

Big Five Personality Traits Predict Academic Self-Efficacy Among Undergraduate College Students

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Abstract. One factor that predicts academic success is Academic Self-Efficacy, the perceived competency to accomplish a school-related task. Big Five Personality traits are innate one's tendencies to think, feel, and behave. Evidence indicates that specific Big Five Personality traits predict academic success. Hence, the Big Five Personality traits might influence Academic Self-Efficacy as a belief formation resulting in academic success. This study investigated the link between Big Five Personality traits and Academic Self-Efficacy. It employed purposive sampling and involved 201 undergraduate students (18-30 years old) from Manila, Philippines, who responded to the online psychological questionnaire. Results indicated a significant positive association between Academic Self-Efficacy and traits: Openness to experience, Conscientiousness, Extraversion, and Agreeableness. In contrast, Neuroticism traits indicated a negative relationship. These findings could be used as a basis for utilizing personality profiling in developing perceived academic competency among college students, potentially revolutionizing academic practices.

Keywords: Educational Psychology; Big Five Personality Traits; Academic self-Efficacy; Academic achievement; Philippines.

1.0 Introduction

The demand for competency is scaling up, putting pressure on students to acquire necessary competencies and academic success. Believing that one has competencies in attaining success plays a significant role. One's belief in executing a task is crucial to achieving the goal. Self-efficacy is a belief that one can perform a necessary behavior to obtain a targeted outcome (Bandura, 2018; Wilde & Hsu, 2019). It influences mental health from stress, depression, and anxiety and the degree of effort that will be inserted for the task (Rippon et al., 2022; Zhou et al., 2021; Iroegbu, 2015;).

Self-efficacy (SE) is particularly instrumental among college students bombarded with academic tasks that exhaust their mental and physical limitations. These academic tasks are making them susceptible to the magnitude of stress that might compromise their mental health (Abrams, 2022; Zhou, 2022; Pedrelli et al., 2015). Hence, Academic Self-Efficacy (ASE), a belief in one's competence to accomplish these academic tasks, is interrelated with college student's psychological health (Grøtan et al., 2019).

ASE facilitates educational achievement. It is an essential belief system that promotes behavior to obtain good grades and other positive outcomes across academic levels. As the evidence indicates ASE is significantly linked to achievements in academe (Luo et al., 2023; Fakhroul & Habib, 2022; Honicke et al., 2023; Nasir & Iqbal, 2019; Alyami et al., 2017; Honicke, & Broadbent, 2016). And further, established that students who had a strong positive belief in their capacity to have higher grades resulted in obtaining actual higher grades (Nasir & Iqbal, 2019). Other

findings indicate that ASE has a robust positive relation with satisfying academic life (Carranza Esteban et al., 2022), planning of effective learning techniques, and positive emotions (Hayat et al., 2020).

Therefore, identifying factors that influence ASE is crucial to educational psychologists and institutions concerned with crafting programs for facilitating academic success and enhancing mental health. Among other factors, the Big Five personality traits are significantly associated with ASE (Rivers, 2021; Abood et al., 2020). A prior study by Caprara et al. (2011) demonstrated that Openness to experience and Conscientiousness traits, together with ASE, facilitate the achievement of good grades. Recent findings of Wang et al. (2023) further established that the Big Five affect success in academic tasks through the mediation of SE. This leads to an assumption that specific Big Five traits might predict ASE.

The Big Five traits posit that one's innate tendencies can be conceptualized into five broad traits namely: Openness to experience, for cognitive exploration, and seeking novelty; Conscientiousness, for order and structure; Agreeableness avoidance of conflict and cooperation; Extraversion, for goal activation and seeking reward; and Neuroticism, for sensitivity toward negative emotions (DeYoung, 2015). These traits are unique individual variation of human nature that provides a stable disposition of cognition, emotion, and behavior (DeYoung, 2015) and instantiate psychological goals that predispose an array of cognitive, emotional, and behavioral expressions (DeYoung & Tiberius, 2023). These tendencies might be influencing ASE. By providing attitudinal and behavioral patterns that facilitate the formation of a belief system, one has the competence to accomplish the task. Therefore, the current research aimed at answering whether Big Five traits predict ASE.

