

Helpful or Harmful? The Role of Personality Traits in Student Experiences of the COVID-19 Crisis and School Closure

Citation for published version (APA):

Iterbeke, K., & De Witte, K. (2022). Helpful or Harmful? The Role of Personality Traits in Student Experiences of the COVID-19 Crisis and School Closure. *Personality and Social Psychology Bulletin*, 48(11), 1614-1632. Article 01461672211050515. <https://doi.org/10.1177/01461672211050515>

Document status and date:

Published: 01/11/2022

DOI:

[10.1177/01461672211050515](https://doi.org/10.1177/01461672211050515)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

Taverne

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Helpful or Harmful? The Role of Personality Traits in Student Experiences of the COVID-19 Crisis and School Closure

Personality and Social
Psychology Bulletin
1–19

© 2021 by the Society for Personality
and Social Psychology, Inc
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/01461672211050515
journals.sagepub.com/home/pspb



Kaat Iterbeke¹  and Kristof De Witte^{1,2}

Abstract

Little is known about the individual differences in student experiences and expectations of the COVID-19 crisis and the resulting school closures. Yet, as the crisis may have uniquely impacted students, knowledge about their personalities is highly relevant. In a sample of 347 Flemish students, this study explored the association between personality traits and differences in responses to the crisis. The Big Five personality traits of students were assessed in January 2020, prior to the COVID-19 outbreak. Students were reassessed in June 2020 with a set of items related to well-being, remote learning, and family and social life. The results suggested that more conscientious students (showing a better perception of remote learning) and more open students (considering the period as an opportunity to learn new skills) adjusted well to the changes induced by the crisis. On the contrary, students high in neuroticism (showing higher stress levels) were harmed.

Keywords

personality, Big Five, COVID-19, school closure, secondary education

Received November 12, 2020; revision accepted September 13, 2021

The COVID-19 crisis has led to changes in almost all social and economic sectors, with education being no exception. On March 12, 2020, the Belgian government ordered extensive restrictions on public and economic life, including a nationwide school closure as emergency measure to prevent the spreading of the virus. Abruptly, students experienced serious disruption to their school and social life.

In response to COVID-19, research has emerged in the education field, including the relationship with experiences and expectations of higher education students (Aucejo et al., 2020), the impact on standardized learning outcomes of primary school students (Maldonado & De Witte, 2021), and the search for online learning resources (Bacher-Hicks et al., 2020). Yet, while most studies seek to uncover general and demographic patterns, many believe that the COVID-19 crisis impacted children to different degrees and in different ways. For instance, it is expected that especially children who are naturally sensitive to negative emotions experienced more fear (Kluger, 2020).

A growing amount of research in psychology examines the link between personality and individual responses to the crisis. Studies show that personality traits predict differences in psychological outcomes assessed in the wake of the crisis (Aschwanden et al., 2021; Kroencke et al., 2020; Modersitzki et al., 2020; Qian & Yahara, 2020; Somma et al., 2020;

Stadler et al., 2020; Zettler et al., 2020; Zhang et al., 2020). For instance, Aschwanden et al. (2021) found that neuroticism is related to more concerns about COVID-19. Similarly, Modersitzki et al. (2020) showed that higher scores on neuroticism facets are associated with negative appraisal of the crisis and less subjective well-being. Furthermore, several personality traits have been linked to differences in preparatory behaviors such as stockpiling of goods (Aschwanden et al., 2021; Columbus, 2020; Garbe et al., 2020; Zettler et al., 2020) and the compliance with and acceptance of governmental measures (Abdelrahman, 2020; Airaksinen et al., 2020; Blagov, 2020; Bogg & Milad, 2020; Brouard et al., 2020; Carvalho et al., 2020; Chan et al., 2020; De Coninck et al., 2020; Götz et al., 2021; Miguel et al., 2021; Willroth et al., 2020; Wolff et al., 2020; Zajenkowski et al., 2020; Zettler et al., 2020). While extraverted individuals appear to have more difficulty with sheltering-in-place (Chan et al., 2020; Götz et al., 2021), the majority of studies showed that

¹KU Leuven, Belgium

²UNU-MERIT, Maastricht University, The Netherlands

Corresponding Author:

Kaat Iterbeke, Leuven Economics of Education Research, KU Leuven,
Naamsestraat 69, 3000 Leuven, Belgium.
Email: kaat.iterbeke@kuleuven.be

high agreeableness, conscientiousness, and openness predict better compliance with rules. Whereas the above-mentioned studies covered the entire adult life span, two studies focused on the role of personality traits in the responses of younger individuals to the crisis. Asselmann et al. (2020) examined how the thoughts, feelings, and behaviors of 6,957 German higher education students varied by personality traits. They found that, in particular, more agreeable students comply with governmental rules and recommendations, whereas students with low emotional stability (reversed neuroticism) tend to hoard goods, feel insecure, and fear financial losses due to the crisis. Using a small sample of Canadian secondary education students, Smith et al. (2021) investigated changes in students' achievement motivation as a function of extraversion/introversion. While most motivational dimensions remained relatively stable since the COVID-19 outbreak, interest in learning increased over time for extraverted students, possibly because they are more excited than introverted students about reintegrating school after months of remote learning. In summary, the extant literature points to the importance of personality in understanding individual responses to the crisis and how the crisis may be helpful to some, but harmful to others.

The present article adds to the literature by exploring the role of personality traits in the experiences of the COVID-19 crisis and long-lasting school closure in secondary education students in Flanders, the Northern region of Belgium. In particular, the objective of the article is to examine the role of personality traits in students' well-being, remote learning experiences, and perception of family and social life. For this purpose, we use a longitudinal study design involving 347 students in 35 schools. Data on the personality traits, measured through the lens of the Big Five framework (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness), were collected in January 2020, about 2.5 months prior to the COVID-19 outbreak. Hence, student responses were not influenced by the exceptional situation (Sutin et al., 2020). Survey data on student experiences and expectations of the crisis and school closure were collected in June 2020, 3.5 months after the COVID-19 outbreak. We retrieved seven outcome measures from the data, that is, the extent to which students (a) experienced tensions at home, (b) helped others (e.g., volunteering), (c) had a good experience of remote learning, (d) learned new skills, (e) missed going to school, (f) were stressed because of the school closure, and (g) whether students expected their school results to decrease, remain unchanged, or increase because of the crisis.

The article is organized in the following manner. First, we outline the theoretical framework for personality and construct multiple hypotheses concerning the role of the Big Five personality traits in student experiences and expectations. Next, we describe the setting of our study, followed by a discussion of the methods. Third, we present the results. The final section discusses the results and limitations and offers concluding remarks.

Theoretical Framework

Personality traits are relatively enduring patterns of behavior, cognition, and emotion that reflect the tendency to respond in certain ways under certain circumstances (Roberts, 2009). In recent years, the Big Five personality traits have emerged as the dominant dimensions of human personality (Costa & McCrae, 1992; Goldberg, 1992; McCrae & Costa, 1999), with application to a wide range of fields, including education (Cuadrado et al., 2020; Poropat, 2009). The Big Five framework includes the following traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness (to experience). *Extraverted* individuals have an energetic approach to life, show outgoing and sociable behavior, and tend to have positive emotions in general. Individuals who score high on *agreeableness* are considerate, sympathetic, helpful, generally prosocial, and willing to subordinate own interests. *Conscientiousness* is associated with the way individuals control, regulate, and send impulses. A high score on conscientiousness implies being goal-oriented, persistent, dutiful, organized, and adherent to norms and rules. *Neuroticism* is associated with aspects of anxiety, uneasiness, and feelings of vulnerability. Individuals who score high on neuroticism tend to be more sensitive to stress. Individuals who score high on *openness* are open-minded, creative, intellectually curious, and generally interested in new experiences and ideas.

We construct our hypotheses based on the following theoretical approaches. First, as relatively enduring characteristics of an individual, personality traits play an important role in predicting behavior (Ozer & Benet-Martínez, 2006; Soto, 2019). In particular, they offer the opportunity to study how fundamental, enduring differences in traits affect how individuals respond differently to the same experiences (e.g., Danckert et al., 2017; Gerber et al., 2010).

Second, we draw on the long-standing notions of personality–situation fit (Diener et al., 1984; Emmons et al., 1985). According to the personality–situation fit model, and analogous to the person–environment fit model, differences in individuals' responses can be explained by the congruence or match between the personality of an individual and situational or environmental factors. In particular, the models assume that the better the fit, the more favorable the consequences or outcomes for the individual are (Emmons et al., 1985). In methodological-statistical terms, the fit between person and situation factors can be expressed by, or at least involve, interactions or correlations (Rauthmann, 2020). Although most of the empirical research on this topic has focused on the fit between individuals and organizations (see a review by Kristof-Brown & Guay, 2011), a smaller body of studies explored the role of more short-term personality–situation fits, such as in social interactions (Diener et al., 1984; Emmons et al., 1985; Mueller et al., 2019; Rauthmann, 2013). Furthermore, in an academic context, several studies adopted Holland's theory to explore the importance of

Table 1. Expected Associations Between Personality Traits and Experience of COVID-19 and School Closure.

Experience of COVID-19	E	C	N	O	A
Tensions at home			+		
Willing to help					+
Positive experience of remote learning		+		+	
Learn new skills				+	
Miss school life	+				
Stress from school closure			+		
Expectation of school results					

Note. E = extraversion; C = conscientiousness; N = neuroticism; O = openness; A = agreeableness.

person–environment fit in relation to academic major choice (e.g., Feldman et al., 1999, 2001; Rocconi et al., 2020; Schelfhout et al., 2019). Holland (1997) theorized that the congruence between personality and the major-field environment is related to higher levels of educational stability, satisfaction, and achievement. Pawlowska et al. (2014) showed that the congruence between several personality traits and classroom environment elements, such as structure, increases students’ satisfaction, performance, or both. Similarly, Komarraju and Karau (2005) found empirical support for increases in students’ academic motivation as a result of a match between learning preferences related to personality and the classroom environment. Keller and Karau (2013) based their hypotheses on the idea that students would have more favorable impressions of online courses if personality traits match with the online learning environment.

