Relationship Between Personality and Preferred Teaching Methods

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Declaration

Appendix 1: Thesis Declaration Form

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Abstract

The current, quantitative study explored the relationship between Big Five personality traits (Goldberg, 1993) and preferred teaching methods with undergraduate students (N= 62), attending Irish colleges. Participants aged 18-55 years old were asked to complete two online questionnaires that measured Big Five personality traits, using Big Five Inventory (BFI; John & Srivastava, 1999) and a 27-tems instrument that measured preferred teaching methods. Significant, positive relationship was found between Extraversion and individual student presentations (r_s = .40) and significant, but negative relation between Extraversion and teaching method that involved a guest speaker (r_s =-.27). Conscientiousness was significantly and negatively associated with both; a lecture with visual overheads (r_s = -.30) and watching a long video/film which was over 20 minutes (r_s = -.31). Openness was significantly and positively related to preference for library research (r_s = .36) and information search, using technology (r_s = .33). No significant relationships were obtained for a trait of agreeableness and preferred teaching methods. Neuroticism was positively and significantly correlated with preference for 3 teaching methods: lectures including a visual, using PowerPoint (r_s = .36) as well as lectures with a visual-overhead (r_s =.34) and watching a long video/film that was over 20 minutes (r_s = .39). The findings show the prominence of considering students' teaching preferences by drawing attention to their personality traits to meet and adjust students' needs to potentially increase their academic success.

Introduction

People are unique and different from each other which is evident through their differences in preferences, as people differ in terms of their personalities. Carl Jung is credited as the first academic to categorise personality type (Jung, 1910). According to Jung's initial theory, personality is derived from one's susceptibility to extraversion and introversion typology (Jung, 1923), whereby extroversion and introversion were understood as predispositions of behaviours and differentiated people with extraverted personality and introverted personality type based on the direction and source of their energy. Jung argued that extraverts focus their energy externally towards social interactions with others while introverts direct their energy internally towards self-insight and own thoughts (1923). The differences as to whether a student is an extravert or introvert can influence their performance during class time (Chamorro-Premuzic, Furnham & Lewis, 2007) as well as the way they learn, comprehend, and take in the knowledge (Ruth-Sahd, 2014). According to Myers, McCaulley, Quenk, and Hammer (2009) students who are extraverts need plenty of stimulants to stay focused, whereas introverts show better performance when they get the time to think and reflect prior the start of an activity.

Jung further built upon his previous (1923) theory and incorporated four functions which formed the basis for eight personality types: (i) extraversion and introversion; (ii) sensation and intuition; (iii) thinking and feeling, (iv) judging and perceiving (Jung,1971). This (1971) Jungian theory classifies individuals into distinct categories of personalities from each of 4 dichotomies, which differs from a Trait theory of personality, that posits traits on a spectrum. The Trait theory assumes that behaviours are related with traits which are stable characteristics and personality is consisting of these extensive predispositions (Fajkowska & Kreitler, 2018). The Big Five or the Five Factor model of personality represents five traits-Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism (McCrae & Costa,

1989; Goldberg, 1993) that corporate to form personality (McCrae & Sutin, 2018). Each of the traits is expressed on a continuum of two extremes and individuals can be high or low on each of the trait that outline the overall personality.

Individuals who score high in openness are characterised as insightful and imaginative (Power & Pluess, 2015) that demonstrate eagerness to learn new things and enjoys getting to know new people (Lebowitz, 2016a) Meanwhile individuals who are low in this trait likes to have a routine and have no interest in abstract concepts. People who are high on conscientiousness have an ability to control their impulses (even tampered), are thoughtful, organised and determined on their goals (Power & Pluess, 2015). On the other hand, being low in conscientiousness describe a person that is careless and tend to procrastinate. Individuals with higher levels of agreeableness trait are considered to be collaborative and intend on helping others, while showing compassion and altruism (Lebowitz, 2016a), in contrast people falling on the lower end of this trait have little interest in others and their problems and tend to be insensitive. Being high in neuroticism, describe people who are generally moody, pessimistic, and experiencing emotional instability (Power & Pluess, 2015). On the contrary, individuals who fall on the low point of the spectrum, tend to be more confident, unworried, and emotionally stable.

Furnham (1996) defined a significant association between Jungian personality type (1971) and the Five Factor Model of Personality across feeling/thinking dimension and extravert/introvert dimension. There are number of theories based on Jung's theory of personality (1971) that identify students' preferences for learning (Newton & Miah, 2017). According to Kolb's (1984) experiential learning model, individuals can display a preference for one out of four learning styles, such as: accommodating, converging, diverging or assimilating. These learning styles are based on two bi-polar dimensions: active/reflective and abstract/concrete. This theory builds on Jung's theory personality (1971) that describes

the strongest correlations between concrete/abstract and feeling/thinking and between active/reflective and extravert/introvert. Kolb (1985) characterised people with a preference to accommodating learning style to learn best from hands-on activities, with no need to logically rationalise; convergers tend to be best in practical applications of ideas and theories; divergers are best at viewing the "big picture" from different perspectives; assimilators are competent in understanding and generating information into concise theoretical frameworks.

Teaching methods in higher education use traditional techniques including traditional blackboard teaching lectures and individual work, as well as interactive lectures, experiments, co-operative discussion, case studies and collaborative learning, which consists of small group activities or partner activities (Emerson & Taylor, 2007; Roehling, Kooi, Dykema, Quisenberry, & Vandlen, 2011; Tanner, 2013). Preferences have been reported across students, as Novelli and Fernandes (2007) of biomedical and medical students found that most students favoured traditional blackboard teaching rather than the use of PowerPoint presentation during lectures. Derived results have been assumed to have an impact on student's attention due to the material overload being presented on PowerPoint slides (Novelli & Fernandes, 2007).

In order to select an appropriate teaching method, a lecturer creates a selection of teaching methods through their expertise in their field of study and experience (Murphy, Eduljee, Croteau & Parkman, 2017; Oleson & Hora, 2013). It is the lecturer's responsibility to design the types of assignments and assessment for students to make their participation in the classroom beneficial (Brinthaupt, Clayton, Draude, & Calahan, 2014; Chamarro-Premuzic, Furnham, Lewis, 2007), as an attentive utilization of teaching methods may influence student's class time (Kharb, Samanta, Jindal, & Singh, 2013).

