# Personality and Virtual Reality Team Candidates: The Roles of Personality Traits, Technology Anxiety and Trust as Predictors of Perceptions of Virtual Reality Teams

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*This paper examines personality traits as antecedents to perceptions of the usefulness and intention to use a virtual reality team (VRT) environment at an early stage of virtual team education. Subjects watched a training video emphasizing communication in VRTs across various boundaries including time, culture, social norms, and organizational expectations. Subjects then completed and returned surveys collecting relevant constructs. Support for the proposed model was found in which personality traits predicted propensity to trust and technology communication anxiety. In addition, propensity to trust and technology communication anxiety predicted perceived VRT usefulness and intention to use VRTs respectively. The model suggests that both stable personality traits such as extraversion and openness, and situation-specific traits such as technology communication anxiety predict subjects' perceptions of the useful and intention to use a virtual team in the near future.*

Relatively recent developments in technology have increased people's ability to communicate effectively across space and time. Computers, broadband, and various public and private networks have revolutionized the flow of information for the public, private, and commercial sectors. The Virtual Reality Team (VRT) is one result of this revolution in which dispersed members use various information technologies to communicate, allowing freedom from some constraints with which face-to-face teams struggle. However, VRTs struggle with a new set of constraints which they must overcome in order to work effectively and produce quality outcomes. For example, dispersed membership can lead to psychological distance and managing people with varying concepts of approaching work can lead to more time spent on procedures than accomplishing tasks. As such, selecting people for virtual teams involves identifying those who perceive that they can work effectively in virtual environments. The purpose of this study is to identify traits that are likely to lead individuals to perceive positive future outcomes when working in a VRT. In this paper, a virtual team is referred to as a "virtual reality team" or "VRT" to avoid confusion with the word "virtual" potentially meaning "almost" or "nearly."

## Theoretical Model

The theoretical model developed and tested in this paper is presented in Figure 1, with individual hypotheses indicated. The model suggests that the stable personality traits of extraversion, agreeableness, conscientiousness, neuroticism, and openness will predict situation-specific traits of technology communication anxiety and propensity to trust others. These situation-specific traits will predict both the perceived usefulness and perceived intention work within a virtual team environment in the near future. Table 1 identifies the constructs used in this study giving the construct names, their definitions, and conceptual sources for each of the variables listed. What follows is a theoretical grounding of the hypotheses suggested by the complete model and an account of the methods used to test the hypotheses.

**Figure 1:** *Proposed Model of Traits*

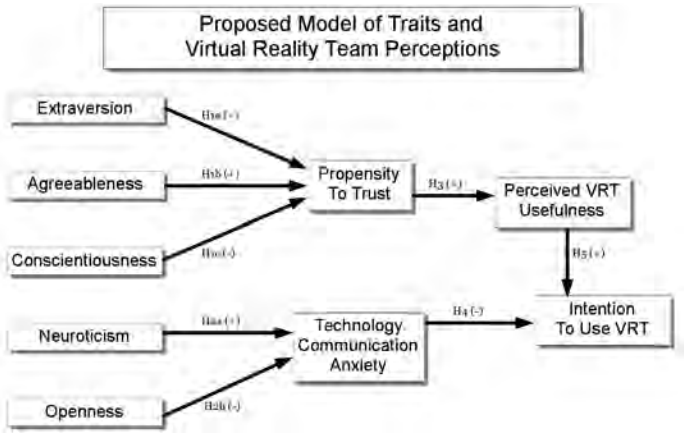


**Table 1:** *Constructs, Definitions, and Conceptual Source*

| Construct | Definition | Conceptual Source |
|---|---|---|
| Extraversion | The degree to which an individual is talkative, full of energy, and emotionally expressive | John & Srivastava (1999) |
| Agreeableness | The degree to which an individual is helpful and unselfish with others, has a forgiving nature, and is generally trusting | John & Srivastava (1999) |
| Conscientiousness | The degree to which an individual does a thorough job, is reliable, and perseveres until a job is finished | John & Srivastava (1999) |
| Neuroticism | The degree to which an individual is tense, worries more than others, and is moody | John & Srivastava (1999) |
| Openness | The degree to which an individual is original, curious about many things, and inventive | John & Srivastava (1999) |
| Propensity to Trust | A willingness to be vulnerable to the actions of another party | Jarvenpaa, Knoll, & Leidner (1998) |
| Tech. Comm. Anxiety | Anxiety associated with communicating with others over existing and new technology | Marcoulides (1989) |
| VRT Usefulness | The degree to which a VRT contributes to the enhancement of the user's performance | Davis (1989) |
| Intention to Use VRT | The strength of an individual's intention to use a VRT | Davis (1989) |

*Personality traits*

In extant psychology literature, individual personality traits have been used to predict a variety of perceptions and outcomes. The Big Five Inventory (BFI) (John & Srivastava, 1999) is an instrument that captures five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. Extraversion is the degree to which an individual is talkative, full of energy, and emotionally expressive. Extraverts tend to have many friends and enter into relationships freely. Agreeableness is the degree to which an individual is helpful and unselfish with others, has a forgiving nature, and is generally trusting. Agreeable individuals tend to get along well with a variety of others and tend to trust others more quickly.

