difference test.

We reported all correlation and regression coefficients with one-tailed *p*-values and mapped SEM effect sizes (standardized coefficients β) according to Paterson, Harms, Steel, and Credé's (2016) empirical benchmarks for effect size magnitudes in the organizational behavior (OB) and human resources (HR) literatures. Paterson et al. (2016) analyzed 30 years of meta-analyses in the HR and OR literatures and reported a distribution of uncorrected effect sizes that we have used as a reference point. Although benchmarks for effect size magnitudes help to put results into perspective, caution is advised since effect size magnitudes depend on the time of variable measurement and the number of control variables included in the research model, among other factors (Adachi & Willoughby, 2015).

3. Results

3.1. Test of invariances

To test longitudinal metric invariance, we compared a constrained model in which the factor loadings were restricted to be equal between waves of measurement with an unconstrained model in which factor loadings were freely estimated. Corresponding items were specified to be correlated over time. For the total sample and for young female newcomers, the constrained and unconstrained models did not differ significantly, $\Delta\chi^2(5, N = 1211) = 9.29$, $p = .098$ and $\Delta\chi^2(5, n = 534) = 9.76$, $p = .082$, respectively. For young male newcomers, the constrained and unconstrained models differed significantly, $\Delta\chi^2(5, n = 675) = 14.56$, $p = .012$. Excluding one item ("When I am confronted with a problem in my job, I will find several solutions/I can usually find several solutions") minimized the difference between the models the most. Compared to the other items, the meaning of the dropped item differed the most due to changes in the wording between the two waves. Without the dropped item, all longitudinal metric invariance tests resulted in nonsignificant model differences: total, $\Delta\chi^2(4, N = 1211) = 7.66$, $p = .105$; young female newcomers, $\Delta\chi^2(4, n = 534) = 6.29$, $p = .179$; young male newcomers, $\Delta\chi^2(4, n = 675) = 4.90$, $p = .298$, which indicates metric invariance for the latent construct of occupational self-efficacy between waves of measurement. In all subsequent analyses, we calculated the measurement models for occupational self-efficacy without the excluded item and with corresponding items specified to be correlated over time.

Next, we tested the measurement models for configural invariance using SCFA. Corresponding factor loadings for occupational self-efficacy between waves of measurements were restricted to be equal. The baseline model did not fit the data, $\chi^2(313, N = 1247) = 718.47$, $p < .001$, CFI = 0.94, RMSEA = 0.03, SRMR = 0.06. In accordance with the modification indices, we specified a correlation between residuals of two items measuring preentry positive expectations about work conditions ("When you have a job, you will get really interested in your work" and "When you have a job, you will have a really good job"), between residuals of two items measuring conscientiousness ("I keep my things neat and clean" and "I will probably never be able to bring order into my life," recoded), and between residuals of two items measuring occupational self-efficacy ("I will meet/I meet the goals that I set for myself in my job" and "I will feel prepared/I feel prepared for most of the demands in my job") to address similar item wording. The model with the residual correlations received acceptable fit, $\chi^2(309, N = 1247) = 529.94$, $p < .001$, CFI = 0.97, RMSEA = 0.03, SRMR = 0.05, which indicates configural invariance. All standardized factor loadings exceeded the threshold value of 0.4 (Brown, 2006).

Using this configural invariant model, we tested for metric invariance between young female and male newcomers. We compared a constrained model in which the factor loadings and the specified residual correlations were restricted to be equal between genders with an unconstrained model in which factor loadings and the specified residual correlations were freely estimated. The constrained and the unconstrained model did not differ significantly, $\Delta\chi^2(28, n_{female} = 548, n_{male} = 697) = 37.11$, $p = .208$, which indicates metric invariance for all concepts between young female and male newcomers.

Table 1
Zero-order correlations among study variables, differentiated by gender.

	1.	2.	3.	4.	5.	6.
1. Level of gender nontraditionality of apprenticeship profession T_1	1	−0.10*	−0.07	0.10	0.08	−0.02
2. Occupational self-efficacy T_1	−0.03	1	0.37***	0.00	0.27**	0.26**
3. Preentry positive expectations about work conditions T_1	−0.05	0.45***	1	0.15	0.25**	0.45***
4. Frequency of evaluative feedback T_2	−0.22**	−0.09	0.11	1	0.32**	0.27**
5. Occupational self-efficacy T_2	−0.21*	0.44***	0.31**	0.42***	1	0.60***
6. Conscientiousness T_2	−0.05	0.31**	0.26**	0.19*	0.63***	1

Note. T_1 = Time 1 (ninth grade, i.e., last year of compulsory school), T_2 = Time 2 (end of first year in dual VET); bottom left: young female newcomers (n = 166–549), top right: young male newcomers (n = 160–711); all variables are metrically scaled.
* $p < .05$ (one-tailed).
** $p < .01$ (one-tailed).
*** $p < .001$ (one-tailed).