In this study, we adopt the logic of the personality–situation fit model to examine the link between students’ Big Five personality traits and their responses to the COVID-19 crisis and long-lasting school closure. Specifically, we base our expectations on the idea that particular personality traits “fit” more positively with the (new) living and learning situation of students, and that the fit will influence their well-being, remote learning experiences, and perception of family and social life during the crisis. It is worth noting that while research on personality–situation dynamics has defended the idea that individuals gravitate toward situations in which they fit and distance way from situations that are incompatible with their personalities (e.g., Emmons et al., 1985; Schmader & Sedikides, 2018), we explore the personality–situation fit model in a unique context in which individuals had no choice about the situation they found themselves in. Specifically, the external situational change due to the COVID-19 crisis and resulting school closures was identical to all students, thereby potentially shaping individually different outcomes.

Personality Traits and Experience of COVID-19 and School Closure

The literature allows us to deduce some hypotheses related to the potential role of the Big Five personality traits in student experiences of the COVID-19 crisis and school closure.

Table 1 provides a summary of our hypotheses per trait for several outcome measures.¹

First, students who score high on extraversion draw energy from being with others. Therefore, they might have encountered more difficulty during the crisis due to a lack of social interaction. For introverted students, on the contrary, the crisis may have offered a pause from the exhausting effects of social interaction.

Hypothesis 1 (H1): Students with high extraversion are more likely to miss attending school during the school closure.

Second, due to the closure of schools, Flemish students had to learn from home for a long period of time (see section “Setting”). Remote learning requires self-regulation learning strategies, such as time management and effort regulation, which are linked to high conscientiousness (Bidjerano & Dai, 2007). Consequently, we expect that students with a high score on conscientiousness were more likely to take responsibility for their learning and develop a positive perception of remote learning. This would be consistent with prior findings in the online course context (Cohen & Baruth, 2017; Keller & Karau, 2013).

Hypothesis 2 (H2): Students with high conscientiousness are more likely to have a good experience of remote learning.

Third, students with high neuroticism, those more exposed to anxiety and fear, might have found the uncertainty associated with the crisis and school closure unappealing (Aschwanden et al., 2021; Zettler et al., 2020). Furthermore, neuroticism is found to (negatively) affect the quality of relationship young adults have with their parents (Belsky et al., 2003). Consequently, as students had to spend more time with their parents and siblings during the COVID-19 crisis, students with high neuroticism might have felt more impaired during the crisis than others did.

Hypothesis 3a (H3a): Students with high neuroticism are more likely to be stressed because of the school closure.

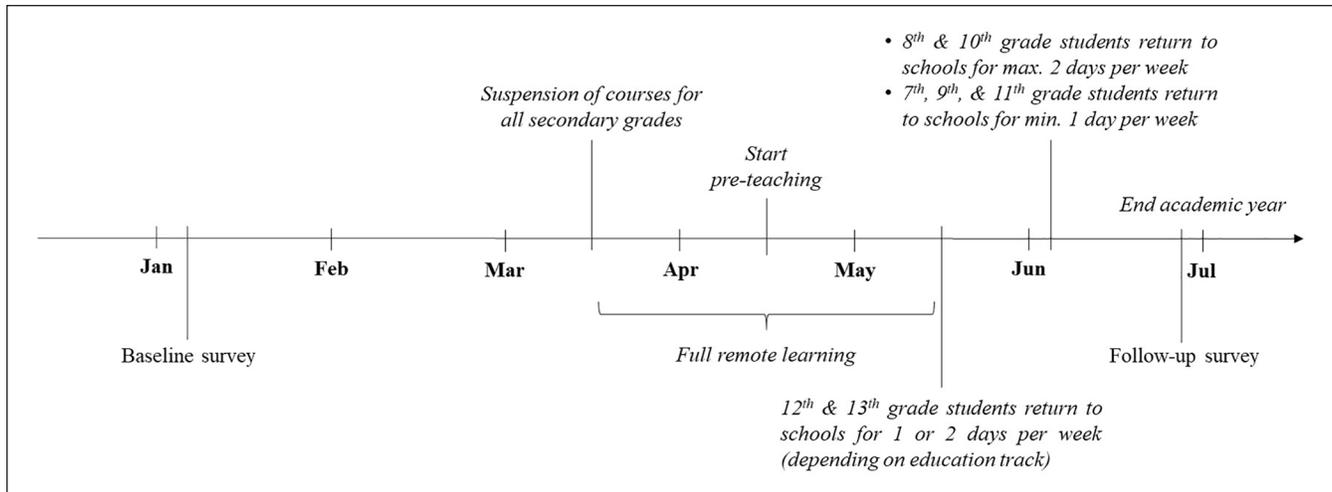


Figure 1. Closure and gradual reopening of Flemish secondary schools.

Note. Schools could only reopen if they met strict safety measures. Accordingly, it is possible that students in certain schools had to learn from home until the end of the academic year.

Hypothesis 3b (H3b): Students with high neuroticism are more likely to experience tensions at home during the school closure.

Fourth, the more open, the better an individual copes with uncertainty over a long, sustained period—as in the case of the COVID-19 crisis. Students with a high score on openness enjoy engaging in new (learning) experiences (Keller & Karau, 2013). Among others, openness has also been pointed as a significant correlate of intelligence (Harris, 2004) and effective learning styles that contribute to academic achievement (Komarraju et al., 2011). Hence, in line with the trait conscientiousness, the transition to remote learning might have been more successful for students high in openness.

Hypothesis 4a (H4a): Students with high openness are more likely to learn new skills during the COVID-19 crisis.

Hypothesis 4b (H4b): Students with high openness are more likely to have a good experience of remote learning.

Finally, based on the earlier literature, it is less clear to hypothesize how *agreeableness* would correlate to the way students experienced the crisis and remote learning. Agreeableness is assumed to correlate with prosocial behavior and volunteerism (Ozer & Benet-Martínez, 2006). Hence, we may expect that students who score high on agreeableness were more willing to help others during the crisis, in and/or outside their household, than others.

Hypothesis 5 (H5): Students with high agreeableness are more likely to help others during the COVID-19 crisis.

Setting

On March 16, 2020, all Flemish schools were required to suspend courses and transition to remote learning. In the first month after the school closure, students worked on homework assignments based on subjects already covered in school. From mid-April 2020 onward, teachers were expected to teach new learning material for the first time via digital tools and for a second time once schools would reopen (i.e., “pre-teaching” phase). From mid-May 2020 onward, the government recommended a gradual reopening of schools in Flanders, under strict organizational conditions. Figure 1 presents a graphical representation at the secondary education level. Note that, depending on the grade, students returned to their classroom at different points in time.

In addition to the closure of schools, the government ordered extensive restrictions on public and economic life on March 16, 2020. In particular, for at least 2 months, citizens were asked to stay at home as much as possible, companies were required to organize working from home, nonessential travel outside Belgium was prohibited, activities and events were suspended, and most shops, outdoor markets, sports centers, and playgrounds were closed. Consequently, it is important to note that, apart from not attending school, children were isolated at home, unable to meet friends, pursue their hobbies, and so on. In what follows, we thus measure the relationship between personality and students’ experiences and expectations of both a long-lasting school closure and lockdown.

Method

The materials, data, and analysis codes necessary to reproduce reported results can be retrieved from <https://osf.io/87pxt/>.

Data

In January 2020, a first set of data was collected as part of a larger field experiment run in multiple secondary schools in Flanders (for more details, see De Witte et al., 2020). The schools were approached via an open call to participate in a program in entrepreneurship education. Due to the COVID-19 outbreak and the closure of schools, many participating schools were unable to finish the program. Yet, given the field experiment's baseline data comprised a wide range of student background characteristics, including personality traits, it represented an excellent foundation to study the role students' characteristics play in their experiences of the crisis. The baseline survey took 16 min to complete, on average. Next, to evaluate student experiences and expectations of the COVID-19 crisis and school closure, we collected a second set of data by sending a survey to all participating schools in the baseline survey at the end of June 2020. Students were asked to complete the follow-up survey at home, and they had a chance at winning a €30 gift voucher of their choice as an incentive to complete the survey. The survey took 7 min to complete, on average.

Sample

The final sample (including students present in both data sets) consisted of 347 students in 56 classes in 35 Flemish secondary schools. We excluded 14 students because of missing data on key/control variables in the follow-up survey. Of the 347 students, 30 were in the ninth grade, 31 in the 10th grade, 207 in the 11th grade, 76 in the 12th grade, and three in the 13th grade. A sensitivity power analysis using G*Power (Faul et al., 2007) suggested that we have sufficient power, that is, $1 - \beta = 0.99$, to detect an effect size Cohen's f^2 of 0.21 in linear multiple regressions (with $N = 347$, $\alpha = .05$, and total number of predictors = 69, for which the latter refers to all explanatory variables in the main model specification including class fixed effects). It is important to note that there were few students per class and school in our sample. This can be explained by our method of data collection. In particular, although many classes and schools were sent the follow-up survey (i.e., all schools participating in the baseline survey of the experiment), only few students within the class or school completed it: (a) because it was not compulsory (students took the survey at home on a voluntary basis) or (b) because their teacher did not provide the survey. Comparing the characteristics of students who took both the baseline and follow-up survey and the remaining students who participated in the baseline survey of the field experiment, especially older students, students speaking Dutch at home, students with a lower socioeconomic status, and students scoring higher on conscientiousness and the knowledge test appeared to have taken the follow-up survey (see Table A1 in the appendix). We analyze whether selection bias affects the validity of our results in the subsection

“Robustness” in Results. To assess the external validity of our sample, we compared four common types of socioeconomic indicators as measured in administrative datasets (i.e., the percentage of students with a low-educated mother, the percentage of students receiving an allowance, the percentage of non-native students, and the percentage of students living in a neighborhood with high retention rates) for in- and out-of-sample schools.² Table A2 in the appendix shows that the demographic composition of our sample of schools compares well with that of the average Flemish secondary school. Accordingly, we believe our sample is a reasonable representation of Flemish secondary school students.

Measures

Personality traits. The personality traits of students, as assessed 2.5 months prior to the COVID-19 outbreak and school closure, were measured by the *Quick Big Five* questionnaire (Vermulst & Gerris, 2005), a shortened Dutch version of Goldberg's (1992) Big Five questionnaire. The questionnaire has been shown to have good construct validity (Mabbe et al., 2016). The questionnaire consisted of 30 adjectives which measured the five personality dimensions, that is, extraversion, agreeableness, conscientiousness, neuroticism (reversed emotional stability), and openness. The personality dimensions were assessed by six adjectives each, such as “talkative” (extraversion), “helpful” (agreeableness), “careful” (conscientiousness), “anxious” (neuroticism), and “creative” (openness). Students indicated on a 7-point Likert-type scale, ranging from 1 = “completely incorrect” to 7 = “completely correct,” to what extent each of the adjectives applied to them. Cronbach's alpha was .91 for extraversion, .85 for agreeableness, .85 for conscientiousness, .85 for neuroticism, and .74 for openness.

