Analyzing the Correlation Between Extraversion, Neuroticism, and Team Conflict

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Abstract

This study analyzes how the interplay of extraversion and neuroticism affect team conflict. After examining other studies, hypotheses were developed regarding the impact that extraversion and neuroticism had on relationship and task conflict within teams. Teams were composed of students in Management 1001 courses working on intensive research projects. The independent variables were the teams' average extraversion, neuroticism, and interaction scores while the dependent variables were the average relationship and task conflict scores, controlling for agreeableness and gender. Through analyzing data presented by the Carlson School of Management, only marginally significant results were found, thus no hypotheses were conclusively supported. After the study, it is imperative that further research be conducted with a larger, more representative sample size to reach a conclusion that can be generalized to a greater population. Concurrently, more significant data will allow for more accurate and valid managerial implications which can then be better applied to corporate environments.

Introduction

Within the Carlson School of Management's curriculum, students are frequently engaged in team projects in order to prepare them for the workplace. In this study, we decided to research and analyze the relationships between the interplay of extraversion and neuroticism in terms of both relationship and task conflict. Relationship conflict is defined as, "interpersonal differences based on values, preferences of opinions on non task issues, [or] personality clashes," (Shah, 2018, p.20), while task conflict is, "related to task, divergent viewpoints or debate focused on the task" (Shah, 2018, p.23). This is important, because in the future, students will work with different personality types and must mitigate team conflict. Therefore, we decided to focus on

extraversion and neuroticism rather than the other Big 5 traits, because we concluded they are more relevant to team dynamics (Liao, 2012).

Extraversion is defined as "an energetic approach to the external world, including sociability, assertiveness and positive emotionality." Specifically, extraversion is split into two subfactors--assertiveness, how outgoing an individual is, and enthusiasm, how energetic an individual is around others. Neuroticism is "the tendency to experience nervousness, tension, anxiety, emotional instability, hostility and sadness" (Juhász, 2010, p.65) and is also divided into two parts. The first is volatility, the frequency of an individual's mood swings, while the second is withdrawal, how likely an individual is to avoid others or events (Funder, 2016). Analyzing these personality traits and their effects on team conflict will better prepare us for future collaborative projects both in the next four years and our professional lives.

Theory and Hypotheses

Hypothesis 1: *If teams have high extraversion scores, then they will experience less relationship conflict.*

Hypothesis 2: *If teams have high extraversion scores, then they will experience less task conflict.*

Hypothesis 3: *If teams have high neuroticism scores, then they will experience more relationship conflict.*

Hypothesis 4: *If teams have high neuroticism scores, then they will experience more task conflict.*

Hypothesis 5: *If teams have high extraversion scores and low neuroticism scores, then they will experience less relationship conflict.*

Hypothesis 6: *If teams have high extraversion and low neuroticism scores, then they will experience less task conflict.*

Hypothesis Development

We developed our hypotheses based on the various studies from our research, which suggest higher levels of extraversion lead to lower levels of team relationship conflict. Specifically, extraverts are more concerned about fairness than those that are not as social. In a study focusing on fairness and forgiveness where participants were given a share of tokens worth twenty dollars, "extraverts were more likely to reject an over-reward offer, and participants [who] scored high on openness felt less happy receiving an over-reward [compared to] their counterparts" (Li, 2012, p.23). The concern for equality may help alleviate team conflict if all members feel they are treated fairly. In fact, good communication is a strong indicator of team success which can be determined by "shared vocabularies, trust, and strong norms"--team traits that might be strengthened by an overall sense of fairness (Kristof‐Brown, 2005, p. 2). We also anticipate that higher levels of extraversion lead to lower levels of team task conflict because, "extraversion is a part of the plasticity meta trait, which is correlated with a larger social network, self monitoring, and entrepreneurship ability" (Funder, 2016, p.343). Having more extraverts in a team will result in greater self monitoring as members strive to meet task expectations. Furthermore, "Extraversion (E) factor [is a] valid predictor of training proficiency criterion (across occupations) and [...] predicts a good mental ability" (Juhász, 2010, p.3). Extraverts are more willing to improve their skills and abilities, while contributing to a team focused on growth.