3.2. Zero-order correlations

As a preliminary analysis, we calculated zero-order correlations among all variables. The measurement models that resulted from the invariance tests were applied. Table 1 shows the correlations differentiated by gender. Although the level of gender non-traditionality of the apprenticeship profession significantly correlated with the frequency of evaluative feedback and occupational self-efficacy after starting work (i.e., *Occupational Self-Efficacy T_2*) for young female newcomers, those correlations were not significant for young male newcomers.

3.3. Testing the research model with a SEM

To test the hypotheses, we applied a SEM with multigroup comparison between genders. A baseline model with loadings restricted to be equal between groups and with structural parameters freely estimated between groups was fitted to the data, $\chi^2(717, n_{female} = 553, n_{male} = 714) = 1142.50$, $p < .001$, CFI = 0.95, RMSEA = 0.03, SRMR = 0.10.

A comparison between the baseline model and a fully constrained model with both loadings and structural parameters restricted to be equal between groups revealed nonsignificant differences in the structural parameters, $\Delta\chi^2(10, n_{female} = 553, n_{male} = 714) = 10.94$, $p = .363$. In consequence, Fig. 2 shows the model results for the SEM with and without multigroup comparison between genders, but we only report results from the SEM without multigroup comparison between genders. The SEM without multigroup comparison between genders was fitted to the data, $\chi^2(332, N = 1269) = 591.01$, $p < .001$, CFI = 0.96, RMSEA = 0.03, SRMR = 0.09.

Hypothesis 1a stated that the level of gender nontraditionality of young newcomers' chosen profession negatively affects the perceived frequency of work performance feedback from coworkers. Fig. 2 shows that the level of gender nontraditionality of the apprenticeship profession had a significant negative effect on the frequency of evaluative feedback ($\beta = -0.13$ [95 % CI: −0.26, 0.00], $p = .026$; Hypothesis 1a is supported). This effect size is greater in magnitude than >25 % of the effect sizes reported in meta-analyses within the HR and OB literatures (Paterson et al., 2016). The negative effect was not significantly stronger for young female newcomers compared to males (Hypothesis 1b is rejected). Hypothesis 1c stated that young newcomers' perception of the frequency of work performance feedback from coworkers positively predicts their occupational self-efficacy after starting work. As shown in Fig. 2, the frequency of evaluative feedback had a significant positive cross-sectional effect on occupational self-efficacy after starting work (i.e., *Occupational Self-Efficacy T_2*; $\beta = 0.25$ [95 % CI: 0.14, 0.36], $p < .001$; Hypothesis 1c is supported). An effect size of 0.25 is greater in magnitude than >60 % of the effect sizes reported in meta-analyses within the HR and OB literatures (Paterson et al., 2016).