Experience of COVID-19. Inspired by a survey assessing the emotional well-being of Flemish youngsters during the COVID-19 crisis,³ we designed a survey to assess student experiences and expectations of the COVID-19 crisis and school closure. By including factors for which we hypothesized influence of the crisis, we assessed students' well-being, remote learning experiences, and perception of family and social life. Seven outcome measures were constructed based on one or multiple underlying items. Responses to all underlying items were given on a 5-point Likert-type scale ranging from 1 = “completely incorrect” to 5 = “completely correct.” See Table A3 in the appendix for a detailed description of the underlying items of each measure.

The first measure “Tensions at home” aimed to capture the extent to which students experienced tensions at home. Students were asked to evaluate five items such as “I regularly argued with my family members” and “In the period I did not have to go to school, I regularly received admonishments from my parent.” Cronbach's alpha was .68. Second, we measured students' willingness to help using a single

item, “I tried to do things for others (for instance, volunteer work, go to the supermarket for others).” Third, students’ experience of remote learning was assessed via six items, such as “I managed well to focus on schoolwork every day” and “Working independently makes me stressed” (reverse scored). Cronbach’s alpha was .66 for “Positive experience of remote learning.”⁴ Fourth, whether students learned new skills was assessed by a single item, “I learned new skills (such as a new language, cooking).” Fifth, we asked students to evaluate how much they missed school attendance. The variable “Miss school life” was measured using four items, such as “I liked that we didn’t have to go to school for so long” (reverse scored) and “In the period I did not have to go to school, I looked forward seeing my friends at school.” Cronbach’s alpha was .76. Sixth, we assessed to what extent the school closure made students feel nervous and worried via the variable “Stress from school closure,” for which three items were used, such as “I am afraid I fell behind in my education” and “Not going to school for so long makes me stressed.” Cronbach’s alpha was .71. Finally, in addition to student experiences, a seventh outcome measure assessed student expectations concerning school results, that is, whether students expected that their results would decrease, increase, or remain unchanged because of the crisis.⁵

Control variables. To minimize bias, we included a range of potentially confounding variables in the analyses. As for the personality traits, most characteristics were measured during the first data collection. At individual level, we included the gender, age, language spoken at home, socioeconomic status, education track, and score on a knowledge test. The socioeconomic status was approximated by the number of times a student traveled abroad during the last year as students were expected to easily recall this. This measure is found to be correlated with household income (Maldonado et al., 2021). The education track was represented by a dummy variable taking value 1 if the student followed an academic track, 0 otherwise.⁶ Because the Flemish education system does not have standardized tests, the cognitive outcomes of students had to be measured in an alternative way. During the first data collection, all students completed a standardized 13-questions multiple-choice test related to entrepreneurship (i.e., the topic of the field experiment). Accordingly, we used students’ results on the test as a standardized proxy of cognitive ability. In addition, we controlled for students’ home environment during the school closure, that is, whether the student lived in a household with one or more household members belonging to a risk group for COVID-19, as measured in the follow-up survey via the item “Does someone in your household belong to a risk group for COVID-19 (e.g., due to a weakened immune system or a chronic condition such as asthma/diabetes/heart disease)?” Finally, we observed the class and school of students.

Statistical Analysis

Multiple regression analyses were conducted to analyze the importance of personality traits in the experience of the crisis and school closure. We used an ordinary least squares (OLS) model for the outcomes constructed using multiple underlying Likert-type items, whereas ordered logistic models for the ordinal outcomes or outcomes based on a single Likert-type item. The use of parametric models for Likert-type data has been subject to debate. Yet, it has generally been accepted that parametric models can be used if the Likert-type items are first summed to construct a measure as the sums can be treated as interval data measuring a latent variable (Carifio & Perla, 2008).⁷ For ease of interpretation of effect size, we standardized the personality traits and measures constructed using multiple underlying items. For ordered logit regressions, we reported the odds ratios (ORs).

The model reads as follows:

$$Y_{i,c} = \alpha + \sum_j \beta_j T_{i,j} + \sum_k \beta_k X_{i,k} + \sum_c \beta_c C_{i,c} + \varepsilon_{i,c}. \quad (1)$$

The variable $Y_{i,c}$ represents an outcome measure (e.g., tensions at home). The vector $T_{i,j}$ includes the five personality traits j for student i . The vectors $X_{i,k}$ and $C_{i,c}$ refer to the set of control variables k and the set of class fixed effects c for student i , respectively.⁸ The former was included to aid precision. The latter was included to account for differences in (a) teaching approaches across classes and schools, (b) the time students returned to their classrooms (see section “Setting”), and (c) the personality traits of students in the classroom. To account for within-cluster dependence, we clustered the standard errors $\varepsilon_{i,c}$ at class level c .⁹

Results

Descriptive and Correlational Findings

Table 2 presents the descriptive statistics of the variables used in the analyses. Overall, 54% of students in our sample were female and 86% spoke Dutch at home. Students were, on average, 17 years old. Of the 347 students, 197 students followed an academic track. Almost 33% of students reported living in a household with one or more household members belonging to a risk group for COVID-19. As shown in Table A4 in the appendix, the students in our sample showed similar values for each of the five personality traits as found in previous studies with Flemish secondary students (Mabbe et al., 2016; Teppers et al., 2013).

Table A5 in the appendix presents the correlations between variables. Overall, female students showed significant positive correlations with the traits agreeableness ($r = .19, p < .001$), conscientiousness ($r = .25, p < .001$), and all outcome measures, except “Tensions at home” and “Expectation of school results.” A positive correlation was

Table 2. Descriptive Statistics of Measures and Variables.

Variables	N	Percent	M	SD
Personality traits				
Extraversion (7)			4.49	1.30
Agreeableness (7)			5.70	0.69
Conscientiousness (7)			4.60	1.11
Neuroticism (7)			4.14	1.14
Openness (7)			4.60	0.91
Experience of COVID-19				
Tensions at home (5)			2.63	0.75
Willing to help (5)			2.84	1.10
Positive experience of remote learning (5)			2.99	0.73
Learn new skills (5)			3.29	1.17
Miss school life (5)			3.13	0.85
Stress from school closure (5)			2.78	0.95
Expectation of school results				
Decrease	68	19.60		
Unchanged	139	40.06		
Increase	140	40.35		
Controls				
Female	187	53.89		
Age (years)			16.86	0.96
Dutch	297	85.59		
Number of holidays per year				
0	29	8.36		
1 time	78	22.48		
2 times	95	27.38		
3 times	63	18.16		
More than 3 times	82	23.63		
Academic track	197	56.77		
Knowledge score (13)			8.39	2.85
Household with COVID-19 risk	113	32.56		

Note. Values in parentheses after the variables denote maximum value.

found for neuroticism ($r = .30, p < .001$). We did not find any significant correlation between the age of students and the outcome measures, suggesting no association of age on the measures. Students following an academic track showed a positive correlation with the outcome measures “Positive experience of remote learning” ($r = .12, p = .024$) and “Learn new skills” ($r = .14, p = .011$). The academic performance of students was positively correlated with the measure related to remote learning ($r = .11, p = .038$) and negatively correlated with the stress level of students because of the school closure ($r = -.23, p < .001$). Finally, we found that students living in a household with COVID-19 risk showed a positive correlation with the measure “Stress from school closure” ($r = .11, p = .044$).

Student Experience of COVID-19 and School Closure

We first examined the importance of the Big Five personality traits in explaining the differences in student experiences, as

presented in Table 3. Note that because we tested multiple hypotheses, the estimates significant at the 5% and 10% level must be interpreted with caution (see the subsection “Robustness” in Results).

Extraversion was associated significantly with the measure “Tensions at home.” In particular, extraversion was associated with a higher likelihood of experiencing tensions at home ($\beta = 0.175, SE = 0.071, p = .017, 95\% \text{ confidence interval [CI]} = [0.033, 0.317]$). Agreeableness ($\beta = -0.153, SE = 0.073, p = .041, 95\% \text{ CI} = [-.300, -.006]$) and conscientiousness ($\beta = -0.153, SE = 0.064, p = .020, 95\% \text{ CI} = [-0.281, -0.025]$), on the contrary, were associated with a lower likelihood of experiencing tensions at home. The results showed no significant relationship between students’ willingness to help during the crisis and the personality traits. Conscientiousness was linked to student experiences of remote learning. When controlling for the other characteristics, we found that conscientiousness was linked to significantly better experiences of remote learning ($\beta = 0.253, SE = 0.057, p < .001, 95\% \text{ CI} = [0.139, 0.368]$). In contrast to

Table 3. Student Experiences of COVID-19 and School Closure and Personality Traits.

Dependent variable	Tensions at home	Willingness to help	Positive experience of remote learning	Learn new skills	Miss school life	Stress from school closure
	(1)	(2)	(3)	(4)	(5)	(6)
Extraversion	0.175** (0.0710)	1.139 (0.145)	-0.0451 (0.0711)	1.056 (0.129)	0.0700 (0.0556)	0.00373 (0.0616)
Agreeableness	-0.153** (0.0732)	1.181 (0.181)	0.0160 (0.0684)	1.220 (0.178)	0.0345 (0.0632)	0.0829 (0.0634)
Conscientiousness	-0.153** (0.0637)	1.110 (0.131)	0.253*** (0.0571)	1.160 (0.144)	0.00558 (0.0673)	-0.0793 (0.0749)
Neuroticism	0.122 (0.0746)	0.914 (0.125)	-0.0120 (0.0578)	0.902 (0.133)	0.117* (0.0695)	0.219*** (0.0741)
Openness	0.100 (0.0742)	1.241 (0.194)	-0.0336 (0.0720)	1.614*** (0.235)	0.0130 (0.0567)	0.0184 (0.0551)
Model	OLS	Ordered logit	OLS	Ordered logit	OLS	OLS
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Class FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	347	347	347	347	347	347

Note. For OLS models, standardized regression coefficients are presented. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. Controls include gender, age, language spoken at home, socioeconomic status, knowledge score, and an indicator for household with COVID-19 risk. OLS = ordinary least squares; FE = fixed effect.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table 4. Student Expectations of School Results and Personality Traits.

