

Personality and Work Motivation:

A multiple regression analysis to investigate predictors of agreeableness and conscientiousness on intrinsic work motivation.

University of Wales Trinity Saint David

1703005

Abstract

Researchers at the University of Wales Trinity Saint David conducted a study to investigate the relationship between the predictors of levels of agreeableness and conscientiousness and intrinsic work motivation. 22 Participants from the university took part in the online study consisting of one questionnaire regarding personality, and another regarding motivation to work. Of those who took part in the study, 19 participant's data were suitable to be used in the final analysis, 3 participant's data were omitted due to being incomplete. A multiple regression analysis was carried out, and no significant relationship was found between either of the predictors and intrinsic motivation. This has been suggested to be due to a small sample size. However, a weak negative correlation was found between agreeableness and intrinsic work motivation, highlighting an area for possible future research.

Introduction

“What makes you want to work here?”. This is a popular question among recruiters, and for a good reason, people’s motivations to work are an important factor when hiring someone for a role as this could mean the difference between a committed, long-term team member or a resentful, short-term employee. If a person is hired for a job they lack motivation for, the costs to the company can be high, not only in lost productivity but also to inevitably start the recruitment process again for the role. Conversely, motivated employees tend to work harder, and contribute more to the business (Van Knippenberg, 2000). Because of this, businesses look to occupational psychology for assistance during the recruitment process.

The word motivation itself is difficult to define exactly as its meaning can change depending on the circumstances in which it’s used, however for the purpose of this report, motivation is defined by Lindner (1998, para. 7) as “the inner force that drives individuals to accomplish personal and organizational goals”. It is generally accepted that work motivation can come either from extrinsic or intrinsic factors. If a person completes a task only in order to receive a reward (e.g. bonuses, promotions) or social recognition, then they are considered to be extrinsically motivated. Conversely, an intrinsically motivated person will usually complete a task for the inherent satisfaction of completing it, as opposed to a separate reward or consequence (Ryan & Deci, 2000). Predictors of work motivation are a topic of intense interest to occupational psychologists, particularly in leadership roles (Barbuto Jr. & Scholl, 1999; Gaki, Kontodimopoulos & Niakas, 2013). However, due to the wide variety of roles across the world of work, it is difficult to find a single “one size fits all” predictor of work motivation. Because of this, researchers have instead investigated the impact of personality traits on work motivation, and how different traits and characteristics can predict success in different areas of work (Judge and Ilies, 2002).

One of the most popular models of personality is the “Big Five” model proposed by Goldberg (1990). The big five model suggests that a person’s personality can be explained through five different traits;

Openness to experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism. In organisational settings this model is used to measure a prospective employee's personality via the Big Five Inventory (BFI: John, & Srivastava, 1999). Previous research into the connection between the big five and work performance has indicated that high levels of Conscientiousness show positive correlation with higher levels of job performance and satisfaction than other personality traits (Judge, Heller, & Mount, 2002). This is theorised to be due to the fact that highly conscientious people hold characteristics considered to be valuable in a work environment, such as a strong sense of purpose, obligation and persistence (Barrick & Mount, 1991) and as such show signs of being intrinsically motivated.

Agreeableness is a trait that seems to vary in its ability to predict work performance. A study carried out by Bozionelos (2004) found that participants with high levels of agreeableness were less likely to view work as a means to satisfy ambition, and thus were likely to be less involved in their work than, for example, people with high levels of conscientiousness. Furnham, Petrides, Tsaousis, Pappas and Garrod (2005) studied both Greek and British workers also found that agreeableness was a negative predictor of intrinsic work motivation. However, this study also found that agreeableness was a positive predictor of work relationships. This result is expected, as highly agreeable people are typically described as friendly, altruistic and non-confrontational, and is consistent with the use extrinsic factors as work motivation as the workers value their social relationships as an important aspect in their reasons for working. The above research would suggest a hypothesis that participants with high levels of conscientiousness will score higher on an intrinsic motivation questionnaire than those with high levels of agreeableness.

Method

Participants

Participants were 22 students attending the University of Wales Trinity Saint David and were opportunistically recruited via the university's experiment management system (EMS). Participants were offered course credits for taking part in the survey, but these were given whether or not the participants completed the study so that the researchers could not be accused of coercing participants. 19 of the participants who signed up for the study completed the survey (Range = 18-47, $SD = 9.27$, $M = 29.89$) (16f, 3m), 2 participants did not successfully pass the consent page and a 3rd participant's data was omitted as they had only completed one half of the study.

