



## The Impact of Personality Dimensions on Study Behaviour and Study Attitudes of Online Students

Marko Divjak\* | Valentina Prevolnik Rupel\*\* | Tjaša Bartolj\*\*\*

**Abstract:** *The objective of this study was to evaluate the impact of the Big Five personality dimensions on study attitudes and study behaviour of online students. Based on theoretical background, we proposed and tested the model, which assumes significant direct impact of personality dimensions on study attitudes and study behaviour and a bi-directional relationship between study attitudes and study behaviour.*

*Partial analyses of the interrelationships proposed in the model showed that personality dimensions exert a more powerful direct impact on study behaviour than on study attitudes, with conscientiousness being the strongest predictor of study behaviour. When personality dimensions are controlled, there is a significant moderate interrelationship between study behaviour and study attitudes. This indicates that personality dimensions may influence study attitudes indirectly via study behaviour. The results of structural equation modelling (SEM) revealed insufficient empirical evidence to support the model as a whole, which questions the validity of the proposed model.*

**Keywords:** *big five personality dimensions; study attitudes; study behaviour; online learning; online students*

\*Assist. Prof. Dr., DOBA Business School,  
Prešernova ulica 1, 2000 Maribor, Slovenia;  
marko.divjak@net.doba.si

\*\* Assoc. Prof. Dr., Institute for Economic  
Research, Kardeljeva ploščad 17, 1000  
Ljubljana, Slovenia, and DOBA Business  
School, Prešernova ulica 1, 2000 Maribor,  
Slovenia; rupelv@ier.si

\*\*\* Dr., Research Fellow, Institute for Economic  
Research, Kardeljeva ploščad 17, 1000  
Ljubljana, Slovenia; bartoljt@ier.si

How to cite this paper = Kako citirati ta članek:  
Divjak, M., Prevolnik Rupel, V. and Bartolj, T.  
(2019). The Impact of Personality Dimensions  
on Study Behaviour and Study Attitudes of  
Online Students. *Mednarodno inovativno  
poslovanje = Journal of Innovative Business and  
Management*, 11(3), 42-50. DOI:  
10.32015/JIBM/2019-11-3-5

© Copyrights are protected by = Avtorske  
pravice so zaščitene s Creative Commons  
Attribution-Noncommercial 4.0 International  
License (CC BY-NC 4.0) / Creative Commons  
priznanje avtorstva-nekomercialno 4.0  
mednarodno licenco (CC BY-NC 4.0)

*Mednarodno inovativno poslovanje = Journal of  
Innovative Business and Management*  
ISSN: 1855-6175

## Vpliv dimenzij osebnosti na učno vedenje in učna stališča online študentov

**Povzetek:** *Cilj raziskave je bil ovrednotiti vpliv velikih pet dimenzije osebnosti na učna stališča in učno vedenje online študentov. Na podlagi teoretičnih izhodišč, smo oblikovali in empirično preverili model, ki predpostavlja direktni vpliv dimenzij osebnosti na učna stališča in učno vedenje ter dvosmerno povezanost učnih stališč in učnega vedenja.*

*Parcialne analize predlaganih povezav v modelu so pokazale, da imajo dimenzije osebnosti močnejši direktni vpliv na učno vedenje kot na učna stališča, pri čemer je vestnost najmočnejši napovednik učnega vedenja. V primeru kontrole dimenzij osebnosti podatki kažejo na značilno zmerno povezanost učnih stališč in učnega vedenja. Dimenzije osebnosti bi torej na učna stališča lahko vplivale tudi posredno preko učnega vedenja. Rezultati strukturnega modeliranja (SEM) so pokazali nezadostno empirično podporo, kar postavlja veljavnost predpostavljenega modela pod vprašaj.*

**Ključne besede:** *velikih pet dimenzij osebnosti; učna stališča; učno vedenje; online učenje; online študenti*

## 1 Introduction

Several pieces of research have shown that different personality types of online students differ in their study performance and face different challenges and pressures (e.g. Jensen, 2015; Bishop-Clark, Dietz-Uhler and Fisher, 2007; Caspi, Chajut, Saporta and Beyth-Marom, 2006; Bayram, Deniz and Erdoğan, 2008; Keller and Karau, 2013; Dabbagh, 2007; Ortagus, 2017; Johnson, 2015). Studies focusing on personality traits of online students emphasize the relationships between the Big Five personality dimensions and several attitudinal and behavioural indicators. Study attitudes could be conceptualized simply as students' positive or negative orientation towards the specific aspect of studying and their acceptance and approval of the broader goals of education (Crede and Kuncel, 2008). In other words, study attitudes represent students' evaluation of the study process and its outcomes. Study behaviour is the pattern of behaviour adopted by students in the pursuit of their studies (Crede and Kuncel, 2008). It is the degree to which the student engages in studying and uses efficient studying routines and approaches.

