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Personality maturation through sense of mastery? Longitudinal evidence from two education-to-work transition studies

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Abstract

Objective: Why personality changes in young adulthood remains a critical theoretical and empirical question. We studied personality change during the education-to-work transition, including mean-level personality change and its specific timing, the degree of individual variability in change, and the link between sense of mastery and personality change.

Methods: We used two intensive longitudinal studies. Study 1 included 5 waves of data across 2 years during the university-to-work transition ($N = 309$; mean-aged 25). Study 2 included 3 waves of data across 8 months during an internship-heavy teacher education program ($N = 317$; mean-aged 22). We measured personality traits and work-related mastery with questionnaires and personality states and general mastery with the experience sampling method.

Results: First, we found no evidence for mean-level personality maturation but decreases in trait Conscientiousness. Second, young adults differed significantly in personality trait and state change. Third, young adults with higher levels of work-related sense of mastery showed more positive changes in trait Conscientiousness. Decreases in general sense of mastery predicted later decreases in state Emotional Stability and vice versa. Change in general sense of mastery correlated with personality state change.

Conclusions: Sense of mastery seems to be part of a dynamic short-term process underlying personality change in young adulthood.

KEYWORDS
Big Five traits, education-to-work transition, experience sampling data, personality development, personality states, sense of mastery, young adulthood

1 | INTRODUCTION

Personality traits are relatively stable individual differences in patterns of thoughts, feelings, and behaviors.

Research in the past couple of decades has increasingly acknowledged the dynamic aspects of personality traits. A sizeable body of research has shown that personality traits follow characteristic change trajectories across

the lifespan (mean-level changes; for meta-analyses, see Bleidorn et al., 2022; Roberts et al., 2006). This research shows that personality change is most pronounced in young adulthood, as young adults tend to become more conscientious, emotionally stable, assertive/socially dominant (a facet of Extraversion), and, to a lesser degree, agreeable. This change pattern has been coined personality maturation (Roberts & Nickel, 2021).

However, not all young adults experience personality maturation, nor do they change to the same degree or at the same time (De Fruyt et al., 2006; Graham et al., 2020). Individual differences in personality trait change are substantial and most prominent in young adulthood (Robins et al., 2001; Schwaba & Bleidorn, 2018; Specht et al., 2011). Given that personality traits affect the course of people's lives (Soto, 2021) and that they are changeable enough to be considered as promising targets for interventions (Roberts et al., 2017), there is great interest in identifying sources and processes of personality change in young adulthood.

Major theories and evidence have pointed to the role of environmental influences, especially major life transitions, in personality trait change (see Specht et al., 2011). For example, the neo-socioanalytic model of personality considers traits to be relatively enduring yet changeable in response to new social roles people take on during life transitions (Roberts & Nickel, 2021). However, many important questions remain (see Bleidorn et al., 2018). Little is known about the specific shape and timing of personality trait change in response to life transitions. Importantly, the understanding of processes of personality maturation is scarce, yet critical for developing theory and interventions. The idiosyncratic experience of life transitions, including the sense of mastery that comes with successfully fulfilling a new role, is a promising, yet not widely tested mechanism underlying personality change (Roberts & Nickel, 2021). A major reason for these gaps in the literature is the lack of rigorous research designs that target specific life transitions and capture shorter-term processes including state changes (Bleidorn et al., 2021).

The present study aims to contribute novel insights into the timing and processes of personality maturation during the education-to-work transition, a major developmental milestone in young adulthood that has received limited attention. We used two intensive longitudinal studies with a high temporal resolution to follow students as they gain increasing work experience. We assessed the sense of mastery of their new social role demands both via questionnaires and experience sampling methods (ESM) to capture the idiosyncratic experience of the transition, including daily life experiences. The first aim was to examine the specific, potential nonlinear shape and timing of personality trait change across multiple 4-month intervals across 2 years during the education-to-work transition in Study 1 (we also explored personality state change across 8 months in Study 2). The second aim was to examine individual variability in personality change trajectories. The third aim was to examine the longitudinal link between sense of mastery and personality change.

1.1 | Personality maturation during the education-to-work transition

Current scholars conclude from a large bulk of evidence that both genetic and environmental influences drive personality development (Bleidorn et al., 2021; for an overview of theories, see Specht et al., 2014). Over the past two decades, much research has examined the effects of life events on personality change (see Bleidorn et al., 2018). The most prominent theoretical approach emphasizing the role of life events is the social investment principle (SIP; Lodi-Smith & Roberts, 2007; Roberts & Nickel, 2021). SIP explains young adults' personality changes through their commitment to normative, adult social roles (e.g., employee, parent), which holds experiences and social expectations for being conscientious, emotionally stable, agreeable, and assertive. Evidence for SIP is considered good (e.g., for the first romantic relationship and graduation from high school), but there is also some mixed evidence (e.g., for parenthood; see Roberts & Nickel, 2021).

Comparatively little research has studied personality trait change during the transition to work. Yet, moving from education into work life involves expectations, contingencies, and demands that create a reward structure for more mature behavior, thoughts, and feelings, which, in turn, might be internalized and manifest in a more mature personality (Hennecke et al., 2014). Young adults must adjust to a more structured daily life, meet deadlines, and complete tasks thoroughly and in an organized way, which might trigger increases in Conscientiousness (Lodi-Smith & Roberts, 2007). In addition, the new work role requires changes in social behavior, such as interacting with new colleagues and superiors in a professional and collegial way, which might trigger increases in Agreeableness (Bleidorn et al., 2018). Taking over new responsibilities and leadership roles might trigger increases in Assertiveness (Wille et al., 2012). Overcoming the stressful task of finding a job and having positive experiences at work might trigger increases in Emotional Stability (Le et al., 2014).

Existing studies point to an increase in Conscientiousness, whereas less change and mixed evidence has been reported for other personality traits. A 4-year study from Germany found that Conscientiousness increased in young adults who started their first job (but not in a comparison group), while there were no changes in the other personality

traits (Specht et al., 2011). A study using 2-year data from Finland has also reported increases in Conscientiousness in young adults who started their first job (Leikas & Salmela-Aro, 2015). A study tracking German students from high school to different paths over 4 years reported that students who started a vocationally oriented path or a new job increased in Conscientiousness at a faster rate than those who started university (Lüdtke et al., 2011).

However, other studies found no personality maturity during work transitions. A study on Dutch high school students reported no differences in personality trait change between students who started working, who combined education with work, and who did not transition into work (den Boer et al., 2019). A multi-year study on the first year after moving into paid employment also found no changes in Conscientiousness but an anticipatory increase in Conscientiousness and Emotional Stability (Denissen, Luhmann, et al., 2019).

A reason for the somewhat mixed evidence for life transition effects on personality might be that individuals vary in how the same type of transition unfolds in their lives and in how they respond to them (Lodi-Smith & Roberts, 2007). Several studies suggest that life transitions trigger substantial individual variability in personality trait change, which might contribute to the large variability in change observed in this age phase (Bleidorn, 2012; Leikas & Salmela-Aro, 2015; van Scheppingen et al., 2016; see Reitz, 2022). Examining the conditions of these individual differences holds great potential to better understand the causal processes of personality trait change (Bolger et al., 2019; Nesselroade, 1991), which is a major open question in the field (Bleidorn et al., 2018; Roberts & Nickel, 2021). We now turn to conceptual and methodological challenges and opportunities to address this question.