The incorporation of the student preferred teaching methods is likely to improve student's learning, engagement and increase their motivation as research highlights taking

into account students' preferences for teaching methods can provide them with a better opportunity to succeed (Murphy, Gray, Straja & Dogert, 2004; Malek, Hall, & Hodges, 2014; Shaari, Yusoff, Ghazali, Osman, & Dzahir, 2014). Regardless of the lecturer's chosen framework, the need of individual students' preferences for teaching methodologies should be considered, whereas students' individual characteristics and their personal learning experiences are not being implemented in the student-focused nature of teaching methods (Tanner, 2013).

Research conducted by Francis (2008) found that undergraduate students showed a very favourable approach to being able to choose the types of assessment with the more mature students being most open to selecting their own assessment type. Students reported feeling empowered by being provided with choice of assessment as this type of empowerment has been suggested to provide motivation and may increase the possibility for achievement (Rust, 2002). Similar findings were found in a study by O' Neill and Galvin (2010) who in addition reported a decreased level of anxiety in students regarding the assessment due to their option of having the opportunity for choosing the assessment. Considering, the involvement of the teachers, they have also noted an improvement in grades in the students that would normally achieve poorer grades despite their engagement in learning (O' Neill & Galvin, 2010).

There is a growing body of research on both personality and student learning with an emphasis on "learning styles" (Ashraf, Fendler, & Shrikhande, 2013; Fowler & Thomas, 2015; Kim, Gilbert, & Ristig, 2015). Such research focuses on personality traits and learning approaches (Zang 2003; Duff et al.,2004) and students' academic achievements and their preference for types of assessment regarding personality differences (Chamorro-Premuzic, Furnham, Dissou, & Heaven, 2004; 2005).

Prior research indicated a relationship between students' personalities and different ways of acquiring knowledge (Duff, Boyle, Dunleavy, & Ferguson, 2003; Emerson & Taylor, 2007; Murphy et al., 2017). Extraverts show a preference for learning through hands on tasks while conducting a conversation with people. Extraverted learners tend to take the role of a leader in collaborative work and teaching others in a problem-based learning (Fishman & Bellugi, 2011). Introverts, on the other hand, avoid social gathering and prefer to communicate in writing, through personal reflection (Woosley, 2001) and theoretical exploration (Paulus, Baruah, & Kenworthy, 2018). Introverts are considered as thoughtful and private, enjoying their own company. For instance, extraverts tend to enjoy activities which gives them opportunities for discussion and interaction with other students and the teacher (Lawrence, 2009). Introverts in contrast, may favour lab work and standard lectures which include listening and reflection (Lawrence, 2009).

A study adapted the Big Five personality traits by Costa and McCrae (1992) and found that individuals who scored high in agreeableness and extraversion were more likely to prefer group work than individuals, being low in extraversion (introverted; Chamorro-Premuzic et al., 2005).

A 2007 study which also adapted The Big Five found a relationship between students' personality and their preferable form of teaching as students showed firm differences during referring to different types of teaching, based on their personality and abilities (Chamorro-Premuzic, Furnham &Lewis, 2007). This study was conducted with medical undergraduate students conducted in England. Researchers found that extraversion was negatively and significantly related to preferences for independent study, indicating that the more extraverted students were, the lower their preference for independent study independent, to the effect that more introverted students preferred to study on their own. They also found that a significant, negative correlation between neuroticism and predilection towards lab classes, clinical

teaching, small groups activities and group discussion, which demonstrate these preferences in students who were more emotionally resilient. There was also a significant, positive relationship between openness and teaching methods, as in neuroticism trait. The findings also conclude that students that scored high on a trait of conscientiousness were more inclined to indicate a preference for clinical teaching that involve students to apply learnt knowledge into practice. Similarly, to the trait openness, students who scored high in agreeableness, showed a preference for lab classes, small groups, clinical teaching, and groups discussion, compared to those who fall in the low point of this trait spectrum.

The lack of empirical studies employing The Big Five framework (Goldberg, 1993) was noted while this literature review was being completed. Despite the fact that Myers-Briggs Type Indicator (MBTI) shows unreliable results and is not scientifically valid tool to define personality (Pittenger, 1993; Hunsley, Lee, & Wood, 2004), it was employed in the majority of empirical studies. Therefore, the studies outlined below were interpreted with caution.

A recent study by Murphy, Eduljee, Croteau, & Parkman (2017) examined 73 undergraduate students attending college in America via Myers-Briggs Personality Type indicator (MBTI) (Myers, McCaulley, Quenk, & Hammer, 1998). Their findings showed that both extraverts and introverts prefer lecture with a use of visual, such as PowerPoint slides. The results found neither a significant difference nor relationship between personality type (extraversion and introversion) and desired teaching method.

In contrast, the same researchers Murphy et al., (2020) conducted another study with a usage of MBTI instrument on a population of college students and found that both extraverts and introverts identified lecture as their preferred teaching method, with extraverts preferring lecture with student interaction, and introverts preferring lecture with a use of visual PowerPoint slides. A significant difference between extroverts and introvert was found as

extraverts demonstrated higher preference for teaching methods, such as lecture with student interaction, lecturer teaches by questioning students, watching a short film, classroom discussion, experiential activities in pairs and in groups of three and more, games, demonstration and practice, students presentation (individual, pair and groups of three and more) and case studies (individual, pair, groups of three and more) in comparison to introverts. This study also found a significant and positive relationship between MBTI personality types-extraversion and preferred teaching methods. Extraverts showed a favour for interaction with the lecturer, demonstrations and practice, employment of games, student presentations and case studies.

Ramsay, Hanlon, & Smith (2000) also employed the MBTI inventory and surveyed 132 first-year accounting students about their preferences for cooperative learning activities. The researchers found that extroverts had a higher preference for group presentations when compared with their introverted counterparts. Similarly, Felder, Felder, & Dietz (2002) conducted a study on 116 students enrolled in chemical engineering course using the MBTI inventory and found that extroverts reported more positively for the possibility to group-based homework assignments when compared with introverts.

