Personality and self- regulated learning habits: Which is Jekyll and which is Hyde?

Felicity Small Charles Sturt University, Australia

David Dowell, Aberystwyth University, UK

Abstract

The focus of this study was to examine the relationship between personality and self-regulated learning habits of university students in order to develop practical strategies for academics. The nature of the relationship between learning strategies and personality is still unclear as the existing literature contains inconsistent findings (Chamorro-Premuzic and Furnham, 2009). Using survey data (n=155) analysed using correlation and cluster analysis, the findings indicate that most personality variables do not have a significant correlation with self- regulated learning habits. The cluster analysis reveals that self-regulated learning habits are an effective way of grouping students. The conclusion is that teaching strategies should place emphasis on the students' self- regulated learning habits with a particular focus on the five segments proposed.

Key words: Self-regulating habits, personality

Introduction

Personality and its role in tertiary education have been widely studied (Busato *et al.*, 2000; Chamorro-Premuzic *et al.*, 2007; Ridgell and Lounsbury, 2004).   In particular, personality can be used by academics to group students, explain their behaviour and predict students' academic performance (Duff *et al.*, 2004). Academics tend to group their students by personality types; for example, she is shy, he is assertive, they are organised. This grouping process is often then extended to academics using personality characteristics to explain students' performance for academic tasks. For instance, *she is shy* might explain her performance in presentations. This seems an intuitive act as a student's behaviour is arguably affected by their personality traits. Finally, personality characteristics have been found to be a meaningful way of predicting student performance (O'Conner and Paunonen, 2007). Hence, there is a significant amount of research that argues understanding personality is important to educators for grouping students, explaining their task performance and predicting assessment outcomes. However, this approach, which uses personality as a key element in the classroom, may not be a completely effective way of understanding and catering for students.

Learning behaviours have also been a significant and important area of study (Cassidy, 2004). Popular models such as Kolb's learning (1976) and Curry's onion (1983) are examples of learning typologies that have shaped educational design. There is little doubt of the importance of learning habits to both academics and students (Felder and Silverman, 1988). What is less developed is the connection between learning habits and personality (Nijhuis *et al.*, 2007; Zhang, 2003).   Although this has been considered an area of interest since the 1970's both Zhang (2003) and Nijhuis *et al.* (2007) found inconsistencies in the way personality traits relate to learning habits. Given that academic's may use personalities to teach and the importance of learning habits to student outcomes there is a need to understand

how these important concepts relate to each other and how this relationship will influence academic teaching strategies.

Research Background

Personality is self and is displayed through the deliberate and relatively consistent engagement with certain behaviours (Heine and Buchtel, 2009). In other words, a shy personality will often be quiet in class and avoid eye contact with others. Given that self-regulating strategies are behavioural too it is logical to assume that a relationship would exist between personality and learning habits. That is, some personality types may be more likely to adopt the self-regulating learning behaviours that display their personality. Previous research has even argued that learning habits are a subset of personality (Duff *et al.*, 2004; Jackson and Lawty-Jones, 1996; Zhang, 2003). Thus, we could assume more emotionally unstable personality types adopt surface learning strategies like memorising. While conscientious personality types adopt learning strategies that are deeper such as elaboration and critical thinking. However, inconsistencies in the relationship between personality types and learning habits are apparent in past research (Chamorro-Premuzic *et al.*, 2007; Furnham *et al.*, 2008). This may be attributed to the models included in prior research to measure learning habits and personality.

Self-regulation is the student's ability to adopt the right learning habits for them in order to reach their goals (Boekaerts and Cascallar, 2006; Perels *et al.*, 2005; Zimmerman, 1989). That is, self- regulation means that the student is capable of deliberately and knowingly creating positive and effective behaviours that help them to study.   For example, the behavioural habits students adopt to help them study can be organisational (e.g. summarising chapters), self-consequence (e.g. promising self a study break) (Nota *et al.*, 2004) and setting up the 'right' environmental conditions (e.g. going to the library) (Zimmerman, 2002). Self-regulating strategies also engage in higher order learning such as meta-cognition actions of *thinking about thinking* and *learning to learn* (Muis and Franco, 2009). Studies into the effectiveness on self-regulating strategies on academic performance have found a positive relationship. For example, Peltier, Hay and Drago (2005) found that self-reflections of content increases program outcomes by a moderate amount. This and similar findings suggest that engaging in self-regulating strategies is a valuable activity for students.