Design

A multiple regression analysis was used to investigate the hypothesis. The dependent variable was the participant's scores on the intrinsic motivation subscale on the WEIMS. The independent variables were participant's scores on the agreeableness and conscientiousness subscales of the BFI respectively. The BFI questions were grouped in an ABAB format (e.g. a question measuring agreeableness would be immediately followed by a question measuring conscientiousness, and so on) to avoid possible bias. Analysis of the data was carried out using the SPSS statistical software package.

Materials

The study used an online questionnaire delivered to students via EMS and the Qualtrics website. The study involved two questionnaires, one measuring agreeableness and conscientiousness and the other measuring work motivation. Agreeableness and Conscientiousness were measured via a modified version of the Big Five Inventory (BFI: John, & Srivastava, 1999) which uses a Likert scale (Ranging from strongly agree to strongly disagree). to record responses to statements such as “I see myself as someone who... Does a thorough job”, questions A1, A3, A6, A8, C2, C4, C5 and C9 were reverse scored. A higher score in a category on the BFI indicates a higher level of that personality trait. As the study was investigating conscientiousness and agreeableness, only questions relating to these traits were used and all others were omitted ($\alpha = 0.90$). The Work Extrinsic Intrinsic Motivation Scale (WEIMS: Tremblay, Blanchard, Taylor, Pelletier & Villeneuve, 2009) was used to measure work motivation. This scale uses a seven-point Likert scale (7-point scale where 1 = does not correspond at all, 4 = corresponds moderately, 7= corresponds exactly) to record answers to the question “Why do you do your work?” such as “Because this is the type of work I do to attain a certain lifestyle”. A low Cronbach’s alpha ($\alpha = 0.15$) for the extrinsic subscale of the questionnaire led to these scores being excluded from the final results due to low reliability (see appendix G). As the study was investigating predictors of intrinsic motivation this did not interfere with the original hypothesis. Ethical considerations were also given in the study, including giving the participant a description of what the study required them to do before signing up through EMS and again on the consent page. The consent page also informed the participant of their right to withdraw from the study at any time, as well as informing them that the data they provided would be held anonymously in accordance with the data protection act. A debrief page was provided at the end of the study (see appendix C) which informed the participant of the purpose of the study and asked them to contact the researcher or module lead immediately if they wished to withdraw their data from the study as their data would be anonymised after this point. The page also contained an email address for one of the researchers

and the module lead and invited participants to contact either if they had any questions of concerns related to the study.

Procedure

After signing up for the study via EMS , students were presented with a link to access the questionnaire through the Qualtrics website. The first page viewed after clicking the link was the consent page. Before progressing to the questionnaires, participants were required to tick two boxes; one giving consent, and the other confirming that they were currently in paid employment. If the participant did not select these boxes, they were redirected to a page thanking them for taking part and informing them that they were not eligible for the study. If participants ticked both boxes, the next page would ask them to enter their demographic data. The participants were asked to select their gender from a list of male, female and other. If the participant selected other, they would be directed to the next page where they would be presented with a text box to enter their gender identity and another box asking them to enter their age. If the participant selected male, female, or prefer not to say, then the next page would only ask them to enter their age. If participants did not give a response, the page would prompt them to go back and ensure all questions were answered before allowing them to progress to the questionnaire, this was carried out on all pages of the study to ensure responses were given for each measure.

After entering their demographic data and selecting the “next page” box at the bottom right of the page, they would be presented with the first questionnaire, which was the modified BFI measuring personality. The questionnaire was spread over three separate pages with six questions on each page. Answers were given by selecting the box that they felt they most agreed with After completing the first questionnaire, participants were directed to the next page with the second questionnaire measuring work motivation. This questionnaire was again divided over three pages, with six questions on each page, and participants were required to give an answer for all questions before progressing to the next page. Responses were recorded by using a slider for each question.

After completing the second questionnaire and selecting “next page”, participants were presented with the debrief page thanking them for taking part in the study.

Results

A multiple regression analysis was carried out to investigate whether scores agreeableness and conscientiousness on the BFI predicted scores of intrinsic motivation on the WEIMS. Table 1 summarises the means and standard deviations for the independent variables, with scores ranging between 9 and 32 for agreeableness and between 10 and 36 for conscientiousness. Scores for intrinsic motivation on the WEIMS ranged between 13 and 58.

Table 1

	M	SD	N
Conscientiousness	20	7.05	19
Agreeableness	18.74	5.79	19
Intrinsic Motivation	37.26	12.29	19

Means and standard deviations of all variables included in the analysis

Correlations between the predictor variables and dependent variable are presented in table 2. The results show a weak negative correlation between agreeableness and intrinsic motivation. A non-significant negative correlation was found between conscientiousness and intrinsic motivation.