1.2 | Processes of personality maturation during the education-to-work transition

1.2.1 | Conceptual opportunity: Sense of mastery

Roberts and Nickel (2021) have brought up the conceptual issue that there is no clear-cut definition of investment into new roles, which hampers the identification of the causal mechanism underlying transition-induced personality change. Traditionally, investment has been understood as whether someone *acquired* the work role; more recently, it has been argued that this is not enough; young adults must *invest in* and *commit to* the work role for personality change to occur (Lodi-Smith & Roberts, 2007). Evidence is mixed. Students who invested more time and effort in their studies during the transition to college increased to a larger degree

in Conscientiousness, Openness, and Emotional Stability (Bleidorn, 2012). Studies have also reported a positive link between change in investment in work and change in personality traits (especially for Conscientiousness; Hudson et al., 2012). However, another study on the transition to work has not found supporting evidence for the principle, as sense of identity commitment did not predict personality maturation (den Boer et al., 2019).

Faced with this mixed evidence for investment, Roberts and Nickel (2021) have recently speculated that personality change may instead be triggered by the experience of a new sense of mastery derived from successfully fulfilling the role. This idea is linked to the notion that mastering age-graded tasks causes personality maturation in young adulthood (Hutteman et al., 2014). Evidence for sense of mastery as a mechanism underlying personality change is limited but promising. A recent study on the education-to-work transition has reported correlated changes between achievement-related experiences and self-esteem (Reitz et al., 2020). In addition, job satisfaction moderated change trajectories of self-esteem and life satisfaction across the transition into a new job (Reitz et al., 2022). Indirect evidence comes from research demonstrating a link between status increase and increases in the social dominance facet of Extraversion and Conscientiousness (Le et al., 2014; Roberts et al., 2003). In addition, changes in school achievement have been linked to changes in Conscientiousness, Agreeableness, and Emotional Stability (e.g., Israel et al., 2022).

1.2.2 | Methodological opportunity: Bottom-up processes

Life transitions are generally thought to affect personality trait change not directly, but in a bottom-up fashion via continuous short-term situational processes (Baumert et al., 2017; Geukes et al., 2018; Reitz, 2022; Wrzus & Roberts, 2017). Life transitions are thought to get under the skin through short-term changes in situational behaviors, thoughts, and feelings, which, when repeated, can lead to more long-term personality trait changes. These approaches agree that personality states (i.e., momentary manifestations of personality that are more malleable and situation-dependent than traits; Fleeson, 2001; Horstmann & Ziegler, 2020), mediate personality change: Repeated personality states get ingrained in traits if they differ from typical trait-like behavior. A few recent studies have linked emotional and personality states with personality trait change (Kritzler et al., 2020; Quintus et al., 2021). However, evidence for the bottom-up process is scarce due to methodological limitations of previous research. Rigorous study

designs with dense repeated assessments are needed to capture individual experiences (e.g., sense of mastery) and short- and longer-term changes in personality states and traits during life transitions (Bleidorn et al., 2018; Reitz, 2022).

1.3 | The present study

The present study examined personality change across the transition from education to work as a function of sense of mastery using two intensive longitudinal studies. Both studies followed Dutch students while they gained increasing work−/training-related experience in multiple, frequent assessment waves. The studies also differed in some aspects. Study 1 captured the transition from being a master's student to work life across 2 years in 5 waves in 2020. Study 2 followed bachelor's students in an educational program with internships across 8 months in 3 waves (which, compared to Study 1, is a slower, more incremental work transition) in 2022.

Our first aim was to examine change in Conscientiousness, Emotional Stability, Agreeableness, and Assertiveness; Big Five characteristics for which the literature points to maturation patterns in young adulthood. Hypothesis 1 (H1): We anticipated increases in these traits across 5 waves during the education-to-work transition in Study 1. We explored the mean-level change in these personality characteristics, measured as aggregated personality states (henceforth called personality states) across 3 waves in Study 2. Our second aim was to examine individual variability in personality change trajectories. Hypothesis 2 (H2): We anticipated significant variance in the change trajectories of personality traits (Study 1) and states (Study 2). Our third aim was to examine the longitudinal link between sense of mastery (fulfilling demands and tasks at work and in training) and personality maturation. Hypothesis 3 (H3): We anticipated that (changes in) work-related sense of mastery (Study 1) and general sense of mastery (both studies) predicted maturation in personality traits (Study 1) and states (Study 2). We also explored the predictive effect of (changes in) personality on sense of mastery in both studies. We preregistered the hypotheses and the data analytic strategy and shared the code on the OSF (Study 1: https://osf.io/cjdz5; Study 2: https://osf.io/evys8).

The present study aimed to contribute novel insights into the timeline and processes of personality development during the education-to-work transition by aiming to overcome two major methodological challenges of previous research (see Bleidorn et al., 2021). First, a major unresolved question pertains to timing: How long does it take for personality changes to appear in response to this transition and what shape do change trajectories have? Most research relies on existing panel studies that assess personality only a few times across relatively long intervals (often 1 to 4 years). We used a prospective design tailored to the education-to-work transition with repeated assessment waves spaced 4 months apart. This design allowed us to capture fast change and the precise timeline and shape of change trajectories (identify sensitive phases of change). We used latent growth curve models to model the longer-term (linear and nonlinear) change trajectory across the full study periods (Study 1: 2 years; Study 2: 8 months) and latent difference score models to model shorter-term change from wave-to-wave.

Second, another methodological challenge pertains to measurement. Most research relies on single (self-report) questionnaires, which are not ideally suited to measure personality processes and change (Horstmann & Ziegler, 2020). We used multi-method measurement burst designs. In addition to questionnaires of personality traits and sense of mastery, we assessed personality states (Study 1) and sense of mastery (both studies) using mobile daily diaries and ESM 14-day measurement bursts at each wave (which we aggregated to capture the average experience per wave). Hence, we could replicate analyses of traits in Study 1 using a different measure of personality (i.e., aggregated states) in Study 2. States are thought to be more subject to change than traits across shorter timeframes and thus provide an additional perspective on personality dynamics (Wrzus & Roberts, 2017).

Another benefit of measuring mastery in daily life is that it allowed us to capture the unfolding of young adult's unique transitional experience in their daily lives as they were lived. Daily assessments reduce (e.g., memory) bias as compared to single questionnaire assessments and can capture variability in change (Arslan et al., 2021; Reitz et al., 2020). Another challenge we overcame is that the experience of the new role can only be captured *after* the transition, which renders studying change in the general experience *across* the transition impossible. Hence, we assessed both, work-specific sense of mastery (assessed when employed) and general sense of mastery (assessed at all waves in both studies, including *before* the transition).

2 | METHOD

2.1 | Study 1

Data for Study 1 came from a 5-wave longitudinal study on personality and self-esteem development during the university-to-work transition (project GradLife; see https://osf.io/fwak9/; ethical approval from Tilburg University [RP158]). Participants were students

enrolled in diverse master's programs at various universities in the Netherlands. Data collection started in May 2020 and the first four measurement waves were spaced 4 months apart. A fifth follow-up wave took place in May 2022, a year after the 4th wave. During the study, students transitioned into work life. We used all available data of this study.