Conscientiousness is the degree to which an individual does a thorough job, is reliable, and perseveres until a job is finished. The conscientious individual is reserved to let others down and works in an orderly fashion to accomplish tasks. Neuroticism is the degree to which an individual is tense, worries more than others, and is moody. The neurotic individual is concerned about the details of work and often gets bogged down by them. Openness is the degree to which an individual is original, curious about many things, and inventive. The open individual is likely to jump right in to trying new things and finds ways to make things work where others

would give up more easily.

In psychology literature, personality traits have been used to predict a variety of outcomes including predicting work-related performance (Judge et al., 2007), bullying, and discrimination (Parkins, Fishbein & Ritchey, 2006), and the relationship of a focal individual's personality with projection to that of others (Motowidlo, Hooper & Jackson, 2006). The applicability of the 5-factor model of personality to an array of job performance criteria has been shown to exist in a variety of settings. In a meta-analysis of 117 studies totaling nearly 24,000 subjects that examined the relationships between the "Big 5" and performance outcomes, Barrick and Mount (1991) found the conscientiousness construct to be positively related to performance outcomes across occupational types. Furthermore, they found that extraversion was positively related to performance ratings in occupations involving social interaction. In addition, findings from Barrick et al. (1998) link extraversion with the ability of teams to be self-sustaining.

One beneficial aspect to using personality traits in research is that they have been theorized to be long-term to life-long attributes of individuals (Conley, 1985; Eysenck & Eysenk, 1985; Parham & Schaie, 1976). Predicting outcomes or perceptions with personality traits is longitudinally replicable for the same individual. This has a distinct advantage when choosing people for moderate or long-term training. Since personality traits are life-long attributes, identifying ideal candidates at one time makes it likely that the candidates will remain good candidates throughout and beyond training.

*Trust*

Jarvenpaa, Knoll and Leidner (1998) found support for their hypotheses that team building exercises predict perceptions of ability, integrity, and benevolence which in turn, predict trust in global virtual teams. Mayer, Davis and Schoorman (1995, p. 712) define trust as the "willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." This definition has important considerations for VRTs where monitoring and controlling others is difficult, if not impossible. Consequently, individuals with a need to monitor others for lack of trust will find it difficult to work in VRTs effectively. Couch and Jones (1997) and Gurtman (1992) argue that trust is essential to the development and maintenance of team member relationships and is linked to the quality of those relationships. Identifying antecedents to propensity to trust at the individual level can give insight into those who will adjust to VRTs successfully. Of note, Ding and Mowei (2005) found no differences in levels of trust either between males and females or within the age range of the undergraduate students used in their research. Therefore, there would be no compelling reason to include age and gender within the scope of variables used in the present study.

There have been few studies linking elements of the 5-factor model of personality and trust. Two such studies, however, establish linkages between personality dimensions and trust. In one such study, Sutherland and Tan (2004) construct a theoretical framework linking extraversion and openness with greater propensity to

trust, while higher levels of conscientiousness would be related to lower propensity to trust. In general, extraverts enter into relationships easily and seek many different relationships simultaneously. The more extraverted a person is, the more that individual has many relationships that tend to be shallow. In contrast, the introvert often has fewer but deeper relationships. The extravert is more interested in the quantity rather than the quality of relationships, resulting in an individual being more willing to trust in order to attain more and more relationships to satisfy his/her need for interpersonal interactions. As such, the degree that an individual is extraverted will predict that individual's propensity to trust. Given the discussion above, the following series of hypotheses are offered beginning with:

*Hypothesis 1a: Extraversion will be positively correlated with propensity to trust.*

Agreeable individuals by nature get along with others and trust more easily than most people. This trait to be agreeable results in an individual who, at the outset of a relationship, engages in trusting behaviors earlier than someone with a lower need to be agreeable. In addition, the agreeable individual may even trust too soon in a relationship resulting in good outcomes when the trusted party is worthy of trust and negative outcomes when the trusted party is not. Regardless of the trustworthiness of the second party, individuals with a higher need to be agreeable will trust more readily in situation-specific situations. Indeed, Matzler, Mooradian and Renzl (2006) found that individuals high in agreeableness more readily share knowledge thus resulting in higher levels of ratings of interpersonal trust. Therefore,