Table 2

	Conscientiousness	Agreeableness	Intrinsic motivation
Conscientiousness	-	.56	-.01
Agreeableness	.56	-	-.25
Intrinsic motivation	-.01	-.25	-

Correlations between variables

The regression analysis showed that the independent variables were not statistically significant ($F(2,16) = 0.75, p = 0.49$) and produced an adjusted R squared of -0.29. The combined IVs therefore explained 0% of the variance in intrinsic motivation scores.

Table 3 shows the coefficients for the separate IV's in the analysis. The variable Agreeable was the strongest unique predictor with a Beta value of -.35, however, this result was not statistically significant.

Table 3

Conscientiousness	.19
Agreeableness	-.35

Beta coefficients for independent variables on the dependent variable intention.

Discussion

The results of the study indicate that the original hypothesis has not been supported, as conscientiousness scores on the BFI did not show a significant correlation with scores on the intrinsic subscale of the WEIMS. This contradicts the previous findings of Judge, Heller and Mount, (2002) and Barrick and Mount (1991). However, there were several limitations to the study, which may have contributed to these results. A small sample size may have affected the results of the study, the minimum number of participants deemed necessary for the study to be reliable was thirty, however only nineteen participant's data could be used to conduct the analysis. This may have had an effect in the distribution of scores of conscientiousness and agreeableness across the sample. As well as a small sample size, the sample was conducted solely with participants who were working alongside university studies, consideration should be given as to whether conducting the study with participants who have a full-time career would show different results, particularly in conscientiousness, as the previous literature discussed used samples more similar to this. However, during analysis of the data a weak, negative correlation emerged between scores of agreeableness and scores of intrinsic motivation. Further research into agreeableness as a negative predictor of intrinsic motivation would be necessary in order to make generalisations about a wider population, however this finding does support previous literature regarding agreeableness and intrinsic motivation according to Furnham, Petrides, Tsaousis, Pappas and Garrod (2005).

To conclude, though the results indicated that the original hypothesis has not been supported, limitations found within the study would suggest that these results should not be generalised among the wider population. A weak negative correlation between agreeableness and intrinsic motivation suggests a possible area of future research. A suggestion for future studies investigating predictors of intrinsic work motivation would be to use a much larger sample size and try to recruit participants from more varied forms of employment.

References

- Barbuto Jr, J. E., & Scholl, R. W. (1999), Leaders' motivation and perception of followers' motivation as predictors of influence tactics used. *Psychological Reports*, 84(3_suppl), 1087-1098.
- Barrick, M. R., & Mount, M. K. (1991), The big five personality dimensions and job performance: a meta-analysis. *Personnel psychology*, 44(1), 1-26.
- Bozionelos, N. (2004), The big five of personality and work involvement. *Journal of Managerial Psychology*, 19(1), 69-81.
- Furnham, A., Petrides, K. V., Tsaousis, I., Pappas, K., & Garrod, D. (2005), A cross-cultural investigation into the relationships between personality traits and work values. *The Journal of Psychology*, 139(1), 5-32.
- Gaki, E., Kontodimopoulos, N., & Niakas, D. (2013), Investigating demographic, work-related and job satisfaction variables as predictors of motivation in Greek nurses. *Journal of nursing management*, 21(3), 483-490.
- Goldberg, L. R. (1990), An alternative" description of personality": the big-five factor structure. *Journal of personality and social psychology*, 59(6), 1216.
- John, O. P., & Srivastava, S. (1999), The Big Five trait taxonomy: History, measurement, and theoretical perspectives. *Handbook of personality: Theory and research*, 2(1999), 102-138.
- Judge, T. A., & Ilies, R. (2002), Relationship of personality to performance motivation: A meta-analytic review. *Journal of applied psychology*, 87(4), 797
- Judge, T. A., Heller, D., & Mount, M. K. (2002), Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of applied psychology*, 87(3), 530.
- Lindner, J. R. (1998), Understanding employee motivation. *Journal of extension*, 36(3), 1-8. Retrieved from <https://www.joe.org/joe/1998june/rb3.php> nR:/journal-current-issue.php
- Ryan, R. M., & Deci, E. L. (2000), Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., & Villeneuve, M. (2009). Work Extrinsic and Intrinsic Motivation Scale: Its value for organizational psychology research. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 41(4), 213.
- Van Knippenberg, D. (2000), Work motivation and performance: A social identity perspective. *Applied psychology*, 49(3), 357-371.