Dependent variable	Expectation of school results
	(1)
Extraversion	0.722** (0.119)
Agreeableness	0.913 (0.136)
Conscientiousness	1.302** (0.171)
Neuroticism	1.066 (0.166)
Openness	0.945 (0.110)
Model	Ordered logit
Controls	Yes
Class FE	Yes
Observations	347

Note. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. Controls include gender, age, language spoken at home, socioeconomic status, knowledge score, and an indicator for household with COVID-19 risk. FE = fixed effect.

* $p < .1$. ** $p < .05$. *** $p < .01$.

our hypotheses, we did not find this association for openness. However, the results showed that openness was a significant predictor for learning new skills (odds ratio [OR] = 1.614, $SE = 0.235$, $p = .001$, 95% CI = [1.214, 2.147]). Neuroticism

was associated significantly with the extent students missed going to school and were stressed because of the school closure. In particular, neuroticism was positively associated with the “Miss school life” measure ($\beta = 0.117$, $SE = 0.070$, $p = .098$, 95% CI = [-0.022, 0.256]) and the “Stress from school closure” measure ($\beta = 0.219$, $SE = 0.074$, $p = .005$, 95% CI = [0.071, 0.368]). Note that the former estimate was only significant at the 10% level.

Student Expectation of School Results

Table 4 shows the results for student expectations of changes in school results because of the COVID-19 crisis and school closure. For high values in extraversion, the odds of expecting an increase in results versus no change or a decrease in results were 0.72 times smaller (OR = 0.722, $SE = 0.119$, $p = .048$, 95% CI = [0.523, 0.997]), whereas for high values in conscientiousness, the odds were 1.3 times greater (OR = 1.302, $SE = 0.171$, $p = .045$, 95% CI = [1.006, 1.685]).

We examined these findings more in depth by predicting the probabilities of expecting a decrease, no change, or an increase in school results for different standardized values in the personality traits. Figure 2 illustrates that, overall, most students expected no change or an increase in school results. However, although this was evident across all personality traits, the figure points to significant differences across the standardized values in the personality traits. In particular, in line with the results in Table 4, we found that the probability of

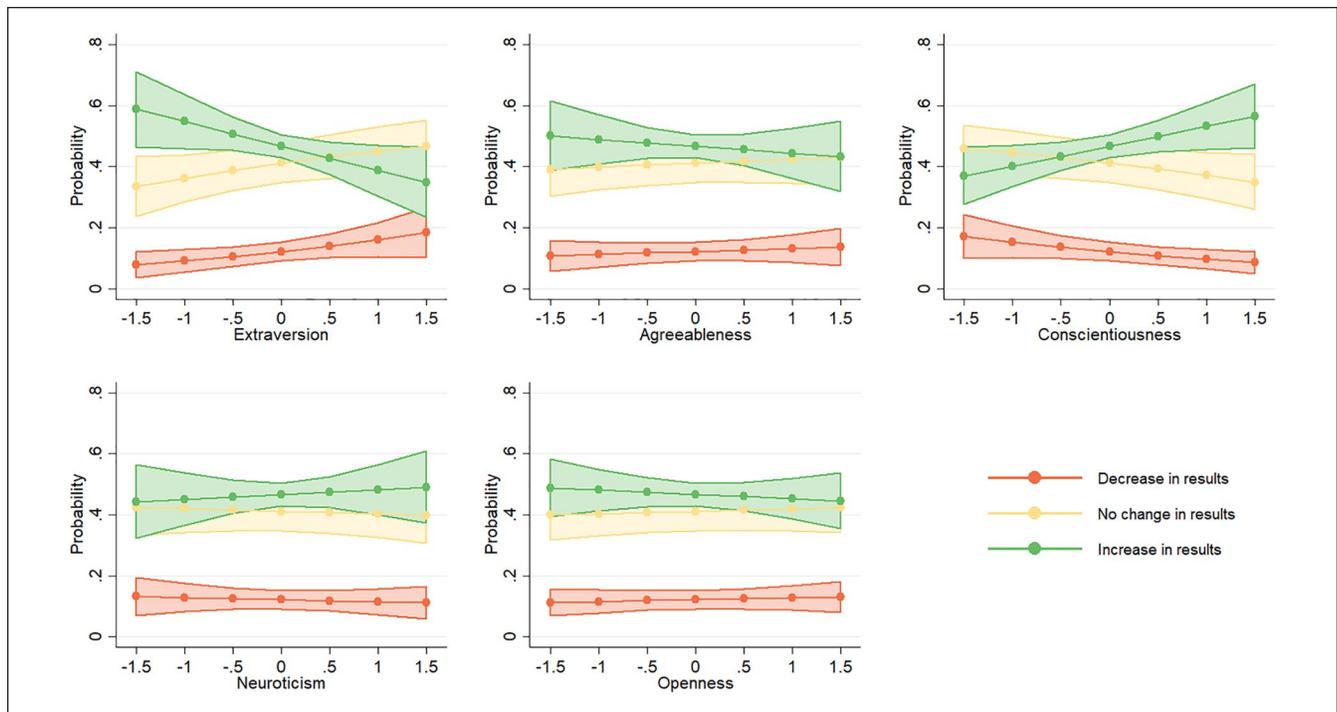


Figure 2. Predicted probabilities of student expectations of school results across personality traits.

Note. The figure shows the predicted probability (dot) and 95% confidence interval (shaded area) for different scores on each personality trait for the three values of student expectations of changes in school results. Predicted probabilities are estimated using an ordered logistic model. The model includes clustered standard errors at class level and the following controls: gender, age, language spoken at home, socioeconomic status, knowledge score, an indicator for household with COVID-19 risk, and class fixed effects.

expecting an increase in results for more introverted students (-1.5 *SD* on extraversion) was estimated at 0.59, whereas for more extraverted students ($+1.5$ *SD* on extraversion) only 0.35. Similarly, the probability was estimated at 0.56 for students high in conscientiousness ($+1.5$ *SD* on conscientiousness) compared with 0.37 for students low in conscientiousness (-1.5 *SD* on conscientiousness).

Robustness

We performed three analyses to test the robustness of our results. First, Tables A6 through A8 in the appendix show that the estimates remained largely robust against the inclusion of control variables and class fixed effects. Second, because we considered multiple outcome measures, this raised the concern of multiple hypothesis testing. To address this issue, we used a conservative two-step method proposed by Benjamini et al. (2006) and implemented in Stata by Anderson (2008). The method calculates sharpened *q* values, which control for the false discovery rate (FDR), that is, the expected share of Type I errors. Table A9 shows that our results were relatively robust to the adjustment, that is, all estimates significant at the 1% level had *q* values below 0.1. However, estimates significant at the 5% or 10% level did not have *q* values

below 0.1. Accordingly, we must interpret these with caution. Finally, to account for the selection of students in our study (i.e., especially older students, students speaking Dutch at home, students with a lower socioeconomic status, and students having a higher score on conscientiousness and the knowledge test completed the follow-up survey), we used Inverse Probability Weighting (IPW). The method calculates the probability of having non-missing data in the follow-up survey based on observable student characteristics. The inverse of the probability is then included as a weight in the analyses. Table A10 shows that our main results were largely robust against this weighting technique, suggesting that selection bias did not (or only to a limited extent) affect the validity of our results.

Discussion

Summary and Interpretation

Using two unique data sets with 347 students in 35 secondary schools, we examined the importance of personality traits in student experiences and expectations of the COVID-19 crisis and long-lasting school closure. Following the person–situation fit theory, we based our expectations on the idea that the fit between students' Big Five

personality traits and the (new) living and learning situation determined their perceptions of the crisis and school closure. Three of the seven hypotheses were supported: higher conscientiousness was associated with better experiences of remote learning (H2), higher neuroticism was associated with more stress due to the school closure (H3a), and higher openness was positively associated with learning new skills (such as a new language, cooking) during the crisis (H4a). In contrast to our hypotheses, no associations were found between extraversion and the extent students missed going to school (H1), neuroticism and the extent students experienced tensions at home (H3b), openness and remote learning experiences (H4b), and agreeableness and the willingness to help others during the crisis (H5). The results did show multiple other correlations. In particular, higher conscientiousness was associated with fewer tensions at home and higher expectations about future school results, whereas the reverse held for higher extraversion. Higher agreeableness was associated with fewer tensions at home. Higher neuroticism was positively associated with the extent students missed going to school. However, given the latter findings were not robust against the conservative method of controlling for multiple inferences, we must be cautious when drawing conclusions.

Extraverted students did not miss going to school more than others did. One potential explanation is that, because extraverted students value social interaction more highly, they may have been particularly creative in seeking alternative ways to communicate with others (e.g., by phone, video chat, social media) during the school closures (Asselmann et al., 2020), thereby lessening the extent they actually missed going to school.

Students with higher conscientiousness developed a better perception of remote learning. This finding is consistent with the literature on self-regulation learning strategies (Bidjerano & Dai, 2007), prior findings in the online learning context (Cohen & Baruth, 2017; Keller & Karau, 2013), and recent studies on COVID-19 guidelines adherence (Abdelrahman, 2020; Aschwanden et al., 2021; Blagov, 2020; Bogg & Milad, 2020; Brouard et al., 2020; Carvalho et al., 2020; Götz et al., 2021; Zettler et al., 2020) and the psychological impact of COVID-19 (Qian & Yahara, 2020; Zhang et al., 2020). Being more organized, persistent, and dutiful, students higher in conscientiousness took responsibility for their learning and were well adapted to the new living and learning situation.

Given students high in openness generally are intelligent (Harris, 2004), use effective learning styles that contribute to academic achievement (Komarraju et al., 2011), and enjoy engaging in new learning experiences (Keller & Karau, 2013), it is surprising that these students did not show a better experience of remote learning during the school closures than their counterparts. However, we did find that students

high in openness were more likely to consider the period as an opportunity to invest in personal growth and learn new skills, which is in line with Modersitzki et al. (2020) and Zhang et al. (2020) showing that openness was related to less negative affect caused by COVID-19.

Students with a high score on neuroticism tend to experience anger, sadness, anxiety, worry, and hostility (Costa & McCrae, 1992). This was mirrored in higher stress levels. Recent COVID-19 studies also reported that neuroticism was related to more concerns, uncertainty, and negative affect during the crisis (Aschwanden et al., 2021; Asselmann et al., 2020; Kroenke et al., 2020; Modersitzki et al., 2020; Qian & Yahara, 2020; Zettler et al., 2020). On the contrary, students high in neuroticism did not report a higher level of tension at home. It is possible that, rather than at the individual level, factors at the household level, such as changes in the allocation of childcare, are more important to explain differences in tension levels (Biroli et al., 2020).