Regarding neuroticism, we predict that higher levels will increase both team relationship conflict and team task conflict. According to Juhász's study, *Influence of personality on Teamwork behaviour and communication*, emotionally-stable teams are more effective because

they are comfortable working in groups thus leading to greater individual contribution and reception to new ideas. Consequently, "emotional stability is positively associated with a cohesive team process and effective decision making" (Juhász, 2010, p.7). The more neurotic a team is, the more unwilling they are to collaborate with others, which may foster both personal conflict and disagreements about how to complete the project. Since neuroticism leads to higher levels of stress for the individual (Helle 2018), having a very neurotic team may cause greater mental and emotional strain.

We hypothesize that when extraversion and neuroticism are indirectly related, they will reinforce each other. The benefits of high extraversion will be compounded with the benefits of low neuroticism resulting in less relationship conflict and task conflict. In fact, a previous study by Barrick, Stewart, Neubert, and Mount in 1998 discovered that, "higher average team levels of emotional stability and extraversion were associated with an increased capability of teams to work together" (Kristof-Brown, 2005, p.3). These findings imply that low neuroticism and high extraversion are excellent predictors of high team performance.

Methods

Participants and Procedures

We were given data previously collected by professors at the Carlson School of Management via surveys distributed to students over a 15 week period. Data was compiled from 96 randomly-assigned teams composed of a total of 470 undergraduate participants working on a semester-long research project. This project accounted for a large percentage of the students' grades and therefore incentivized participation. At various stages of the project, students were asked to respond to online surveys in which their attitudes and behaviors towards their

teammates were tested. We had 95 teams in which all members responded to the surveys, and one team in which one member did not respond to multiple surveys.

Independent Variables

Our independent variables were the reported extraversion, neuroticism, and interaction scores derived from the students' surveys, collected within the last two years. The extraversion and neuroticism variables used a seven point scale, ranging from one to seven, one being low and seven being high in the respective trait. The interaction variable took these averages and multiplied them for a scale ranging from one to forty-nine.

Dependent Variables

Our dependent variables consisted of the teams' average relationship and task conflict scores. These items were graded on a five point scale, one being the lowest and five being the highest.

Control Variables

Our control variables are the gender and agreeableness scores of the participants. These were selected because they both pose possible effects on the dependent variables, which may have affected our data if not held constant.

Data

In order to obtain our independent variables, we first calculated the extraversion and neuroticism scores for each individual by averaging the values of their responses to either the extraversion or neuroticism survey questions, respectively. We then took these averages to create a pivot table where individuals' team IDs were placed in the rows while the individuals' average extraversion and neuroticism scores were in the values section. Since we were able to group

individuals by their teams, we could calculate the team average scores for each of our variables by averaging all the individuals' average scores within each team. Because our study focuses on the effect of extraversion and neuroticism on team success, these overall scores were our independent variables for Hypotheses 1-4.

In order to determine the independent variable for Hypotheses 5-6, we multiplied the extraversion and neuroticism scores for each team to find the teams' "interaction score," since we wanted to discover what would happen when they were both taken into account.

Finally, after all the data regression was complete, the data was organized into a regression table for visual clarity.

Results

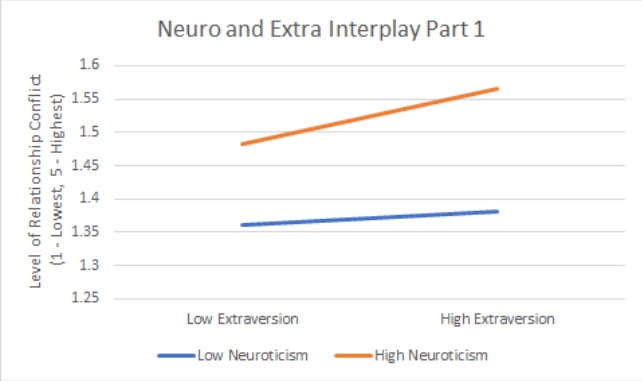
Results of Regression Analysis				
Variable	**Task Conflict**	**Task Conflict**	**Relationship Conflict**	**Relationship Conflict**
neuroticism	0.11	~1.01	0.09	~0.93
extraversion	-0.04	0.60	-0.02	0.57
agreeableness	0.10	0.13	-0.10	-0.07
gender	0.07	0.07	0.02	0.03
extraversion x neuroticism		-0.22		1.57
Adjusted R^2	-0.01	0.01	-0.01	0.004
F (df)	0.88	1.21	0.74	1.08
Note: ~ p < .1 , * p < .05 , ** p < .01 , *** p < .001				

Table 1: Regression table showing coefficients of linear regression equation. In order to be marginally significant, p-value must be less than .1, to be significant p-value must be less than .05.