2.1.1 | Procedure

Master's students were invited to participate via announcements added to emails of university Alumni associations and via university newspapers, career service centers, and social media. They could obtain information and sign up for the study via the projects' website (www.tilburguniversity.edu/gradlife). Any Dutch-speaking student who anticipated to graduate before the end of 2020 could participate. Each wave contained an online questionnaire and a 14-day diary burst administrated via a smartphone app (Ethica; https://ethicadata.com/). For the present study, we used personality trait and work-related sense of mastery measures from the online questionnaire and daily sense of mastery measures from the daily-diary data. Participants were prompted by reminders via the app (participants had several hours in the evening to fill it in); in case of non-participation for several days they were reminded via text messages. Participants received financial compensation for the questionnaire (7–9€ in waves 1–4, 17€ in Wave 5) and the ESM part (7–12€ in waves 1–4, 35€ in Wave 5), entered lotteries to win 10–15€ in waves 1–4. Participants received personal reports (e.g., scores on emotions, personality, or motives) and newsletters (e.g., with insights into the groups' work transition) after each measurement wave.

2.1.2 | Participants

At Wave 1, the total sample consisted of $N = 309$ participants, of which $N = 298$ filled in the online personality questionnaire at least once (response rates per measure and wave can be found in Table S6; participants provided on average 12.6 ($SD = 3.1$) daily assessments. Participants were on average 24.58 years old ($SD = 2.51$) and 72% identified as women, 28% as men, and <1% as nonbinary. Most participants had Dutch nationality (94%) and 6% indicated to have (also) another nationality. Participants studied at Tilburg University (77%), Universiteit Utrecht (5%), Radboud Universiteit Nijmegen (3%), Erasmus Universiteit Rotterdam (3%), University of Groningen (3%), and other universities (9%). Participants were enrolled in master's programs in various fields: social sciences (35%), economics and management (20%), humanities and digital sciences (19%), law (17%), and other (9%).

The percentage of participants who indicated to work (full-/part-time) in Waves 2 to 5 was 81% (46%/35%), 90% (66%/24%), 97% (71%/26%), 99% (81%/18%). The descriptive statistics for W4 (1 year after W1) are: Participants had started a full-time job on average 6.37 months after W1 ($SD = 5.54$). The most frequent income category was 2000–2500€ (range from less than 500 to 3500–4000€). The fields were welfare institutions/mental health care (15%), universities (11%), government (9%), financial services (9%), hospitals (9%), industry, trade, transport (6%), information and communication (7%), legal services (5%), other business services (5%), other healthcare (5%), staff and organization (4%), research institutes (2%), education (3%), and other fields (12%).

2.1.3 | Measures

Personality traits
The Big Five traits were assessed with the Dutch translation (Denissen, Geenen, et al., 2019) of the Big Five Inventory-2-S (BFI-2-S; Soto & John, 2017). Participants rated their agreement with statements on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The average coefficient alphas across the 5 waves were: Conscientiousness: 0.75; Emotional Stability: 0.84; Agreeableness: 0.72; and Assertiveness: 0.76.

Work-related sense of mastery
Sense of mastery in the work domain was assessed using 6 items of the competence satisfaction dimension of the work-related basic need satisfaction scale (van den Broeck et al., 2010). The items are "I don't really feel competent in my job", "I really master my tasks at my job", "I feel competent at my job", "I doubt whether I am able to execute my job properly", "I am good at the things I do in my job", "I have the feeling that I can even accomplish the most difficult tasks at work". Work-related mastery was only assessed if participants were working in W2-W5; all other measures were assessed in all participants at all waves. The average coefficient alpha was 0.88 across waves.

General sense of mastery
General sense of mastery was assessed with the 4-item competence subscale of the basic psychological need satisfaction and frustration scale in daily life (Mabbe et al., 2018). The items were "Today I felt confident that I could do things well" and "Today I felt competent to achieve my goals" for competence satisfaction and "Today

I felt disappointed with my performance" and "Today I felt insecure about my abilities" for competence frustration. We recoded the 2 latter items and formed a composite score of the 4 items, because all items correlated between 0.6 and 0.7 and only 1 factor could be extracted (loadings were between 0.84 and 0.86). We averaged the up to 14 daily assessments of each item per wave (i.e., W1-W5) to obtain an indicator for the general experience of mastery in daily life per wave. The average coefficient alpha was 0.92 across waves.

Time-to-transition

Because the transition did not occur at the same moment for all participants, we created a variable to capture the time until participants transitioned into work life relative to Wave 1 (when they were all students). We used the variable "To what extent do you work (in total)?" and answer options were "full-time", "part-time", and "no work". Full-time work is a better proxy for the developmentally meaningful transition to the workforce than part-time work. The time-to-transition variable captures for each participant the month in which participants recorded the first full-time job during the 24-month study period (i.e., a higher value indicated a more recent transition to full-time work).

Gender

Gender was coded as 0 = male, 1 = female.

2.2 | Study 2

Data for Study 2 came from an ongoing multi-wave study on personality and self-esteem development during the transition from higher vocational education to work (STRIDE: Student-Teacher TRansition and Individual DEvelopment; https://osf.io/b8dur/; ethical approval from Tilburg University (RP601)). Data were collected in a 4-year teacher education program (Bachelor) for primary schools at different locations of a university of applied sciences in the Netherlands. Students did internships in schools continuously across the entire program. The intensity and responsibility during the internships increased across the program: first year students started with internships one day per week (hence, they had no experience at W1), which increased in the second and third year to two days per week (hence, they had moderate experience at W1), and fourth year students did a full-time internship across 2 months (W2 and W3 took place during that time), who hence had the most internship experience. Data collection started in September 2021 and has been repeated every 4 months. We used all data available at the time of conducting the analyses (waves 1 to 3).

2.2.1 | Procedure

All students of the full-time teacher education program were invited to participate (more than 1000). Participants were recruited via existing email lists of the university (that included a link to the project website; tilburguniversity.edu/stride), the universities' Instagram accounts, and during the introduction lecture of the program. As for Study 1, each measurement wave contained an online questionnaire and a 14-day daily diary and ESM burst using the Ethica app. For the present study, we used measures for personality states (measured three times a day) and general sense of mastery (measured at the end of the day, as done in Study 1). As in Study 1, participants were prompted by reminders via the app for each assessment, for which they had several hours. Participants received a personal report (e.g., scores on emotions, personality) about one month after each measurement wave, which they could add to their learning portfolio that they had to prepare for their program. From wave 2 onwards, participants also received financial compensation (online questionnaire/ESM: 6€/17€ (W2) and 12€/21€ (W3)) and they could enter a lottery to earn 10€ and 20€.

2.2.2 | Participants

The full sample included $N = 317$ participants. The mean age was 21.85 ($SD = 2.30$) at W1 and 87% identified as women and 13% as men. The distribution of participants across the 4 study years (i.e., cohorts) was 51%/23%/14%/13%. The majority of participants studied at the locations Tilburg (37%), 's-Hertogenbosch (28%), and Eindhoven (17%; other locations in the South and East of the Netherlands: 18%). Response rates per measure and wave can be found in Table S7; participants provided on average 9.4 ($SD = 4.9$) daily assessments.