Finally, agreeableness was not associated with more prosocial behavior, which contrasts to some extent with Asselmann et al. (2020) and Zajenkowski et al. (2020) who showed that individuals high in agreeableness were more likely to comply with the COVID-19 guidelines, possibly because they are more willing to behave in a socially desirable way. Further research is required to clarify the absence of a significant association.

Collectively, our study suggests that especially students with higher conscientiousness and openness adjusted well to the changes induced by the crisis, whereas students with high neuroticism felt more impaired during the crisis.

Limitations

We note several limitations of this study. First, the observational study design did not allow for causal claims. Second, due to the short timeframe and the pandemic circumstances, the outcomes used to measure students' experiences and expectations of the crisis and the resulting school closures were ad hoc measures that have not been formally validated. Although the measures showed mediocre to adequate psychometric properties, future research could provide a more sophisticated development and assessment of the measures' structures. Third, our study used self-reported measures such that students' actual behaviors, feelings, and school outcomes were not assessed. Self-reports may be subject to socially desirable answers and may introduce common method bias. However, given the personality traits were not measured contemporaneously with the outcome measures in our study, common method bias is less likely. Fourth, although the longitudinal design of the current study is a clear strength (i.e., thanks to the pre-pandemic personality assessment, student responses on the personality items were not skewed by the crisis), the generalizability of the results to

different stages of the COVID-19 crisis remains unknown. In particular, it is unclear how the same results would replicate as the COVID-19 crisis continues to bring daily life to a halt or in a post-COVID-19 world where social life is resumed, but remote learning in education becomes the new normal. Relatedly, the generalizability to other regions and age groups might be limited. It remains to be tested whether similar patterns are found in non-students and individuals in other countries with different implementations of protective measures and cultural contexts. Fifth, although the IPW analysis suggested that selection bias was unlikely to affect the validity of the results, we must acknowledge that the selection of students in the follow-up survey might limit the representativeness of our sample. Finally, it is possible that some associations may be mediated by factors not included in the analyses.

Implications

The results of this article show that personality traits play an important role in learning situations in particular and education in general. Far too often, schools and teachers ignore the personality of students. Irrespective of their personality, students have to attend in-person classes in a crowded class group of about 24 students, follow classes at

exactly the same pace as their fellow students, and have little leeway to explore their own interests. Our results suggest that the stringent education curriculum might suppress the eagerness of students with high openness to learn new skills. Similarly, some (in particular the high conscientiousness) students might be better off in remote learning situations. It is, therefore, no surprise that many believe that remote learning is likely to stay. Yet, our results indicate that this upcoming trend will be particularly favorable for students with high conscientiousness, whereas students with high neuroticism will miss the traditional structure that in-person classes provide. Our results further imply that more attention should be given to the diversity in personality traits that is present in our student population. The current one-size-fits-all approach makes that many students lose motivation for education, and, ultimately, leave the education system without a credential (De Witte et al., 2013). Policymakers and educators should prevent widening (achievement) gaps in secondary education by addressing the individual differences between students. Identifying students based on their personality and providing tailored (remote) learning content may be one promising avenue. While the present article provided a foundation, future research should focus on the development and evaluation of such a teaching practice.

Appendix

Table A1. Selection Bias.

Variables	In-sample students (N = 361)	Out-of-sample students (N = 2,268)	p value
Extraversion (7)	4.51 (1.30)	4.51 (1.31)	.990
Agreeableness (7)	5.68 (0.69)	5.65 (0.74)	.459
Conscientiousness (7)	4.57 (1.11)	4.42 (1.21)	.034
Neuroticism (7)	4.13 (1.14)	4.03 (1.14)	.167
Openness (7)	4.62 (0.92)	4.69 (0.99)	.271
Female	0.53	0.49	.261
Age (years)	16.85 (0.97)	16.51 (1.31)	.011
Dutch	0.86	0.79	.077
Number of holidays per year (5)	3.24 (1.28)	3.41 (1.24)	.077
Academic track	0.57	0.69	.171
Knowledge score (13)	8.41 (2.84)	7.74 (2.80)	.038

Note. Mean values and standard deviations in parentheses. The p values are derived by regressing each variable on an indicator for having non-missing data in the follow-up survey with standard errors clustered at class level. Values in parentheses after the variables denote maximum value. Age is missing for 126 students.

Table A2. External Validity.

School characteristic	In-sample schools	Out-of-sample schools	<i>p</i> value
% low-educated mothers	0.23	0.25	.520
% on allowance	0.29	0.30	.591
% nonnative	0.15	0.18	.334
% neighborhood high retention	0.23	0.25	.614

Note. Mean values and *p* value of each school characteristic are computed using a *t* test.

Table A3. Description of Outcome Measures.

Measure	Underlying items
Tensions at home	In the period I did not have to go to school, I regularly argued with my family members. My family members supported me. (reverse scored) I feel more connected to my family members than before. (reverse scored) I was more annoyed with my family members than before. In the period I did not have to go to school, I regularly received admonishments from my parents.
Willing to help	I tried to do things for others (for instance, volunteer work, go to the supermarket for others).
Positive experience of remote learning	I managed well to focus on schoolwork every day. I tried to keep my day well-structured. In the period I did not have to go to school, I worked every day for school. In the period I did not have to go to school, I woke up around the same time as I did for school. Working independently makes me stressed. (reverse scored) In the period I did not have to go to school, I organized my schoolwork in my own way.
Learn new skill	I learned new skills (such as a new language, cooking).
Miss school life	I liked that we didn't have to go to school for so long (reverse scored). In the period I did not have to go to school, I looked forward going back to school. In the period I did not have to go to school, I looked forward seeing my friends at school. I liked the period we didn't have to go to school. (reverse scored)
Stress from school closure	I am afraid I fell behind in my education. Not going to school for so long makes me stressed. In the period I did not have to go to school, I was concerned about the future.

Table A4. Comparison of Personality Traits Across Studies.

Measure	Present study		Teppers et al. (2013)		Mabbe et al. (2016)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Extraversion	4.49	1.30	4.82	1.14	4.94	1.11
Agreeableness	5.70	0.69	5.54	0.66	5.34	0.65
Conscientiousness	4.60	1.11	4.00	1.19	3.72	1.27
Neuroticism	4.14	1.14	4.11	1.07	4.08	1.16
Openness	4.60	0.91	4.63	0.89	4.60	0.91

Note. The personality traits range from 1 = *low* to 7 = *high*. This study includes 347 students in 35 Flemish secondary schools ($M_{age} = 16.86$ years, $SD_{age} = 0.96$ years). The sample in Teppers et al. (2013) includes 1,388 students from two Flemish secondary schools ($M_{age} = 15.72$ years, $SD_{age} = 1.19$ years). The sample in Mabbe et al. (2016) includes 292 Flemish students ($M_{age} = 15.74$ years, $SD_{age} = 1.21$ years). Note the term "emotional stability" (the inverse of neuroticism) was used in the latter two studies.

Table A5. Correlations Between Variables.

Variables	1	2	3	4	5	6	7	8	9
1. Extraversion									
2. Agreeableness	.19***								
3. Conscientiousness	-.16***	.33***							
4. Neuroticism	-.33***	.01	.06						
5. Openness	.17***	.23***	.08	-.11**					
6. Tensions at home	.09*	-.14***	-.22***	.07	.04				
7. Willing to help	.04	.11**	.07	.04	.11**	-.01			
8. Positive experience of remote learning	-.05	.09	.27***	.01	.00	-.24***	-.00		
9. Learn new skills	.05	.19***	.14**	-.07	.23***	-.06	.16***	.19***	
10. Miss school life	-.01	.04	.05	.10*	-.01	.15***	.12**	-.12**	.09*
11. Stress from school closure	-.11**	.06	.00	.28***	-.02	.22***	.16***	-.20***	.03
12. Expectation of school results	-.12**	-.01	.09	.02	-.05	-.04	-.02	.17***	-.01
13. Female	-.08	.19***	.25***	.30***	.03	-.05	.15***	.11**	.14***
14. Age	.04	.09*	.10*	-.05	.07	-.07	.02	-.04	-.00
15. Dutch	.05	.02	-.14***	.17***	-.08	.04	.05	.11**	-.02
16. Number of holidays per year	.08	-.04	-.01	-.02	.02	-.02	.02	.05	.05
17. Academic track	.03	-.02	.00	-.09*	-.15***	-.00	-.04	.12**	.14**
18. Knowledge score	.15***	.03	-.09*	-.16***	.04	-.02	-.12**	.11**	-.01
19. Household with COVID-19 risk	.01	.05	.07	.16***	.02	.04	.05	-.03	-.01
	10	11	12	13	14	15	16	17	18
1. Extraversion									
2. Agreeableness									
3. Conscientiousness									
4. Neuroticism									
5. Openness									
6. Tensions at home									
7. Willing to help									
8. Positive experience of remote learning									
9. Learn new skills									
10. Miss school life									
11. Stress from school closure	.50***								
12. Expectation of school results	-.07	-.17***							
13. Female	.19***	.18***	-.01						
14. Age	.08	.09	-.01	.07					
15. Dutch	-.00	-.00	.08	.08	-.01				
16. Number of holidays per year	.04	.01	.04	.07	-.03	.16***			
17. Academic track	.10*	.01	.17***	.03	.02	.25***	.28***		
18. Knowledge score	-.09	-.23***	.13**	-.19***	.18**	.36***	.13**	.40***	
19. Household with COVID-19 risk	-.04	.11**	-.07	.04	.01	.06	-.02	-.06	-.04

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table A6. Student Experiences of COVID-19 and School Closure and Personality Traits—Gradual Inclusion of Controls.