In the studies where personality traits and learning habits did have significant relationships such as Furnham *et al.* (2008) the results indicated that the personality trait of *openness* has positive and moderate correlations with learning strategies. This finding has also been repeated in a later study by Chamorro-Premuzic and Furhnam (2009). This significant correlation implies that students who have higher responses to *openness* in their personality may be more likely to be willing to adopting more affective learning strategies. However, beyond this little is known, results are limited and not generally retested. Given that these findings represent a small number of personality traits and learning habits, further research is warranted. Hence, the following research objectives (RO) are the areas of investigation for this research:

RO 1: Are student's personality traits linked to certain self-regulated learning habits?

RO 2: Are there other potential explanations for the relationship or lack thereof between personality and learning habits?

RO 3: Are teaching strategies based on personality misguided?

Methodology

A quantitative survey was conducted with a convenience sample of 155 students, using a self-reported questionnaire administered during semester. The participants were all on campus full time students from 1st year (48%), 2nd year (31%) and 3rd/4th year (21%). Of the 155 students 53% were female with 50 % Arts and 50% Business students. Several existing measurement scales were used in this research. The personality Big Five construct was measured by Goldberg's scale, which was modified by Saucier (1994). This scale included items such as *talkative, cold, shy,* and *creative*. The scale was measured on a 5 point response bi-polar scale of *extremely inaccurate* to *extremely accurate* (α=0.86). The concept of self- regulated learning habits was measured using a 15 item scale developed by Young (2005). The key groups for this measure were the established types of behaviours including the *superficial* strategy of Rehearsal, then the *deeper cognitive* processes such as Elaboration, Critical Thinking, Organisation and finally *meta-cognitive* processes of Monitoring, Planning and Regulating. The items included statements such as *I memorise lists of important terms and concepts* and *I organise the information from all my class notes and the readings into simple charts, diagrams and tables*. The response was a five point scale from *never* to *always* (α= 0.80). The survey also included demographics questions such as course, gender and year of enrolment to get an understanding of the composition of the participants.

The data were analysed using correlation, factor analysis and cluster analysis. Correlation examines the relationship between multiple sets of variables (Hair *et al.*, 2010; Tabachnick and Fidell, 2007). Correlation was used to investigate if there was an association between self-regulating learning habits and personality types. The anchors for the personality type (e.g. talkative, shy) were used to correlate with a key variable from the learning habits. This was followed with exploratory factor analysis (EFA) to establish the self-regulated learning habits factors. Here the scale items for each of the learning types were included and estimated using principle components analysis. Finally, cluster analysis was used to determine if people could be grouped based on attitude towards learning habits (segmentation) and identify characteristics of these groups. Wards method with a Euclidean distance measure was used to get similar sized and different clusters (Hair *et al.*, 2010).

Results

The correlations results indicate that there are few significant relationships between personality and self- regulating learning habits. The three personality traits that were significant and had a positive impact were (1) *organised* personality type which was significantly associated with *regulation, planning* and *organisation* habits, (2) *creative* personality type was significantly associated with *monitoring* and *regulating* habits and (3) *cold* personality types had a positive, small correlation with *critical thinking* habits. Two variables were significant, but had a negative relationship (1) *uncreative* personality types

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had a negative and small correlation with *monitoring*, which suggest these personality types avoid self-monitoring learning habits and (2) *disorganised* personality types was negatively related to *planning*. Table 1 shows the significance, size and sign of the correlations.

Table 1: Correlation Matrix for personality and learning habits

	Elaboration	Critical Thinking	Monitor	Organise	Rehearse	Planning
Talkative	.034	-.058	-.054	.054	-.012	.128
Shy	-.065	.111	.120	-.037	-.030	.008
Sympathetic	.054	.004	.010	-.096	.155	-.032
Cold	-.058	.187*	.074	.017	-.017	-.021
Organised	.009	-.040	.001	.230**	.228**	.260**
Disorganised	.049	.016	.060	-.221**	-.151	-.286**
Unenvious	-.015	-.012	-.011	-.128	-.013	-.074
Moody	-.083	.070	-.034	-.056	-.158	.038
Creative	.027	.036	.149	-.023	-.008	.190*
Uncreative	-.144	.046	-.206*	-.005	-.013	-.122

(* Shows significant correlations at 5% level ** significant at 1% level)

Given the apparent lack of correlation between personality types and learning habits as shown in Table 1, further analysis is warranted. The findings of the correlation further challenge the assumptions of personality in education. Specifically, the use of personality to drive teaching strategies (e.g. grouping, expectation setting) as teaching to personality types may not be correctly aligned with student learning habits. As a result of this finding, a marketing segmentation approach is used, with cluster analysis to identify student segments based on learning habits rather than the a-priori personality approach.

