The Relationship Between Birth Order and The Big-Five Personality Dimensions Among Psychology Students in Universiti Malaysia Sabah

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This study aims to investigate the most dominant personality and the relationship between birth order and Big – Five personality among Psychology Students in Universiti Malaysia Sabah. Participants (n=116) completed online questionnaires measuring birth order, and the Big Five personality's dimensions of. Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). The result indicated that the dominant personality dimension is conscientiousness (mean=3.25).Our findings showed the first-born child and last-born child has lower agreeableness compared to middle-born child and later-born child has lower openness compared to middle-born child.Future studies may employ a larger population to investigate a more meaningful relationship between birth order and the Big – Five personality dimensions.

Keywords: birth order, big-five personality, university students

Personality is defined as the characteristic, and to some extent predictable, behavioural response patterns that each person exhibits as his or her way of life, both consciously and unconsciously,. The study of personality is arguably the broadest sub discipline in psychology in that it aims to understand how awhole person functions. Historically, personality psychology concerned itself with grand theories about human behaviour, questions about character, identity, and morality.

The notion that birth order has an influence on personality was first discovered by Adler (1972). He noted that first-born, second child and later-born children enter varied home environments and are treated differently by parents and that these experiences are likely to affect their personality. He hypothesized that an only-child are often spoiled by excessive love of parents and that firstborns often have discipline problems because they become upset when they're "dethroned" by a second child. Adler's theory stimulated hundreds of studies on the effects of birth order. Several studies reported that a first-born child tend to outperform their younger siblings (Sulloway, 1996; Zajonc, 2001). Moreover, thorough research amongst first-born children were found to be more motivated to succeed (Eckstein, 2000). In addition, other researchers further suggested that birth order has a relationship with intelligence and achievement (Ernest & Angst, 1983).

The Big Five personality dimensions are relatively consistent and strong. The Five-Factor model was formulated by McCrae and Costa (2003). This model includes a number of propositions about the nature, origins, and developmental course of personality traits, including the relation of traits to many of the other personality variables (Srivastava, 2010). It is helpful because it provides a straightforward description of an individual's behavioural consistencies. These five personality factors of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience are considered to be the core of an individual's personality . According to Rathus (2005), extraversion includes behaviorism of talkativeness, and assertivenessAgreeableness consists of kindness, trust, and warmth. Conscientiousness, on the other hand, includes characteristics of organization and thoroughness.Openness to experience covers traits of being drawn to imagination, curiosity, and creativity. Individuals who are open to experience tend to be more creative and are more aware of their feelings when compared to people who are not open to experience. Lastly, neuroticism consists of nervousness, moodiness, and in being sensitive to negative stimuli.

Some researchers claim that one's place in the family birth order may affect more on an individual's personality instead of emotional intelligence (EQ) and intelligent quotient (IQ). According to Sulloway (2001), he stated that the influence of birth order is 5 to 10 times greater for most personality traits than it is for academic achievement and IQ. It is found that later-born and middle-born were more socially adapt and popular compared to older siblings. In contrast, older siblings were found to be more responsible and achievement oriented. Sulloway (2001) view that majority of first-born have personality of being more self-confident, conscientious, more socially dominant, less empathetic and altruistic, more emotionally intense, and in being less open to new ideas as compared to other younger siblings. He also stated that birth order effect on the Big Five personality dimensions is relatively strong and consistent.

Roberts, Robins, Caspi, & Trzesniewski (2003) rationally categorized a wide variety of personality measures into the Big Five domains and summarized patterns of mean-level among early adulthood. They concluded that, in general, conscientiousness and agreeableness show a higher mean during early adulthood; openness to experience shows moderate frequency, while extraversion and neuroticism show a lower frequency. However, the limitation of the study is

in using only a small sample from North and Western Europe, and North America. On the other hand, relatively little is known about the dominant personality during early adulthood in Asia. For instance, little is known on which type of personality in early adulthood of Asia is similar to Western countries. The current study addresses these gaps in by examining the dominant personality dimension among students in Universiti Malaysia Sabah (UMS).

Based on past studies, it is clear that birth order has an influence on one's personality traits. It is found that first-born child and later-born child has a different personality when compared with each other. Nevertheless, different point of views in how birth order affects personality gives rise to these questions:

a. What is the most dominant personality among students?
b. What is the relationship between birth order and personality?

Generally, the purpose of this study is to investigate the relationship between personality and birth order among psychology students in UMS. More specifically, the objectives in conducting this research are:

a. to determine the most dominant personality dimension among students.
b. to determine the relationship between birth order and personality trait among students.