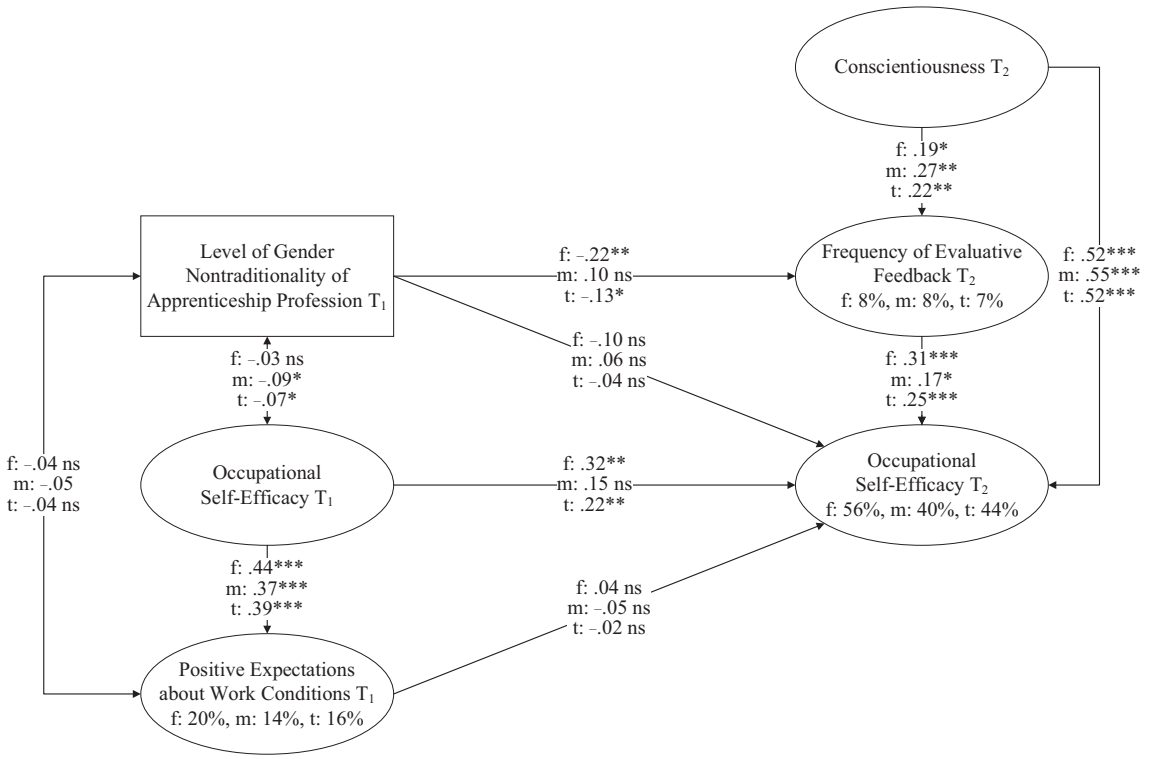


Fig. 2. Indirect effects of pursuing gender-nontraditional professions on occupational self-efficacy via frequency of evaluative feedback.
Note. Standardized coefficients; f = female, m = male, t = total; T1 = Time 1 (ninth grade, i.e., last year of compulsory school), T2 = Time 2 (end of first year in dual VET)*p < .05 (one-tailed), **p < .01 (one-tailed), ***p < .001 (one-tailed); ns = nonsignificant.

Hypothesis 2a stated that the level of gender nontraditionality of young newcomers' chosen profession has a negative indirect effect on their occupational self-efficacy after starting work via perceived frequency of evaluative feedback on work performance from coworkers. A mediation analysis showed that the level of gender nontraditionality of the apprenticeship profession had a significant negative indirect effect on occupational self-efficacy after starting work via the frequency of evaluative feedback ($\beta_{Ind} = -0.03$ [95 % CI: −0.07, 0.01], $p = .044$; Hypothesis 2a is supported). About 5 % of the effect sizes reported in the meta-analyses within the HR and OB literatures between the mid-80s and 2016 were similar or smaller in magnitude (Paterson et al., 2016). The direct effect of the level of gender nontraditionality of the apprenticeship profession on occupational self-efficacy after starting work was not significant ($\beta = -0.04$ [95 % CI: −0.15, 0.07], $p = .235$). Therefore, the frequency of evaluative feedback fully mediated the effect of the level of gender nontraditionality of the apprenticeship profession on occupational self-efficacy after starting work. The negative indirect effect was not significantly stronger for young female newcomers compared to males (Hypothesis 2b is rejected).

Preentry occupational self-efficacy (*Occupational Self-Efficacy* T_1) had a significant positive effect on occupational self-efficacy after starting work ($\beta = 0.22$ [95 % CI: 0.05, 0.38], $p = .005$). An effect size of 0.22 is greater in magnitude than about 55 % of the effect sizes reported in meta-analyses within the HR and OB literatures (Paterson et al., 2016). Preentry positive expectations about work conditions did not significantly predict occupational self-efficacy after starting work ($\beta = -0.02$ [95 % CI: −0.17, 0.13], $p = .405$). Conscientiousness had a significant positive cross-sectional effect on frequency of evaluative feedback ($\beta = 0.22$ [95 % CI: 0.08, 0.36], $p = .001$) and on occupational self-efficacy after starting work ($\beta = 0.52$ [95 % CI: 0.39, 0.65], $p < .001$). Effect sizes of 0.22 and 0.52 are greater in magnitude than 55 % and >95 % of the effect sizes reported in meta-analyses within the HR and OB literatures, respectively (Paterson et al., 2016).

The explained variance in frequency of evaluative feedback and occupational self-efficacy after starting work was 7 % and 44 %, respectively.

4. Discussion

The main purpose of the present study was to examine the indirect effects of young newcomers' pursuit of gender-nontraditional professions on occupational self-efficacy after starting work via perceived frequency of evaluative feedback on work performance from coworkers. Based on the SCCT and tokenism theory, we analyzed the longitudinal data of young newcomers on the transition from compulsory school to work using a SEM with multigroup comparison by gender. Young newcomers in a gender-nontraditional apprenticeship profession perceived low frequency of work performance evaluations from coworkers, which led to low ratings of occupational self-efficacy after 1 year of work experience. Young newcomers' preentry occupational self-efficacy, preentry expectations about work conditions, and conscientiousness were controlled for in the research model. Except for preentry expectations about work conditions, all of these control variables predicted occupational self-efficacy in line with the SCCT. The absence of the effect of positive preentry expectations about work conditions is in line with recent findings which point to the minor predictive role of outcome expectations such as expected work conditions for career development outcomes (Lent et al., 2018). Although the indirect effect of the level of gender-nontraditionality of young newcomers' apprenticeship profession on their occupational self-efficacy via frequency of evaluative feedback was relatively small in effect size magnitude (Paterson et al., 2016), the findings contribute to the research on work socialization (Kammeyer-Mueller & Wanberg, 2003) and support one of the basic assumptions of tokenism theory (i.e., that individuals in gender-nontraditional professions have the perception of receiving less support from coworkers due to their token status; Kanter, 1977). From a theoretical standpoint, the present study is an important contribution to explaining the mechanisms behind the relationship between the pursuit of a gender-nontraditional profession and the development of occupational self-efficacy. These findings help to explain the evidence of previous research that individuals in gender-nontraditional professions quit their job after a short time and choose professions that are more gender traditional (Simpson, 2005; Williams, 1992).