The factor analysis identified seven underlying learning habit factors were identified in the exploratory factor analysis. The results were: KMO 0.759, significant Bartlett's test of sphericity, many medium correlations; a seven factors solution where 75% of the variance was explained. The highest loading item from each learning type was then selected for the cluster analysis. Some items were removed due to cross-loading, however, the remaining items all loaded above 0.50. The Cronbach alphas for each of the factors also indicated that the scales were reliable.

The cluster analysis produced five segments (determined using the agglomeration schedule, dendogram and frequencies). The five clusters are Uninterested, Ruled Thinkers, Rote Learners, Appliers, and Organisers. ANOVA was used to establish if the results of the cluster analysis were significant, that is, are each of the clusters distinct. The ANOVA results indicated that the factors (continuous variables) were significant. Sample demographics were not used to profile the clusters because they were too similar across the groups.

The results for the cluster analysis indicated that there are five distinct groups. Group One are *Ruled thinkers* (19.4% of the sample). This group is high on creativity, but look to the rules and economise, they tend not to elaborate or organise their work, but they do have high monitoring, rehearsing and planning habits. The second group were labelled *Rote Learners* (13.2% of the sample). This group focused on the having sufficient information to pass the subject, they are high on rehearsing and planning behaviours. Group Three were called *Uninterested* (17.8% of the sample) because they are not focused on classroom activities.

This group's main focus was on working it out for themselves and thinking about the theory. They scored high on monitoring and had evidence of being critical thinkers too. Group Four were called *Organisers* (22.4% of the sample) because their self-regulating behaviours are primarily about organising information. This group has strong tendencies to engage in elaboration activities too. The fifth group are *Appliers* (27% of the sample). These students focus on working out what the theory is saying, what the lecturer wants and then they just do it! They scored high on elaboration, monitoring and planning self-regulating behaviours.

Conclusions and Practical Implications

Similar to previous research by Zhang (2003) and Furnham *et al* (2008), the link between a student's personality and their learning habits appears tenuous. This suggests that personality may not be related to student's learning habits. As a result of this we suggest a marketing segmentation approach which, instead of personality types as a-priory groups, yields five student segments based on learning habit adoption. The five student segments based on their learning habits seem to offer more information about how student's self-regulating learning behaviours can affect their overall performance.

The three research questions were related to (1) the relationship between personality and learning habits, (2) if personality is not important what is and (3) are teaching strategies based on personality misguided. For research question one, we found that there is limited support for the link between students' personality type and their learning habits. As for research question two the case has been put forward that personality is not the most effective tool for teaching strategy and that the five segments of students is a better approach and way of understandings learning in student cohorts. For research question three, the findings indicate that teaching strategies based on personality types are perhaps not flawed, but may not be an optimal strategy.

Thus, rather than grouping students based on personality, we propose that academics set assessment tasks and understand performance based on the five students self-regulating learning segments. In practical terms, teaching objectives and tasks can help students identify and foster self-regulating strategies. First, academics could identify the student segments present, and then cater teaching to these groups. Second, and perhaps most importantly in this study there are three significant self-regulating behaviours that were common in the majority of the participants across the segments, which included *rehearsing*, *monitoring* and *planning*. Thus, practical strategies for academics should include building into assessment and class work the structure to nurture and scaffold these behaviours. For example, rehearsing is a superficial learning process that engages memory. For class room activities presentations where students speak without notes can help students to enhance their memory skills to retain information. Monitoring behaviour is a meta-cognition processes that helps students recognise what they do and do not understand. Thus, self-monitoring can be instilled into learning activities by asking the student to be reflective, such as writing a reflective journal. Finally, planning is another meta-cognitive strategy that is about goal setting. This skill can be developed by setting strict time lines on activities and setting small goals that the students can mark off as accomplishments. Hence, by focusing on these three main learning habit areas, the bulk of the five student segments self- regulated learning habits can be enhanced.

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