Method

Participant and Procedure

The respondents of this study were selected by using a convenience and snowball sampling technique. Questionnaires in the form of electronic survey were forwarded to psychology students in the Faculty of Psychology and Education, Universiti Malaysia Sabah (UMS) through Facebook. In addition, each respondent was asked to find another person to participate in the survey. The authors first sought the consent of the respondents to participate in the survey, then they were briefed regarding the purpose of the study before proceeding with answering the survey. A total of 116 responses was gathered, out of which 112 were usable. Four responses were incomplete, thus disqualified to use. Thus, the response rate was 96.6%. From the total sample of students, 21 (18.9%) were from the Industrial and Organizational Psychology program, 20 (18.0%) were from Youth and Community Devopment, 30 (27.0%) were from Counselling Psychology, 35 (31.5%) were from Child and Family Psychology, and 5 (4.5%) were from Social Work. The majority of the respondents are female with a total of 90 (80.4%) students, whereas 22 (19.6) are male students. For birth order, the researcher conceptualized middle-born child as someone who has older and younger siblings. Therefore, a total of 43 participants (38.4%) were designated as middle-born children, 38 participants (33.9%) were designated as first-born children, and lastly, 31 participants(27.7%) were designated as later-born children.

Instrument

The questionnaire consists of two sections. The first section is encompassed demographic details of respondents, whereas the second part consists of questions on personality. In the first section, respondents were asked to fill in their demographic details of gender, course program, number of siblings and birth order in the family. Respondents were required to state their birth order in order to accurately retrieve the results. In the second part, fifty questions measuring the Big Five personality were taken the International Personality Item Pool questionnaire. . The five-factor model used the hierarchical model of personality structure that describes most of traits in terms of five broad factors: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). The scale uses a 5-point Likert Scale ranging from (1) very inaccurate to (5) very accurate.

Data Analysis

The data were analysed using SmartPLS version 2.0 (Ringle, Wende, & Will, 2005). The two-step analytical procedure as suggested by Hair, Hult, Ringle, & Sarstedt (2014) were performed, in which the measurement model was evaluated first, followed by the structural model. In order to determine the significant level of loadings, and path coefficients, the current research used the bootstrapping method of 500 resample as suggested by Chin (1998).

Results

Measurement Model

The convergent validity assessment of the Big-five personality scale was conducted. A particular construct shows a convergent validity of all its indicators converged or shared a high proportion of variance in common (Hair, Black, Babin, & Anderson, 2010). According to Hair et al. (2014), the factor loadings and the average variance extracted (AVE) must be more than 0.5 and the composite reliability (CR) of 0.7 and more to be considered acceptable for convergent validity. Although the AVE of Extraversion constructs in the current research was higher than 0.50 after removing eight indicators, the Composite Reliability however was not sufficient. Therefore, the Extraversion construct was eliminated from further analysis in this study. Thus, the remaining four constructs are agreeableness, conscientiousness, neuroticism, and openness. As depicted in Table 1, the loadings, AVE, and CR for all construct are above the threshold value. Therefore, confirming that the convergent validity has been established.

Table 1
Results of Measurement Model

Construct	Items	Convergent Validity			Total Item Deleted
		Factor Loadings	**AVE**	**Composite Reliability**	
Agreeableness	A1	0.828	0.527	0.700	8
	A7	0.610			
Conscientiousness	C2	0.758	0.651	0.788	8
	C6	0.852			
Neuroticism	N7	0.555	0.575	0.797	7
	N8	0.821			
	N9	0.862			
Openness	O1	0.718	0.514	0.807	6
	O10	0.687			
	O5	0.610			
	O6	0.834			

Note: A2, A3, A4, A5, A6, A8, A9, A10, C1, C3, C4, C5, C7, C8, C9, C10, N1, N2, N3, N4, N5, N6, N7, N10, O2, O3, O4, O7, O8, O9, O10 were deleted due to low loading.

The next step is to assess the discriminant validity. According to Hair et al. (2010), the construct must be truly distinct from other construct to establish a discriminant validity. Thus, a low correlation between all measures of interest and the measure of other constructs must be obtained. According to Fornell and Larcker (1981) criterion, when the square roots of the AVE are greater than the correlations of other constructs, the discriminant validity has been established. Based on Table 2, the square root of the AVE represented by the bolded figures (diagnols) shows a higher value compared to the equival row and column values. Thus, confirming the discriminant validity. Lastly, the reliability assessment was carried out by using composite reliability (CR). Hair et al. (2014) suggested a threshold value of 0.7 and above. Based on Table 1, it can be concluded that all constructs are reliable.