Appendices

Appendix A) Consent Page



I understand that this research study is being carried out by 2nd year Psychology Students for the purpose of a report, and that taking part in this study will involve answering questions about personality and attitudes to work.

This task will take approximately 15-20 minutes to complete.

I understand that participation in this study is entirely voluntary and I am free to withdraw participation at any time without giving a reason by closing the browser window. I am aware that if I have concerns about the study I can discuss these concerns with the researcher or academic supervisor at any time during or after the study.

I understand that the information provided by me will be held anonymously. These data will be stored indefinitely in accordance with the Data Protection Act.

I also understand that at the end of the study I will be provided with a debrief form and the opportunity to contact the researchers with any issues.

I am over the age of 18 and consent to participate in this study

I am currently in paid employment



Appendix B) Qualtrics Study



Please select which of the following options you most strongly identify with:

Male

Female

Other

Prefer not to say

< >



Please state to what extent you agree or disagree with the following statements:

I see myself as someone who...

Does a thorough job

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Tends to find fault with others

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Can be somewhat careless

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree



Please state to what extent you agree or disagree with the following statements:

I see myself as someone who...

Tends to be disorganised

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Has a forgiving nature

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Tends to be lazy

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree



If other, please state in the box below (Please state N/A if you do not wish to answer).

Please type your age in the box below:

Please enter your unique ID code here if you wish to be awarded EMS credit



Is helpful and unselfish with others

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Is a reliable worker

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Starts quarrels with others

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree



Is generally trusting

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Perseveres until the task is finished

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree

Can be quite distant

Strongly agree Somewhat agree Neither agree nor disagree Somewhat disagree Strongly disagree





Please state to what extent you agree or disagree with the following statements:

I see myself as someone who...

Does things efficiently

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------

Is considerate and kind to almost everyone

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------

Makes plans and follows through with them

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------

Is sometimes rude to others

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------

Is easily distracted

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------

Likes to co-operate with others

Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
----------------	----------------	----------------------------	-------------------	-------------------



Please state to what extent each of the following items corresponds to the reasons why you are presently involved in your job:

Because this is the type of work I chose to do to attain a certain lifestyle.

Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---

For the income it provides me.

Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---

I ask myself this question, I don't seem to be able to manage the important tasks related to this work.

Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---

Because I derive much pleasure from learning new things.

Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---

Because it has become a fundamental part of who I am.

Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---

Because I want to succeed at this job, if not I would be very ashamed of myself.

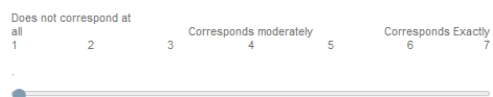
Does not correspond at all	1	2	3	Corresponds moderately	4	5	Corresponds Exactly	6	7
----------------------------	---	---	---	------------------------	---	---	---------------------	---	---



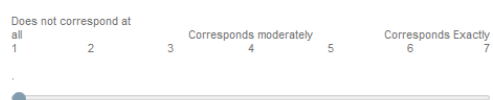


Please state to what extent each of the following items corresponds to the reasons why you are presently involved in your job:

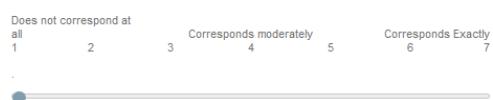
Because I chose this type of work to attain my career goals.



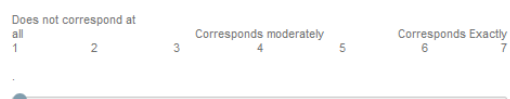
For the satisfaction I experience from taking on interesting challenges



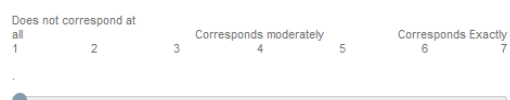
Because it allows me to earn money.



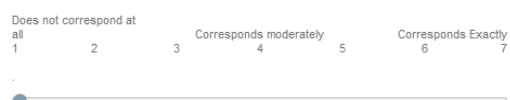
Because it is part of the way in which I have chosen to live my life.



Because I want to be very good at this work, otherwise I would be very disappointed.



I don't know why, we are provided with unrealistic working conditions.



Appendix C) Debrief Page



Thank you for taking part in the study.

The aim of this study was to investigate how the personality traits of conscientiousness and agreeableness predict work motivation.

If you wish to withdraw your data from the study please email the researcher or module lead immediately. After this point, all of your data will remain anonymous and we will not be able trace it back to you.