Contrary to our hypotheses, young female and male newcomers did not differ significantly in the effect of pursuing gender-nontraditional professions on the perceived frequency of work performance evaluations from coworkers. In consequence, there were no gender differences in the indirect effect of pursuing gender-nontraditional professions on occupational self-efficacy after starting work via frequency of evaluative feedback. On the one hand, this finding runs counter to Taylor's (2010) study, according to which only female employees in male-dominated professions are disadvantaged in social support. Reasons for the lack of moderating gender effects could be that men in female-dominated professions did not have mainly male supervisors who could facilitate access to feedback. Another possibility is that women in female-dominated professions did not see minority men bring more status to the profession and therefore also did not provide more feedback. Because the number of women in higher positions (e.g., supervisors) is increasing, the first explanation is plausible. However, the second explanation may contribute more to the lack of gender effects because its premise (i.e., token men bring more status to female-dominated professions) is rather old-fashioned.

On the other hand, the lack of gender differences in the research model supports Kanter's (1977) tokenism theory, which claims negative consequences for both female and male employees for pursuing gender-nontraditional professions, even though the theory builds exclusively on field research with token saleswomen in a large industrial corporation. Our results tend to support the premise that individuals in gender-nontraditional professions in general are disadvantaged in social support and not just female employees in male-dominated professions. The present study thus counters one of the most expressed criticisms of Kanter for proposing a gender-neutral theory (Zimmer, 1988). Nonetheless, we believe it is important to point out that our hypotheses on gender differences regarding negative consequences for pursuing gender-nontraditional professions were based on scarce empirical evidence. Further research is needed to shed more light on gender differences regarding the consequences of pursuing a gender-nontraditional profession.

4.1. Limitations

This research has several limitations. First, we did not include some aspects of the theoretical frameworks in our research model. From tokenism theory, we did not test whether supervisors and other coworkers focus more on tokens' secondary attributes (e.g., style of dress) than on their actual performances, and thus, give less feedback on tokens' work performance. We suppose that this visibility aspect is preferably captured with observational data that we did not collect. From the SCCT, we did not include goal progress in the research model as a mediator of control variables' effects on occupational self-efficacy after starting work (Lent & Brown, 2008). Future researchers may use our model as an analytical foundation to examine processes at a microlevel, including supervisors and others' focus on tokens' secondary attributes and young newcomers' goal progress.

A second limitation concerns the operationalization of variables. Regarding gender-nontraditional professions, we did not measure the gender proportions at young newcomers' workplaces but applied a statistical measurement of gender proportions on an occupational level. We argue that most people who are occupational minorities are also workplace tokens (Taylor, 2010). Further, as we used International Standard Classification of Occupations-08 coded professions in this study (International Labour Organization, 2012), young newcomers' pursuit of gender-nontraditional professions did not represent gender proportions in a profession but in a *professional field*. For Switzerland, more accurate census data on gender proportions in professions were not available. Another limitation regarding the operationalization of study variables is the binary of gender's operationalization. Measuring gender on a continuum is considered a more contemporary approach. However, we had to treat gender as a two-category variable due to methodological limitations (e.g., sample size).

A third limitation is that most variables were self-reported. The perceived frequency of evaluative feedback on work performance from coworkers is central in examining young newcomers' occupational self-efficacy. However, including feedback behaviors supervisors and other coworkers report might shed new light on the analyzed mechanism. If young newcomers in gender-nontraditional professions and coworkers (supervisors or peers) report that they less frequently give evaluative feedback on work performance to employees who are in a minority by gender, results become more substantial (Bear, Cushenbery, London, & Sherman, 2017). Future researchers might consider using a multiperspective study design.

A fourth limitation refers to causality. Even though we applied a multiwave design and used a research model with control variables, caution is required when interpreting the unidirectional path from frequency of evaluative feedback to occupational self-efficacy after starting work as causality. Both are same-wave measurements. We specified the unidirectional path between those constructs based solely on theoretical assumptions.