Rationale for current study

It is essential for lecturers to discover and incorporate student's preferred way to learn to allow them to achieve the best results (Brinthaupt, Clayton, Draude, & Calahan, 2014). Unfortunately, it is near impossible to make this happen if lecturers do not understand which teaching methods work best for each individual. Understanding and implementing students' preferred teaching methods could play an important role in improving their academic success as these methods are likely to enhance their learning, motivation, and overall engagement (Murphy et al., 2004; Malek, Hall, & Hodges, 2014; Shaari et al., Dzahir, 2014). Previous studies have found an association between student's personality types and their methods of

learning (Emerson & Taylor, 2007), moreover a very recent study found a significant relationship between personality types and preferred teaching methods (Murphy et al., 2020). Therefore, it is prudent for further exploration of students' personality types to allow for lecturers to consider modifying and adapting their teaching methods to fulfil the different needs of students.

Prior research findings are inconsistent to confirm the most efficient teaching method being used in the classroom (Marmah, 2014) reporting mixed results to ascertain the best teaching method (Murphy et al., 2017; Murphy et al., 2020). Given the diverse results from past research, this study aims to provide more clarity and comprehension regarding the relationship between personality type and preferred teaching methods. The current study will address the gap in the research pertaining to the use of The Big Five framework (Goldberg, 1993) when defining personality type. Moreover, it will additionally address the absence of the undergraduate student voice in an Irish context within the existing literature.

The findings will add to the existing international literature on how to adjust students' needs and promote their engagement during class and will also prove valuable to Irish lecturers and the Irish Department for Education and Skills.

In view of previous analysis results the research question (RQ) and subsequent hypotheses (H) for the present study are:

RQ: How does a student's personality trait relate to their favoured teaching method?

H1: The degree to which someone is extraverted relates to a greater preference for lecture with student interaction.

H2: The degree to which someone is extraverted relates to a greater preference for group work.

H3: Individuals who score higher on the trait of agreeableness and openness show a greater preference for experiential activities (lab classes), small groups and group discussion.

H4: Individuals who score high on trait of conscientiousness demonstrate a greater preference for clinical teaching (experiential activities).

H5: The degree to which someone is neurotic relates to a lower preference for lab classes, small groups, clinical teaching, and group discussion.

Methodology

Participants

Sixty-five undergraduate college students applied to participate in the study, a total of 62 students attending colleges in the Republic of Ireland took part in the present study. Participants represented all undergraduate classes from both full time and part time courses, from the Social Sciences, Arts and Humanities and Health Sciences. The study sample consisted of both females (*n*= 55) and males (*n*=7) with an age range from 18-55 years old (mean age = 31.65, SD = 10.19). The mean age for females was 31.95 (SD = 10.02) and the mean age for males was 29.29 (SD = 12.02).

The study employed a non -probability convenience sampling strategy which progressed into snowball sampling. There was neither financial compensation nor incentives offered for participation. The inclusion criteria within the study sample included participants aged 18 years or over. Participants of 17 years or younger have been excluded from the study (n=3).

Measures

For the purpose of this study, participants were asked to complete two measures. One measure pertained to their personality type and the second measure reviewed their preferred teaching methods. In addition, participants completed a demographic questionnaire (see Appendix F) to obtain background information, such as college year, type of course, age and gender.

The study received ethical approval from the National College of Ireland Departmental Ethics Committee in November 2020.

Personality Type. The Five- Factor Model (FFM), also commonly known as "The Big Five" model (Goldberg, 1993) represents and explains personality by five core traits: openness, conscientiousness, extraversion, agreeableness, neuroticism (McAdams & Pals, 2006) which consists of five corresponding dimensions. The Big Five model is considered to be the most extensively used and evidence supported framework of personality (Woods & Hampson, 2005; McCrae & Costa, 2008). It has been widely replicated across gender and culture (John, Naumann, & Soto, 2008).

The participants' personality traits were defined using the Big Five Model (Goldberg, 1993) through an instrument called the Big Five Inventory (BFI; John & Srivastava, 1999). The BFI consists of five subscales which each participant completed. The extraversion subscale (BFI_EXT) is one such example (John & Srivastava, 1999). This self-report subscale consists of eight items related to traits of extraversion, which are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). This subscale of the BFI provides a score for extraversion as "high" or "low" measured as percentile scores. The Internal Consistency Reliability for this subscale is .88 and the standardised validity coefficient as measured by Cronbach's α is .94 (John & Srivastava, 1999). The overall reliability of the BFI (n=462) as demonstrated by Cronbach's coefficient alpha was .83. The standardised validity coefficient of the BFI as measured by Cronbach's α was .92 (see Appendix D).

Student Preferences for Teaching Methods. To assess student preferred teaching method, an instrument comprising of 27 items has been implemented. The items were drawn from the work of Chamarro-Premuzic et al., (2007); Novelli and Fernandez (2007); Mathew and Pillai (2013) and Rivkin and Gim (2013). This is a self-reported measure which determines a student's level of agreement on a 5-point Likert Scale from 1 (strongly agree) to 5 (strongly disagree). The measure consists of 27 items indicating their preferred teaching

method. The items were divided into nine clusters dependent on the category. The clusters and items are as follows: lecture (5 items), films (2 items), classroom discussion (4 items), experiential activities (2 items), games/demonstrations (2 items), student presentations (3 items), case studies (3 items), quizzes (3 items) and research (3 items). This instrument has been used in studies by Murphy et al., (2017; 2020) and the reliability of the instrument showed by Cronbach α was .70 (See Appendix E).

Design

This quantitative research employs a cross sectional design between subjects whereby the independent variable was defined as personality trait and the dependent variable was defined as teaching method.

Procedure. The study employed a non -probability convenience sampling strategy which progressed into snowball sampling. An email containing the two study measures was forwarded to college programme coordinators, whereby the coordinator was asked to disseminate the email to potential participants. The researcher did not initiate contact with any participants. Interested participants who received this email were required to click into an online link via computer or phone which was connected to the internet that navigated them to the survey. Individuals were required to read the study information sheet (see Appendix A) to learn about the study and confirm their agreement for participation within the consent form (see Appendix B) prior to their participation. Participants were asked to complete all questionnaires by selecting one of a few options to indicate their response to each question and/or statement. Upon completion, participants were provided with the debriefing form (see Appendix C). The entire questionnaire was fully anonymous and participation in this study was performed on a voluntary basis whereby participants were free to cease their involvement at any time. Participants were provided with the researcher's contact details who was readily available to address any concerns or queries regarding the study.