Table 2
Discriminant Validity

		1	2	3	4	5	6
1.	Agreeableness	**0.726**					
2.	Conscientiousness	0.066	**0.807**				
3.	First-born	-0.139	0.179	**1**			
4	Later-born	-0.117	-0.165	-0.443	**1**		
5.	Neuroticism	0.032	0.091	0.188	-0.051	**0.758**	
6	Openness	0.232	0.083	-0.033	-0.168	0.035	**0.717**

Notes:
(i) Diagonals (bolded) represent the square root of the average variance extracted while the off-diagonals are correlations among constructs.
(ii) Benchmark (reference group) for Birth Order: Last-born

Table 3 showed that the mean results of all four personalities. It was found that conscientiousness has the highest mean with 3.25 (S.D= .956), whereas, the lowest mean is neuroticism, with 2.91 (S.D= .804).

Table 3
Mean Constructs

Construct	Mean	Std. Deviation
Agreeableness	3.03	.716
Conscientiousness	3.25	.956
Neuroticism	2.91	.804
Openness	3.24	.665

Structural Model

Based on the structural model outputs in Table 4, it was found that first-born child has a significant t-value, and the beta value is negative towards agreeableness, which implies that agreeableness is lower compared to the reference group of middle-born child. In addition, later-born child has a significant t-value, and the beta is negative towards agreeableness, which also implies that agreeableness is lower compared to the reference group of middle-born child. Lastly, it was found that later-born child has a significant t-value, and the beta value is negative towards openness which implies that openness is lower compared to the reference group of middle-born child.

Table 4
Summary of the Structural Model

Path	Path Coefficient	Standard Error	t-value	Results	R^2
First-born → Agreeableness	-0.237	0.122	**1.951***	Supported	0.059
First-born → Conscientiousness	0.131	0.147	0.889	Not Supported	0.041
First-born → Neuroticism	0.206	0.170	1.214	Not Supported	0.037
First-born → Openness	-0.134	0.145	0.925	Not Supported	0.043
Later-born → Agreeableness	-0.222	0.114	**1.950***	Supported	
Later -born → Conscientiousness	-0.107	0.159	0.675	Not Supported	
Later -born → Neuroticism	0.041	0.176	0.229	Not Supported	
Later -born → Openness	-0.227	0.134	**1.697***	Supported	

Notes: * $p < 0.05$, ** $p < 0.01$ (based on 1-tailed)

Discussion and Conclusion

In the present research, we investigated the most dominant personality of university students by using a group of university students as a representative sample. Based on the mean results, it was found that the most dominant personality among students in Universiti Malaysia Sabah (UMS) is conscientiousness which hold the highest mean of 3.25 in comparison to other personality traits. The current result is consistent with the past research that conscientiousness shows a higher mean during early adulthood (Roberts et al., 2003).

According to MacCann, Duckworth & Roberts (2009), conscientiousness has been linked to a myriad of positive outcomes across educational, health, and personnel psychology, and appears to be the personality trait with the most predictive utility. This is probably due to the student's responsibility in their studies as well as for their family's well-being. MacCann et al. (2009) also outlined that students scored lower on Neuroticism, Extraversion, and Openness, and higher on Agreeableness and Conscientiousness when compared to older adults. In addition, students are more likely to be conservative, mature, helpful, serious, and disciplined than their parents.

Conversely, it was found that students are less likely to possess traits of neuroticism. The students in the current study scored neuroticism trait at the lowest with a mean score of 2.91. Neuroticism is related to wishful thinking and self-blame during the stressful condition, and prolongment of such condition will lead to an increase in anxiety as stated by the state-trait theory (Bolger, 1990). With the low mean of neuroticism among students, it could be assumed that stress and anxiety are well managed by the students themselves.

As noted in the introduction, first-born, middle-born, and later-born children enter varied home environments and are treated differently by parents and that these experiences are likely to affect their personality (Adler, 1972). From the results above, the first-born child and the last-born child has lower agreeableness as compared to middle-born child. It is consistent with previous findings that firstborns are higher on conscientiousness and neuroticism and lower than later-born in agreeableness and openness to experience (Marini & Kurtz, 2011). It was further supported by Sulloway's (1996) prediction for agreeableness, as first-born rated themselves as significantly less agreeable. The possible causes of first-born and last-born child in having low agreeableness is that they appeared more dominant and aggressive among siblings. Individuals high in agreeableness enjoy helping others and tend to be self-effacing and modest; by contrast, antagonistic people are domineering and quarrelsome (McCrae & Costa, 2003).