2.2.3 | Measures

Personality states

Personality states were assessed using 10 items (2 per state). The measure has been used by Abrahams et al. (2021) in a comparable sample (Dutch-speaking teachers-in-training) and is based on the Dutch version of Big Five Inventory used in Study 1 (BFI-2-S; Denissen, Luhmann, et al., 2019). Participants were asked to report to what extent the following adjective-pairs described them since the last assessment ("Since the last questionnaire, I was…"): "*careful, precise*" and "*unorganized, nonchalant*" for Conscientiousness; "*friendly, benevolent*" and "*rude, condescending*" for Agreeableness; "*in*

control, confident", and "*tense, insecure*" for Neuroticism. The measure does not contain specific items for the assertiveness facet, which is why we could not use it. A 5-point Likert scale was used (1 = strongly disagree; 5 = strongly agree). The 3 assessments per day for all 14 days were aggregated to obtain average personality state scores per wave (i.e., W1-W3). The average coefficient alphas across the waves were: Conscientiousness (0.68), Emotional Stability (0.64), and Agreeableness (0.56).

General sense of mastery
The measure was identical with the one in Study 1. The average coefficient alpha was 0.86 across waves (i.e., W1–W3).

Cohort
Cohort was assessed as the program year (range 1–4). The further along students were in their program, the more training (including teaching experience) they had.

Gender
Gender was coded as 0 = male, 1 = female.

2.3 | Analytic strategy

Before running the analyses, we tested whether the missing data were Missing Completely at Random using Little's (1988) MCAR test. This test is useful for testing the assumption whether missingness is independent of observed and unobserved data (i.e., MCAR) for multivariate, partly observed quantitative data (Li, 2013). The Missing Completely at Random (MCAR) test indicated that data were missing completely at random in all datasets, which is why it was justified to use Full Information Maximum Likelihood (FIML) estimation in Mplus 8 (Muthén & Muthén, 1998–2017) and applied FIML in all models (see Appendix B of the supplemental materials for the MCAR tests and a detailed description of the missing data pattern).

First, we used two types of models to examine personality change trajectories (H1). We used latent growth curve models (Bollen & Curran, 2006) to test for overall change in personality traits across the 5 waves during the education-to-work transition in Study 1 and average personality states across the 3 waves in Study 2.[1] Next, we zoomed in on the changes from wave to wave in both studies by using univariate piecewise latent difference-score models (LDSMs; McArdle, 2001). Second, we examined the extent of individual differences in personality change (H2) by testing for significance of the slope variance in the abovementioned models.

Third, to examine the association between sense of mastery and personality traits (Study 1) and states (Study 2), we predicted individual variability of the slopes of personality by work-related mastery and general mastery (H3). We used latent growth curve models to acquire a general estimate of the association between mastery and longer-term personality change (across 2 years in Study 1, and across 8 months in Study 2). To examine the mastery-personality link from wave to wave, we extended the univariate model to bivariate piecewise latent difference score models (McArdle, 2001). We examined the predictive effect of sense of mastery on change in personality and correlated change in sense of mastery and personality (i.e., by correlating slopes for changes between neighboring assessment waves for sense of mastery and personality). In addition, we explored the predictive effect of personality on change in sense of mastery.

In both studies we accounted for gender and work experience (proxies: time-to-transition in Study 1 and cohort in Study 2) to account for the possibility that the longer participants have been working (Study 1) or have been in practical training (Study 2), the more personality change there might be. Model fit was evaluated by assessing RMSEAs, SRMRs, CFIs, and TLIs. RMSEAs and SRMRs smaller than 0.08 and CFIs and TLIs larger than 0.90 indicate an acceptable model fit (Hu & Bentler, 1999). Following recommendation to adjust for false discovery rate (Mõttus, 2017), we used a *p*-value of .01.

3 | RESULTS

Table S1 (Study 1) and S2 (Study 2) in the supplementary materials show means and standard deviations for the study variables. Tables S3 and S4 (Study 1) and S5 (Study 2) show the correlations (Appendix A). We explored the change trajectory and individual variability of general mastery (see Appendix B).

3.1 | Research question 1: Personality maturation in the education-to-work transition

3.1.1 | Study 1

We first investigated the overall mean-level change in personality traits with latent growth curve models across the 24 months of the study. We first estimated an intercept-only model (Model 1a) with fixed variance around the intercept and we tested if freeing the variance around the intercept improved model fit (Model 1b). Then we tested if adding latent growth parameters (i.e., linear and

quadratic) improved model fit. These growth parameters were first added with fixed variance (Models 2a and 2b), and we additionally tested if freeing the variance would improve model fit (Models 2b and 3b). For all constructs, the BIC and AIC varied concerning the preferred model. We therefore based our decision on the Chi-square difference tests. The fit indices, and all parameter estimates can be found in the supplemental material (Appendix C; Table S8). Figure 1 shows the change trajectories for all personality traits (for mastery see Figure S24).

The best-fitting model for Emotional Stability included an intercept and linear slope with freely estimated variance (Model 2b). Parameter estimates indicated small nonsignificant average linear increases in Emotional Stability and nonsignificant variance around the slope. The best-fitting model for Conscientiousness included an intercept and linear slope, with fixed variance around the linear slope (Model 2a). Parameter estimates indicated significant average linear decreases in Conscientiousness ($B = -0.015$, $p < .01$). For Agreeableness and Assertiveness, the Chi-square difference tests showed that the linear slope did not significantly explain variance in addition to the intercept-only models, indicating no significant change in these traits.

Second, we examined mean-level changes in personality traits from wave to wave with univariate piecewise latent difference-score models. The fit indices and parameter estimates for these models can be found in Appendix C in S9 and S10. The fit indices suggested that the models had a good fit to the data. The results showed significant decreases in assertiveness between W2 and W3 ($M = -0.139$, $p < .01$) and significant decreases of conscientiousness between W1 and W2 ($M = -0.004$, $p < .01$).