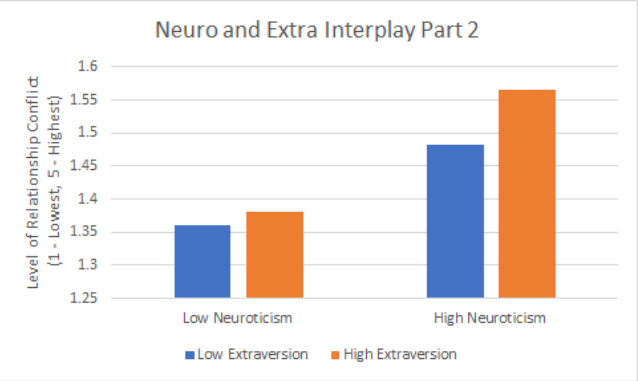
Correlation Matrix								
	Mean	*SD*	*1*	*2*	*3*	*4*	*5*	*6*
1. Interaction	11.82	0.27						
2. Average Neuroticism Score	2.88	0.05	0.79					
3. Average Extraversion score	4.11	0.06	0.59	-0.02				
4. Agreeableness	1.85	0.04	0.05	-0.09	0.18			
5. Gender	1.39	0.04	-0.23	-0.27	-0.03	-0.11		
6. Task Averages	4.42	0.04	0.03	0.09	-0.04	0.05	0.11	
7. Relationship Averages	2.59	0.09	0.05	0.13	-0.05	-0.12	0.03	0.50
Note: * p < .05 , ** p < .01 , *** p < .001								

Table 2: Correlation matrix showing relationship between variables. In order to be significant, p-value must be less than .05.

Graph 1



Graph 2



Graphs 1 and 2: Graphs show interaction between neuroticism and extraversion, showing four possible combinations (high and low)

The following explains how each hypothesis was tested and the quantitative results for each. To test our hypotheses we ran four regressions, two without the interaction scores included in the independent variables and two with. Our results as shown in Table 1 reflect only two marginally significant results.

To test Hypotheses 1, 3, and 5, which address relationship conflict, we ran a regression with extraversion, neuroticism, and the interaction scores set as the independent X variables while controlling for gender and agreeableness. In the regression, we set the relationship conflict scores as the dependent Y variable. Our results reflect only marginal significance for the neuroticism variable, thus, our data supports the positive relationship between neuroticism and relationship conflict proposed by Hypothesis 3, with a beta weight of 0.93 and a p-value of 0.09.

Hypothesis 1, suggesting that higher extraversion levels would reduce relationship conflict, was not proven as our results were insignificant with a p-value of 0.14. Although our correlation matrix for the interaction supported our hypothesis, the relationship was insignificant. Additionally, for Hypothesis 5, the correlation matrix for the interaction contradicted our claim that high extraversion and low neuroticism interaction levels would lead to lower relationship conflict. However, the correlation was not significant and our regression table reflects insignificance with a p-value of 0.12, thus our hypothesis of a positive relationship was not supported.

To test Hypotheses 2, 4, and 6, we ran a regression with extraversion, neuroticism, and the interaction scores set as the independent X variables while controlling for gender and agreeableness. However, in this regression, we set the task conflict scores as the dependent Y variable. Again, only the relationship between neuroticism and task conflict was found marginally significant. Therefore, Hypothesis 4, which proposed that higher neuroticism levels would increase task conflict, was supported by the marginally significant results with a p-value of 0.08 and a beta weight of 1.01. The correlation matrix for the interaction supported our hypothesis, but it was not found significant. For Hypothesis 2, our regression was not significant with a p-value of 0.14, thus our hypothesis that higher extraversion would lead to lower task conflict levels was not supported. The regression yielded a beta weight of 0.60. For Hypothesis 6, the correlation matrix for the interaction supported our proposal that high extraversion and low neuroticism interaction levels would lead to lower task conflict. However, our data was not significant with a p-value of 0.11, thus our hypothesis of a positive relationship was not supported. The regression yielded a beta weight of 1.57.