The data set of results was analysed using the Statistical Package for the Social Sciences (SPSS)- IBM Statistics 27 program. Both descriptive and inferential statistics have been implemented.

Results

The sample consisted of 62 undergraduate students in total of which majority of participants were females (89%) and (11%) males. Descriptive statistics for categorical variables (type of a course and year) are presented in Table 1. Descriptive statistics for continuous variables (personality traits) are presented in Table 2.

Table 1

Descriptive statistics for a type and year of course

Variable		Frequency	Valid %
Course			
	Arts and Humanities	6	10
	Health Sciences	7	11
	Social Sciences	39	63
	Other	10	16
Year			
	1st year	20	32
	2nd year	19	30
	3rd year	9	15
	4th year	14	23

Table 2

Descriptive Statistics for Big Five personality traits

Variable	*M* [95% CI]	*SD*	Range
Extraversion	25.95 [24.06, 27.85]	7.47	12-40
Agreeableness	36.23 [35.18, 37.27]	4.11	29-43
Conscientiousness	32.76 [31.43, 34.08]	5.22	19-44
Neuroticism	24.21 [22.55, 25.87]	6.54	9-38
Openness	35.74 [34.19, 37.30]	6.13	20-47

The Spearman Rho Correlation coefficient was conducted to test the hypotheses and answer the research question, *how does a student's personality trait relate to their preferred teaching method* (See Appendix G). The strength of the relationship was assessed according to small: r = .10 to .29, medium: r = .30 to .49, large: r = .50 to 1.0 (Cohen, 1988). Correlation between personality trait and preferred teaching method are depicted in Table 3.

The relationship between the extraversion trait and preferred teaching method was investigated using a Spearman's Rank Order correlation coefficient. Extraversion was significantly correlated with guest speaker and individual student presentation. There was a small, negative correlation between extraversion and guest speaker (r_s = -.27, n = 62, p < .05). Results indicate that students who score high on the trait of extraversion are less likely to prefer a guest speaker (i.e., more introverted students were more likely to prefer teaching that include guest speaker). There was a moderate, positive correlation between extraversion and student presentation-individual (r_s = .40, n = 62, p<.05). Results indicate that students that score high on a trait of extraversion prefer individual student presentations.

No significant relationship was found between trait of agreeableness and preferred teaching method.

Conscientiousness was found to significantly correlate with lecture which included a visual overhead and with watching a long video/film which was over 20 minutes. There was a moderate, negative correlation between conscientiousness and lecture with visual overheads (r_s = -.30, n = 62, p<.01). Results indicate that students that score high on a trait of conscientiousness are less likely to prefer lecture, plus visual overhead. There was a moderate negative correlation between conscientiousness and watching a long video/film over 20 minutes (r_s = -.31, n = 62, p<.01). Results indicate that students that score high on a trait of conscientiousness are less likely to prefer watching a long video/film-over 20 minutes.

There was a significant relationship between neuroticism and lectures including a visual PowerPoint as well as lectures with a visual-overhead and watching a long video/film-over 20 minutes. There was a moderate, positive correlation between neuroticism and lecture with a visual-PowerPoint (r_s = .36, n = 62, p<.01). Results indicate that students that score high on a trait of neuroticism prefer lectures with a visual-PowerPoint. There was a moderate, positive correlation between neuroticism and lectures with a visual- overhead (r_s = .34, n = 62, p<0.1).

Results indicate that students that score high on this trait prefer lecture, plus visual overhead. There was a moderate positive correlation between neuroticism and watching a long video/film-over 20 minutes (r_s = .39, n = 62, p<.01). Results indicate that students that score high on a trait of neuroticism prefer watching a long video/film – over 20 minutes.

There was a significant association between the trait of openness and library research (experiential activities) and information search using technology (experiential). There was a moderate, positive correlation between openness and library search (experiential activities; r_s = .36, n = 62, p<.05). Results indicate that students that score high on an openness trait prefer library research-experiential activities. There was a moderate, positive correlation between openness and information search using technology (experiential; r_s = .33, n = 62, p<.05).

Results indicate that students that score high on trait of openness prefer information search using technology (experiential).

Table 3

Correlation among Big Five personality traits and preferred teaching methods.

	Extraversion	Agreeableness	Conscientiousness	Openness	Neuroticism
L1	.126	-.079	.109	.083	-.083
L2	-.115	.126	-.189	.009	.355**
L3	-.041	-.192	.014	-.090	.054
L4	-.175	-.137	-.298*	-.158	.342**
L5	.203	-.058	-.135	.072	.071
F1	-.228	.174	-.223	-.092	.243
F2	-.110	-.029	-.305*	-.061	.392**
D1	-.007	-.065	-.112	.156	.014
D2	.231	-.111	-.086	-.008	-.167
D3	.105	.048	-.106	.089	.061
D4	-.269*	.107	-.096	-.012	.161
Ex1	.073	-.189	-.114	.151	.056
Ex2	.023	-.157	.000	-.008	.085
GD1	-.009	.127	-.189	-.098	-.032
GD2	-.095	-.034	-.091	-.066	.074
P1	.398*	-.102	-.041	.072	-.145
P2	-.045	-.186	-.153	-.087	.071
P3	-.043	-.065	-.075	-.006	.003
C1	-.124	.078	.116	.011	-.008

C2	-.138	.038	-.107	-.009	.234
C3	-.159	-.104	-.132	.023	.066
R1	-.071	-.081	.138	.360**	-.023
R2	-.059	-.015	.046	.332**	-.064
R3	-.107	-.018	.027	.033	.104
Q1	-.095	-.021	.107	.092	-.073
Q2	-.004	-.053	.031	.114	-.067
Q3	.073	.046	.055	.150	-.083

Note: * $p < .05$, ** $p < .01$, L1 = Lecture with no visuals, L2 = Lecture plus visual-PowerPoint, L3 = Lecture with handwritten whiteboard notes, L4 = Lecture plus visual -overhead, L5 = lecture with student interaction, F1 = watching a short video/film under 20 mins, F2 = watching a long video/film over 20 mins, D1 = lecturer leads a classroom discussion on readings, D2 = lecturer teaches by questioning students, D3 = free flowing classroom discussion, D4 = Guest speaker, Ex1 = all experiential activities-groups of 3 or more, Ex2 = all experiential activities-pairs, GD1 = games in classroom, GD2 = demonstrations and practice, P1 = student presentations-individual, P2 = students presentations-pair of students, P3 = students presentations- groups of 3 or more, C1 = case studies-individual participation, C2 = Case studies-pair of students, C3 = case studies-groups of 3 or more, R1 = Library research, R2 = information search, using technology, R3 = course readings-all types, Q1 = quizzes on the readings, Q2 = unscheduled quizzes, Q3 = weekly quizzes.