If taking part in this study has raised any questions please speak to Louisa on 1703005@student.uwstd.ac.uk or contact the academic supervisor Stacey Coleman via stacey.coleman@uwtsd.ac.uk

Thank you once again for taking time to participate in this study.



Appendix D) SPSS Output - Analysis

Descriptive Statistics

	Mean	Std. Deviation	N
Total Intrinsic Score	37.2632	12.28749	19
Total Agreeableness Score	18.7368	5.79120	19
Total Conscientiousness Score	20.0000	7.04746	19

Correlations

		Total Intrinsic Score	Total Agreeableness Score	Total Conscientiousness Score
Pearson Correlation	Total Intrinsic Score	1.000	-.245	-.005
	Total Agreeableness Score	-.245	1.000	.562
	Total Conscientiousness Score	-.005	.562	1.000
Sig. (1-tailed)	Total Intrinsic Score	.	.156	.492
	Total Agreeableness Score	.156	.	.006
	Total Conscientiousness Score	.492	.006	.
N	Total Intrinsic Score	19	19	19
	Total Agreeableness Score	19	19	19
	Total Conscientiousness Score	19	19	19

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Total Conscientiousness Score, Total Agreeableness Score ^b	.	Enter

a. Dependent Variable: Total Intrinsic Score

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.293 ^a	.086	-.029	12.46215

a. Predictors: (Constant), Total Conscientiousness Score, Total Agreeableness Score

b. Dependent Variable: Total Intrinsic Score

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	232.803	2	116.402	.750	.488 ^b
	Residual	2484.881	16	155.305		
	Total	2717.684	18			

a. Dependent Variable: Total Intrinsic Score

b. Predictors: (Constant), Total Conscientiousness Score, Total Agreeableness Score

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	44.573	10.564		4.219	.001	22.179	66.966					
	Total Agreeableness Score	-.751	.613	-.354	-1.224	.239	-2.051	.549	-.245	-.293	-.293	.684	1.462
	Total Conscientiousness Score	.338	.504	.194	.670	.512	-.730	1.406	-.005	.165	.160	.684	1.462

a. Dependent Variable: Total Intrinsic Score

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions	
					Total Agreeableness Score	Total Conscientiousness Score
1	1	2.908	1.000	.01	.01	.01
	2	.054	7.332	.70	.00	.64
	3	.038	8.751	.29	.99	.35

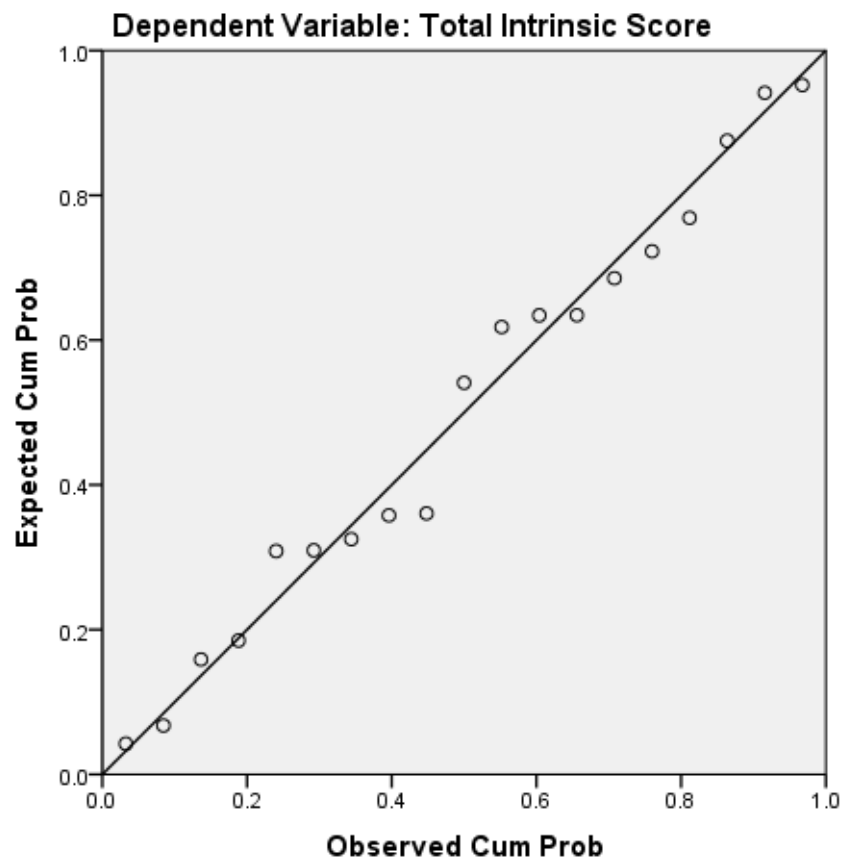
a. Dependent Variable: Total Intrinsic Score