3.1.2 | Study 2

We first investigated the overall mean-level change in aggregated personality states with latent growth curve models across the 8 months. Because Study 2 had three time points, we could not test nonlinear growth patterns; instead, we ran intercept-only and linear models (Models
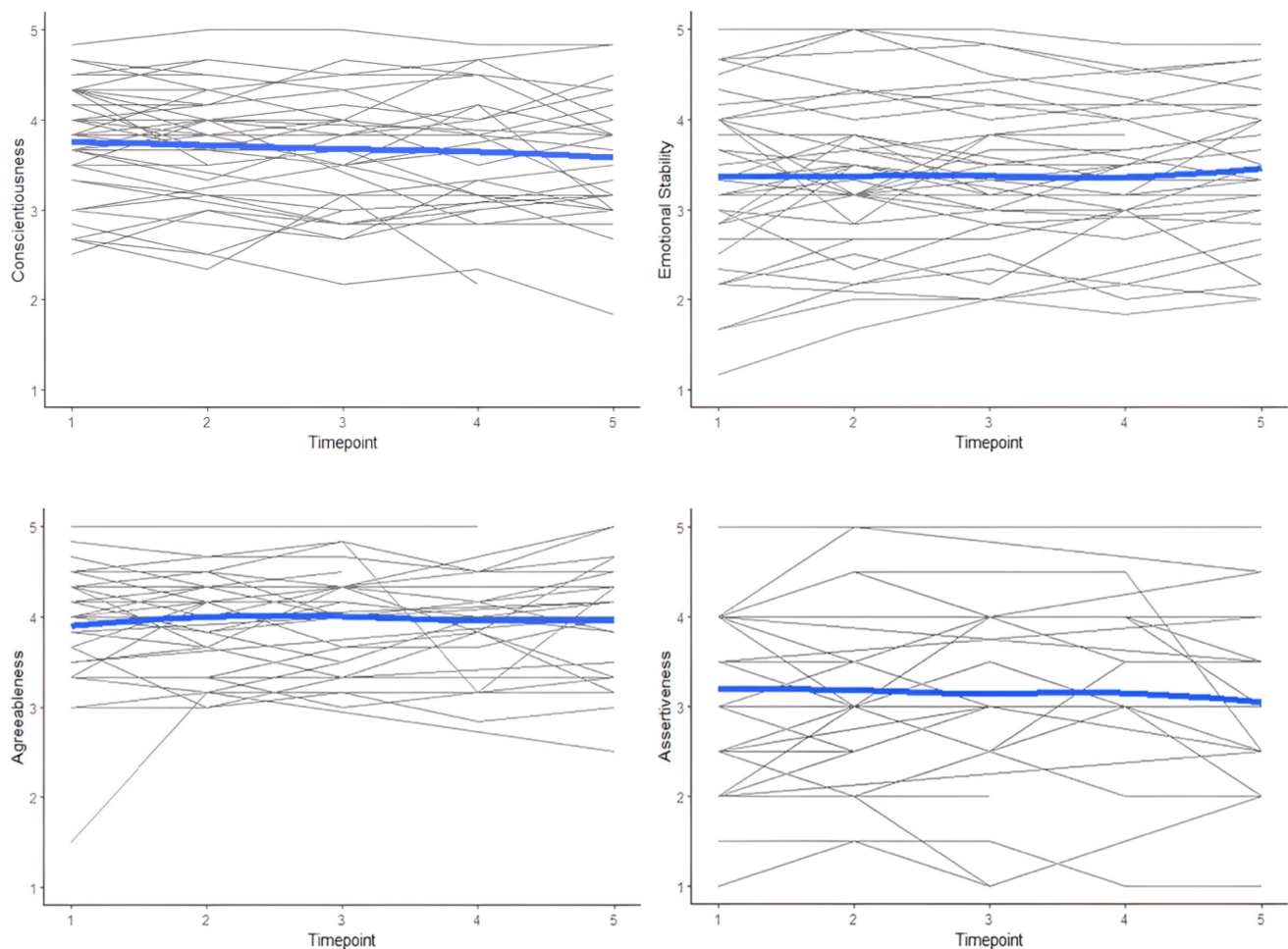

FIGURE 1 Personality trait trajectories across the education-to-work-transition (Study 1). Raw values of 50 randomly selected participants across the 5 assessment waves.

1a and 2b). Appendix C (Tables S11 and S12) shows the fit indices and all parameter estimates. Appendix D (Figure S25) shows the change trajectories for the personality states. For Emotional Stability and Conscientiousness, the intercept-only model with freed variance had the best fit (Model 1b), pointing to relatively stable individual differences in these constructs. For Agreeableness, the linear model with freed variance fit best (Model 2b). Parameter estimates indicated small nonsignificant increases in Agreeableness.

Next, we zoomed in into the personality state mean-level changes from wave to wave with univariate piecewise latent difference-score models. The fit indices and all parameter estimates for these models can be found in Appendix C in S13 and S14. The results suggested that there were no significant mean-level personality state changes across waves.

3.2 | Research question 2: Individual differences in personality change trajectories

3.2.1 | Study 1

Although the BIC and Chi-square tests of the latent growth curve models indicated no individual differences in personality trait change over the 24-month study period except for Emotional Stability, models including individual differences in change (see Appendix C; Table S6; Model 2b) had a slightly better fit based on the AIC for all traits. We also assessed individual variability in personality trait changes from wave to wave. Parameter estimates of the univariate piecewise latent difference-score models (see Appendix C; Table S9) showed that all slope variances (σ^2 ranging from 0.103 to 0.797) were significant ($p < .01$), indicating significant individual differences in mean-level change in personality between all waves.

3.2.2 | Study 2

As in Study 1, models including individual differences in change (i.e., Model 2b) slightly improved fit based on the AIC for all personality states (see Table S10 in the supplemental materials). We also assessed individual variability in the personality state changes from wave to wave. The parameter estimates of the univariate piecewise latent difference-score models (see Table S13) showed that all slope variances (σ^2 ranging from 0.109 to 0.352) were significant ($p < .01$), indicating that there were significant individual differences in mean-level change in personality states between all waves.

3.3 | Research question 3: Association between sense of mastery and personality

3.3.1 | Study 1: Work-related sense of mastery and personality traits

The timing of the transition to full time work varied between waves 2 and 5. There were no individual differences in change in work-related mastery. We therefore used an aggregate score to measure work-related mastery from W2 to W5. We then tested whether work-related mastery was associated with individual differences in the initial level and linear slope of personality using Latent Growth Curve models. Table S15 Appendix C indicates that work-related mastery was positively related to the initial level of Emotional Stability ($B = 0.454$, $p < .001$) and Assertiveness ($B = 0.381$, $p < .001$) indicating that young adults who experienced higher work-related mastery had higher initial levels of Emotional Stability and Assertiveness before graduation. Work-related mastery was positively related to the linear slope of Conscientiousness ($B = 0.032$, $p = .001$), suggesting that people with higher levels of mastery showed more positive changes in Conscientiousness during the transition to work. All other associations between work-related mastery and the initial level and changes in personality were not significant ($p > .01$). Appendix D (Figure S24) shows the change trajectories for work-related sense of mastery.

Next, we zoomed in on the association between personality trait changes and work-related mastery from wave to wave using bivariate latent different score models. The fit indices and change parameters are presented in S16 and S17 in Appendix C. None of the correlated change or cross-lagged paths were significant ($p > .01$). This indicates that personality trait changes between waves were not correlated with changes in sense of mastery in work between waves. Moreover, changes in work-related mastery between waves did not predict changes in personality traits in the successive waves, and vice versa.

3.3.2 | Study 1: General sense of mastery and personality traits

We again ran latent growth curve models to estimate the association between general mastery and longer-term personality change (across 2 years). There were no individual differences in change in general mastery. We therefore used an aggregate score to measure general mastery at W1 (i.e., before graduation) and an aggregate score to measure general mastery from W2 to W5 (i.e., after graduation for most) instead of adding a (non-informative) slope for mastery. Table S18 of

Appendix C shows the results of the conditional growth curve models including these two indicators of general mastery as predictors of the intercept and linear slope of Emotional Stability, Conscientiousness, Agreeableness, and Assertiveness. Only 2 out of 16 predictions were significant, which were for Emotional Stability: general mastery measured at W1 ($B_{intercept} = 0.316$, $p = .004$) and in W2–W5 ($B_{intercept} = 0.511$, $p < .001$) were positively related to the intercept of Emotional Stability, showing that people who scored higher on general mastery scored higher on Emotional Stability before graduation. All other effects of general mastery on personality, including the prediction of the linear slope, were not significant ($p > .01$).