Dependent variable	Tensions at home			Willingness to help			Positive experience with distance learning		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Extraversion	0.116* (0.0584)	0.124* (0.0621)	0.175** (0.0710)	1.072 (0.119)	1.068 (0.125)	1.139 (0.145)	-0.0135 (0.0545)	-0.0360 (0.0555)	-0.0451 (0.0711)
Agreeableness	-0.123** (0.0578)	-0.127** (0.0574)	-0.153** (0.0732)	1.113 (0.130)	1.089 (0.125)	1.181 (0.181)	0.00538 (0.0626)	-0.00643 (0.0608)	0.0160 (0.0684)
Conscientiousness	-0.174*** (0.0594)	-0.164*** (0.0614)	-0.153** (0.0637)	1.072 (0.0938)	1.042 (0.102)	1.110 (0.131)	0.269*** (0.0497)	0.290*** (0.0464)	0.253*** (0.0571)
Neuroticism	0.129** (0.0568)	0.128* (0.0659)	0.122 (0.0746)	1.123 (0.127)	0.989 (0.124)	0.914 (0.125)	-0.0107 (0.0562)	-0.0345 (0.0478)	-0.0120 (0.0578)
Openness	0.0747 (0.0666)	0.0825 (0.0653)	0.100 (0.0742)	1.180 (0.143)	1.211 (0.148)	1.241 (0.194)	-0.0201 (0.0653)	-0.00975 (0.0628)	-0.0336 (0.0720)
Female		-0.0459 (0.109)	-0.139 (0.134)		1.369 (0.324)	1.514 (0.450)		0.138 (0.126)	0.147 (0.159)
Age		-0.0356 (0.0551)	-0.0429 (0.103)		1.045 (0.121)	1.199 (0.248)		-0.104* (0.0552)	-0.0439 (0.0796)
Knowledge score		-0.0131 (0.0215)	-0.00791 (0.0243)		0.897*** (0.0356)	0.952 (0.0561)		0.0445** (0.0195)	0.0146 (0.0258)
Dutch		0.0167 (0.187)	-0.305 (0.267)		1.828 (0.726)	2.036 (1.120)		0.294* (0.173)	0.212 (0.204)
Holidays 1 time		-0.0795 (0.183)	-0.150 (0.215)		0.437* (0.209)	0.409 (0.267)		-0.120 (0.261)	-0.0986 (0.328)
Holidays 2 times			0.0286 (0.183)		-0.0763 (0.203)	0.670 (0.318)		0.656 (0.414)	-0.0633 (0.238)
Holidays 3 times			0.0307 (0.187)		-0.146 (0.244)	0.639 (0.315)		0.748 (0.510)	-0.0830 (0.264)
Holidays more than 3 times			-0.164 (0.219)		-0.269 (0.274)	0.663 (0.359)		0.777 (0.559)	-0.0108 (0.234)
Household with COVID-19 risk			0.0540 (0.126)		0.0787 (0.139)	1.099 (0.290)		1.138 (0.366)	-0.0918 (0.149)
Model	OLS	OLS	OLS	Ordered logit	Ordered logit	Ordered logit	OLS	OLS	OLS
Class FE	No	No	Yes	No	No	Yes	No	No	Yes
Observations	347	347	347	347	347	347	347	347	347

Note. Table shows estimates from three model specifications for each outcome variable. For OLS models, standardized regression coefficients are presented. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. Zero times serve as reference category for the number of holidays per year. OLS = ordinary least squares; FE = fixed effect.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table A7. Student Experiences of COVID-19 and School Closure and Personality Traits—Gradual Inclusion of Controls.

Dependent variable	Learn new skills			Miss school life			Stress from school closure		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Extraversion	1.031 (0.103)	1.033 (0.105)	1.056 (0.129)	0.0262 (0.0533)	0.0428 (0.0545)	0.0700 (0.0556)	-0.0451 (0.0609)	-0.0371 (0.0592)	0.00373 (0.0616)
Agreeableness	1.272** (0.137)	1.244** (0.137)	1.220 (0.178)	0.0195 (0.0654)	-0.00444 (0.0661)	0.0345 (0.0632)	0.0859 (0.0529)	0.0804 (0.0564)	0.0829 (0.0634)
Conscientiousness	1.205* (0.115)	1.137 (0.111)	1.160 (0.144)	0.0422 (0.0456)	0.0123 (0.0537)	0.00558 (0.0673)	-0.0491 (0.0586)	-0.0942 (0.0631)	-0.0793 (0.0749)
Neuroticism	0.897 (0.101)	0.869 (0.0945)	0.902 (0.133)	0.109 (0.0696)	0.0796 (0.0623)	0.117* (0.0695)	0.263*** (0.0646)	0.206*** (0.0633)	0.219*** (0.0741)
Openness	1.429*** (0.163)	1.544*** (0.189)	1.614*** (0.235)	-0.0101 (0.0531)	-0.00344 (0.0473)	0.0130 (0.0567)	-0.00361 (0.0541)	-0.00940 (0.0515)	0.0184 (0.0551)
Female		1.518* (0.369)	1.676 (0.546)		0.317*** (0.115)	0.166 (0.127)		0.147 (0.0883)	0.0749 (0.120)
Age		0.916 (0.112)	0.846 (0.187)		0.0930 (0.0684)	0.0914 (0.111)		0.145*** (0.0476)	0.243** (0.0969)
Knowledge score		0.958 (0.0431)	0.958 (0.0679)		-0.0275 (0.0236)	-0.0135 (0.0258)		-0.0768*** (0.0194)	-0.0436 (0.0292)

(continued)

Table A7. (continued)

Dependent variable	Learn new skills			Miss school life			Stress from school closure		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dutch		0.928 (0.332)	2.248 (1.221)		-0.0415 (0.153)	0.000733 (0.200)		0.0313 (0.169)	0.225 (0.214)
Holidays: 1 time		1.247 (0.491)	1.758 (0.972)		0.112 (0.182)	0.0984 (0.186)		0.158 (0.207)	0.190 (0.246)
Holidays: 2 times		1.292 (0.432)	1.661 (0.798)		0.165 (0.202)	0.0230 (0.203)		0.121 (0.242)	0.0893 (0.286)
Holidays: 3 times		1.210 (0.482)	1.525 (0.901)		0.499** (0.202)	0.382 (0.250)		0.213 (0.227)	0.191 (0.308)
Holidays: more than 3 times		1.082 (0.400)	1.000 (0.566)		0.0689 (0.233)	-0.120 (0.263)		0.194 (0.214)	0.192 (0.274)
Household with COVID-19 risk		0.976 (0.176)	1.032 (0.252)		-0.163 (0.122)	-0.173 (0.136)		0.145 (0.115)	0.0915 (0.124)
Model	Ordered logit	Ordered logit	Ordered logit	OLS	OLS	OLS	OLS	OLS	OLS
Class FE	No	No	Yes	No	No	Yes	No	No	Yes
Observations	347	347	347	347	347	347	347	347	347

Note. Table shows estimates from three model specifications for each outcome variable. For OLS models, standardized regression coefficients are presented. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. Zero times serve as reference category for the number of holidays per year. OLS = ordinary least squares; FE = fixed effect.
*p < .1. **p < .05. ***p < .01.

Table A8. Student Expectations of School Results and Personality Traits—Gradual Inclusion of Controls.

Dependent variable	Expectation of school results		
	(1)	(2)	(3)
Extraversion	0.801 (0.108)	0.787* (0.107)	0.722** (0.119)
Agreeableness	1.014 (0.121)	0.998 (0.114)	0.913 (0.136)
Conscientiousness	1.144 (0.108)	1.205* (0.117)	1.302** (0.171)
Neuroticism	0.931 (0.110)	1.006 (0.142)	1.066 (0.166)
Openness	0.906 (0.0954)	0.947 (0.104)	0.945 (0.110)
Female		0.913 (0.231)	0.764 (0.264)
Age		0.935 (0.0874)	0.835 (0.157)
Knowledge score		1.076* (0.0451)	1.080 (0.0605)
Dutch		1.230 (0.382)	1.403 (0.699)
Holidays: 1 time		1.455 (0.623)	1.453 (0.862)
Holidays: 2 times		1.354 (0.457)	1.567 (0.647)
Holidays: 3 times		1.109 (0.365)	1.168 (0.519)
Holidays: more than 3 times		1.189 (0.391)	1.331 (0.547)
Household with COVID-19 risk		0.772 (0.195)	0.814 (0.253)
Model	Ordered logit	Ordered logit	Ordered logit
Class FE	No	No	Yes
Observations	347	347	347

Note. Table shows estimates from three model specifications. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. Zero times serve as reference category for the number of holidays per year. FE = fixed effect.
*p < .1. **p < .05. ***p < .01.

Table A9. Significant Results—Original *P* Values and FDR-Adjusted *Q* Values.

Table and column number					
3 (1)	3 (3)	3 (4)	3 (5)	3 (6)	4 (1)
0.175**	0.253***	1.614***	0.117*	0.219***	0.722**
<i>0.017</i>	<i>0.000</i>	<i>0.001</i>	<i>0.098</i>	<i>0.005</i>	<i>0.048</i>
[0.147]	[0.001]	[0.018]	[0.407]	[0.059]	[0.22]
-0.153**					1.302**
<i>0.041</i>					<i>0.045</i>
[0.22]					[0.22]
-0.153**					
<i>0.020</i>					
[0.147]					

Note. The table aggregates all statistically significant estimates at the 10% level or better. Regression coefficients are in plain text, unadjusted *p* values in italics, and sharpened *q* values in square brackets.

p* < .1. *p* < .05. ****p* < .01.

Table A10. Inverse Probability Weighting to Account for Selection Bias.

	Tensions at home	Willingness to help	Positive experience of remote learning	Learn new skills	Miss school life	Stress from school closure	Expectation of school results
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Extraversion	0.185** (0.0719)	1.122 (0.168)	-0.0429 (0.0706)	1.005 (0.138)	0.0522 (0.0580)	0.0103 (0.0700)	0.738* (0.120)
Agreeableness	-0.161** (0.0744)	1.213 (0.188)	-0.0159 (0.0666)	1.184 (0.177)	0.0444 (0.0723)	0.131** (0.0640)	0.827 (0.148)
Conscientiousness	-0.135* (0.0701)	1.083 (0.138)	0.204*** (0.0636)	1.124 (0.155)	0.0227 (0.0790)	-0.0694 (0.0788)	1.373** (0.203)
Neuroticism	0.0971 (0.0699)	0.877 (0.140)	0.0159 (0.0597)	0.927 (0.174)	0.103 (0.0809)	0.186** (0.0725)	1.089 (0.168)
Openness	0.139** (0.0680)	1.194 (0.216)	0.00701 (0.0792)	1.512** (0.279)	0.0378 (0.0547)	0.0348 (0.0561)	0.981 (0.136)
Model	OLS	Ordered logit	OLS	Ordered logit	OLS	OLS	Ordered logit
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Class FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	347	347	347	347	347	347	347

Note. For OLS models, standardized regression coefficients are presented. For ordered logistic regressions, odds ratios are presented. Clustered standard errors at class level are presented in parentheses. All observations are weighted by the inverse of the predicted probability of having non-missing data in the follow-up survey. The probability is predicted by a probit model with the five personality traits, gender, age, language spoken at home, socioeconomic status, knowledge score, and education track as explanatory variables. Controls include gender, age, language spoken at home, socioeconomic status, knowledge score, and an indicator for household with COVID-19 risk. OLS = ordinary least squares; FE = fixed effect.

p* < .1. *p* < .05. ****p* < .01.