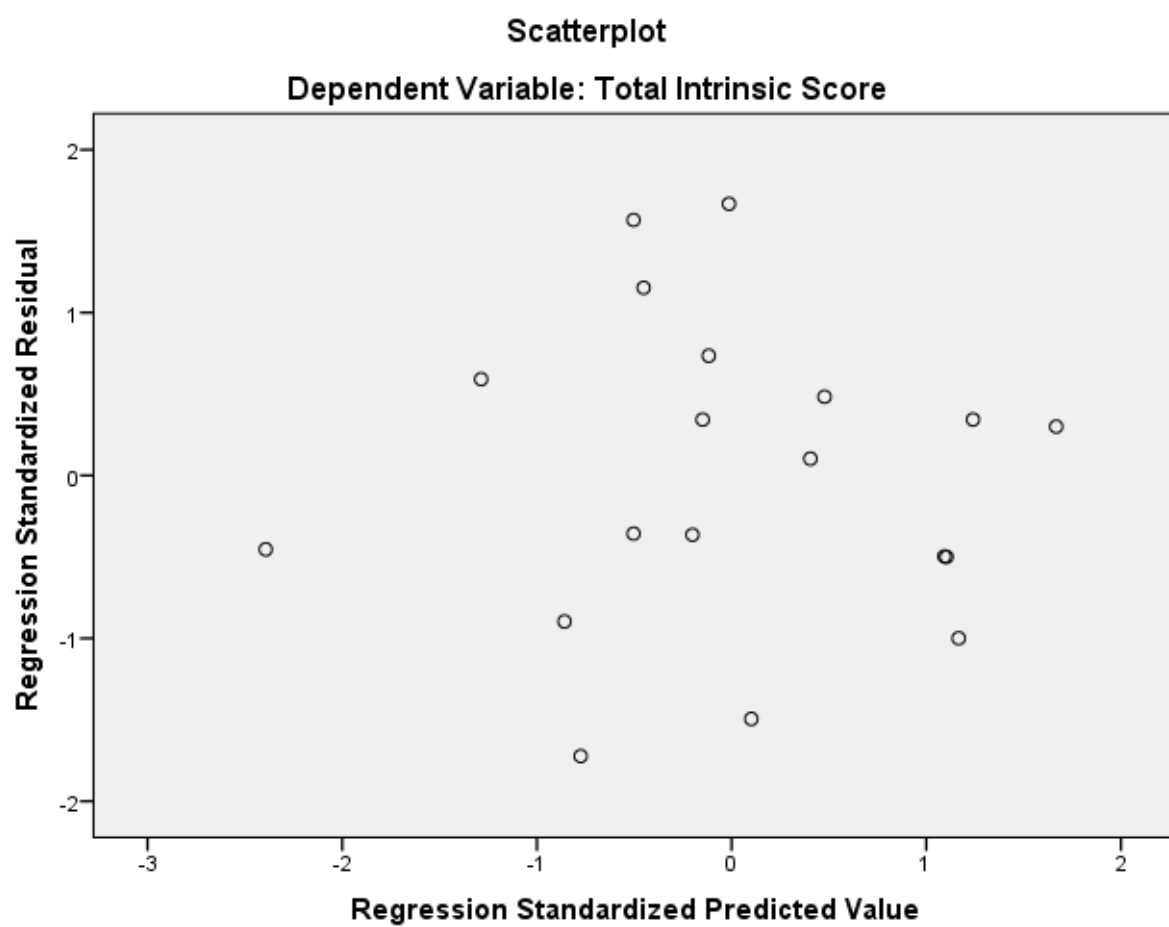
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	28.6571	43.2597	37.2632	3.59632	19
Residual	-21.47537	20.78441	.00000	11.74942	19
Std. Predicted Value	-2.393	1.667	.000	1.000	19
Std. Residual	-1.723	1.668	.000	.943	19

a. Dependent Variable: Total Intrinsic Score

Normal P-P Plot of Regression Standardized Residual





Appendix E) SPSS Output – Agreeableness/Conscientiousness (BFI) Reliability

Case Processing Summary

		N	%
Cases	Valid	19	100.0
	Excluded ^a	0	.0
	Total	19	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.898	.908	18