2.0 Methodology

2.1 Research Design

The study used a correlational research design to measure the association between Big Five and ASE. It employed Pearson r and Linear regression statistical analyses to measure the degree of relationship and influence between the variables.

2.2 Research Participants

The study employed purposive sampling involving 201 participants who were residents of Metro Manila, Philippines, ensuring homogeneity of student characteristics. Participants were currently enrolled in a college-level program located in Manila and ranged in age from 18 to 30.

2.3 Research Instrument

The study utilized two psychological measures namely: The Big Five Inventory-2 (BFI-2; Soto and John (2017) and the Academic Self-Efficacy Scale (Greco et al., 2022).

Big Five Inventory-2

The BFI-2, created by Soto and John (2017), is 60 60-item psychological assessment tool, constructed to measure the Big Five traits. Føllesdal and Soto (2022) remarked that the scale features a strong hierarchical structure, reduction of acquiescent responses, and enhancement of the instrument's overall bandwidth, fidelity, and predictive validity. Moreover, the BFI-2 has undergone extensive validation and reliability testing, establishing it as a widely used and well-established measure for assessing personality traits; its nomological network incorporates significant association with various peer-reported and self-reported criteria, further solidifying its validity (Soto & John, 2017). Participants evaluated themselves according to each item using a 5-point Likert scale response format. Responses were averaged to get the total score for five personality traits. BFI-2 has coefficient alpha: Openness to Experience = .82; Conscientiousness = .90; Extraversion = .81; Agreeableness = .87; and Neuroticism = .82 (Xu et al., 2021).

Academic Self-Efficacy Scale

The scale was constructed to assess the students' confidence in managing their academic tasks. It is a 30-item scale comprising seven subfactors with Cronbach alpha: $\alpha = 0.83$ for "Planning Academic Activities"; $\alpha = 0.75$ for "Learning Strategies"; $\alpha = 0.76$ for "Information Retrieval"; $\alpha = 0.68$ for "Skills for lessons"; $\alpha = 0.80$ for "Working in Groups"; $\alpha = 0.71$ for "Management of Relationships with Teachers"; and $\alpha = 0.65$ for "Stress Management".

The participants answered on a five-point Likert scale. The final score was calculated by computing the average scores.

2.4 Data Gathering Procedure

The data was gathered by sending psychological questionnaires online and transposing them into Google Forms. All participants received an invitation and must provide informed consent before answering the questionnaires.

2.5 Data Analysis

IBM SPSS version 20 was used to analyze the data. Pearson r as a statistical tool was used to indicate the degree and direction of the variables' associations. After establishing associations, Linear regression was employed to measure the influence of each Big Five on ASE. The data was bootstrapped 10,000 times to indicate significance (Alfons, et al., 2022; Hayes, 2022).

2.6 Ethical Considerations

The researchers ensured that the participants provided the informed consent before engaging in the study without any form of coercion. The participants' anonymity was also secured, and the privacy of the data was provided. The transparency of the result transpired by initiating efforts in the publication of the study. The researchers' contact information was also provided in case the participants intend to reach out with questions or requests to withdraw during the study or the information provided. Participation was free, and withdrawal from the study was without incurring monetary damages. None of the participants reported distress. The study aimed to enhance the students' academic experience by identifying factors that might be leveraged to increase their ASE.

3.0 Results and Discussions

The study involved 201 participants, all of whom were college students from various public and private universities in Manila. The age range of the participants is from 18 to 26 years old ($M = 19$). Most participants were female ($N = 125$), while 71 were male. Five participants chose not to disclose their gender. Among the participants 166 (freshmen), 20 (sophomores), 10 (juniors), and 5 (senior) students. Regarding academic status, 180 were regular students, while the remaining 21 were irregular students.

Table 1. Pearson r : Correlations between big five personality traits and academic self-efficacy

Variable	M	SD	1	2	3	4	5	6
1. Openness to Experience	3.7888	.49821	-					
2. Conscientiousness	3.3563	.50959	.197**	-				
3. Extraversion	3.1772	.63558	.118	.352***	-			
4. Agreeableness	3.6176	.49053	.256***	.293***	.195**	-		
5. Neuroticism	3.2453	.64823	.004	-.219**	-.242**	-.198**	-	
6. Academic Self-Efficacy	3.4445	.54333	.250***	.447***	.451***	.278***	-.414***	-

Note. $N = 201$. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 1 Pearson r analysis indicated a significant weak positive association between ASE and traits: Openness to experience ($r = .250$, $p < .000$), Conscientiousness ($r = .447$, $p < .000$), Extraversion ($r = .451$, $p < .000$), and Agreeableness ($r = .278$, $p < .000$). This implies that as these traits increase, ASE might also increase. In contrast, the Neuroticism trait showed a significant negative association with ASE ($r = -.414$, $p < .000$). This indicates an inverse relationship; ASE might decrease as the Neuroticism trait increases.