On the other hand, middle-born children scored higher in agreeableness as compared to first and last-born children. An individual who scores higher on agreeableness might be described as compassionate, good-natured, eager to cooperate, and avoids conflict (McCrae and Costa, 2003). Thus, it could be assumed hat middle-born child has a higher tendency to be the mediator between a first-born child and later-born child.

In another aspect, the present study found that later-born child has lower openness compared to middle-born child. However, this finding is inconsistent with prior research. The study ofSulloway (1996) stated later-born scored higher in openness and agreeableness, which contradicted with the current result. Previous research found that later-born are perceived by their neighbours and friends as being more innovative, sociable, and trusting than first-born (Jefferson, Herbst, and McCrae, 1998). Openness should not be confused with self-disclosure; instead, it refers to a receptiveness to new

ideas, approaches, and experiences (McCrae and Costa, 2003).

There were some evidences that reported middle-born child in having high open to experiences. Open to experiences simply means that an individual is intellectually curious. It also means that these individuals would appreciate imagination, beauty, art and enjoy a variety of experiences. This naturally reflects a person's ability to put themselves in other shoes, as middle-born do (Salmon & Schumann, 2011). Salmon & Schumann (2011) also stated that middle-born are less judgmental than other birth orders, and are more willing to entertain the possibilities inherent in new concepts rather than simply sticking with the old way of doing things.

Due to the small sample of 112 female and male undergraduates in the current study, it is suggested that future studies should replicate this research by using a larger representative sample with a more balanced mix of gender. It is worth noting that this research composed of 80.4% females, and only 19.6% of males. Therefore, this sample size may have limited the researcher's ability to generalize the findings. Besides that, the data are based on self-report, therefore, we believe that individuals may not be accurate and honest in their responses. As a conclusion, the present study found that there is a mix finding in the relationship between one's birth order and the big-five personality. However, the current study had successfully proven that there is a significant relationship between birth orders and the Big-Five personality among undergraduates.

References

Adler, A. (19272). *Understanding human nature.* New York: The World Publishing Co.

Bolger, N. (1990). Coping as a Personality Process: A Prospective Study. *Journal of Personality and Social Psychology, 59*(3), 525–537.

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. *Management Information Systems Quarterly, 22*(1), vii-xvi.

Eckstein, D. (2000). Empirical studies indicating significant birth-order-related personality differences. *Journal of Individual Psychology*, *56*(4), 481–494.

Ernst, C., & Angst, J. (1983). Birth order. *Its influence on personality*.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson R. E. (2010). *Multivariate data analysis: A global perspective*. 7th Edition. New Jersey: Pearson Prentice Hall.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. 2014. *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.
Jefferson, T., Herbst, J. H., & McCrae, R. R. (1998). Associations between Birth Order and Personality Traits: Evidence from Self-Reports and Observer Ratings. *Journal of Research in Personality 32*, 498–509.

MacCann, C., Duckworth, A. L., & Roberts, R. D. (2009). Empirical identification of the major facets of Conscientiousness. *Learning and Individual Differences, 19,* 451–458.

Marini, V. A., & Kurtz, J. E. (2011). Birth order differences in normal personality traits: Perspectives from within and outside the family. *Personality and Individual Differences 51*, 910–914.

McCrae, R. R. & Costa, J.P.T. (2003). *Personality in Adulthood Understanding: A Five-Factor Theory Perspective*. Second Edition. New York: The Guilford Press.

Ringle, C. M., Wende, S., & Will, A. (2005). SmartPLS 2.0 [Computer software]. Retrieved from www.smartpls.de

Roberts, B. W., Robins, R. W., Caspi, A., & Trzesniewski, K. (2003). Personality trait development in adulthood. In J. Mortimer & M. Shanahan (Eds.), Handbook of the life course (pp. 579–598). New York: Kluwer Academic Publishers/Plenum Press

Salmon, C. & Schumann, K. (2011). *The Secret Power of Middle Children*. USA: Penguin Group.

Srivastava, S. (2010). The five-factor model describes the structure of social perceptions. *Psychological Inquiry*, *21*(1), 69–75.

Sulloway, F. J. (1996). *Born to rebel: Birth order, family dynamics, and creative lives*. Pantheon Books.

Sulloway, F. G. (2001). Birth Order, Sibling Competition, and Human Behavior. *Conceptual Challenges in Evolutionary Psychology Studies in Cognitive Systems, 27,* 39–83.

Zajonc, R. B. (2001). Birth Order Debate Resolved? *American Psychologist*, *56*, 522–23.