4.2. Implications

Despite these limitations, our results have several implications. To answer our research question, we applied the SCCT (Lent & Brown, 2006, 2008) and Kanter's (1977) tokenism theory. To the best of our knowledge, this was the first study to combine the two theories, which has proven to be successful because the two theories complemented each other well and most hypotheses were confirmed. As a result, the present study contributes to specifying contextual influences in the SCCT for the case of young newcomers pursuing a gender-nontraditional profession. By combining the framework with the tokenism theory, we offer information on which persons from the social context (e.g., supervisors and other coworkers) affect the work experience (occupational self-efficacy) of whom (young newcomers in gender-nontraditional professions) and by what means (via frequently providing evaluative feedback on work performance). We extended tokenism theory and included occupational self-efficacy as an aspect that the lack of social support for individuals in gender-nontraditional professions negatively affect, as the theory describes.

On a practical level, one of the key implications concerns supervisors and other coworkers and refers to their feedback behavior. This study underlines the crucial role of frequently providing evaluative feedback on work performance for young newcomers (Kammeyer-Mueller & Wanberg, 2003). From the young newcomers' perspective, results suggested that coworkers tend to give less-frequent evaluative feedback concerning the work performance to those who work in a gender-nontraditional profession. This is a challenge for those young newcomers, because (a) they are at the beginning of their careers and thus depend on frequent evaluative feedback, and (b) perceiving less evaluative feedback negatively effects their occupational self-efficacy. Hence, in these professions, supervisors and others in the company are well advised to pay attention to their feedback behavior, especially toward those who are in a gender minority (tokens). Tokenism theory suggests that tokens receive less frequent work performance feedback because supervisors and others in the company tend to focus on aspects unrelated to tokens' work performance. Thus, supervisors and others in the company might reflect on how often they tell tokens what they do well and what they could improve on their work performances. They are advised to consider how frequently they provide feedback on tokens' learning progress and how often they praise good work.

To achieve implementation, a sensitization program on feedback behavior as part of supervisors' training program may be a promising approach. In supervisors' training program, they are informed about the lack of frequent evaluative feedback on work performance for young newcomers in gender-nontraditional professions and ideally develop a sense of responsibility to address this problem. However, we see some hurdles for this form of implementation that limit practicability. For instance, in Switzerland and other countries with dual VET systems, the supervisors' training programs are packed with information and the time resources for accentuating feedback behavior are limited. Prior to implementation, consensus on the importance and role of feedback behavior in supervisors' training program need to be established, and supervisor training programs need to be further professionalized. Other, easier ways to advise supervisors and others in the company on how and when to give feedback may be via researchers' public relations activities, such as lectures and writing articles.

A second important implication regards the longitudinal effect of young newcomers' preentry occupational self-efficacy on their

occupational self-efficacy after starting work. The present study has forwarded the state of results that the self-efficacy beliefs individuals hold even before entering a company affect their self-efficacy after starting work. This result that applied to all young newcomers in the present study underlines the importance of job preparation and contributes to the research on realistic job preview. Therefore, promoting young newcomers' occupational self-efficacy could help buffer negative consequences related to pursuing a gender-nontraditional profession. In addition to giving evaluative feedback, various strategies can foster young newcomers' self-efficacy. According to Lent and Brown (2008), role models can improve self-efficacy, especially when they are similar along salient dimensions (e.g., gender, nationality, age). Role models can provide information about successful goal attainment, environmental change, and coping strategies that young newcomers can adopt (Lent & Brown, 2008). In the context of the school-to-work transition where adolescents only sporadically encounter occupational role models prior to entering a company, adolescents' parents represent their occupational role models in 39 % of the cases (Neuenschwander, Hofmann, Jüttler, & Schumann, 2018). Additionally, adolescents may find role models in gender-nontraditional professions before entering a company through trial apprenticeships (Hofmann & Neuenschwander, 2021). The level of trial apprenticeship professions' gender nontraditionality highly correlates with the level of apprentice professions' gender nontraditionality (Hofmann & Neuenschwander, 2021). Another option for fostering self-efficacy is to help create a sense of achievement (Lent & Brown, 2008). Parents and teachers can strengthen young newcomers' preentry occupational self-efficacy through arranging challenging learning situations that also have a high probability of success. For this approach to be successful, it is important that young newcomers internalize their performance success.

5. Conclusions

After failing to explain women's mobility between male-dominated and female-dominated professions, Chang (2003) evidenced the need for other social psychological predictors, such as the satisfaction of social interaction and interpersonal relationships in the workplace, to determine women's gender-typed occupational mobility. Through including evaluative feedback on work performance from coworkers, the present study took a closer look at interpersonal relationships in the workplace and found an explanatory mechanism for young newcomers' negative consequences after starting work in gender-nontraditional professions. We analyzed the explanatory mechanism for a 1-year time interval between T_1 and T_2 when adolescents moved from compulsory school to initial work contexts. At the end of first year in dual VET, adolescents were young newcomers who had gained some work experience but were still novices in the workforce. As research has shown that young newcomers change their feedback-seeking behavior and their relationship with their supervisors substantially over their first 6 months on the job (decrease in inquiring for feedback; Callister, Kramer, & Turban, 1999), future researchers may test if the explanatory mechanism holds for other time intervals (e.g., 6 months on the job, 2 years on the job) as well.