Although the degree of the associations of the Big Five traits was weak (Samuel & Okey, 2015), the computed p -values were lower than p -value = .001, implying a high significance level. Noticeably, Conscientiousness, Extraversion, and Neuroticism traits have a slightly higher degree of association than Openness to experience and Agreeableness, implying that the three traits might have a higher role in facilitating ASE. However, it is crucial to note that the associations do not imply causality among the variables.

Table 2. Regression analysis: Big five personality traits predict academic self-efficacy

Variables	B	R ²	Predictors	SE	95% CI		P
					LL	UL	
1. Openness to Experience	.273	.063	Predictor	.085	.105	.434	.001
2. Conscientiousness	.477	.200	Predictor	.063	.353	.603	.000
3. Extraversion	.386	.203	Predictor	.056	.276	.496	.000
4. Agreeableness	.307	.077	Predictor	.080	.147	.457	.000
5. Neuroticism	-.347	.171	Predictor	.057	-.458	-.233	.000

Note. N = 201. *indicate $p < .05$. ** $p < .01$. *** $p < .001$

The result of Linear regression showed that the Big Five significantly and robustly predicted ASE. Openness to experience ($B = .273$, $p < .000$), Conscientiousness ($B = .477$, $p < .000$), Extraversion ($B = .386$, $p < .000$). These findings were convergent with the result of prior studies (Barańczuk, 2021; Galindo-Domínguez & Bezanilla, 2021; Abood et al., 2020; Haya et al., 2020). Similarly, Wang et al. (2023) showed that the Big Five influence success in academia through the mediating linkage of SE and identity; combined with the current study findings, it might imply that these traits shape the belief system incorporated into one's identity, forming ASE. However, this assumption must be further tested.

The Agreeableness trait ($B = .307$, $p < .000$) significantly positively predicted ASE, supporting earlier findings (Rivers, 2021; Haya et al., 2020; Abood et al., 2020;). Agreeableness provides a tendency for cooperation and harmonious interactions. Students might develop good relationships with educators and co-learners, leading to perceived academic competency (Rivers, 2021).

Not surprisingly, the current study's findings indicated the Neuroticism trait's negative influence on ASE ($B = -.347$, $p < .000$). It is consistent with the prior findings (Furnham & Cheng, 2024; Li et al., 2023; Mei et al., 2022; Galindo-Domínguez & Bezanilla, 2021) The tendency toward experiencing negative emotions perpetuates mistrust and lower expectations of one's competency leading to a possible decrease in ASE.

The coefficient of determination showed that the variance can be explained by Openness to experience by 6.3% ($R^2 = .063$), Conscientiousness by 20% ($R^2 = .200$), Extraversion by 20.3% ($R^2 = .203$), Agreeableness by 7.7% ($R^2 = .077$); and Neuroticism by 17.1% ($R^2 = .171$). Conscientiousness and extraversion, followed by neuroticism, showed the highest determination on the variance of ASE, which is consistent with Pearson's analysis emphasizing the influence of these traits in ASE.

These findings advance the notion that Big Five Personality traits facilitate ASE by providing tendencies for specific psychological goals. In this regard, Openness to experience predisposes psychological goals for cognitive exploration, leading to an interest in ideas or reading books that facilitate belief systems that one has academic competency. As findings demonstrated, Openness to experience predicted academic success in arts and sciences (Britwum et al., 2022; Gatzka, 2021; Kaufman et al., 2016).

In the same reasoning, the Extraversion trait predisposes sensation-seeking and goal-pursuit, which is crucial in academic planning and accomplishing tasks. Conscientiousness trait provides tendencies for order and industriousness to maintain diligence and effort. Agreeableness offers a disposition toward cooperative behavior in building an effective team for group tasks. On the other hand, the Neuroticism trait predisposes the experience of negative emotions that might instantiate doubt and stress, lowering perceived academic competency. In this sense, these traits might be providing tendencies that facilitate confidence in one's academic competency – serving as building blocks for ASE.