Discussion

The current study aimed to explore the association between the Big Five personality traits (Goldberg, 1993) and preferred teaching method. The results found a significant relationship between four personalities (extraversion, conscientiousness, neuroticism, and openness) and preferred teaching method. However, there was no significant association found between agreeableness and preferred teaching method. The study findings did not support the first hypothesis, as the degree to which someone is extraverted was not related with a lecture with students' interaction. The results demonstrated that students' who rated higher on the extraversion trait showed a greater preference for individual student presentations. However, the greater the degree of extraversion indicated a lower preference for a guest speaker. The findings of the current study are consistent with research by Fishman & Bellugi (2011), that found extraverted individuals to play a key role in group activities, that intend to teach others, as it does for presentations. Similarly, the second hypothesis has not been confirmed, as the degree to which a student is extraverted was not associated with a greater preference for a group work. These results are not as expected, as according to the study by Lawrence (2009), extraverts tend to prefer activities that include discussions and interactions with others. Analysis of the 3rd hypothesis showed quite surprising results, as the trait agreeableness was not correlated with any of the preferred teaching methods. These findings are contradictory with the previous research, as the degree to which someone is agreeable indicated a greater preference for teaching methods such as lab classes, small group activities and group discussions (Chamorro et al., 2005; 2007). Individuals that score high on a trait of agreeableness were found to be cooperative (Lebowitz, 2016a), However, the present study did not show the preference for collaborative work in students with higher scores in agreeableness. The outcomes of this study showed that individuals that scored high on a trait of openness favour activities which include research, such as library research and

information search by using technology. These findings are not coherent with the previous research of Chamorro et al. (2007), that found, the more open students were, the more they enjoyed lab classes, group work and group discussions, thus the results do not support (H3). Although, the emerging results from this study may explain why individuals that score high in openness prefer research activities such as library and information search, due to being characterised as insightful (Power & Pluess, 2015) and eager for knowledge (Lebowitz, 2016a). Another major finding was a significant and negative relation between trait of conscientiousness and two teaching methods; lecture, including visual overhead and watching a long film/video that was over 20 minutes long. The findings portrayed that students with higher scores on a trait of conscientiousness were less likely to prefer both; lecture, including visual overhead and watching a long film/video-over 20 minutes, (i.e., students that scored low on the trait of conscientiousness were more likely to prefer these teaching methods), thus these correlations did not yield a support to the (H4). These current results are inconsistent with the existing research by Chamorro et al., (2007), as the researchers found a significant and positive association between a trait of conscientiousness and clinical teaching (experiential activities). The present research has also shown a significant and positive correlation between neuroticism and three teaching methods: lecture with visual, including PowerPoint; lecture, using overhead visual; watching a long film/video, lasting over 20 minutes. These findings demonstrate that the more neurotic the students, the more they preferred these three teaching methods. The current findings are different to the previous studies by Chamorro et al., (2007), as they found a significant, but negative relationship between neuroticism and lab classes; small groups; clinical teaching and discussions.

This research is very timely as Ireland has been in varying stages of a lockdown since March 2020, with higher level institutions expected to continue with remote online teaching until 2022. Understanding and implementing students' preferred teaching methods could

enhance their learning, motivation, and overall engagement (Murphy et al., 2004; Malek, Hall, & Hodges, 2014; Shaari et al., Dzahir, 2014). It is essential for lecturers to discover and incorporate student's preferred way to learn to allow them to achieve the best results (Brinthaupt, Clayton, Draude, & Calahan, 2014).

A notable strength of the current research is the employment of the Big Five Model (Goldberg, 1993) and the Big Five Inventory (BFI; John & Srivastava, 1999). This is a valid and reliable tool with a strong evidence base for its work with personality (Woods & Hampson, 2005; McCrae & Costa, 2008).

An additional strength of the current research is the participant recruitment from across a wider age range when compared with previous research in the field (Murphy et al., 2017; 2020). This higher mean age covers a wider population and results may be more applicable to mature students compared to previous research findings. Further support for more mature undergraduate students could ensure their learning needs are met, as previous research has found this more mature population favours having autonomy on their assigned assessment type (Francis, 2008). This is an area of research deserving further input as the number of mature students returning to education is rising (HEA, 2017).

Although this research included a limited sample size, the difficulty to recruit participants was potentially a result of the COVID-19 pandemic whereby health guidelines are recommending adults reduce their screen time (HSE, 2020). The current project included significantly more females (89%) than males (11%) which could be understood to be a result of the higher female population within the field of social sciences (HEA, 2017). Future studies should recruit a more gender balanced sample and additionally seek wider representation from across academic fields.

Notwithstanding these limitations, the current project reviewed how a student's personality trait relates to their favoured teaching method. The findings will add to the

existing international literature to promote student engagement and will prove valuable knowledge to the Irish Department for Education and Skills as they plan for continued remote learning.

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Appendices

Appendix A: Participant Information Sheet

"Relationship between Personality and Preferred Teaching Methods".

You are being invited to take part in a research study. Prior to coming to a decision whether to participate, please take your time to read this document carefully, as it explains why the research is being done and what your involvement would look like in this study. If you have any questions about any information provided, please feel free to reach me, using contact details provided at the end of this sheet.

What is this study about?

I am a final year student in the BA in Psychology programme at National College of Ireland. As part of the degree, I am required to carry out an independent research project. For my project, I aim to examine whether certain personality types are related to preferred teaching method and if they are, what are the preferred teaching methods in the classroom for students according to their personality.