Item Statistics

	Mean	Std. Deviation	N
C1	1.5263	.77233	19
A2	1.7368	.65338	19
C3	1.4211	.50726	19
A4	1.7368	.80568	19
A5	1.5789	.96124	19
C6	2.1579	1.46299	19
C7	1.6842	.94591	19
A7	1.5263	.61178	19
C8	2.1579	1.21395	19
A9	1.7368	.80568	19
A1R	3.2105	1.22832	19
C2R	2.3158	1.15723	19
A3R	1.5263	.84119	19
C4R	2.3158	1.24956	19
A6R	3.4211	1.21636	19
C5R	2.6316	1.34208	19
A8R	2.2632	1.28418	19
C9R	3.7895	1.08418	19

Inter-Item Correlation Matrix

	C1	A2	C3	A4	A5	C6	C7	A7	C8	A9	A1R	C2R	A3R	C4R	A6R	C5R	A8R	C9R
C1	1.000	.400	.537	-.211	.240	.365	.772	.439	.025	-.033	.111	.301	.149	.509	.106	.412	.245	.272
A2	.400	1.000	.353	.494	.168	.336	.487	.505	.476	.494	.488	.410	.367	.380	.357	.580	.418	.545
C3	.537	.353	1.000	.014	.156	.355	.524	.320	.518	.422	.296	.518	.363	.743	.147	.730	.417	.372
A4	-.211	.494	.014	1.000	.208	-.104	-.115	.409	.329	.401	.508	.332	.298	.087	.233	.316	.232	.124
A5	.240	.168	.156	.208	1.000	.010	.273	.681	.060	.495	.032	.076	.839	.163	.208	.131	.545	.177
C6	.365	.336	.355	-.104	.010	1.000	.439	.274	.392	.226	.259	.428	.064	.488	.242	.314	.361	.477
C7	.772	.487	.524	-.115	.273	.439	1.000	.591	.239	.322	-.035	.401	.290	.418	.267	.560	.484	.365
A7	.439	.505	.320	.409	.681	.274	.591	1.000	.181	.522	.214	.223	.727	.279	.134	.317	.592	.260
C8	.025	.476	.518	.329	.060	.392	.239	.181	1.000	.783	.535	.556	.295	.258	.366	.515	.328	.618
A9	-.033	.494	.422	.401	.495	.226	.322	.522	.783	1.000	.340	.332	.708	.142	.403	.419	.608	.569
A1R	.111	.488	.296	.508	.032	.259	-.035	.214	.535	.340	1.000	.263	.156	.244	.346	.353	.209	.494
C2R	.301	.410	.518	.332	.076	.428	.401	.223	.556	.332	.263	1.000	.219	.657	.374	.723	.390	.366
A3R	.149	.367	.363	.298	.839	.064	.290	.727	.295	.708	.156	.219	1.000	.203	.314	.280	.688	.189
C4R	.509	.380	.743	.087	.163	.488	.418	.279	.258	.142	.244	.657	.203	1.000	.127	.769	.395	.380
A6R	.106	.357	.147	.233	.208	.242	.267	.134	.366	.403	.346	.374	.314	.127	1.000	.407	.672	.282
C5R	.412	.580	.730	.316	.131	.314	.560	.317	.515	.419	.353	.723	.280	.769	.407	1.000	.478	.364
A8R	.245	.418	.417	.232	.545	.361	.484	.592	.328	.608	.209	.390	.688	.395	.672	.478	1.000	.401
C9R	.272	.545	.372	.124	.177	.477	.365	.260	.618	.569	.494	.366	.189	.380	.282	.364	.401	1.000

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.354	-.211	.839	1.050	-3.967	.038	18

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
C1	37.2105	121.287	.424	.992	.896
A2	37.0000	118.889	.686	.996	.891
C3	37.3158	121.450	.661	.995	.893
A4	37.0000	122.667	.324	.997	.898
A5	37.1579	120.363	.370	.996	.898
C6	36.5789	112.257	.474	.952	.897
C7	37.0526	116.497	.573	.994	.892
A7	37.2105	120.731	.594	.997	.893
C8	36.5789	111.702	.620	.989	.890
A9	37.0000	116.778	.670	.992	.890
A1R	35.5263	115.708	.449	.947	.896
C2R	36.4211	111.924	.647	.995	.889
A3R	37.2105	118.509	.539	.999	.893
C4R	36.4211	111.813	.595	.984	.891
A6R	35.3158	114.895	.488	.933	.895
C5R	36.1053	106.988	.731	.972	.886
A8R	36.4737	108.708	.700	.897	.887
C9R	34.9474	113.942	.604	.985	.891