Keller and Karau (2013) reported conscientiousness dimension to be the most consistent predictor of study attitudes as it was significantly related with the following online course impressions: engagement, value to career, overall evaluation, anxiety/frustration, and preference for online courses. In addition, agreeableness and openness were both positively related with the perceived value of online courses to one's career. Similarly, Shih, Chen, Chen and Wey (2013) concluded that extraversion and conscientiousness to certain extent predict both students' satisfaction and their motivation for online learning. Cohen and Baruth (2017) also confirmed significant associations between personality and satisfaction with online learning. They identified three distinctive personality types of online students. The first group, which was highly satisfied with online learning, was characterized by high extraversion, agreeableness, conscientiousness and openness. Students who were dissatisfied with online learning demonstrated high neuroticism and low scores on openness, agreeableness and extraversion. And the third group which was moderately satisfied, was characterized by low conscientiousness.

Opposite to a vast amount of empirical evidence about the connections between personality and study attitudes, there seems to be much less evidence about the impact of personality dimensions on study behaviour. Nevertheless, a literature review by Tlili, Essalmi, Jemni and Chen (2016) reveals that personality traits do affect different aspects of study behaviour, e.g. the learning approach like collecting information, communicating with instructor and peer, acting and performing. Some authors argue that certain aspects of study behaviour are more related to learning styles than to personality traits per se, although preferred learning styles could also be understood as a particular aspect of one's personality context. Huang, Lin and Huang (2012), for instance, reported that students' preferred styles of receiving information correlate with the web forum participation frequency and the frequency of accessing the study materials.

When discussing the predictors of study attitudes and study behaviour the connection between both constructs needs to be further explored. Some theoretical models (e.g. the theory of planned behaviour) argue about the causal role of attitudes for behavioural change, while others (e.g. cognitive dissonance theory) argue that behavioural change fosters attitudinal change, in order to resolve the incongruence. Recent studies (Richardson, 2006; Richardson, 2007) have shown the following: (1) the complex relationship between study attitudes and study behaviour seems to be bidirectional in nature; (2) the mutual causal relationship is genuine, not influenced by potential third variables; (3) positive study attitudes are related to desired (constructive, efficient) study behaviour approaches, while negative study attitudes are related to undesired (non-constructive, inefficient) study behaviour approaches.

Based on the literature review, we proposed a causal impact of the Big Five personality dimensions on both study attitudes and study behaviour. Empirical research followed the principles of cross-sectional research design (correlational study) with all the variables being measured simultaneously in a single timeframe. Technically speaking, this violates one of the key pre-conditions of causal reasoning in correlational studies, namely that independent variables (the personality dimensions) should precede the dependent variables (study attitudes and study behaviour) in time. However, we may assume that personality dimensions in fact do comply with this criterion as it is reasonable to argue that one's personality developed far before a person elaborated on his/her study attitudes and developed distinctive study behaviour patterns. As one's personality structure develops in the period of early childhood and as it is relatively stable in time, we assumed the Big Five personality dimensions to exert a significant causal impact on

study attitudes and study behaviour. In addition, due to the findings of Richardson (2006, 2007), we assume the study attitudes and study behaviour to be mutually and reciprocally interrelated.

To summarize, we set up a theoretical model, which proposes (1) direct causal influence of the Big Five personality dimensions on study attitudes and study behaviour and (2) a bidirectional interrelationship between study attitudes and study behaviour. The objective of this paper is to provide empirical support for partial connections between particular constructs and to empirically validate the model as a whole.

## 2 Methods

### 2.1 Participants

Quantitative research was carried out among online students at DOBA Business School. On June 1<sup>st</sup>, 2017 there were altogether 1.098 online students enrolled in the bachelor and master study programmes on all key markets (Slovenia, Croatia and Serbia). All members of the target population were invited to participate. A total of 331 online students responded to the invitation and provided all required data, which accounts for a response rate of 30,1 percent.