Although future researchers must establish the current results' generalizability, it became apparent that young newcomers pursuing a gender-nontraditional profession faced challenging consequences, which call for sensibilization in practice and additional research in future studies.

CRediT authorship contribution statement

Jan Hofmann: Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Lukas Ramseier:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Markus P. Neuenschwander:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Project administration, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Adachi, P., & Willoughby, T. (2015). Interpreting effect sizes when controlling for stability effects in longitudinal autoregressive models: Implications for psychological science. *European Journal of Developmental Psychology, 12*(1), 116–128. https://doi.org/10.1080/17405629.2014.963549

Alisic, A., & Wiese, B. S. (2020). Keeping an insecure career under control: The longitudinal interplay of career insecurity, self-management, and self-efficacy. *Journal of Vocational Behavior, 120*, 1–22. https://doi.org/10.1016/j.jvb.2020.103431

Ashford, S., & Black, J. S. (1996). Proactivity during organizational entry: The role of desire for control. *Journal of Applied Psychology, 81*(2), 199–214. https://doi.org/10.1037/0021-9010.81.2.199

Babel, J., & Lagana, F. (2016). Der Übergang am Ende der obligatorischen Schule [Transition at the end of compulsory school] (report no. 1665–1600). Federal Statistical Office. https://www.bfs.admin.ch/bfsstatic/dam/assets/1520326/master.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Henry Holt & Co.

Bear, J. B., Cushenbery, L., London, M., & Sherman, G. D. (2017). Performance feedback, power retention, and the gender gap in leadership. *The Leadership Quarterly, 28*(6), 721–740. https://doi.org/10.1016/j.leaqua.2017.02.003

Binnewies, C., Sonnentag, S., & Mojza, E. J. (2009). Feeling recovered and thinking about the good sides of one's work. *Journal of Occupational Health Psychology, 14*(3), 243–256. https://doi.org/10.1037/a0014933

Boomsma, A. (2000). Reporting analyses of covariance structures. *Structural Equation Modeling: A Multidisciplinary Journal, 7*(3), 461–483. https://doi.org/10.1207/S15328007SEM0703_6

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. The Guilford Press.

Callister, R. R., Kramer, M. W., & Turban, D. B. (1999). Feedback seeking following career transitions. *Academy of Management Journal, 42*(4), 429–438. https://doi.org/10.2307/257013

Chang, T. F. H. (2003). A social psychological model of women's gender-typed occupational mobility. *The Career Development International, 8*(1), 27–39. https://doi.org/10.1108/13620430310459496

Clauss, E., Hoppe, A., Schachler, V., & O'Shea, D. (2021). Occupational self-efficacy and work engagement as moderators in the stressor-detachment model. *Work & Stress, 35*(1), 1–19. https://doi.org/10.1080/02678373.2020.1743790

Doerwald, F., Zacher, H., Van Yperen, N. W., & Scheibe, S. (2021). Generativity at work: A meta-analysis. *Journal of Vocational Behavior, 125*, 1–18. https://doi.org/10.1016/j.jvb.2020.103521

Domene, J. F. (2012). Calling and career outcome expectations: The mediating role of self-efficacy. *Journal of Career Assessment, 20*(3), 281–292. https://doi.org/10.1177/1069072711434413

Federal Statistical Office. (2018). Erwerbstätige von 15 und mehr Jahren nach ausgeübtem Beruf (Nomenklatur: ISCO-08), Geschlecht und Nationalität [Employed persons aged 15 and older by occupation (nomenclature: ISCO-08), gender and nationality]. Federal Statistical Office. https://www.bfs.admin.ch/bfs/en/home/statistics/catalogues-databases/tables.assetdetail.7226691.html.