Next, we zoomed in on the association between personality traits and general mastery from wave to wave using bivariate piecewise latent difference-score model. Figure 2 shows an example of a bivariate latent difference-score model.

The fit indices and change parameters are presented in Tables S19 and S20 of the supplemental materials. None of the correlated change or cross-lagged parameters were significant ($p > .01$). This finding indicates that personality trait changes between waves were not correlated with changes in general sense of mastery between waves. Moreover, changes in general sense of mastery between waves did not predict changes in personality traits in the successive waves, and vice versa. However, the time-to-transition variable predicted individual differences in Conscientiousness between W1 and W2 ($B = 0.013$. $p = .009$). The time-to-transition variable also predicted individual differences in Emotional Stability between W3 and W4 ($B = -0.014$, $p = .009$). These findings indicate that young adults who made the transition to work more recently became more conscientious between W1 and W2 and less emotional stable between W3 and W4 compared to transitioned earlier.

3.3.3 | Study 2: General sense of mastery and personality states

First, we used latent growth curve models to estimate the overall link between general mastery and averaged personality state change across the 8 months of the study (i.e., whether mastery predicted individual differences in the initial level and linear slope of personality states). Table S21 in Appendix C shows the results and indicates that general mastery was positively related to the initial level of Emotional Stability ($B = 0.706$, $p < .001$), Conscientiousness ($B = 0.454$, $p < .001$), and Agreeableness ($B = 0.269$, $p < .001$), suggesting that young adults who experienced higher levels of general mastery had higher initial levels on these three personality dimensions. General mastery did not predict the linear slope across the 8-month study period in any of the three personality dimensions ($p > .01$).

As in Study 1, our next step was to zoom in on the association between averaged personality states and general mastery from wave to wave using bivariate latent difference score models. We included gender and a cohort variable as covariates in these models. The fit indices and change parameters are presented in S22 and S23 of Appendix C. The results indicated significant positive correlated change for Agreeableness ($r = .094$, $p < .001$), Conscientiousness ($r = .090$, $p = .001$), and Emotional stability ($r = .191$, $p < .001$) between W1 and W2. Suggesting that individuals who showed stronger increases in general sense of mastery were also experiencing stronger increases in Agreeableness, Conscientiousness, and Emotional Stability. The same pattern was revealed between W2 and W3, except for Emotional Stability, as this correlation was not significant ($r = .060$, $p = .015$). The results also show two significant cross-lagged paths. Indicating decreases in Emotional Stability between W1 and W2 predicted decreases in general sense of mastery in the successive wave ($B = -0.337$, $p = .009$) and decreases in general sense
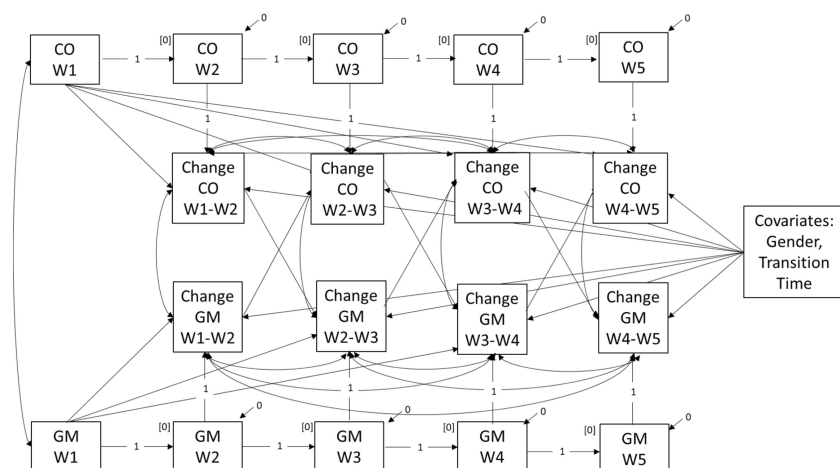

FIGURE 2 Example of a bivariate piecewise latent difference-score model for general sense of mastery (GM W1–W5) and conscientiousness (CO W1–W5) for Study 1.

of mastery between W1 and W2 predicted decreases in Emotional Stability between W2 and W3 ($B = -0.437$, $p < .001$). Appendix D (Figure S25) shows the change trajectory for general mastery. Table 1 shows an overview of all results per research question and study.

4 | DISCUSSION

The present study examined personality change as a function of sense of mastery in two multi-wave studies on Dutch students who gained increasing work-related experience. Our first aim was to examine change in personality traits across 2 years during the education-to-work transition (Study 1) and we explored changes in personality states across applied education across 8 months (Study 2). In Study 1, we found decreases in Conscientiousness across the 24 months and between W1 and W2 and decreases in Assertiveness between W2 and W3. In Study 2, we found no significant mean-level changes in averaged personality states. Our second aim was to examine individual variability in personality change trajectories. We found individual differences in change in personality traits (Study 1) and averaged personality states (Study 2) for all personality dimensions across all intervals.

Our third aim was to examine the link between sense of mastery and personality. Across the 2 years of Study 1, we found that work-related mastery was only linked to changes in one of the personality traits. That is, young adults with higher levels of work-related sense of mastery showed more positive changes in Conscientiousness during the transition to work. In Study 2, we found a dynamic link between general sense of mastery and aggregated state Emotional Stability: decreases in Emotional Stability predicted later decreases in mastery and vice versa. In addition, we found positive correlated change for general sense of mastery and the aggregated states Agreeableness (both intervals), Conscientiousness (both intervals), and Emotional Stability (between W1 and W2) in Study 2 (but none in Study 1).

Furthermore, both general sense of mastery and work-related sense of mastery were related to higher initial levels of personality maturity (Study 1: Emotional Stability, Assertiveness; Study 2: Emotional Stability, Conscientiousness, Agreeableness).

4.1 | No mean-level personality maturation during the education-to-work transition

Overall, our findings did not provide supporting evidence for personality maturation during the education-to-work

TABLE 1 Overview of research findings per research question and study.

Research question 1: Personality maturation

- Significant average linear decreases in C across the 24 months
- Significant decreases in AS between W2 and W3
- Significant decreases in C between W1 and W2

- Relative stable individual differences in state ES and state C across the 8-month study period
- Small nonsignificant increases in A across the 8 months of the study

Research question 2: Individual variability in personality change trajectories

- Models including individual differences in change had a slightly better fit based on the AIC for all personality traits
- Significant individual differences in the mean-level change for all traits between every wave

- Models including individual differences in change slightly improved fit based on the AIC for all averaged personality states
- Significant individual differences in the mean-level change for all personality dimensions between every wave

Research question 3: Association between mastery and personality: work-related mastery

- Mastery was positively related to the initial level of ES and AS
- Individuals with higher levels of mastery showed more positive changes in C during the transition to work across the 24 months of the study
- All other associations between mastery and the initial level and changes in personality were *ns*
- Personality trait changes between waves were not correlated with changes in sense of mastery between waves
- Changes in mastery between waves did not predict changes in traits and vice versa

Research question 3 (cont).: Association between mastery and personality: general mastery

- Individuals who scored higher on general mastery scored higher on ES before graduation
- None of the correlated change or cross-lagged parameters between personality traits and general sense of mastery were significant

- Individual who experienced higher levels of mastery had higher initial levels in ES, C, and A
- Mastery did not predict the linear slope over the 8-month study period for ES, C, and A
- Significant positive correlated change for A, C, & ES btw. W1 & W2
- Significant positive correlated change for A & C btw. W2 & W3
- Decreases in ES btw. W1 and W2 predicted decreases in mastery btw. W2 & W3
- Decreases in mastery btw. W1 & W2 predicted decreases in ES btw. W2 & W3

Note: Results for Study 1 are shown in gray; results for Study 2 are shown in white.