*Hypothesis 1b: Agreeableness will be positively correlated with propensity to trust.*

The conscientious individual detests letting others down and seeks to be reliable to others. This individual finds it more difficult to trust in others in a team environment for fear of other people's unreliable behavior reflecting on him/her. The conscientious individual prefers to work alone when he/she knows that his/her outcomes will be evaluated by others. With a need to be reliable to such raters, uncertainty brought on by a need to trust others to perform tasks makes it difficult for the conscientious individual to trust. Hence,

*Hypothesis 1c: Conscientious will be negatively correlated with propensity to trust.*

*Technology anxiety*

Anxiety associated with using and learning to use technology has been explored in extant literature (Lewis, Daley & Shea, 2005; Marcoulides, 1988, 1991). Beckers, Schmidt and Wicherts (2007) found that when using pencil/paper and computer collection methods, computer anxiety was more strongly related to trait anxiety than to state anxiety. However, they also found that in the computer collection, computer anxiety and state anxiety were related "suggesting that state anxiety in situations involving a computer is caused by pre-existing computer anxiety" (Beckers et al., 2007). Individuals working in VRTs often find themselves using new technology for

the first time and existing technology in new ways. Individuals with a general fear of using technology find it difficult to perform well in VRTs where using technology is the primary communication instrument through which tasks are accomplished with other team members. In a study of personality and Information Technology (IT), Perrewe and Thatcher (2002) found that computer anxiety was negatively related to computer self-efficacy. This suggests that confidence in using computers is a function of an individual's apprehension and ultimately avoidance of computer usage. Since much of the communication in VRTs is conducted over computers connected to networks, investigating the antecedents to computer and technology anxiety will provide better insight into the causes of this phenomenon.

The highly neurotic individual worries about future events and responsibilities. These individuals are also concerned about the details of how to accomplish tasks and the obstacles that are ahead. The thought of using new technology or familiar technology in new ways makes the neurotic individual avoid such situations where there is uncertainty in future outcomes. This individual is more likely to experience anxiety with the concept of communicating through unfamiliar media, and absent intensive training, will immediately reject the use of virtual reality teams as a means to accomplish work-related tasks. Hence,

*Hypothesis 2a: Neuroticism will be positively correlated with technology communication anxiety.*

The nature of the open individual is to be curious and try new things. These individuals are naturally curious about communicating in VRTs and would not be apprehensive of trying new ways of working with others. As an individual with a high need for openness is always looking for new ways to accomplish tasks, communicating over technology with others would be a welcomed experience. This results in lower levels of anxiety when prompted to communicate with unfamiliar devices. Hence,

*Hypothesis 2b: Openness will be negatively correlated with technology communication anxiety.*

*VRT constructs*

In a study by Davis (1989), the author describes a construct that measures the degree "to which an application contributes to the enhancement of the user's performance." This definition which describes the perceived usefulness of an application is a part of the Technology Acceptance Model (TAM) (Davis, Bagozzi & Warshaw, 1989). Another construct in the TAM, behavior intention, describes the strength of an individual's intention to use the application under study and derives from the more general Theory of Reasoned Action (Ajzen & Fishbein, 1975, 1980). One advantage of these constructs is the ability to capture perceptions about a specific technology rather than capture perceptions of the ease of use and intention to use technology in general. Therefore, it is possible to capture these constructs as they relate specifically to a technology under investigation.

The Technology Acceptance Model (TAM) (Davis, 1989; Davis & Venkatesh, 2000)

posits that perceived usefulness of technology is an important construct in understanding why individuals adopt technologies. Given that trust in VRTs is integral to successful performance, trust will be perceived as a necessary component to the usefulness of VRTs as a means to accomplish tasks. Therefore, the following hypothesis is offered:

*Hypothesis 3: Propensity to trust will be positively correlated with perceived VRT usefulness.*

It is reasonable to assume that anxiety about any component of an unfamiliar technology would result in a decreased intention to use the technology. Individuals who perceive anxiety when they use technology will be less likely to use VRTs when they are informed that communicating with technology is a major component. In addition, technology changes at a rapid pace making competency in today's technology obsolete in the foreseeable future. For this reason, technology use creates uncertainty as to the perishable skills associated with learning to use technology effectively which elevates an individual's anxiety when evaluating the need to communicate exclusively with technology in a VRT. This, in turn, reduces the likelihood that an individual will choose to work in a virtual team in the future. Hence,

*Hypothesis 4: Technology communication anxiety will be negatively correlated with intention to use VRTs.*

The TAM posits that perceived usefulness of technology predicts an individual's intention to use that technology. In conjunction with this relationship, individuals who perceive VRTs as useful will be more likely to work in a VRT. Hence, in line with previous research,

*Hypothesis 5: Perceived VRT usefulness will be positively correlated with intention to use VRTs.*

## Methods

*Sample*

Subjects were 276 undergraduate junior and senior management students from a midsized, comprehensive university in the United States who volunteered to be a part of the study during the spring 2007 semester. Surveys were administered in 9 courses encompassing 13 sections. Of the 276 subjects who volunteered, 252 returned completed surveys, a 91.3% response rate. 131 (52%) of the subjects were female and 121 were male.