Due to some discrepancies in the demographic structure of the sample and the target population, the data was weighted prior to data analysis. The sample is thus fairly representative for the target population according to gender, key markets and the level of the study programmes (bachelor vs. master).

### 2.2 Questionnaires

A survey instrument was composed of three separate questionnaires to measure the big five personality dimensions, study attitudes and study behaviour.

#### 2.2.1 The Big Five Questionnaire

A short version of the Big Five Questionnaire with 15 items, constructed by Lang, John, Ludtke, Schupp and Wagner (2011), was used to measure students' personality dimensions. The items were assessed on a 7-point scale, where score 1 indicated full disagreement with an item and score 7 indicated full agreement with an item. According to the authors, the questionnaire is supposed to provide a robust but reliable estimation of the big five personality dimensions. However, reliability analysis of data in our sample revealed somewhat mixed results. Extraversion ( $\alpha = 0,718$ ) and neuroticism ( $\alpha = 0,621$ ) dimensions proved to be sufficiently reliable, while agreeableness ( $\alpha = 0,524$ ) and openness ( $\alpha = 0,516$ ) dimensions seem to be unreliable and should thus be interpreted with caution. In addition, to ensure sufficient reliability of the conscientiousness dimension ( $\alpha = 0,794$ ) one of the three items was removed prior to data analysis.

#### 2.2.2 The Study Attitudes Questionnaire

The questionnaire of study attitudes towards online learning was constructed on the basis of the Course Experience Questionnaire (Richardson and Lawless, 2002). The original questionnaire was modified, revised and adjusted to the context of online learning at DOBA Business School. The Study Attitudes Questionnaire was composed of 36 items that were assessed on a 5-point Likert scale. The questionnaire measures the following 9 scales of study attitudes: Good teaching ( $\alpha = 0.813$ ), Clear goals and standards ( $\alpha = 0.760$ ), Appropriate workload ( $\alpha = 0.751$ ), Appropriate assessment – memorising as assessment criterion ( $\alpha = 0.390$ ), Generic skills ( $\alpha = 0.857$ ), Flexibility of online learning ( $\alpha = 0.677$ ), Good study materials ( $\alpha = 0.773$ ), Use of technology ( $\alpha = 0.766$ ) and Absence of personal contacts ( $\alpha = 0.697$ ). In addition, a single-item measure of general satisfaction with the study programme was added to the questionnaire. Unlike Appropriate assessment scale, all other scales demonstrate sufficient reliability.

A general measure of study attitudes was constructed as a sum of all 9 scales and additional general satisfaction item. The reliability of the general measure is high and accounts for  $\alpha = 0,863$ .

### 2.2.3 The Study Behaviour Questionnaire

The Study Behaviour Questionnaire was developed on the basis of the instrument »Revised Approaches to Study Behaviour« (Entwistle, Tait and McCune, 2000). Again, the original questionnaire was somewhat revised and modified in order to optimize the length of the questionnaire and to include some additional concepts relevant for DOBA Business School. The final questionnaire was composed of 43 items that were assessed on a 5-point Likert scale. The questionnaire measures 13 behavioural scales that combine into three general study behaviour approaches: deep approach ( $\alpha = 0.771$ ), strategic approach ( $\alpha = 0.832$ ) and surface approach ( $\alpha = 0.852$ ). Besides the three approaches, two additional scales were created: Teamwork engagement, which is somewhat less reliable ( $\alpha = 0.569$ ), and Proactive communication ( $\alpha = 0.661$ ).

A general measure of study behaviour was calculated by summing the scores for the three approaches and two additional scales, with the scores for the Surface approach being inverted beforehand ( $\alpha = 0.771$ ). Higher values thus indicate more constructive, efficient and desirable study behaviour.

### 2.3 Data collection procedure

Data was collected by means of an online survey questionnaire. Invitation to participate in the research, together with the link to the online questionnaire, was forwarded to all members of the target population to their school e-mail addresses. Decision to participate was completely voluntary, while full anonymity of provided data was assured. Data collection took place between June 15<sup>th</sup> and July 6<sup>th</sup>, 2017. On average it took 14 minutes for participants to fill in the survey questionnaire.