Therefore, the findings of this study imply that the personality profile of college students has a role in determining their perceived academic competency. Which in turn determines their interest, efforts, stress, and performance. Developing a learning environment that provides an enriched academic experience and personality traits contributes to students' agency in pursuing specific courses. Educators may refer to students' personality profiles

to promote materials, activities, class design, or teaching methods tailored to students' tendencies to think, feel, or behave. This tailored approach may facilitate ASE that influences a positive academic experience.

4.0 Conclusion

The findings showed that Big Five traits facilitate ASE. Using the findings it might hypothesized for further research that ASE has a potential mediating linkage between Big Five traits and Academic achievement. It leads to the idea that one's predisposition facilitates a perceived competence that leads to academic achievement. The findings also open the possibility of further research investigating the congruence of personality traits and students' academic interests, program track, or specialty in predicting perceived academic competence. It could also serve as a basis for school policy using personality profiles to craft educational services promoting perceived academic competency.

The study has certain potential limitations. The study's analysis covered the association of general ASE and the broader Big Five. A finer-grained analysis that investigates the facets of the two variables might be fruitful but may require distinct conceptualization. Nonetheless, it might point to the specificity that accounts for the variables' linkage. Moreover, the sample size was small, rendering the data less generalizable. Also, considering the precision of sample population characteristics –socioeconomic status, gender/sex, and academic status (i.e., regular/non-regular) might reflect as related variables that must be controlled and investigated for future studies.

5.0 Contributions of Authors

M.A. Dasigan, M.J. Pagalaran, and N.M. Mauleon suggested that Big Five Personality traits might be related to Academic Self-Efficacy. M.A. Dasigan wrote the introduction, conducted data gathering, and analyzed the data through Pearson r. M.J. Pagalaran conducted data gathering, wrote the Research Instrument section, and wrote the participant's demographic profile; N.J. Mauleon wrote Ethical Consideration, Research Participants, and Data Analysis sections and conducted data gathering. K.D. Sanchez supervised the research, suggested the research design, analyzed the data through Linear regression, wrote the data-gathering procedure, results, discussion, conclusion, and limitations of the study sections, and wrote the final revisions.

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7.0 Conflict of Interests

The authors declare no conflicts of interest about the publication of this paper.