Abbreviations: A, agreeableness; AS, assertiveness; C, conscientiousness; ES, emotional stability.

transition. In contrast to H1, we did not find significant increases in Conscientiousness, Agreeableness, Emotional Stability, and Assertiveness. These findings are not in line with the neo-socioanalytic model of personality, which predicts increases in those traits in young adults (maturity principle) as they invest, among other roles, in the age-graded working role (social investment principle; Roberts & Nickel, 2021).

Our findings extend the limited research on the education-to-work transition by suggesting that it might not trigger personality maturation, a pattern that was found on the population level (Bleidorn et al., 2022). This conclusion is in line with other prospective studies with multiple waves and comparison groups from the Netherlands on transition to the first job (den Boer et al., 2019) and to a new job (Denissen, Luhmann, et al., 2019). However, a few studies reported increases in Conscientiousness across the work transition. Differences in findings might be due to differences in methodology. The studies that found effects used longer intervals (3–4 years; Leikas & Salmela-Aro, 2015; Lüdtke et al., 2011; Specht et al., 2011). Mõttus (2017) has argued that if a false discovery rate had been used, which we did, the association between first job and higher Conscientiousness had not remained statistically significant in Specht et al. (2011). It might be the case that increases in Conscientiousness are rather small and build up rather slowly to appear only after longer periods of time.

Instead of the anticipated increases, we found decreases in Conscientiousness across the entire study period and between W1 and W2 and decreases in Assertiveness between W2 and W3 in Study 1. This finding is neither in line with SIP nor evidence and might be due to the specific historical time. Study 1 coincided entirely with the COVID-19 pandemic, which seemed to have affected the transition experience: At Wave 1, 41% reported that their post-graduation plans have changed due to COVID-19 (e.g., exams postponed, internships canceled) and 48% anticipated that the pandemic would influence their job opportunities negatively. At Wave 4, 54% reported that the pandemic has influenced their job opportunities.

Hence, during the pandemic, many participants may have been deprived of the opportunities that might trigger maturation during work life, including taking over new tasks, responsibilities, and leadership roles (Lodi-Smith & Roberts, 2007; Wille et al., 2012). Many of these behavioral demands require in-person interactions, which were limited, and an awareness of role demands that require adaptations, which may not have been as clear as normally during this transition (Neyer et al., 2014). Instead, young adults might have experienced comparatively more uncertainties and less autonomy as workers than as students, which might have triggered the decreases in these traits (Schwinger et al., 2020).

Although not significant, we found small linear increases across both full study periods in Emotional Stability in Study 1 and in Agreeableness in Study 2. It is possible that replication studies with larger sample size in a less stressful historical time might find larger increases in Emotional Stability, pointing to personality maturation. It is noteworthy that we only found the small increase in Agreeableness in Study 2, while Agreeableness in Study 1 remained stable across the study period. This might be due to differences in work-related experiences between the two studies. Participants in Study 2 were training to become teachers and those in Study 1 pursued diverse professions. The teacher role might hold specific social behavioral demands, such as interacting with students in a forgiving, warm, and tender-minded way (Roloff et al., 2020). Replication studies are needed to examine the possibility of different trait changes in different types of education-to-work transitions.

Taken together, the findings provide some novel insights into the timing and measurement issues of personality change across the education-to-work transition. The fact that we found changes in some personality traits across four months extends previous research that typically relies on long intervals and could therefore not capture such short-term changes (see Luhmann et al., 2014). Personality trait changes have been found in relatively short observation periods, including one year across high school graduation (Bleidorn, 2012) and across 6-month therapy interventions (Roberts et al., 2017), which suggests that personality trait changes can happen relatively fast when the event is significant. Our study adds that personality trait changes might even occur faster (across four months) during major life transitions. These findings emphasize the dynamic aspects of personality that have long been neglected in the field but currently attract attention (see Hecht et al., 2022). Our study provides a first, yet still somewhat indirect indication that novel insights into the dynamic aspects of personality can be obtained by combining trait with state measures. Future research should build on our findings pointing to the possibility of short-term changes in personality states across months and link them to the longer-term change in traits.

4.2 | Substantial individual variability in personality change

In line with H2, we found consistent evidence for significant individual differences in the short-term change trajectories of personality traits and personality states and a little less consistent evidence for individual differences in long-term change trajectories. The slope variances of all the piecewise latent difference-score models were significant, pointing to

heterogeneity in wave-to-wave changes (see Figure 1). In addition, allowing for individual differences improved the fit of some of the growth curve models, although only slightly. The finding of substantial heterogeneity in personality change is in line with findings for other life transitions in young adulthood, including high-school graduation (Bleidorn, 2012) and parenthood (van Scheppingen et al., 2016). It extends existing research by showing that the variability in trait change during the education-to-work transition is not only limited to self-esteem (Reitz et al., 2020) but also extends to the Big Five personality traits and states.

The individual variability in change suggests that the education-to-work transition unfolds differently in young adult's lives and that individual variability in change is part of a dynamic process, as it was found across the 4-month intervals. In addition, the full-timeline analyses for Emotional Stability suggest that the transition triggered maturation in some but stability or even decreases in others (see Figure 1). These findings are in line with the notion of plasticity in lifespan theory, suggesting that not all individuals follow the normative age trends of personality maturity in young adulthood (Baltes et al., 1996; Nesselroade, 1991). Despite the education-to-work transition being a normative life transition, it rather seems to trigger individual differences in personality trait change than population-level maturation.

The heterogeneity might have been a cause for the limited mean-level changes, as these differential trajectories may have canceled each other out on the population level. Our study further emphasizes the need to rely less on population-level indicators of change and whether a transition occurred, but instead focus more on the unique transition experience (Reitz, 2022; Roberts & Nickel, 2021; Robins et al., 2001). Instead of treating this individual variability in change as uninteresting noise, exploring its sources provides great potential to understand causal processes of personality change, as causal effects are heterogeneous (Bolger et al., 2019). This endeavor would greatly benefit from exploring sources of heterogeneity in both trait and state changes, which we found, to better understand the between-person differences (e.g., within-person variability) in within-person personality dynamics (Geukes et al., 2018; Hecht et al., 2022). In addition to individual factors, future research is needed to identify environmental demands (e.g., job requirements, workplace characteristics) that contribute to individual differences in personality change.