## 3 Results

### 3.1 Partial analyses

By means of linear regression analysis we first tested the relationship between personality dimensions and attitudes towards online learning. In a regression model, the general measure of study attitudes was defined as a dependant variable, while the big five personality dimensions were defined as independent variables. The regression model proved statistically significant ( $F(5, 325) = 5,503$ ;  $p = 0.000$ ), although the multiple correlation coefficient ( $R = 0,279$ ) and the adjusted determination coefficient ( $R^2 = 0,064$ ) are low. In other words, personality dimensions only account for six percent of variability in study attitudes. From the standardized regression coefficients (table 1) it is evident that only two personality dimensions exert statistically significant impact: neuroticism being negatively, and agreeableness being positively correlated to study attitudes.

In a similar way, we also tested the value of the big five personality dimensions for predicting study behaviour. Again, the personality dimensions were inserted in a linear regression model as independent variables, while the general measure of study behaviour was introduced as a dependant variable. The regression model again proved statistically significant ( $F(5, 325) = 26,053$ ;  $p = 0.000$ ) with the multiple correlation coefficient and the adjusted determination coefficient accounting for  $R = 0,535$  and  $R^2 = 0,275$  respectively. This means that personality dimensions explain somewhat less than 30 percent of variability in study behaviour. Basically, all personality dimensions, except for agreeableness, significantly correlate with study behaviour with conscientiousness dimension being the most powerful predictor (Table 1).

Table 1. Standardized linear regression coefficients (beta)

Independent variables	General measure of study attitudes	General measure of study behaviour
Neuroticism	-,178**	-,139**
Extraversion	,014	,073
Openness	,043	,160**
Agreeableness	,124*	,102*
Conscientiousness	,077	,374**

Note: \* $p < 0,05$ , \*\* $p < 0,01$

Finally, we calculated the degree of covariation between the general measures of study attitudes and study behaviour. Pearson's bivariate correlation coefficient accounts for  $r = 0,531$  ( $p < 0,01$ ). When the big five personality dimensions are controlled, the correlation coefficient only slightly reduces to  $r = 0,501$  ( $p < 0,01$ ). This indicates that the study attitudes and study behaviour are moderately interrelated and that the relationship between the variables is genuine, not affected by personality dimensions. The determination coefficient thus accounts for  $r^2 = 0,251$ , which means that study attitudes explain 25 percent of variability in study behaviour and vice versa.

### 3.2 Structural equation modelling

We used structural equation modelling (SEM) to estimate the impact of the Big Five personality dimensions on study attitudes and study behaviour. The model was estimated with maximum likelihood estimation with Satorra and Bentler (1988, 1994) technique for estimation of variance-covariance matrix of estimates. Table 2 presents goodness-of-fit criteria of the model. Satorra-Bentler scaled statistics of the chi-square test comparing the model to the saturated model is 1034,8 with p-value of 0.000, so we reject its null hypothesis, indicating a poor performance of fitting the original covariance matrix. Although RMSEA of 0.08 suggests a reasonable model-data fit, CFI and TLI are both below the cut-off points, which would indicate a good fit.

Table 2: Goodness-of-fit statistics

Satorra-Bentler corrected chi-square	
<i>chi-square</i>	1034.756
<i>p-value</i>	0.000
Satorra-Bentler RMSEA	0.079
Satorra-Bentler CFI	0.768
Satorra-Bentler TLI	0.740

Despite the poor fit of the model, we chose to present the results of the SEM anyway. However, even though some relations are statistically significant, these should be considered only as indications of possible impacts of one variable on another due to the poor model performance. Figure 1 indicates a negative impact of neuroticism and conscientiousness on study attitudes, but a positive impact of agreeableness on study attitudes. Study attitudes also appear to be positively affected by study behaviour. Similarly, study attitudes appear to positively affect study behaviour, as do also openness and conscientiousness. In contrast, there appears to be a negative relationship between neuroticism and study behaviour.