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9.0 References

- Abood, M. H., Alharbi, B. H., Mhaidat, F., & Gazo, A. M. (2020). The relationship between personality traits, academic self-efficacy and academic adaptation among university students in Jordan. *International Journal of Higher Education*, 9(3), 120. <https://doi.org/10.5430/ijhe.v9n3p120>
- Abrams, Z. (2022). Student mental health is in crisis. Campuses are rethinking their approach. *American Psychological Association*, 53(7), 60. <https://www.apa.org/monitor/2022/10/mental-health-campus-care>
- Alfons, A., Ates, N. Y., & Groenen, P. J. F. (2022). A robust bootstrap test for mediation analysis. *Organizational Research Methods*, 25(3), 591-617. <https://doi.org/10.1177/1094428121999096>
- Alyami, M., Melyani, Z., Johani, A. A., Ullah, E., Alyami, H., Sundram, F., Hill, A., & Henning, M. (2017). The impact of self-esteem, academic self-efficacy and perceived stress on academic performance: A cross-sectional study of Saudi psychology students. *The European Journal of Educational Sciences*, 4(3), 51-63. <https://doi.org/10.19044/ejes.v4no3a5>
- Bandura, A. (2018). Toward a Psychology of Human Agency: Pathways and Reflections. *Perspectives on Psychological Science*, 13(2), 130-136. <https://doi.org/10.1177/1745691617699280>
- Bandura, A. (2019). Applying theory for human betterment. *Perspectives on Psychological Science*, 14(1), 12-15. <https://doi.org/10.1177/1745691618815165>
- Barańczuk, U. (2021). The Five-Factor Model of personality and generalized self efficacy: A meta-analysis. *Journal of Individual Differences*, 42(4), 183-193. <https://doi.org/10.1027/1614-0001/a000345>
- Britwum, F., Amoah, S. O., Acheampong, H. Y., Sefah, E. A., Djan, E. T., Jill, B. S., & Aidoo, S. (2022). Do extraversion, agreeableness, openness to experience, conscientiousness and neuroticism relate to students academic achievement: The approach of structural equation model and process macro. *International Journal of Scientific and Management Research*, 05(02), 64-79. <https://doi.org/10.37502/IJSMR.2022.5205>
- Caprara, G. V., Vecchione, M., Alessandri, G., Gerbino, M., & Barbaranelli, C. (2011). The contribution of personality traits and self-efficacy beliefs to academic achievement: A longitudinal study. *British Journal of Educational Psychology*, 81(1), 78-96. <https://doi.org/10.1348/2044-8279.002004>
- Carranza Esteban, R. F., Mamani-Benito, O., Caycho-Rodriguez, T., Lingán-Huamán, S. K., & Ruiz Mamani, P. G. (2022). Psychological distress, anxiety, and academic self-efficacy as predictors of study satisfaction among Peruvian university students during the COVID-19 pandemic. *Frontiers in Psychology*, 13, 809230. <https://doi.org/10.3389/fpsyg.2022.809230>
- DeYoung, C. G. (2015). Cybernetic big five theory. *Journal of Research in Personality*, 56, 33-58. <https://doi.org/10.1016/j.jrp.2014.07.004>
- DeYoung, C. G., & Tiberius V. (2023). Value Fulfillment from a cybernetic perspective: A new psychological theory of Well-Being. *27(1)*, 3-27. <https://doi.org/10.1177/10888683221083777>
- Fakhrou, A., & Habib, L. H. (2021). The relationship between academic self-efficacy and academic achievement in students of the department of special education. *International Journal of Higher Education*, 11(2), 1. <https://doi.org/10.5430/ijhe.v11n2p1>
- Føllesdal, H., & Soto, C. J. (2022). The Norwegian adaptation of the big five inventory-2. *Frontiers in Psychology*, 13, 858920. <https://doi.org/10.3389/fpsyg.2022.858920>
- Furnham, A., & Cheng H. (2024). The Big-Five personality factors, cognitive ability, health, and social-demographic indicators as independent predictors of self-efficacy: A longitudinal study. *Scandinavian Journal of Psychology*, 65(1), 53-60. <https://doi.org/10.1111/sjop.12953>