Flores, L. Y., Navarro, R. L., Smith, J. L., & Ploszaj, A. M. (2006). Testing a model of nontraditional career choice goals with mexican american adolescent men. *Journal of Career Assessment, 14*(2), 214–234. https://doi.org/10.1177/1069072705283763

Gore, P. A., Jr., & Leuwerke, W. C. (2000). Predicting occupational considerations: A comparison of self-efficacy beliefs, outcome expectations and person-environment congruence. *Journal of Career Assessment, 8*(3), 237–250. https://doi.org/10.1177/106907270000800303

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549–576. https://doi.org/10.1146/annurev.psych.58.110405.085530

Gregersen, S., Vincent-Höper, S., & Nienhaus, A. (2014). The relation between leadership and perceived well-being: What role does occupational self-efficacy play? *Journal of Leadership Studies, 8*(2), 6–18. https://doi.org/10.1002/jls.21318

Hirschi, A., Jaensch, V. K., & Herrmann, A. (2017). Protean career orientation, vocational identity, and self-efficacy: An empirical clarification of their relationship. *European Journal of Work and Organizational Psychology, 26*(2), 208–220. https://doi.org/10.1080/1359432X.2016.1242481

Hofmann, J., & Neuenschwander, M. P. (2021). *Die Geschlechtstypik von Praktikaberufen und die prädiktive Rolle der Berufswiinsche, Fähigkeitsselbstkonzepte, Vorbilder und des Schulniveaus* [The gender-type of trial apprenticeships and the predictive role of desired professions, aptitude self-concepts, role models and school tracks]. *Zeitschrift für Berufs- und Wirtschaftspädagogik [Journal for Vocational and Business Education], 117*(1), 70–100. https://doi.org/10.25162/zbw-2021-0004

International Labour Organization. (2012). International standard classification of occupations. In *Structure, group definitions and correspondence tables*. International Labour Office.

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology, 87*(4), 797–807. https://doi.org/10.1037/0021-9010.87.4.797

Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology, 88*(5), 779–794. https://doi.org/10.1037/0021-9010.88.5.779

Kanter, R. M. (1977). Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology, 82*(5), 965–990. https://doi.org/10.1086/226425

Körner, A., Geyer, M., Roth, M., Drapeau, M., Schmutzer, G., Albani, C., Schumann, S., & Brähler, E. (2008). Persönlichkeitsdiagnostik mit dem NEO-Fünf-Faktoren-Inventar: Die 30-Item-Kurzversion (NEO-FFI-30) [Personality assessment with the NEO-Five-Factor Inventory: The 30-Item-Short-Version (NEO-FFI-30)]. *Psychotherapie, Psychosomatik, Medizinische Psychologie [Psychotherapy, Psychosomatics, Medical Psychology], 58*(6), 238–245. https://doi.org/10.1055/s-2007-986199

Ladd, D., & Henry, R. A. (2000). Helping coworkers and helping the organization: The role of support perceptions, exchange ideology, and conscientiousness. *Journal of Applied Social Psychology, 30*(10), 2028–2049. https://doi.org/10.1111/j.1559-1816.2000.tb02422.x

Lent, R. W. (2004). Toward a unifying theoretical and practical perspective on well-being and psychosocial adjustment. *Journal of Counseling Psychology, 51*(4), 482–509. https://doi.org/10.1037/0022-0167.51.4.482

Lent, R. W., & Brown, S. D. (2006). Integrating person and situation perspectives on work satisfaction: A social-cognitive view. *Journal of Vocational Behavior, 69*(2), 236–247. https://doi.org/10.1016/j.jvb.2006.02.006

Lent, R. W., & Brown, S. D. (2008). Social cognitive career theory and subjective well-being in the context of work. *Journal of Career Assessment, 16*(1), 6–21. https://doi.org/10.1177/1069072707305769

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 79–122. https://doi.org/10.1006/jvbe.1994.1027

Lent, R. W., Sheu, H.-B., Miller, M. J., Cusick, M. E., Penn, L. T., & Truong, N. N. (2018). Predictors of science, technology, engineering, and mathematics choice options: A meta-analytic path analysis of the social–cognitive choice model by gender and race/ethnicity. *Journal of Counseling Psychology, 65*(1), 17–35. https://doi.org/10.1037/cou0000243

Little, R. J. A., & Rubin, D. B. (2020). *Statistical analysis with missing data* (3rd ed.). Wiley.

Maggiori, C., Johnston, C. S., & Rossier, J. (2016). Contribution of personality, job strain, and occupational self-efficacy to job satisfaction in different occupational contexts. *Journal of Career Development, 43*(3), 244–259. https://doi.org/10.1177/0894845315597474

Meng, F., Zhang, J., & Huang, Z. (2014). Perceived organizational health as a mediator for job expectations: A multidimensional integrated model. *Public Personnel Management, 43*(3), 355–370. https://doi.org/10.1177/0091026014535181

Neuenschwander, M. P., Hofmann, J., Jüttler, A., & Schumann, S. (2018). Professional desires and career decisions: Effects of professional interests, role models, and internship in lower secondary school. *International Journal for Research in Vocational Education and Training, 5*(3), 226–243. https://doi.org/10.13152/IJRVET.5.3.5

Neuenschwander, M. P., Schumann, S., Hirschi, A., Nagengast, B., Hofmann, J., & Jüttler, A.. *WiSel II.* Research Project Website. http://www.wisel-studie.ch/.