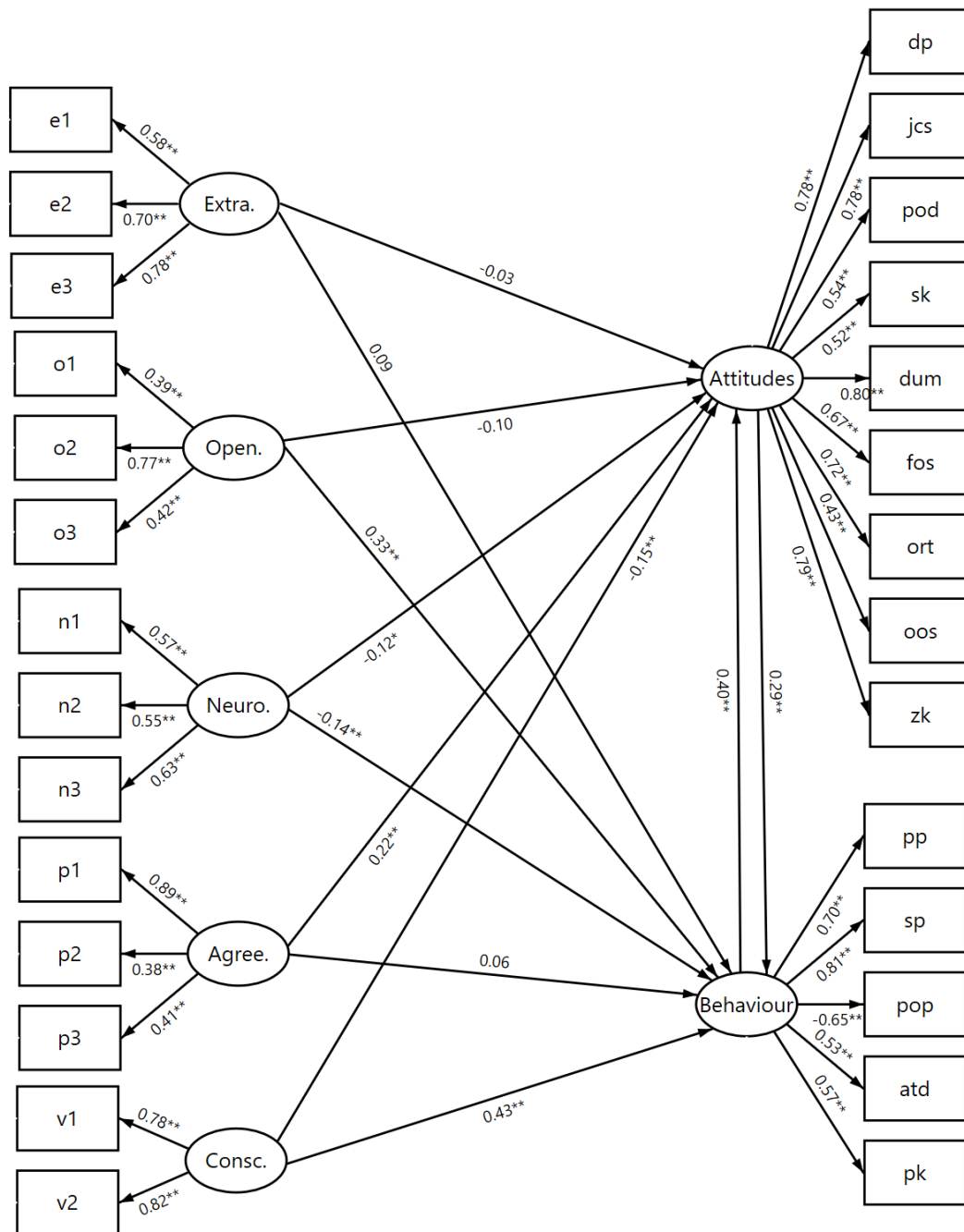


Figure 1: SEM estimation results

Note: See also Table A1.

e1-e3: items measuring extraversion; o1-o3: items measuring openness; n1-n3: items measuring neuroticism; p1-p3: items measuring agreeableness; v1-v2: items measuring conscientiousness; dp: Good teaching scale; jcs: Clear goals and standards scale; pod: Appropriate workload scale; sk: Generic skills scale; dum: Good study materials scale; fos: Flexibility of online learning scale; ort: Use of technology scale; oos: Absence of personal contacts scale; zk: General satisfaction item; pp: Deep approach scale; sp: Strategic approach Scale; pop: Surface approach scale; atd: Teamwork engagement scale; pk: Proactive communication scale.

## 4 Discussion

The objective of this paper was to validate the proposed theoretical model by means of partial analyses of relationships between personality dimensions, study attitudes and study behaviour. On top of that, SEM was applied to evaluate the empirical support for the model as a whole.

From partial analyses it is evident that personality dimensions exert a much stronger direct impact on study behaviour than on study attitudes. Based on the Big Five personality dimensions it is possible to explain somewhat less than 30 percent of variability in study behaviour and only six percent of variability in study attitudes.