4.3 | Sense of mastery as a mechanism of personality maturation

Our results revealed several novel insights into the link between sense of mastery and personality. First, in line with H3, we found an association between sense of mastery and personality maturation (Study 1): Young adults with higher levels of work-related sense of mastery showed more positive changes in trait Conscientiousness across their two-year education-to-work transition. This finding supports the recent claim that the experience of a new sense of mastery stemming from successfully fulfilling the tasks and demands of the new social role is a key mechanism underlying personality maturation (Roberts & Nickel, 2021; see also Reitz et al., 2020). This finding is in line with research reporting a link between achievement-related experiences at school (Israel et al., 2022) and work (Le et al., 2014) and changes in Conscientiousness. Our findings however extend previous research by providing more direct evidence that the unique experience of mastering the work transition helps explain personality maturation.

However, we neither found effects of work-related mastery on change in the other personality traits, nor did we find effects for general mastery. Together, this pattern of findings suggests that mastery experiences at work specifically (but not mastery experiences in all life domains) is a unique mechanism underlying Conscientiousness change during the education-to-work transition. This finding is in line with previous research that found daily achievement- but not affiliation-related experiences during the education-to-work transition to be linked with self-esteem change (Reitz et al., 2020). Together, these findings inform theories on personality trait change during life transitions. Findings suggest that daily experiences of mastering the demands at work (versus other domains) is the most salient developmental task (Huttemann et al., 2014), which is why it may be the most powerful mechanism of personality maturation in this life transition. Future research might want to be more specific in their search for mechanisms for specific life transitions and personality traits. In addition, this pattern of findings provides an important methodological insight: The discrepant findings for work-related and general mastery demonstrate that future research might also want to use different measures and assessment methods to obtain additional insights into the processes of personality trait change.

Second, also in line with H3, we found that increases in general sense of mastery in daily life (from W1 to W2) predicted later increases in state Emotional Stability (from W2 to W3) across the teacher education program (Study 2). In addition, we found the reverse effect, too: Increases in state Emotional Stability predicted later increases in general sense of mastery in daily life. Together, these findings suggest a dynamic, bidirectional association between general sense of mastery and Emotional Stability in daily life. This is a novel finding that extends both personality trait research that traditionally focuses on the more

macro-level link between Neuroticism and negative life events (Jeronimus et al., 2013). Our findings suggest that a lack of feeling mastery in daily life might trigger increases in state Neuroticism 4 months later, which is in line with the notion that life events can trigger short-term state fluctuations and change the setpoint of the Neuroticism density distribution (Fleeson, 2001). Furthermore, our findings suggest a downward spiral: Increases in state Neuroticism seem, in turn, to have predisposed young adults to experience less mastery in their daily life 4 months later. It is possible that more neurotic young adults show heightened emotional reactivity to experiences of failure in their training than their less neurotic counterparts (Bolger & Schilling, 1991). Future research should examine if this pattern can be found in daily life.

Third, in line with H3, we found correlated change for general sense of mastery and personality maturity in Study 2. Changes were correlated for all states Conscientiousness, Agreeableness, Emotional Stability across both assessment intervals (except for Emotional Stability, which was only significant between W1 and W2). These findings point to a dynamic process between personality states and daily mastery experiences. The fact that we only found this dynamic link for states and not traits (Study 1) suggests that the state component of personality provides important insights into the dynamic processes of personality change that should be explored further. Building on recent theories (Wrzus & Roberts, 2017), our finding provides first evidence for one specific link in the bottom-up process chain underlying personality change during life transitions: Daily experiences of mastery during the work transition seem to be part of a continuous, dynamic short-term situational process that affects change in personality states. Future research needs to replicate our findings and to examine whether these personality state changes affect personality trait change.

4.4 | Limitations and future directions

The present study has several strengths. We used data from two intensive longitudinal studies with multiple fine-grained assessments to track personality change in students as they gained increasing work-related experience. We examined specific (nonlinear) long- and short-term personality change trajectories using two advanced modeling techniques. We examined personality trait change from before to after the university-to-work transition in Study 1 and zoomed in on personality state change in Study 2. We captured young adults' unique experiences with a work-related sense of mastery measure and a general mastery measure assessed in repeated 14-day daily diary bursts. We had preregistered hypotheses

and analyses, accounted for covariates, and adjusted for multiple testing.

Nevertheless, the study has several limitations. First, the intensity of the design and the participant burden impeded the collection of very large samples with very little dropout. The power might not have been sufficient to detect small effects (especially at later waves). For example, the correlated changes between personality and sense of mastery found in W1-W3 could not be replicated in W2 and W3 in Study 2, when dropout was considerable. Hence, well-powered studies need to replicate our analyses. Larger studies would also be needed to compare subgroups, e.g., who differ in the degree of work-experience or type of jobs.

Second, the large majority had already transitioned into work life at W2 in Study 1, which impeded comparing those who started work to those who did not. Our results should be replicated in a comparison-group design. It could be that, due to the salience of mastery for our participants, associations between personality maturation and sense of mastery are weaker in a non-working comparison group. For example, Reitz et al. (2020) found correlated change in achievement-related daily experience and self-esteem only in those who started to work. Future research should also account for the degree of previous work experience, as this might have rendered the work transition less abrupt and hence impactful for some.

Third, at best the data may be generalized to (female) Dutch students' transition from higher and applied education to work. Studies with a better gender balance, with data from other countries (with less favorable labor market conditions), and with young adults with lower educational levels are needed to examine the generalizability of our findings. In addition, replications are needed, as the pandemic might have rendered the work transition especially stressful for our participants, which might have hindered personality maturation.

5 | CONCLUSIONS

The present study demonstrated that the education-to-work transition is a salient context for personality development in young adulthood. While we found some mean-level changes over both longer (2 years) and shorter (4 months) timespans in some traits, they were not in line with notions of increasing personality maturity (decreases in Conscientiousness and Assertiveness). However, that personality change can be observed over 4 months is novel and underlines the dynamic aspects of personality. Furthermore, young adults varied in their trait and state change trajectories across shorter and longer timespans (for Emotional Stability). These findings suggest that the education-to-work transition may trigger change in personality traits and personality states, but

to different degrees and in different directions. We identified sense of mastery as a possible source of this variability in change. Young adults who perceived to master their work demands during their work transition showed more positive changes in Conscientiousness. Results pointed to dynamic interactions in which changes in general sense of mastery and personality maturation influenced each other. Together, findings emphasize the importance of rigorous, well-timed study designs that capture the unique experiences of life transitions to advance theory and research on personality development.

AUTHOR CONTRIBUTIONS

Anne K. Reitz: conceptualization (lead), methodology (lead), data curation (lead), writing (lead), project administration (lead), supervision, funding acquisition. Liselotte den Boer: Formal analysis (co-lead), conceptualization (supporting), methodology (supporting), writing (supporting). Manon A. van Scheppingen: Formal analysis (co-lead), conceptualization (supporting), methodology (supporting), writing (supporting). Ketaki Diwan: data curation (supporting), writing (supporting), project administration (supporting).

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CONFLICT OF INTEREST

There are no conflicts of interest to disclose.

ETHICS STATEMENT

The studies used in this article received ethical approval from Tilburg University (Study 1: RP158; Study 2: RP601).

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ENDNOTE

[1] In our preregistration, we planned to measure overall change (across all waves) and short-term (wave-to-wave) change in the same difference score model. Unfortunately, these models did not converge, probably due to the smaller sample size at later waves.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.