

**The role of conscientiousness, time management and action-state orientation in
freshmen's study time**

Sarah Doumen^{*}, Chris Masui, & Jan Broeckmans

Hasselt University, Belgium

^{*} Corresponding author: sarah.doumen@uhasselt.be

Short abstract (max. 250 words)

Students differ significantly in the amount of time devoted to studying. Given the importance of study time for academic performance, it is important to investigate the role of students' personality factors in study time investment. The current study focused on the relation between conscientiousness and study time investment, and the possible intervening role of time management strategies and action-state orientation. Participants were 190 freshmen (74 women) studying business economics. Student ratings of three facets of conscientiousness were included: industriousness, perfectionism and perseverance. Regarding time management and action-state orientation, self-reports of short-term time management strategies, long-term time management strategies and confidence, disengaging vs. being preoccupied with failure, and taking initiative vs. hesitating were included. Finally, students continuously recorded their self-study time by means of a web-based application during the entire term for all courses. Our findings showed that students' conscientiousness affects their self-study time investment, with each of the three examined facets (industriousness, perfectionism, and perseverance) showing differential pathways. These pathways involve short-term time management strategies and disengaging vs. being preoccupied with failure, two skills that may be susceptible to change and can be addressed by student counselors.

Extended summary (max. 1000 words)

Aims

The amount of study time invested has been shown repeatedly to affect academic performance (e.g., Masui, Broeckmans, Doumen, Groenen, & Molenberghs, 2012). More specifically, study time has been reported to affect college grades beyond various intellectual (e.g., high school GPA) and non-intellectual (e.g., gender) student characteristics (e.g., Brint & Cantwell, 2010) and appears to affect particularly freshmen's academic performance (Credé & Kuncel, 2008).

Students differ significantly in the amount of time devoted to studying. Given the importance of study time, it is important to investigate the role of students' personality factors in study time investment. More specifically, the current study focuses on the relation between conscientiousness and study time investment, and the possible intervening role of time management (Macan, 1994) and action-state orientation (Diefendorff, 2004). Conscientiousness entails being industrious, systematic, dutiful, high on achievement striving, and hardworking (Trautwein et al., 2009). Of all Big Five personality characteristics, conscientiousness has been consistently linked to positive outcomes in the educational domain (e.g., Conard, 2006). Moreover, evidence supporting a link between conscientiousness and academic effort has been obtained (e.g., Trautwein et al., 2009). The current study extends this previous research by a) operationalizing academic effort by requesting students to report weekly the amount of self-study time for all courses and during the entire term (instead of asking, for example, whether students worked hard on class assignments) and b) examining processes that may intervene between conscientiousness and effort/ study time investment. Conscientious persons are expected to apply time management skills more regularly (e.g., daily) and to procrastinate less and be more confident to manage long-term goals, which may result in more self-study time (time management hypothesis). Moreover, conscientious persons are expected to be more preoccupied with failure and to take more initiative to start studying, both of which may positively affect the amount of self-study time (action-state orientation hypothesis).

Method

Participants were 190 freshmen (74 women) studying business economics. Students continuously recorded their self-study time by means of a web-based application during the entire term for all courses. The amount of self-study time was summed across courses to

obtain an overall self-study time score. Conscientiousness was measured by three facets (International Personality Item Pool, Goldberg et al., 2006): Industriousness (10 items, $\alpha = .86$), Perfectionism (9 items, $\alpha = .76$), and Perseverance (9 items, $\alpha = .73$). For time management, two composite scores were calculated based on six scales (Macan, 1994; Steel, 2010; Trueman & Hartley, 1996; $\alpha = .60-.87$). Short-term time management strategies included Daily Planning (5 items), Setting Goals and Priorities (10 items), and Mechanics (7 items). Long-term time management strategies and confidence entailed the subscales Confidence in Long-Term Planning (9 items), Perceived Control over Time (5 items), and Procrastination (6 items; reversed). Action-state orientation consisted of the scales Disengaging vs. Being Preoccupied with Failure (6 items; $\alpha = .69$) and Taking Initiative vs. Hesitating (6 items, $\alpha = .67$). Except for self-study time, all variables were assessed by means of a student questionnaire at the beginning of the term.

Results

To test for mediation, three models were compared: A direct effects model, a full mediation model and a partial mediation model. Our final model, including only significant paths, is represented in Figure 1. Model fit was adequate: $\chi^2(7)=3.43$, $p > .05$; RMSEA=.00; CFI=.95; SRMR=.02. Although several links were obtained between industriousness, perfectionism and perseverance and both time management strategies and action-state orientations, only short-term time management strategies and disengaging vs. being preoccupied with failure played an intervening role in the relation between conscientiousness facets and self-study time investment. Being more industrious predicted more self-study time investment directly and indirectly through applying more short-term time management strategies. More perfectionism predicted more study-time investment through being more preoccupied with failure (i.e., disengaging less). Finally, more perseverance predicted less self-study time investment by being less preoccupied with failure (i.e., disengaging more). These findings remained similar when taking students' intelligence test scores into account.