The causal impact of personality on formulating positive study attitudes is thus almost negligible, with neuroticism and agreeableness being the only significant but weak predictors (table 1). This finding contradicts the conclusions of previous research (e.g. Keller and Karau, 2013; Shih et al., 2013; Cohen and Baruth, 2017), which emphasised conscientiousness dimension as the most consistent predictor of the impressions and satisfaction with online learning. However, while comparing the results among studies, we need to have in mind that these studies used different operationalisations of the study attitudes concept and that the concept itself is complex and multidimensional in nature.

Reviewing the predictive value of the Big Five personality dimensions for development of constructive and efficient study behaviour reveals that all dimensions except extraversion exert a statistically significant influence on study behaviour with conscientiousness being the most powerful predictor (table 1). In other words, students with higher conscientiousness demonstrate more constructive and efficient study behaviour. Highly conscientious students are orderly, accurate, meticulous, persistent and capable of self-regulation (Bucik, Boben and Krajnc, 1997). These characteristics seem to be particularly relevant for a highly structured study process in the virtual environment, which demands self-discipline, continuous and active participation, time management and organizational skills as well as persistency to overcome the barriers and challenges imposed by the study requirements.

This study also confirmed the findings of Richardson (2006) and Richardson (2007) about a significant positive correlation between study attitudes and study behaviour. The two constructs appear to be moderately correlated. Study attitudes explain around 25 percent of variability in study behaviour and vice versa.

Apart from partial analyses, SEM on the other hand revealed insufficient empirical support for the proposed theoretical model. Calculated data about the strength of causal effects between latent variables in the model (presented in figure 1) should thus be taken only as rough estimation of the potential influences. The results of SEM to certain extent contradict the results of partial analyses that are based on linear regression analysis and partial bivariate correlation.

Unlike linear regression analysis, for instance, SEM indicates that all personality dimensions except extraversion and openness significantly predict study attitudes. Negative impact of conscientiousness is somewhat surprising though, indicating that less conscientious individuals exert more positive study attitudes; however, it needs to be taken into account that the size of that impact is very low. On the other side, the results of SEM and linear regression analysis are much more consistent when explaining causal influences of personality dimensions on study behaviour. Namely, both analyses revealed conscientiousness, openness and neuroticism as the strongest predictors, with conscientiousness being the most powerful predictor of study behaviour. Next, the results of SEM confirm the bidirectional relationship between study attitudes and study behaviour, established by partial bivariate correlation analysis, but they also indicate that the impact of study behaviour on study attitudes could be somewhat stronger than the other way around. These findings may indicate a potential indirect effect of personality on study attitudes via study behaviour.

When comparing the results of SEM and linear regression analysis, one needs to bear in mind that SEM attempts to estimate the causal relationships among latent variables (constructs), while linear regression analysis only attempts to estimate the relationships between the manifest variables. These conceptual differences raise questions about the actual comparability of the results derived from the two different analyses. In our case, due to insufficient empirical

support for the proposed theoretical model as a whole (by SEM), it seems reasonable to rely more on the findings of partial analyses.

## 5 Conclusion

According to the results of this study, it seems that conscientiousness dimension is the most relevant personality dimension for online learning performance. If all the students were assessed on the Big Five personality dimensions in time of enrolment into a study programme, it would be possible to identify less conscientious students who are likely to exert less constructive study behaviour later on during the learning process. This group of students could then be given additional support and guidance from the very beginning to help them proceed and successfully perform in a highly structured online learning environment. The practical implication of this research regarding the importance of conscientiousness dimension could be particularly useful for higher education institutions, which are specialized in online learning.

We can conclude that the Big Five personality dimensions are far stronger predictors of study behaviour than study attitudes, although a significant amount of variance in study behaviour remains unexplained. Apart from the general personality structure (the Big Five personality dimensions only provide a rough structure of one's personality), development of particular study behaviour pattern seems to largely depend on other influences as well. In future research it would be interesting to explore how study behaviour relates to aspects of motivation, locus of control, self-efficacy beliefs and other variables that seem to be relevant for study performance in online learning. Adding the additional explanatory variables to the proposed theoretical model and increasing the number of observations (the sample size) could improve the overall performance of the proposed model. Further research is required to gather more solid evidence about the complex relationships between students' personality and their study attitudes and study behaviour.