Paterson, T. A., Harms, P. D., Steel, P., & Credé, M. (2016). An assessment of the magnitude of effect sizes: Evidence from 30 years of meta-analysis in management. *Journal of Leadership & Organizational Studies, 23*(1), 66–81. https://doi.org/10.1177/1548051815614321

Porfeli, E. J., Lee, B., & Weigold, I. K. (2012). A multidimensional measure of work valences. *Journal of Vocational Behavior, 80*(2), 340–350. https://doi.org/10.1016/j.jvb.2011.09.004

Rigotti, T., Schyns, B., & Mohr, G. (2008). A short version of the occupational self-efficacy scale: Structural and construct validity across five countries. *Journal of Career Assessment, 16*(2), 238–255. https://doi.org/10.1177/1069072707305763

Rottermann, B. (2017). *Sozialisation von Jugendlichen in geschlechtsuntypischen Berufslehren [Adolescents' socialization in gender-atypical apprenticeships]*. Budrich UniPress Ltd.

Rudolph, C. W., Lavigne, K. N., & Zacher, H. (2017). Career adaptability: A meta-analysis of relationships with measures of adaptivity, adapting responses, and adaptation results. *Journal of Vocational Behavior, 98*, 17–34. https://doi.org/10.1016/j.jvb.2016.09.002

Sax, L. J., & Bryant, A. N. (2006). The impact of college on sex-atypical career choices of men and women. *Journal of Vocational Behavior, 68*(1), 52–63. https://doi.org/10.1016/j.jvb.2005.01.004

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online, 8*(2), 23–74. https://scinapse.io/papers/1627191216.

Simpson, R. (2005). Men in non-traditional occupations: Career entry, career orientation and experience of role strain. *Gender, Work and Organization, 12*(4), 364–380. https://doi.org/10.1111/j.1468-0432.2005.00278.x

South, S. J., Bonjean, C. M., Markham, W. T., & Corder, J. (1982). Social structure and intergroup interaction: Men and women of the federal bureaucracy. *American Sociological Review, 47*(5), 587–599. https://doi.org/10.2307/2095160

Spurk, D., & Abele, A. E. (2011). Who earns more and why? A multiple mediation model from personality to salary. *Journal of Business and Psychology, 26*(1), 87–103. https://doi.org/10.1007/s10869-010-9184-3

Spurk, D., & Abele, A. E. (2014). Synchronous and time-lagged effects between occupational self-efficacy and objective and subjective career success: Findings from a four-wave and 9-year longitudinal study. *Journal of Vocational Behavior, 84*(2), 119–132. https://doi.org/10.1016/j.jvb.2013.12.002

Steiner, R. S., Hirschi, A., & Wang, M. (2019). Predictors of a protean career orientation and vocational training enrollment in the post-school transition. *Journal of Vocational Behavior, 112*, 216–228. https://doi.org/10.1016/j.jvb.2019.03.002

Stichman, A. J., Hassell, K. D., & Archbold, C. A. (2010). Strength in numbers? A test of Kanter's theory of tokenism. *Journal of Criminal Justice, 38*(4), 633–639. https://doi.org/10.1016/j.jcrimjus.2010.04.036

Takeuchi, N., Takeuchi, T., & Yuhee, J. (2021). Making a successful transition to work: A fresh look at organizational support for young newcomers from an individual-driven career adjustment perspective. *Journal of Vocational Behavior, 128*, 1–22. https://doi.org/10.1016/j.jvb.2021.103587

Taylor, C. J. (2010). Occupational sex composition and the gendered availability of workplace support. *Gender & Society, 24*(2), 189–212. https://doi.org/10.1177/0891243209359912

Valero, D., & Hirschi, A. (2016). Latent profiles of work motivation in adolescents in relation to work expectations, goal engagement, and changes in work experiences. *Journal of Vocational Behavior, 93*, 67–80. https://doi.org/10.1016/j.jvb.2016.01.003

Valero, D., & Hirschi, A. (2019). To hangover or not: Trajectories of job satisfaction in adolescent workforce newcomers. *European Journal of Work and Organizational Psychology, 28*(2), 150–163. https://doi.org/10.1080/1359432X.2018.1564278

Van Hootegem, A., Sverke, M., & De Witte, H. (2021). Does occupational self-efficacy mediate the relationships between job insecurity and work-related learning? A latent growth modelling approach. *Work & Stress*. https://doi.org/10.1080/02678373.2021.1891585. Advance online publication.

Williams, C. L. (1992). The glass escalator: Hidden advantages for men in the “female” professions. *Social Problems, 39*(3), 253–267. https://doi.org/10.1525/sp.1992.39.3.03x0034h

Zimmer, L. (1988). Tokenism and women in the workplace: The limits of gender-neutral theory. *Social Problems, 35*(1), 64–77. https://doi.org/10.2307/800667