This Project will be supervised by Dr Fearghal O'Brien.

What will taking part in the study involve?

You will be asked to complete three online questionnaires. Firstly, you will be presented with a demographic questionnaire where you will be asked to indicate your year of studies as well as the type of course you are enrolled in. You will also be asked to answer 2 additional demographic questions regarding your age and gender. The second questionnaire will measure your personality traits, using Big Five Inventory scale. This questionnaire includes 44 questions where you will be asked to rate yourself on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) with each statement. The third questionnaire will ask

you to rate 27 items on a 5-point Likert scale ranging from (1=strongly agree and 5= strongly disagree), regarding different types of teaching methods. In this instrument you will indicate what teaching methods you personally prefer the most and what you prefer the least ranging from where (1=strongly agree/ prefer the most, 5= strongly disagree/prefer the least).

The whole study should take you less than 30 mins to complete it.

Who can take part?

You can take part in this study if you are 18 years old or older, you are a current undergraduate college student studying either part- or full-time courses. Considering that most/all the college courses have turn their face to face, classroom type of lectures into remote lectures due to government's responses to Covid-19 and the new guidelines; the types of assessments for the modules have probably changed. If you're one of these students, please think back of your last academic year in college when you were attending normal lectures in college when answering the second part of the study where you are asked to rate your preferred teaching method within classroom.

Do I have to take part?

Participation in this research is completely voluntary, you have the right to refuse to take part without giving any reason and this decision will have no consequences for you. If you decide to partake in this study, you have the right to withdraw from the study and discontinue your participation at any time, however once you submit your surveys by clicking "finish and submit" button, it will not be possible to withdraw your data from the study as the individual responses cannot be identified.

What are the possible risks and benefits of taking part?

There are no direct benefits to you for taking part in this study, however the data gathered can contribute into the Irish education system and its preparation of assessments for modules within college courses, considering students individual preferences on how they would prefer to be taught in classroom. Your participation in this study can enrich every student's experience in the classroom environment as by focusing on student's individual needs based on their personality type can give students the opportunity to be more included in the different ways of teaching in the classroom.

There may be a small risk that some of the questions in this survey may make some participants to experience distress due to the nature of questions regarding the way you behave, feel and act. If you feel uncomfortable or distressed for any reason because of your participation, you are free to discontinue your participation and exit the survey. If you need any support services relevant to this study, their contact information is available to you at the end of the questionnaire.

Will taking part be confidential and what will happen to my data?

The entire survey including all the questionnaires is totally anonymous. There is no possibility of any of the participant to be identified on the grounds of their responses to the questionnaires. All the data collected for the purposes of this research will be treated in the strictest confidence. The access to the data collected will only be accessible for the researcher and the academic supervisor.

The responses of this survey will be stored in researcher's password protected computer in a file which will also need a password to access it. Data will be retained for 5 years as per NCI data retention policy.

What will happen to the results of the study?

The results of this research will be included in my thesis, which will be submitted to National College of Ireland and may be publicised in an academic journal.

Who should you contact for further information?

Should you have any questions or need to get any further information regarding this study, please do not hesitate to contact:

The researcher- Klaudia Wychowalek, email: x17138001@student.ncirl.ie

and/or my Academic Supervisor of this research: Dr Fearghal O'Brien

email: Fearghal.OBrien@ncirl.ie

Thank you.

Appendix B: Consent Form

In agreeing to participate in this research I understand the following:

This research is being conducted by Klaudia Wychowalek, an undergraduate student at the School of Business, National College of Ireland. The title of the current study: Relationship between Personality and Preferred Teaching Methods.

The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

If I have any concerns about participation, I understand that I may refuse to participate or withdraw from participation at any time by exiting the questionnaire, without penalties or consequences, however once I submit my surveys by clicking "finish and submit" button at the end, I will not be able to withdraw any of my data due to the nature of responses that cannot be identified.

I have been informed as to the general nature of the study and agree to a completely voluntary participation.

I understand that there may be a small risk of experiencing some discomfort or distress caused by the questions included in this research during participation as questions regard the way people behave, feel and act.

All data from the study will be totally anonymous and treated in the strictest confidence. The data from all participants will be compiled, analysed, and submitted in a report to the Psychology Department in the School of Business of National College of Ireland. No

participant's data will be identified by name at any stage of the data analysis or in the final report as participant's name will not be obtained.

At the conclusion of my participation, any questions or concerns I have will be fully addressed and answered satisfactorily.

☐ By ticking the box and clicking the button below, you agree that: (1) you have read and understood the participant information sheet (2) questions about your participation in this research have been fully answered (3) you are aware of small risks that some of the questions within this study may cause some level of distress, and (4) your participation in this study is completely voluntary.

Agree and Continue.

Appendix C: Debriefing Form

Thank you very much for participating in the current study which examined the relationship between Personality and Preferred Teaching Methods in Undergraduate Students.

The purpose of present study was to investigate the relationship between Personality and Preferred Teaching Methods. Your five personality traits were measured using 44-items Big Five Inventory tool. The second section which required you to rate 27 items on a 5-point Likert Scale measured your preferred teaching method in the classroom. You were asked to take part in this study as you are an undergraduate student, and your participation can contribute into the Irish Education system which can bring student's individual preferences based on their personality into consideration during preparation of different kinds of assessment for modules within Arts, Humanities and Social Sciences programmes. Your data and results will be used for my final dissertation which will be submitted to National College of Ireland and may be published in an academic journal. Your questionnaire is completely anonymous and confidential, therefore once you finish your survey and submit your responses, it will not be possible to withdraw or remove any of your data as it will be kept in a system consisting all anonymous data without the possibility of identifying or retrieving any of your responses. The data gathered will be stored for 5 years as per National College of Ireland policies, however as the period of 5 years passes, all the data will be destroyed.

Once again, I would like to show you my huge appreciation for taking your time in taking part in this study. Thank you.

In a case of you feeling some distress caused by or during participating in this research, I advise you to have a chat with your friends or family, however if you require some additional support and/or helplines, please find them below.