## References

1. Bayram, S., Deniz, L. and Erdođan, Y. (2008). "The role of personality traits in web-based education", *The Turkish Online Journal of Educational Technology*, 7(2), pp. 41-50.
2. Bishop-Clark, C., Dietz-Uhler, B. and Fisher, A. (2007). "The effects of personality type on web-based distance learning", *Journal of Educational Technology Systems*, 35(4), pp. 491-506.
3. Bucik, V., Boben, D. and Krajnc, I. (1997). "The big five questionnaire (BFQ) and the big five observer (BFO) as measures of the five factor model of personality: the Slovenian adaptation," *Horizons of Psychology*, 4, pp. 5-34.
4. Caspi, A., Chajut, E., Saporta, K. and Beyth-Marom, R. (2006). "The influence of personality on social participation in learning environments", *Learning and Individual Differences*, 16, pp. 129-144.
5. Cohen, A. and Baruth, O. (2017). "Personality, learning, and satisfaction in fully online academic courses", *Computers in Human Behavior*, 72, pp. 1-12.
6. Crede, M. and Kuncel, N. R. (2008). "Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance", *Perspectives on Psychological Science*, 3(6), pp. 425-453.
7. Dabbagh, N. (2007). "The Online Learner: Characteristics and Pedagogical Implications", *Contemporary Issues in Technology and Teacher Education*, 7(3), pp. 217-226.
8. Entwistle, N., Tait, H. and McCune, V. (2000). "Patterns of response to an approach to studying inventory across contrasting groups and contexts", *European Journal of Psychology of Education*, 15, pp. 33-48.
9. Huang, E.Y., Lin, S.W. and Huang, T. K. (2012). "What type of learning style leads to online participation in the mixed-mode e-learning environment? A study of software usage instruction", *Computers & Education*, 58(1), pp. 338-348.
10. Jensen, M. (2015). "Personality Traits, Learning and Academic Achievements", *Journal of Education and Learning*, 4(4), pp. 91-118.
11. Johnson, G. M. (2015). "On-Campus and Fully\_online University Students: Comparing Demographics, Digital Technology Use and Learning Characteristics", *Journal of University Teaching & Learning Practice*, 12(1). Available at: <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1501&context=jutlp> [Accessed 15. 10. 2019].
12. Keller, H. and Karau, S. J. (2013). "The importance of personality in students' perceptions of the online learning experience", *Computers in Human Behavior*, 29, pp. 2494-2500.



13. Lang, F.R., John, D., Ludtke, O., Schupp, J. and Wagner, G.G. (2011). "Short assessment of the Big Five: robust across survey methods except telephone interviewing", *Behaviour Research*, 43, pp. 548-567.
14. Ortagus, J. C. (2017). "From the periphery to prominence: An examination of the changing profile of online students in American higher education", *American Journal of Business Education*, 8 (2), pp. 139-160.
15. Richardson, J.T.E. (2006). "Investigating the relationship between variations in students' perceptions of their academic environment and variations in study behaviour in distance education", *British Journal of Educational Psychology*, 76, pp. 867–893.
16. Richardson, J.T.E. (2007). "Motives, attitudes and approaches to studying in distance education", *Higher Education*, 54, pp. 385–416.
17. Richardson, J.T.E. and Lawless, C.J. (2002). "Approaches to studying and perceptions of academic quality in distance education", *Higher Education*, 44, pp. 257-282.
18. Shih, H. F., Chen, S. H. E., Chen, S. C. and Wey, S. C. (2013). "The relationship among tertiary level EFL students' personality, online learning motivation and online learning satisfaction", *Procedia-Social and Behavioral Sciences*, 103, pp. 1152-1160.
19. Satorra, A. and Bentler, P.M. (1988). "Scaling corrections for chi-square statistics in covariance structure analysis". In ASA 1988 Proceedings of the Business and Economic Statistics Section, 308–313. Alexandria, VA: American Statistical Association.
20. Satorra, A. and Bentler, P. M. (1994). "Corrections to test statistics and standard errors in covariance structure analysis". In A. von Eye and C.C. Clogg (Eds) *Latent variables analysis: Applications for developmental research*. Thousand Oaks, CA: Sage, pp. 399–419.
21. Tlili, A., Essalmi, F., Jemni, M. and Chen, N. S. (2016). "Role of personality in computer-based learning", *Computers in Human Behavior*, 64, pp. 805-813.