Acknowledgment

The authors are grateful to Koen Declercq and Wouter Schelfhout for their research assistance.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the Flemish Science Organization (grant no. S000617N).

ORCID iD

Kaat Iterbeke  <https://orcid.org/0000-0001-8564-8225>

Supplemental Material

Supplemental material is available online with this article.

Notes

1. Due to the exceptional conditions that come with COVID-19, this study was not preregistered. No predictions are made for the outcome measure “Expectations of schools results” because this measure was added for exploratory reasons.
2. AGODI, Cijfermateriaal—Leerlingenkenmerken (2018–2019), available at <http://www.agodi.be/cijfermateriaal-leerlingenkenmerken>
3. <https://ppw.kuleuven.be/PraxisP/in-de-kijker/deelnemersgezocht-jongeren-tussen-13-en-18-jaar-voor-studie-naar-emotioneel-welbevinden-tijdens-corona>
4. Note that although the Cronbach’s alphas for the measures “Tensions at home” and “Positive experience of remote learning” are below the conventional “acceptable” value of .70, they are in line with those reported in other studies assessing the perception of the COVID-19 crisis (e.g., Zajenkowski et al., 2020).
5. We assessed the construct validity for the measures that were based on multiple underlying items. All test statistics showed that the measures had adequate validity, as presented in the supplementary material (<https://osf.io/87pxt/>).
6. Secondary education in Flanders is organized in a tracking system. From the ninth grade onward, students are tracked in an academic, technical, arts, or vocational education track. The academic track focuses on a broad general education, whereas the technical and arts tracks combine a broad general education with technical or arts-oriented subjects, respectively. The vocational track primarily focuses on learning a specific profession.
7. We found similar results if we used ordered logistic regressions for outcome measures constructed using multiple Likert-type items.
8. Given its correlation with the class fixed effects, the education track of students was not included as a control variable. To test the validity of our model, we checked variance inflation factors (VIFs). The VIF values for the personality traits ranged from 1.4 to 1.78 and the mean VIF value was 3.97, suggesting that multicollinearity was not an issue.
9. The present analytical procedure is similar to multilevel modeling (MLM) as studies comparing the regression results from MLM and its alternatives show that the methods are equally adequate (e.g., Arceneaux & Nickerson, 2009). Given the grouping and contextual variables were not the main interest in our study, we accounted for the nested nature of the data using fixed effects and clustered-adjusted standard errors modeling. However, the results presented here and the results from multilevel model estimations produced similar coefficients and standard errors, as shown in the online supplement (<https://osf.io/87pxt/>).

References

- Abdelrahman, M. (2020). Personality traits, risk perception, and protective behaviors of Arab residents of Qatar during the COVID-19 pandemic. *International Journal of Mental Health and Addiction*, 1–12. <https://doi.org/10.1007/s11469-020-00352-7>
- Airaksinen, J., Komulainen, K., Jokela, M., & Gluschkoff, K. (2020). Big Five personality traits and COVID-19 precautionary behaviors among older adults in Europe [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/rvbjf>
- Anderson, M. L. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the abecedarian, Perry preschool, and early training projects. *Journal of American Statistical Association*, 103(484), 1481–1495. <https://doi.org/10.1198/016214508000000841>
- Arceneaux, K., & Nickerson, D. W. (2009). Modeling certainty with clustered data: A comparison of methods methodology. *Political Analysis*, 17(2), 177–190. <https://doi.org/10.1093/pan/mpp004>
- Aschwanden, D., Strickhouser, J. E., Sesker, A. A., Lee, J. H., Luchetti, M., Stephan, Y., Sutin, A. R., & Terracciano, A. (2021). Psychological and behavioural responses to Coronavirus disease 2019: The role of personality. *European Journal of Personality*, 35(1), 51–66. <https://doi.org/10.1002/per.2281>
- Asselmann, E., Borghans, L., Montizaan, R., & Seegers, P. (2020). The role of personality in the thoughts, feelings, and behaviors of students in Germany during the first weeks of the COVID-19 pandemic. *PLOS ONE*, 15(11), Article e0242904. <https://doi.org/10.1371/journal.pone.0242904>
- Aucejo, E. M., French, J. F., Araya, M. P. U., & Zafar, B. (2020). *The impact of COVID-19 on student experiences and expectations: Evidence from a survey* (NBER Working Paper No. 27392). National Bureau of Economic Research. <https://www.nber.org/papers/w27392>
- Bacher-Hicks, A., Goodman, J., & Mulhern, C. (2020). *Inequality in household adaptation to schooling shocks: Covid-induced online learning engagement in real time* (NBER Working Paper No. 27555). National Bureau of Economic Research. <https://www.nber.org/papers/w27555>
- Belsky, J., Jaffee, S. R., Caspi, A., & Moffitt, T. (2003). Intergenerational relationships in young adulthood and their life course, mental health, and personality correlates. *Journal of Family Psychology*, 17(4), 460–471. <https://doi.org/10.1037/0893-3200.17.4.460>
- Benjamini, Y., Krieger, A. M., & Yekutieli, D. (2006). Adaptive linear step-up procedures that control the false discovery rate. *Biometrika*, 93(3), 491–507. <https://doi.org/10.1093/biomet/93.3.491>
- Bidjerano, T., & Dai, D. Y. (2007). The relationship between the Big-Five model of personality and self-regulated learning strategies. *Learning and Individual Differences*, 17, 69–81. <https://doi.org/10.1016/j.lindif.2007.02.001>
- Biroli, P., Bosworth, S., Della Giusta, M., Di Girolamo, A., Jaworska, S., & Vollen, J. (2020). *Family life in lockdown* (IZA DP No. 13398). IZA Institute of Labor Economics. <https://www.iza.org/publications/dp/13398/family-life-in-lockdown>
- Blagov, P. S. (2020). Adaptive and dark personality in the COVID-19 pandemic: Predicting health-behavior endorsement and the appeal of public-health messages. *Social Psychological and Personality Science*, 12, 697–707. <https://doi.org/10.1177/1948550620936439>
- Bogg, T., & Milad, E. (2020). Demographic, personality, and social cognition correlates of coronavirus guideline adherence in a U.S. sample. *Health Psychology*, 39(12), 1026–1036. <https://doi.org/10.1037/hea0000891>
- Brouard, S., Vasilopoulos, P., & Becher, M. (2020). Sociodemographic and psychological correlates of compliance with the COVID-19 public health measures in France. *Canadian Journal of Political Science*, 53, 253–258. <https://doi.org/10.1017/S0008423920000335>

- Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misusing Likert scales. *Medical Education*, *42*, 1150–1152. <https://doi.org/10.1111/j.1365-2923.2008.03172.x>
- Carvalho, L. D. F., Pianowski, G., & Gonçalves, A. P. (2020). Personality differences and COVID-19: Are extroversion and conscientiousness personality traits associated with engagement with containment measures? *Trends in Psychiatry and Psychotherapy*, *42*(2), 179–184. <https://doi.org/10.1590/2237-6089-2020-0029>
- Chan, H. F., Moon, J. W., Savage, D. A., Skali, A., Torgler, B., & Whyte, S. (2020). Can psychological traits explain mobility behavior during the COVID-19 pandemic? *Social Psychological and Personality Science*, *12*, 1018–1029. <https://doi.org/10.1177/1948550620952572>
- Cohen, A., & Baruth, O. (2017). Personality, learning, and satisfaction in fully online academic courses. *Computers in Human Behavior*, *72*, 1–12. <https://doi.org/10.1016/j.chb.2017.02.030>
- Columbus, S. (2020). Honesty-humility, beliefs, and prosocial behaviour: A test on stockpiling during the COVID-19 pandemic [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/8e62v>
- Costa, P. T., & McCrae, R. R. (1992). *NEOPI-R* [Professional manual]. Psychological Assessment Resources.
- Cuadrado, D., Salgado, J. F., & Moscoso, S. (2020). Personality, intelligence, and counterproductive academic behaviors: A meta-analysis. *Journal of Personality and Social Psychology: Personality Processes and Individual Differences*, *120*(2), 504–537. <https://doi.org/10.1037/pspp0000285>
- Danckert, B., Dinesen, P. T., Klemmensen, R., Nørgaard, A. S., Stolle, D., & Sønderkov, K. M. (2017). With an open mind: Openness to experience moderates the effect of interethnic encounters on support for immigration. *European Sociological Review*, *33*(5), 721–733. <https://doi.org/10.1093/esr/jcx070>
- De Coninck, D., D'Haenens, L., & Matthijs, K. (2020). Perceived vulnerability to disease and attitudes towards public health measures: COVID-19 in Flanders, Belgium. *Personality and Individual Differences*, *166*, Article 110220. <https://doi.org/10.1016/j.paid.2020.110220>
- De Witte, K., Cabus, S., Thyssen, G., Groot, W., & van Den Brink, H. M. (2013). A critical review of the literature on school dropout. *Educational Research Review*, *10*, 13–28. <https://doi.org/10.1016/j.edurev.2013.05.002>
- De Witte, K., Declercq, K., Iterbeke, K., & Schelfhout, W. (2020). *Experimental evidence on the determinants of peer effects during learning*. AEA RCT Registry. <https://doi.org/10.1257/rct.5163-1.0>
- Diener, E., Larsen, R. J., & Emmons, R. A. (1984). Person x situation interactions: Choice of situations and congruence response models. *Journal of Personality and Social Psychology*, *47*(3), 580–592. [https://doi.org/10.1016/0191-8869\(85\)90080-7](https://doi.org/10.1016/0191-8869(85)90080-7)
- Emmons, R. A., Diener, E., & Larsen, R. J. (1985). Choice of situations and congruence models of interactionism. *Personality and Individual Differences*, *6*(6), 693–702. [https://doi.org/10.1016/0191-8869\(85\)90080-7](https://doi.org/10.1016/0191-8869(85)90080-7)
- Faul, F., Erdfelder, E., Lang, A., & Buchner, A. G. (2007). Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. <https://doi.org/10.3758/BF03193146>
- Feldman, K. A., Ethington, C. A., & Smart, J. C. (2001). A further investigation of major field and person-environment fit. *The Journal of Higher Education*, *72*(6), 670–698. <https://doi.org/10.1080/00221546.2001.11777121>
- Feldman, K. A., Smart, J. C., & Ethington, C. A. (1999). Major field and person-environment fit: Using Holland's theory to study change and stability of college students. *The Journal of Higher Education*, *70*(6), 642–669. <https://doi.org/10.1080/00221546.1999.11780802>
- Garbe, L., Rau, R., & Toppe, T. (2020). Influence of perceived threat of COVID-19 and HEXACO personality traits on toilet paper stockpiling. *PLOS ONE*, *15*(6), Article e0234232. <https://doi.org/10.1371/journal.pone.0234232>
- Gerber, A. S., Huber, G. A., Doherty, D., Dowling, C. M., & Ha, S. E. (2010). Personality and political attitudes: Relationships across issue domains and political contexts. *American Political Science Review*, *104*(1), 111–133. <https://doi.org/10.1017/S0003055410000031>
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, *4*(1), 26–42. <https://doi.org/10.1037/1040-3590.4.1.26>
- Götz, F. M., Gvirtz, A., Galinsky, A. D., & Jachimowicz, J. M. (2021). How personality and policy predict pandemic behavior: Understanding sheltering-in-place in 55 countries at the onset of COVID-19. *American Psychologist*, *76*(1), 39–49. <https://doi.org/10.1037/amp0000740>
- Harris, J. A. (2004). Measured intelligence, achievement, openness to experience, and creativity. *Personality and Individual Differences*, *36*, 913–929. [https://doi.org/10.1016/S0191-8869\(03\)00161-2](https://doi.org/10.1016/S0191-8869(03)00161-2)
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Psychological Assessment Resources.
- Keller, H., & Karau, S. J. (2013). The importance of personality in students' perceptions of the online learning experience. *Computers in Human Behavior*, *29*(6), 2494–2500. <https://doi.org/10.1016/j.chb.2013.06.007>
- Kluger, J. (2020, July 23). The Coronavirus seems to spare most kids from illness, but its effect on their mental health is deepening. *Time*. <https://time.com/5870478/children-mental-health-coronavirus/>
- Komarraju, M., & Karau, S. J. (2005). The relationship between the Big Five personality traits and academic motivation. *Personality and Individual Differences*, *39*, 557–567. <https://doi.org/10.1016/j.paid.2005.02.013>
- Komarraju, M., Karau, S. J., Schmeck, R. R., & Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and Individual Differences*, *51*, 472–477. <https://doi.org/10.1016/j.paid.2011.04.019>
- Kristof-Brown, A. L., & Guay, R. P. (2011). Person-environment fit. In S. Zedeck (Ed.), *American psychological association handbook of industrial and organizational psychology* (Vol. 3, pp. 1–50). American Psychological Association.
- Kroencke, L., Geukes, K., Utesch, T., Kuper, N., & Back, M. (2020). Neuroticism and emotional risk during the Covid-19 pandemic. *Journal of Research in Personality*, *89*, Article 104038. <https://doi.org/10.1016/j.jrp.2020.104038>
- Mabbe, E., Soenens, B., Vansteenkiste, M., & Van Leeuwen, K. (2016). Do personality traits moderate relations between psychologically controlling parenting and problem behavior in adolescents? *Journal of Personality*, *84*(3), 381–392. <https://doi.org/10.1111/jopy.12166>