- Galindo-Domínguez, H. & Bezanilla, M.J. (2021). The importance of personality and self-efficacy for stress management in higher education. *International Journal of Educational Psychology*, 10 (3), 247-270. <http://dx.doi.org/10.17583/ijep.7870>
- Gatzka, T. (2021). Aspects of openness as predictors of academic achievement. *Personality and Individual Differences*, 170, 110422. <https://doi.org/10.1016/j.paid.2020.110422>
- Greco, A., Annovazzi, C., Palena, N., Camussi, E., Rossi, G., & Steca, P. (2022). Self-efficacy beliefs of university students: Examining factor validity and measurement invariance of the new academic self-efficacy scale. *Frontiers in Psychology*, 12, 498824. <https://doi.org/10.3389/fpsyg.2021.498824>
- Grotan, K., Sund, E. R., & Bjerkset, O. (2019). Mental health, academic self-efficacy and study progress among college students – the shot study, norway. *Frontiers in Psychology*, 10, 45. <https://doi.org/10.3389/fpsyg.2019.00045>
- Hayat, A. A., Kohoulat, N., Amini, M., & Faghihi, S. A. A. (2020). The predictive role of personality traits on academic performance of medical students: The mediating role of self-efficacy. *Medical Journal of the Islamic Republic of Iran*, 34(1), 1-7. <http://dx.doi.org/10.34171/mjiri.34.77>
- Hayat, A. A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: A structural equation model. *BMC Medical Education*, 20(1), 76. <https://doi.org/10.1186/s12909-020-01995-9>
- Hayes A. F. (2022). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (2nd ed.). The Guilford Press.
- Honick, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84. <https://doi.org/10.1016/j.edurev.2015.11.002>
- Honick, T., Broadbent, J., & Fuller-Tyszkiewicz, M. (2023). The self-efficacy and academic performance reciprocal relationship: the influence of task difficulty and baseline achievement on learner trajectory. *Higher Education Research and Development*, 42(8), 1936-1953, <https://doi.org/10.1080/07294360.2023.2197194>
- Iroegbu, M. N. (2015). Self Efficacy and work performance: a theoretical framework of Albert Bandura's model, review of findings, implications and directions for future research. *Psychology and Behavioral Sciences*, 4(4), 170-173. <https://doi.org/10.11648/j.pbs.20150404.15>
- Kaufman, S. B., Quilty, L. C., Grazioplene, R. G., Hirsh, J. B., Gray, J. R., Peterson, J. B., & DeYoung, C. G. (2016). Openness to experience and intellect differentially predict creative achievement in the arts and sciences. *Journal of Personality*, 84(2), 248–258. <https://doi.org/10.1111/jopy.12156>
- Li, S., Kong, K., Zhang, K., & Niu, H. (2023). The relation between college students' neuroticism and loneliness: The chain mediating roles of self-efficacy, social avoidance and distress. *Frontiers in Psychology*, 14, 1124588. <https://doi.org/10.3389/fpsyg.2023.1124588>
- Luo, Q., Chen, L., Yu, D., & Zhang K. (2023). The mediating role of learning engagement between Self-Efficacy and academic achievement among Chinese college students. *Psychology Research and Behavior Management*, 16, 1533–1543. <https://doi.org/10.2147/PRBM.S401145>
- Mei, X., Wang, H., Wang, X., Wu, X., Wu, J., & Ye, Z. (2022). Associations among neuroticism, self-efficacy, resilience and psychological distress in freshman nursing students: a cross-sectional study in China. *BMJ open*, 12(6), e059704. <https://doi.org/10.1136/bmjopen-2021-059704>
- Nasir, M., & Iqbal, S. (2019). Academic Self Efficacy as a predictor of academic achievement of students in pre service teacher training programs. *Bulletin of Education and Research*, 41(1), 33-42.
- Pedrelli, P., Nyer, M., Yeung, A., Zulauf, C., & Wilens, T. (2015). College students: Mental health problems and treatment considerations. *Academic Psychiatry*, 39(5), 503–511. <https://doi.org/10.1007/s40596-014-0205-9>
- Rippon, D., Shepherd, J., Wakefield, S., Lee, A., & Pollet, T. V. (2022). The role of self-efficacy and self-esteem in mediating positive associations between functional social support and psychological wellbeing in people with a mental health diagnosis. *Journal of Mental Health*, 1–10. <https://doi.org/10.1080/09638237.2022.2069695>
- Rivers, D. J. (2021). The role of personality traits and online academic self-efficacy in acceptance, actual use and achievement in Moodle. *Education and Information Technologies*, 26(4), 4353–4378. <https://doi.org/10.1007/s10639-021-10478-3>
- Samuel, M., & Okey, L. E. (2015). The relevance and significance of correlation in social science research. *International Journal of Sociology and Anthropology Research*, 1(3), 22–28.
- Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, 113, 117–143.
- Wang, H., Liu, Y., Wang, Z., & Wang, T. (2023). The influences of the Big Five personality traits on academic achievements: Chain mediating effect based on major identity and self-efficacy. *Frontiers in Psychology*, 14, 1065554. <https://doi.org/10.3389/fpsyg.2023.1065554>
- Wilde, N., & Hsu, A. (2019). The influence of general self-efficacy on the interpretation of vicarious experience information within online learning. *International Journal of Educational Technology in Higher Education*, 16(26).
- Xu, X., Soto, C. J., & Plaks, J. E. (2021). Beyond Openness to Experience and Conscientiousness: Testing links between lower-level personality traits and American political orientation. *Journal of Personality*, 89(4), 754–773. <https://doi.org/10.1111/jopy.12613>
- Zhou, C., Yue, X. D., Zhang, X., Shangguan, F., & Zhang, X. Y. (2021). Self-efficacy and mental health problems during COVID-19 pandemic: A multiple mediation model based on the Health Belief Model. *Personality and Individual Differences*, 179, 110893. <https://doi.org/10.1016/j.paid.2021.110893>
- Zhou, X. (2022) Mental health self-efficacy as a moderator between the relationship of emotional exhaustion and knowledge hiding: Evidence from music educational students. *Frontiers in Psychology*, 13,979037. doi: 10.3389/fpsyg.2022.979037