Support:

NiteLine: 1800 793 793

Aware Support Line: +35316766166

The Samaritans: (01) 872 7700 or 116 123 (free call from a phone)

Further Contact Information:

If you have any further questions regarding the use of your data or this questionnaire, please do not hesitate to contact me: Klaudia Wychowalek, using my college email: x17138001@student.ncirl.ie and/or my study supervisor: Dr. Fearghal O'Brien through

email: Fearghal.OBrien@ncirl.ie

Appendix D: Big Five Inventory (BFI; John & Srivastava, 1999).

Here are a number of characteristics that may or may not apply to you. Rate yourself with each statement to indicate the extent to which you agree or disagree with that statement.

1-Strongly Disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly Agree

1. I see myself as someone who is talkative *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

2. I see myself as someone who tends to find fault with others *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

3. I see myself as someone who does a thorough job *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

4. I see myself as someone who is depressed, blue *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

5. I see myself as someone who is original, comes up with new ideas *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

6. I see myself as someone who is reserved *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

7. I see myself as someone who is helpful and unselfish with others *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

8. I see myself as someone who can be somewhat careless *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

9. I see myself as someone who is relaxed, handles stress well *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

10. I see myself as someone who is curious about many different things *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

11. I see myself as someone who is full of energy *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

12. I see myself as someone who starts quarrels with others *

1	2	3	4	5

Strongly Disagree	O	O	O	O	O	Strongly Agree

13. I see myself as someone who is a reliable worker *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

14. I see myself as someone who can be tense *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

15. I see myself as someone who is ingenious, a deep thinker *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

16. I see myself as someone who generates a lot of enthusiasm *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

17. I see myself as someone who has a forgiving nature *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

18. I see myself as someone who tends to be disorganised *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

19. I see myself as someone who worries a lot *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

20. I see myself as someone who has an active imagination *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

21. I see myself as someone who tends to be quiet *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

22. I see myself as someone who is generally trusting *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

23. I see myself as someone who tends to be lazy *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

24. I see myself as someone who is emotionally stable, not easily upset *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

25. I see myself as someone who is inventive *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

26. I see myself as someone who has an assertive personality *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

27. I see myself as someone who can be cold and aloof *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

28. I see myself as someone who perseveres until the task is finished *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

29. I see myself as someone who can be moody *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

30. I see myself as someone who values artistic, aesthetic experiences *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

31. I see myself as someone who is sometime shy, inhibited *

1	2	3	4	5

Strongly Disagree	O	O	O	O	O	Strongly Agree

32. I see myself as someone who is considerate and kind to almost everyone *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

33. I see myself as someone who does things efficiently *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

34. I see myself as someone who remains calm in tense situations *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

35. I see myself as someone who prefers work that is routine *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

36. I see myself as someone who is outgoing, sociable *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

37. I see myself as someone who is sometimes rude to others *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

38. I see myself as someone who makes plans and follows through with them *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

39. I see myself as someone who gets nervous easily *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

40. I see myself as someone who likes to reflect, play with ideas *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

41. I see myself as someone who has few artistic interests *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

42. I see myself as someone who likes to cooperate with others *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

43. I see myself as someone who is easily distracted *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

44. I see myself as someone who is sophisticated in art, music, or literature *

	1	2	3	4	5	
Strongly Disagree	O	O	O	O	O	Strongly Agree

Scoring: BFI scale scoring ("R" denotes reverse-scored items):

Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36

Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42

Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R

Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39

Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

Appendix E: Preferred Teaching Methods

Please rate your level of agreement with the following statements, adapted from study by Murphy et al. (2017).

This is a teaching method that I prefer be used by a lecturer in the classroom:

1- Strongly Agree 2- Agree 3- Neutral 4- Disagree 5- Strongly Disagree

Lecture (professor talks)	1	2	3	4	5
with no visuals	O	O	O	O	O
Lecture (professor talks)	1	2	3	4	5
with handwritten whiteboard notes	O	O	O	O	O
Lecture (professor talks)	1	2	3	4	5
plus, visual – PowerPoint	O	O	O	O	O
Lecture (professor talks)	1	2	3	4	5
plus, visual – overhead	O	O	O	O	O
Lecture (professor talks)	1	2	3	4	5
combined with student interaction.	O	O	O	O	O
Socratic dialogue	1	2	3	4	5
(professor teaches by questioning students)	O	O	O	O	O
Watching a short	1	2	3	4	5
video/film/movie – under 20 minutes	O	O	O	O	O
Watching a long	1	2	3	4	5
video/film/movie – over 20 minutes	O	O	O	O	O
Professor leads a	1	2	3	4	5
classroom discussion on readings	O	O	O	O	O

Free flowing whole classroom discussion	1 O	2 O	3 O	4 O	5 O
Guest speaker (speaker profession related to course topic)	1 O	2 O	3 O	4 O	5 O
All experiential activities - groups of 3 or more	1 O	2 O	3 O	4 O	5 O
All experiential activities - pairs	1 O	2 O	3 O	4 O	5 O
Games in the classroom experiential	1 O	2 O	3 O	4 O	5 O
Demonstrations and practice experiential	1 O	2 O	3 O	4 O	5 O
Library research experiential activities	1 O	2 O	3 O	4 O	5 O
Information search using technology experiential	1 O	2 O	3 O	4 O	5 O
Student presentations - individual	1 O	2 O	3 O	4 O	5 O
Student presentations - pair of students	1 O	2 O	3 O	4 O	5 O

Student presentations - groups of 3 or more	1 O	2 O	3 O	4 O	5 O
Case studies – individual participation	1 O	2 O	3 O	4 O	5 O
Case studies - pair of students	1 O	2 O	3 O	4 O	5 O
Case studies - groups of 3 or more	1 O	2 O	3 O	4 O	5 O
Course readings – all types	1 O	2 O	3 O	4 O	5 O
Quizzes on the readings	1 O	2 O	3 O	4 O	5 O
Unscheduled quizzes	1 O	2 O	3 O	4 O	5 O
Weekly quizzes	1 O	2 O	3 O	4 O	5 O

Appendix F: Demographic questionnaire

Please answer the following questions by selecting one of the radio buttons below.