## 6 Appendix

Table A1: SEM estimation results

		Stand. $\beta$	se
<b>Structural</b>			
<b>Study attitudes</b>	Study behaviour	0,402**	(-0,043)
	Extraversion	-0,026	(-0,046)
	Neuroticism	-0,118*	(-0,056)
	Agreeableness	0,218**	(-0,045)
	Openness	-0,100	(-0,052)
	Conscientiousness	-0,155**	(-0,045)
<b>Study behaviour</b>	Study attitudes	0,287**	(-0,070)
	Extraversion	0,094	(-0,056)
	Neuroticism	-0,143**	(-0,055)
	Agreeableness	0,062	(-0,056)
	Openness	0,332**	(-0,055)
	Conscientiousness	0,432**	(-0,043)
<b>Measurement</b>			
<b>e1</b>	Extraversion	0,577**	(-0,039)
	_cons	2,540**	(-0,085)
<b>e2</b>	Extraversion	0,701**	(-0,050)
	_cons	4,796**	(-0,227)
<b>e3</b>	Extraversion	0,782**	(-0,050)
	_cons	3,771**	(-0,171)
<b>n1</b>	Neuroticism	0,570**	(-0,058)
	_cons	2,377**	(-0,089)
<b>n2</b>	Neuroticism	0,553**	(-0,049)
	_cons	2,252**	(-0,073)
<b>n3</b>	Neuroticism	0,632**	(-0,061)
	_cons	2,201**	(-0,073)
<b>p1</b>	Agreeableness	0,894**	(-0,088)
	_cons	5,114**	(-0,242)
<b>p2</b>	Agreeableness	0,380**	(-0,055)
	_cons	3,115**	(-0,122)
<b>p3</b>	Agreeableness	0,409**	(-0,056)
	_cons	3,100**	(-0,110)
<b>o1</b>	Openness	0,386**	(-0,059)
	_cons	2,979**	(-0,122)
<b>o2</b>	Openness	0,766**	(-0,070)
	_cons	4,335**	(-0,178)
<b>o3</b>	Openness	0,422**	(-0,058)
	_cons	4,142**	(-0,173)
<b>v1</b>	Conscientiousness	0,775**	(-0,052)

	_cons	6,472**	(-0,311)
<b>v2</b>	Conscientiousness	0,821**	(-0,061)
	_cons	5,999**	(-0,243)
<b>dp</b>	Study attitudes	0,783**	(-0,029)
	_cons	4,998**	(-0,246)
<b>jcs</b>	Study attitudes	0,783**	(-0,023)
	_cons	4,620**	(-0,182)
<b>pod</b>	Study attitudes	0,538**	(-0,038)
	_cons	3,882**	(-0,124)
<b>sk</b>	Study attitudes	0,524**	(-0,036)
	_cons	6,307**	(-0,276)
<b>dum</b>	Study attitudes	0,798**	(-0,023)
	_cons	4,915**	(-0,220)
<b>fos</b>	Study attitudes	0,670**	(-0,029)
	_cons	6,766**	(-0,351)
<b>ort</b>	Study attitudes	0,720**	(-0,029)
	_cons	8,375**	(-0,348)
<b>oos</b>	Study attitudes	0,430**	(-0,044)
	_cons	4,280**	(-0,177)
<b>zk</b>	Study attitudes	0,788**	(-0,025)
	_cons	5,423**	(-0,273)
<b>pp</b>	Study behaviour	0,701**	(-0,034)
	_cons	9,041**	(-0,306)
<b>sp</b>	Study behaviour	0,806**	(-0,027)
	_cons	9,234**	(-0,417)
<b>pop</b>	Study behaviour	-0,648**	(-0,034)
	_cons	3,785**	(-0,129)
<b>atd</b>	Study behaviour	0,525**	(-0,045)
	_cons	6,651**	(-0,260)
<b>pk</b>	Study behaviour	0,573**	(-0,040)
	_cons	4,804**	(-0,194)

Note: \*p < 0,05, \*\*p < 0,01

e1-e3: items measuring extraversion; o1-o3: items measuring openness; n1-n3: items measuring neuroticism; p1-p3: items measuring agreeableness; v1-v2: items measuring conscientiousness; dp: Good teaching scale; jcs: Clear goals and standards scale; pod: Appropriate workload scale; sk: Generic skills scale; dum: Good study materials scale; fos: Flexibility of online learning scale; ort: Use of technology scale; oos: Absence of personal contacts scale; zk: General satisfaction item; pp: Deep approach scale; sp: Strategic approach Scale; pop: Surface approach scale; atd: Teamwork engagement scale; pk: Proactive communication scale.