- Maldonado, J. E., & De Witte, K. (2021). The effect of school closures on standardised student test outcomes. *British Educational Research Journal, Forthcoming*. <https://doi.org/10.1002/berj.3754>
- Maldonado, J. E., De Witte, K., & Declercq, K. (2021). The effects of parental involvement in homework. Two randomised controlled trials in financial education. *Empirical Economics, Forthcoming*. <https://doi.org/10.1007/s00181-021-02058-8>
- McCrae, R. R., & Costa, P. T. (1999). A five-factor theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 139–153). Guilford.
- Miguel, F. K., Machado, G. M., Pianowski, G., & Carvalho, L. D. F. (2021). Compliance with containment measures to the COVID-19 pandemic over time: Do antisocial traits matter? *Personality and Individual Differences, 168*, Article 110346. <https://doi.org/10.1016/j.paid.2020.110346>
- Modersitzki, N., Phan, L. V., Kuper, N., & Rauthmann, J. F. (2020). Who is impacted? Personality predicts individual differences in psychological consequences of the COVID-19 pandemic in Germany. *Social Psychological and Personality Science, 12*, 1110–1130. <https://doi.org/10.1177/1948550620952576>
- Mueller, S., Ram, N., Conroy, D. E., Pincus, A. L., Gerstorf, D., & Wagner, J. (2019). Happy like a fish in water? The role of personality–situation fit for momentary happiness in social interactions across the adult lifespan. *European Journal of Personality, 33*, 298–316. <https://doi.org/10.1002/per.2198>
- Ozer, D. J., & Benet-Martínez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57*, 401–421. <https://doi.org/10.1146/annurev.psych.57.102904.190127>
- Pawłowska, D. K., Westerman, J. W., Bergman, S. M., & Huelsman, T. J. (2014). Student personality, classroom environment, and student outcomes: A person–environment fit analysis. *Learning and Individual Differences, 36*, 180–193. <https://doi.org/10.1016/j.lindif.2014.10.005>
- Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin, 135*(2), 322–338. <https://doi.org/10.1037/a0014996>
- Qian, K., & Yahara, T. (2020). Mentality and behavior in COVID-19 emergency status in Japan: Influence of personality, morality and ideology. *PLOS ONE, 15*(7), Article e0235883. <https://doi.org/10.1371/journal.pone.0235883>
- Rauthmann, J. F. (2013). Effects of supplementary and complementary personality-situation fit on personality processes. *Psychology of Everyday Activity, 6*(2), 41–63.
- Rauthmann, J. F. (2020). Capturing interactions, correlations, fits, and transactions: A person-environment relations model. In J. F. Rauthmann (Ed.), *Handbook of personality dynamics and processes* (1st ed. pp. 427–522). Elsevier.
- Roberts, B. W. (2009). Back to the future: Personality and assessment and personality development. *Journal of Research in Personality, 43*(2), 137–145. <https://doi.org/10.1016/j.jrp.2008.12.015>
- Rocconi, L. M., Liu, X., & Pike, G. R. (2020). The impact of person-environment fit on grades, perceived gains, and satisfaction: An application of Holland's theory. *Higher Education, 80*, 857–874. <https://doi.org/10.1007/s10734-020-00519-0>
- Schelfhout, S., Wille, B., Fonteyne, L., Roels, E., De Fruyt, F., & Duyck, W. (2019). The effects of vocational interest on study results: Student person–environment fit and program interest diversity. *PLOS ONE, 14*(4), Article e0214618. <https://doi.org/10.1371/journal.pone.0214618>
- Schmader, T., & Sedikides, C. (2018). State authenticity as fit to environment: The implications of social identity for fit, authenticity, and self-segregation. *Personality and Social Psychology Review, 22*(3), 228–259. <https://doi.org/10.1177/1088868317734080>
- Smith, J., Guimond, F., Bergeron, J., St-Amand, J., Fitzpatrick, C., & Gagnon, M. (2021). Changes in students' achievement motivation in the context of the COVID-19 pandemic: A function of extraversion/introversion? *Education Sciences, 11*(30), 1–8. <https://doi.org/10.3390/educsci11010030>
- Somma, A., Gialdi, G., Krueger, R. F., Markon, K. E., Frau, C., Lovallo, S., & Fossati, A. (2020). Dysfunctional personality features, non-scientifically supported causal beliefs, and emotional problems during the first month of the COVID-19 pandemic in Italy. *Personality and Individual Differences, 165*, Article 110139. <https://doi.org/10.1016/j.paid.2020.110139>
- Soto, C. J. (2019). How replicable are links between personality traits and consequential life outcomes? The life outcomes of personality replication project. *Psychological Science, 30*(5), 711–727. <https://doi.org/10.1177/0956797619831612>
- Stadler, M., Niepel, C., Botes, E., Dörendahl, J., Krieger, F., & Greiff, S. (2020). Individual psychological responses to the SARS-CoV-2 pandemic: Different clusters and their relation to risk-reducing behavior [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/k8unc>
- Sutin, A. R., Luchetti, M., Aschwanden, D., Lee, J. H., Sesker, A. A., Strickhouser, J. E., Stephan, Y., & Terracciano, A. (2020). Change in five-factor model personality traits during the acute phase of the coronavirus pandemic. *PLOS ONE, 15*(8), Article e0237056. <https://doi.org/10.1371/journal.pone.0237056>
- Teppers, E., Klimstra, T. A., Van Damme, C., Luyckx, K., Vanhalst, J., & Goossens, L. (2013). Personality traits, loneliness, and attitudes toward aloneness in adolescence. *Journal of Social and Personal Relationships, 30*(8), 1045–1063. <https://doi.org/10.1177/0265407513481445>
- Vermulst, A. A., & Gerris, J. R. M. (2005). *QBF: Quick Big Five persoonlijkheidstest handleiding*. LDC Publications.
- Willroth, E. C., Smith, A. M., Shallcross, A. J., Graham, E. K., Mroczek, D. K., & Ford, B. Q. (2020). The health behavior model of personality in the context of a public health crisis [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/mu3ja>
- Wolff, W., Martarelli, C. S., Schüller, J., & Bieleke, M. (2020). High boredom proneness and low trait self-control impair adherence to social distancing guidelines during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 17*, 5420. <https://doi.org/10.3390/ijerph17155420>
- Zajenkowski, M., Jonason, P. K., Leniarska, M., & Kozakiewicz, Z. (2020). Who complies with the restrictions to reduce the spread of COVID-19? Personality and perceptions of the COVID-19 situation. *Personality and Individual Differences, 166*, Article 110199. <https://doi.org/10.1016/j.paid.2020.110199>
- Zettler, I., Schild, C., Lilleholt, L., Kroencke, L., Utesch, T., Moshagen, M., Böhm, R., Back, M. D., & Geukes, K. (2020). The role of personality in COVID-19 related perceptions, evaluations, and behaviors: Findings across five samples, nine traits, and 17 criteria [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/pkm2a>
- Zhang, X., Wang, Y., Lyu, H., Zhang, Y., Liu, Y., & Luo, J. (2020). The influence of COVID-19 on well-being [Preprint]. *PsyArXiv*. <https://doi.org/10.31234/osf.io/znj7h>