1. What kind of undergraduate student are you?
   - O 1st year
   - O 2nd year
   - O 3rd year
   - O 4th year

2. What are you currently studying?
   - O Social Sciences
   - O Arts & Humanities
   - O Health Sciences
   - O Other

3. What is your gender?
   - O Male
   - O Female
   - O Other

4. What is your age?

_____years old.

Appendix G: Sample of numerical data from SPSS

Correlations

			Extraversion	L1	L2	L3	L4	L5	F1	F2	D1	D2
Spearman's rho	Extraversion	Correlation Coefficient	1.000	.126	-.115	-.041	-.175	.203	-.228	-.110	-.007	.231
		Sig. (2-tailed)	.	.328	.374	.751	.173	.114	.075	.395	.956	.071
		N	62	62	62	62	62	62	62	62	62	62
	L1	Correlation Coefficient	.126	1.000	-.438**	.582**	-.401**	-.273*	-.453**	-.098	-.296*	.083
		Sig. (2-tailed)	.328	.	.000	.000	.001	.032	.000	.448	.020	.524
		N	62	62	62	62	62	62	62	62	62	62
	L2	Correlation Coefficient	-.115	-.438**	1.000	-.173	.556**	.240	.486**	.442**	.282*	-.022
		Sig. (2-tailed)	.374	.000	.	.180	.000	.060	.000	.000	.026	.862
		N	62	62	62	62	62	62	62	62	62	62
	L3	Correlation Coefficient	-.041	.582**	-.173	1.000	-.194	-.061	-.264*	.072	-.134	.119
		Sig. (2-tailed)	.751	.000	.180	.	.132	.640	.038	.576	.297	.359
		N	62	62	62	62	62	62	62	62	62	62
	L4	Correlation Coefficient	-.175	-.401**	.556**	-.194	1.000	.206	.409**	.295*	.197	-.076
		Sig. (2-tailed)	.173	.001	.000	.132	.	.108	.001	.020	.126	.556
		N	62	62	62	62	62	62	62	62	62	62
	L5	Correlation Coefficient	.203	-.273*	.240	-.061	.206	1.000	.392**	-.017	.627**	.475**
		Sig. (2-tailed)	.114	.032	.060	.640	.108	.	.002	.896	.000	.000
		N	62	62	62	62	62	62	62	62	62	62
	F1	Correlation Coefficient	-.228	-.453**	.486**	-.264*	.409**	.392**	1.000	.503**	.432**	.081
		Sig. (2-tailed)	.075	.000	.000	.038	.001	.002	.	.000	.000	.532
		N	62	62	62	62	62	62	62	62	62	62
	F2	Correlation Coefficient	-.110	-.098	.442**	.072	.296*	-.017	.503**	1.000	.117	-.123

Correlations

			Conscientiousness	L1	L2	L3	L4	L5	F1	F2	D1	D2
Spearman's rho	Conscientiousness	Correlation Coefficient	1.000	.109	-.189	.014	-.298*	-.135	-.223	-.305*	-.112	-.08
		Sig. (2-tailed)	.	.398	.141	.913	.019	.296	.082	.016	.386	.50
		N	62	62	62	62	62	62	62	62	62	6
	L1	Correlation Coefficient	.109	1.000	-.438**	.582**	-.401**	-.273*	-.453**	-.098	-.296*	.08
		Sig. (2-tailed)	.398	.	.000	.000	.001	.032	.000	.448	.020	.52
		N	62	62	62	62	62	62	62	62	62	6
	L2	Correlation Coefficient	-.189	-.438**	1.000	-.173	.556**	.240	.486**	.442**	.282*	-.02
		Sig. (2-tailed)	.141	.000	.	.180	.000	.060	.000	.000	.026	.86
		N	62	62	62	62	62	62	62	62	62	6
	L3	Correlation Coefficient	.014	.582**	-.173	1.000	-.194	-.061	-.264*	.072	-.134	.11
		Sig. (2-tailed)	.913	.000	.180	.	.132	.640	.038	.576	.297	.35
		N	62	62	62	62	62	62	62	62	62	6
	L4	Correlation Coefficient	-.298*	-.401**	.556**	-.194	1.000	.206	.409**	.295*	.197	-.07
		Sig. (2-tailed)	.019	.001	.000	.132	.	.108	.001	.020	.126	.55
		N	62	62	62	62	62	62	62	62	62	6
	L5	Correlation Coefficient	-.135	-.273*	.240	-.061	.206	1.000	.392**	-.017	.627**	.475
		Sig. (2-tailed)	.296	.032	.060	.640	.108	.	.002	.896	.000	.00
		N	62	62	62	62	62	62	62	62	62	6
	F1	Correlation Coefficient	-.223	-.453**	.486**	-.264*	.409**	.392**	1.000	.503**	.432**	.08
		Sig. (2-tailed)	.082	.000	.000	.038	.001	.002	.	.000	.000	.53

ID	Year	Course	Sex	Age	@1.Is_talkative	@2.tends_to_find_fault_with_others	@3.does_a_thorough_job	@4.Is_depressed_blue	@5.Is_original_comes_up_with_new_ideas
1	1st year	Social Sciences	Female	25	5	4	4	3	4
2	1st year	Social Sciences	Female	27	4	2	4	3	4
3	1st year	Social Sciences	Female	25	5	4	4	3	4
4	1st year	Social Sciences	Female	27	4	2	4	3	4
5	1st year	Social Sciences	Female	18	2	2	4	4	2
7	1st year	Other	Female	19	4	2	4	2	4
8	1st year	Social Sciences	Female	55	5	4	5	1	4
9	2nd year	Social Sciences	Female	48	5	4	3	2	3
10	2nd year	Other	Female	43	3	4	2	3	3
11	3rd year	Social Sciences	Female	24	4	3	5	2	4
12	2nd year	Social Sciences	Female	48	5	4	3	2	3
13	2nd year	Other	Female	26	5	2	5	2	3
14	1st year	Health Sciences	Female	38	3	1	5	2	5
15	1st year	Arts & Humanities	Female	26	3	3	1	1	5
16	1st year	Social Sciences	Female	43	4	1	4	1	4
17	4th year	Social Sciences	Female	36	4	2	4	1	5
18	3rd year	Arts & Humanities	Female	21	3	4	3	3	3
19	4th year	Social Sciences	Female	34	2	3	4	3	2
21	2nd year	Arts & Humanities	Female	21	3	2	4	3	3