

# The Impact of Personality on Virtual Team Creativity and Quality

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## INTRODUCTION

A series of experiments investigated creativity and quality of work-product solutions in virtual teams (Ocker, 2007, 2005; Ocker & Fjermestad, 1998; Ocker, Hiltz, & Johnson, 1998; Ocker, Hiltz, Turoff, & Fjermestad, 1996). Across experiments, small teams with about five graduate students interacted for approximately two weeks to determine the high-level requirements and design for a computerized post office (Goel, 1989; Olson, Olson, Storosten, & Carter, 1993). The means of interaction was manipulated in these experiments such that teams interacted via one of the following treatments: (1) asynchronous computer-mediated communication (CMC), (2) synchronous CMC, (3) asynchronous CMC interspersed with face-to-face (FtF) meetings, or (4) a series of traditional FtF meetings without any electronic communication.

A repeated finding across experiments was that teams interacting *only* using asynchronous CMC—that is, teams without any FtF or synchronous communication—produced significantly more creative results than teams in the other treatments. Additionally, asynchronous virtual teams rated high in creativity were generally not the same teams that were judged high in terms of the quality of their deliverable.

To further examine these findings, this article presents results of an exploratory study designed to investigate the impact of individual personality facets on team outcomes. The objective of this study is to determine whether differences in team outcomes—in terms of the level of creativity versus the quality of the team deliverable—can be predicted by individual member personality. Specifically, two research questions are investigated:

*Do individual member personalities predict virtual team creativity?*

*Do individual member personalities predict virtual team quality?*

## BACKGROUND

Personality traits, which are persistent across situations and time, distinguish an individual from others. In the domain of psychology, it is readily accepted that there are five broad factors or dimensions of personality traits (Costa & McCrae, 1992; Goldberg, 1993). An individual falls somewhere along the continuum of a given dimension.

Extraversion, openness, agreeableness, conscientiousness, and negative emotionalism (also known as neuroticism) comprise the five dimensions. Extraversion encompasses an individual's tendency for sociability and interactivity as opposed to solitude and seclusion. Openness encompasses an individual's tendency for abstract or original ideas versus tangible facts. Agreeableness encompasses an individual's tendency for cooperative versus competitive interaction with others. Conscientiousness encompasses an individual's tendency for convergent, task-oriented versus divergent, process-oriented work styles. Finally, negative emotionalism encompasses how an individual responds to stress, from a wide-range of emotions to a narrow range of emotions.

Dimensions are broadly defined. Personality facets were developed to more precisely measure the particular attributes subsumed within the broad domains. Thus, each factor is comprised of multiple facets. Each facet includes a common “portion” attributable to the associated factor, as well as a portion attributable to that particular facet. McCrae and Costa (1992) developed six 8-item facet scales for each dimension. As a means of assessing the discriminant validity of the facet scales, they related each scale to various items from the Adjective Check List (Gough & Heilbrun, 1983). Twenty-six of these “ACL-defined” facets achieved discriminant validity. These are depicted in Table 1.

Table 1. ACL personality facet scales

<b>Negative Emotionalism</b>	
Anxiety	anxious, fearful, worrying, tense, nervous, -confident, -optimistic
Depression	Worrying, -contented, -confident, -self-confident, pessimistic, moody, anxious
Self-Consciousness	shy, -self-confident, timid, -confident, defensive, inhibited, anxious
Vulnerability	-clear-thinking, -self-confident, -confident, anxious, -efficient, -alert, careless
<b>Extraversion</b>	
Warmth	friendly, warm, sociable, cheerful, -aloof, affectionate, outgoing
Gregariousness	sociable, outgoing, pleasure-seeking, -aloof, talkative, spontaneous, -withdrawn
Assertiveness	aggressive, -shy, assertive, self-confident, forceful, enthusiastic, confident
Activity	energetic, hurried, quick, determined, enthusiastic, aggressive, active
Excitement Seeking	pleasure-seeking, daring, adventurous, charming, handsome, spunky, clever
Positive Emotions	enthusiastic, humorous, praising, spontaneous, pleasure-seeking, optimistic, jolly
<b>Openness</b>	
Fantasy	dreamy, imaginative, humorous, mischievous, idealistic, artistic, complicated
Aesthetics	imaginative, artistic, original, enthusiastic, inventive, idealistic, versatile
Feelings	excitable, spontaneous, insightful, imaginative, affectionate, talkative, outgoing
Actions	interests wide, imaginative, adventurous, optimistic, -mild, talkative, versatile
Ideas	idealistic, interests wide, inventive, curious, original, imaginative, insightful
Values	-conservative, unconventional, -cautious, flirtatious
<b>Agreeableness</b>	
Trust	forgiving, trusting, -suspicious, -wary, -pessimistic, peaceable, -hard-hearted
Straightforwardness	-complicated, -demanding, -clever, -flirtatious, -charming, -shrewd, -autocratic
Compliance	-stubborn, -demanding, -headstrong, -impatient, -intolerant, -outspoken, -hard-hearted
Modesty	-show-off, -clever, -assertive, -argumentative, -self-confident, -aggressive, -idealistic
<b>Conscientiousness</b>	
Competence	efficient, self-confident, thorough, resourceful, confident, -confused, intelligent
Order	organized, thorough, efficient, precise, methodical, -absent-minded, -careless
Dutifulness	-defensive, -distractible, -careless, -lazy, thorough, -absent-minded, -fault-finding
Achievement Striving	thorough, ambitious, industrious, enterprising, determined, confident, persistent
Self-discipline	organized, -lazy, efficient, -absent-minded, energetic, thorough, industrious
Deliberation	-hasty, -impulsive, -careless, -impatient, -immature, thorough, -moody

## METHOD

### Data Set

The data set consisted of 47 participants from 11 teams comprising the asynchronous CMC treatment in Ocker (2005). Females comprised 37% of the participants. The average work experience was approximately 8 years. Fifty-five percent of participants were between

the ages of 23 and 30, while 28% were between 31 and 35. Participants indigenous to the United States accounted for 93% of the data set.

### Task

The Computerized Post Office (CPO) was the task used in this experiment. This task was adapted from Goel (1989) and Olson et al. (1993). Olson et al. characterize

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