Discussion

Theoretical Implications

Our correlation matrix and beta weight or "b" values show a negative or positive relationship, however our relatively high p-values failed to produce any significant correlation between extraversion, neuroticism, and team conflict. This does not substantiate what we found in our research, which indicated that there should be a significant relationship between these variables as, "higher average team levels of emotional stability and extraversion were associated with an increased capability of teams to work together" (Kristof-Brown, 2005, p.3). As shown by our results, the lack of significance cannot validate the relationship, even as studies by Juhász, Liao, and Kristof‐Brown corroborate the claim. Because of the lack of significance, nothing new is able to be known about the effect the two personality traits have on either form of conflict.

Managerial Implications

Although none of our results pertaining to extraversion were statistically significant, if they were significant, managers should be cautious about having too many extraverts in a team working on stressful, high-stakes projects. When people are stressed out, it is possible that voicing their concerns to others creates a negative feedback loop that increases the stress for everyone in the team.

On the other hand, we do have marginally significant results relating to neuroticism that support Hypotheses 3 and 4, implying that managers should foster a calm environment that is not stressful in order to maximize productivity and adequately leverage the benefits of teamwork. Managers should be cautious when organizing teams in case there are higher team levels of neuroticism, as this may lead to higher levels of both relationship and task conflict.

Limitations and Future Directions

Due to the nature of the research project, there were limitations that may have contributed to the lack of significance in our analysis. Looking at previous studies, our research indicated that the teams that were most successful and had the least amount of conflict actually featured medium extraversion scores, rather than high or low values. Specifically, "the degree of variance of Extraversion (E) has a curvilinear relationship to task focus and performance, suggesting that too many or too few extraverts in a team can be inefficient" (Juhász, 2010, p. 3). Furthermore, "the notion of complementary fit may explain how being different from other team members on extraversion would lead to an individual member to react positively toward the team" (Kristof-Brown, 2005, p.5). Unfortunately, because we analyzed the data using a "correlation matrix," we could not test for medium scores and could only focus on high or low extraversion or neuroticism scores. The role of medium levels of extraversion on group dynamics should definitely be a primary focus of future studies.

Another limitation that we faced was our limited data set. Although the Excel file that we worked with was initially intimidating, it only included 470 individuals. The limited population size was even more unrepresentative of team dynamics as a whole, because it was made up of very skewed demographics. For example, the students featured in the data set were among the top of their class in high school and consequently had very high expectations for themselves, in turn implying a strong fear of failure and higher levels of neuroticism. It is possible that this same fear of failure may have caused some students to be dishonest in their answers, as admitting their own weaknesses and vulnerabilities, even on an anonymous survey, could have been too much of a blow to their self-esteem. It is perhaps for this reason that a study done on

team sports participants comments, “people who score high on neuroticism also tend to score high on [the] lie scale” (Eagleton, 2007, 265). The potential for bias in self-reported surveys, as well as the unusual and academically-intense population makes our study unrepresentative of the general population, with any potential conclusions obscured.

That being said, through the research, we found that a team’s level of relationship conflict is positively correlated to its level of task conflict. Even though this was not the main focus of our study, the relationship could be explored in future studies and used to further the understanding of team conflict.

Although nothing we found was statistically significant, we did find that two of our hypotheses (Hypothesis 3 and Hypothesis 4) were marginally significant after controlling for gender and openness. When testing Hypothesis 3, there appeared to be some relation between high neuroticism and high relationship conflict, while our investigation on Hypothesis 4 revealed an association between high neuroticism and high task conflict. The connection between neuroticism and increased team conflict has been confirmed via studies done by Juhász and Helle, but future research that emphasizes controlling potential confounding variables should be done to validate it further.

Like a chainsaw, teams, when utilized correctly, can be very productive in accomplishing tasks, but destructive if dysfunctional. For our study, we attempted to determine how extraversion and neuroticism, both individually and together, affected relationship and task conflict in order to discern the ideal team composition. Had they been significant, our results would have corroborated multiple studies that discovered that individually, more extraversion generally led to less relationship and task conflict due to an increase in collaboration between

team members. When extraversion interacts with neuroticism, however, if students begin with high neuroticism, and experience an increase in their extraversion levels, relationship conflict within the team increases. Perhaps with such an academically rigorous group of students, talking too much about the team issues created an atmosphere of stress that increased anxiety and thus, increased relationship conflict. Therefore, it is ideal to have a balanced mix of extraverts and introverts within a team such that conflict is mitigated. We hope that students in the Carlson School of Management will continue to watch out for the interplay of extraversion and neuroticism in terms of both relationship conflict and task conflict while working in teams in class and in life.

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