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
38.7368	129.094	11.36194	18

Appendix F) SPSS Output – Intrinsic WEIMS Reliability

Case Processing Summary

		N	%
Cases	Valid	19	100.0
	Excluded ^a	0	.0
	Total	19	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.881	.879	9

Item Statistics

	Mean	Std. Deviation	N
M1_1	3.84	1.708	19
M4_1	4.74	1.661	19
M5_1	4.00	2.055	19
M7_1	3.05	1.929	19
M8_1	4.47	1.896	19
M10_1	4.11	1.696	19
M14_1	4.42	1.865	19
M15_1	4.37	2.033	19
M18_1	4.26	2.257	19

Inter-Item Correlation Matrix

	M1_1	M4_1	M5_1	M7_1	M8_1	M10_1	M14_1	M15_1	M18_1
M1_1	1.000	.533	.396	.525	.384	.505	.039	.306	.386
M4_1	.533	1.000	.537	.299	.236	.326	.450	.211	.464
M5_1	.396	.537	1.000	.491	.756	.654	.478	.572	.863
M7_1	.525	.299	.491	1.000	.266	.202	.210	.363	.482
M8_1	.384	.236	.756	.266	1.000	.847	.286	.716	.696
M10_1	.505	.326	.654	.202	.847	1.000	.336	.471	.573
M14_1	.039	.450	.478	.210	.286	.336	1.000	.367	.329
M15_1	.306	.211	.572	.363	.716	.471	.367	1.000	.510
M18_1	.386	.464	.863	.482	.696	.573	.329	.510	1.000

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.446	.039	.863	.823	21.860	.034	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
M1_1	33.42	128.035	.518	.691	.876
M4_1	32.53	128.596	.521	.628	.876
M5_1	33.26	109.538	.865	.857	.845
M7_1	34.21	126.175	.487	.548	.879
M8_1	32.79	116.620	.751	.907	.857
M10_1	33.16	122.251	.689	.841	.863
M14_1	32.84	129.585	.422	.525	.884
M15_1	32.89	119.433	.617	.672	.869
M18_1	33.00	109.444	.772	.768	.854

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
37.26	150.982	12.287	9

Appendix G) SPSS Output – Extrinsic (WEIMS) Reliability

Case Processing Summary

		N	%
Cases	Valid	19	100.0
	Excluded ^a	0	.0
	Total	19	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.151	.114	9

Item Statistics

	Mean	Std. Deviation	N
M2_1	4.5263	1.83692	19
M6_1	3.7368	2.23214	19
M9_1	5.5789	1.46499	19
M11_1	3.8421	2.24260	19
M13_1	3.4211	1.95266	19
M16_1	4.2105	1.98827	19
M3_R	5.4737	1.42861	19
M12_R	4.6316	1.86221	19
M17_R	4.7368	1.66140	19

Inter-Item Correlation Matrix

	M2_1	M6_1	M9_1	M11_1	M13_1	M16_1	M3_R	M12_R	M17_R
M2_1	1.000	-.317	.582	-.613	-.344	.440	.175	-.233	.103
M6_1	-.317	1.000	-.155	.813	.307	-.150	-.081	-.091	.010
M9_1	.582	-.155	1.000	-.157	-.109	.375	-.298	-.060	.112
M11_1	-.613	.813	-.157	1.000	.473	-.204	-.305	.078	.063
M13_1	-.344	.307	-.109	.473	1.000	.033	-.394	.167	-.409
M16_1	.440	-.150	.375	-.204	.033	1.000	.295	-.173	.320
M3_R	.175	-.081	-.298	-.305	-.394	.295	1.000	-.202	.290

M12_R	-.233	-.091	-.060	.078	.167	-.173	-.202	1.000	.164
M17_R	.103	.010	.112	.063	-.409	.320	.290	.164	1.000

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.014	-.613	.813	1.425	-1.326	.096	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
M2_1	35.6316	36.912	-.171	.761	.270
M6_1	36.4211	26.813	.202	.795	.010
M9_1	34.5789	32.702	.097	.634	.115
M11_1	36.3158	27.895	.150	.893	.056
M13_1	36.7368	32.316	.016	.639	.161
M16_1	35.9474	27.497	.241	.560	-.005 ^a
M3_R	34.6842	37.450	-.173	.551	.242
M12_R	35.5263	35.152	-.097	.282	.229
M17_R	35.4211	30.146	.196	.568	.051

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
40.1579	36.474	6.03934	9