Theoretical and educational significance

Our findings show that students' conscientiousness affects their self-study time investment, with each of the three examined facets (industriousness, perfectionism, and perseverance) showing differential pathways. These pathways involve short-term time management strategies and disengaging vs. being preoccupied with failure, two skills that may be susceptible to change and can be addressed by student counselors.

References

- Brint, S., & Cantwell, A. M. (2010). Undergraduate time use and academic outcomes: Results from the University of California Undergraduate Experience Survey 2006. *Teachers College Record*, 112, 2441-2470.
- Conard, M. A. (2006). Aptitude is not enough: How personality and behavior predict academic performance. *Journal of Research in Personality*, 40, 339-346.
- Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, 3, 425-453.
- Diefendorff, J.M. (2004). Examination of the roles of action-state orientation and goal orientation in the goal-setting and performance process. *Human Performance*, 17, 375-395.
- Goldberg, L. R., Johnson, J. A., Eber, H.W., Hogan, R., Ashton, M. C., Cloninger, C. R., et al. (2006). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40, 84-96.
- Macan, T. H. (1994). Time management: Test of a process model. *Journal of Applied Psychology*, 79, 381-391.
- Masui, C., Broeckmans, J., Doumen, S., Groenen, A., & Molenberghs, G. (2012). Do diligent students perform better? Complex relations between student and course characteristics, study time, and academic performance in higher education. *Studies in Higher Education*. <http://dx.doi.org/10.1080/03075079.2012.721350>
- Steel, P. (2010). Arousal, avoidant and decisional procrastinators: Do they exist? *Personality and Individual Differences*, 48, 926-934.
- Trautwein, U., Lüdtke, O., Roberts, B. W., Schnyder, I., & Niggli, A. (2009). Different forces, same consequence: Conscientiousness and competence beliefs are independent predictors of academic effort and achievement. *Journal of Personality and Social Psychology*, 97, 1115-1128.
- Trueman, M., & Hartley, J., (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education*, 32, 199-215.

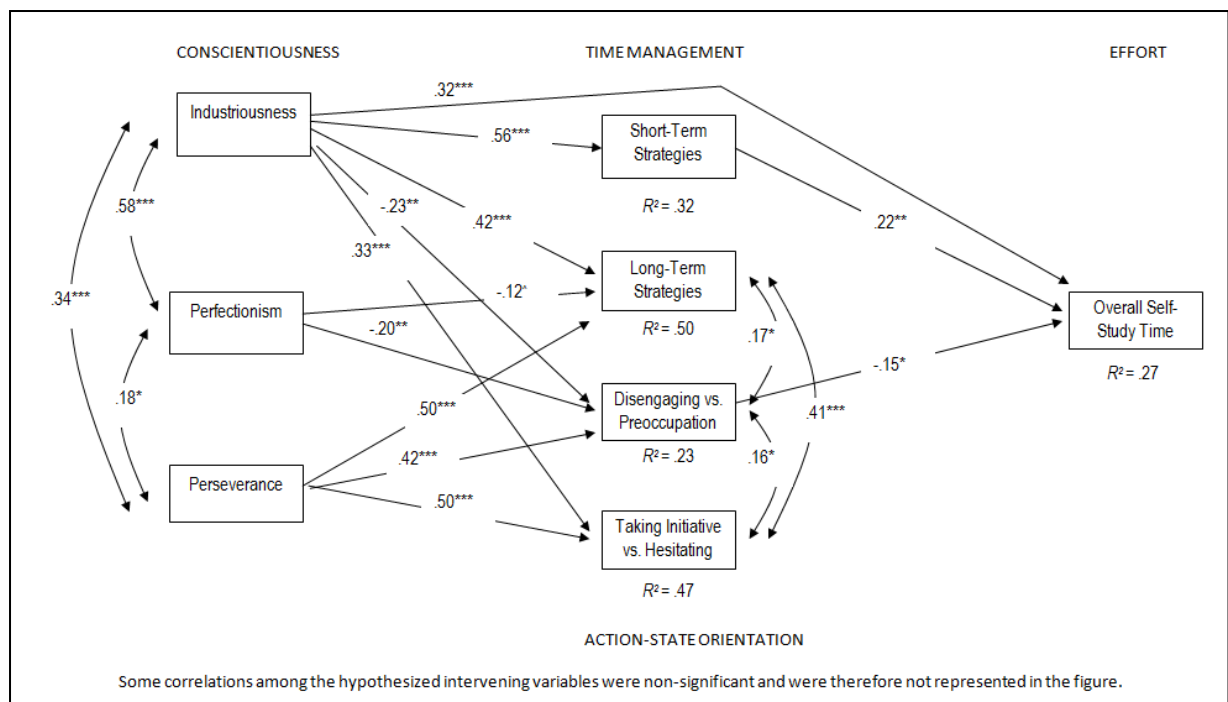


Figure 1. Final model linking conscientiousness to self-study time through time management strategies and action-state orientation.