*Measures*

The Big Five Inventory (John & Srivastava, 1999) consisting of forty-four items was used to measure extraversion (8 items), agreeableness (9 items), conscientiousness (9 items), neuroticism (8 items), and openness (10 items). Propensity to trust was

measured with seven items which were modified to reflect subjects' perception of general trust in others (Jarvenpaa et al., 1998; Mayer et al., 1996). Technology communication anxiety was measured with two items adapted from Marcoulides' (1989) Computer Anxiety Scale. These items reflected a subject's anxiety in communicating with others over existing and new technology. Perceived usefulness (4 items) and propensity to work in VRTs (2 items) were measured with six items from the Technology Acceptance Model (Davis, 1989; Davis & Venkatesh, 2000). All items were gathered using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with 2 through 4 representing intermediate responses.

*Procedure*

The study took place during the beginning of normal class time so subjects were not asked to participate in an unfamiliar location or at an inconvenient time. Subjects completed a preliminary survey consisting of the extraversion, agreeableness, conscientiousness, neuroticism, openness, propensity to trust, and technology communication anxiety constructs. These constructs were specifically collected before the VRT introduction so responses to these items were not influenced by the subsequent VRT training.

Subjects then watched a video about communicating in VRTs. This video consisted of an 18-minute production titled Building the Virtual Team: Communication Across Cultural Boundaries (Customer Service University, 2006). The purpose of using this video was to introduce the topic of VRTs to the subjects without providing any significant amount of skill development in any specific facet of VRTs. The video focused specifically on crossing boundaries in virtual teams by following a virtual team manager as she struggles with differing team members' perceptions of time, social norms, cultural issues, and organizational expectations. Actors played out their roles and occasionally spoke directly to the audience explaining their individual point of view emphasizing the crossing of boundaries. In no way are the current authors affiliated with the publisher of the video and the current authors received no compensation for using the video in this study. After the video, subjects completed a survey consisting of the perceived usefulness and intention to use VRT constructs.

*Data Analysis*

Data were analyzed using multiple regressions to obtain standardized regression weights, squared multiple correlations, and significant levels for test statistics. Since multiple items were collected for each variable under study, scale scores were created by taking a mean of the items to estimate constructs. Regression analysis was chosen to test the relationships among the constructs because it meets two main criteria for the present study. First, it allows the simultaneous evaluation of multiple, antecedent constructs on an endogenous construct without regard to the order in which the antecedent constructs are entered. Second, multiple regression allows for a measure of either the positive or negative strength of a relationship between two constructs allowing the researcher to determine if a hypothesized relationship is statistically justified.

## Results

Preliminary analyses of data included calculation of construct means, standard deviations, and correlations. Construct reliabilities (coefficient alphas) ranged from 0.70 for the propensity to trust construct to 0.85 for the extraversion construct. A summary of these statistics is shown in Table 2.

**Table 2:** *Means, Standard Deviations, Construct Correlations, and Scale Reliabilities†*

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Extraversion | 3.36 | 0.70 | 0.85 | | | | | | | | |
| 2. Agreeableness | 3.73 | 0.52 | 0.17** | 0.75 | | | | | | | |
| 3. Conscientiousness | 3.58 | 0.51 | 0.14* | 0.32** | 0.73 | | | | | | |
| 4. Neuroticism | 2.82 | 0.65 | -0.44** | -0.27** | -0.20** | 0.80 | | | | | |
| 5. Openness | 3.40 | 0.57 | 0.35** | 0.17** | 0.12 | -0.26** | 0.78 | | | | |
| 6. Propensity to Trust | 2.99 | 0.56 | 0.15* | 0.29** | -0.04 | -0.18** | 0.14* | 0.70 | | | |
| 7. Tech. Comm. Anxiety | 2.19 | 0.82 | -0.11 | -0.13* | -0.12 | 0.22** | -0.21** | -0.07 | 0.75 | | |
| 8. VRT Perc. Usefulness | 3.10 | 0.76 | 0.10 | 0.09 | 0.03 | -0.06 | 0.12 | 0.17** | 0.02 | 0.83 | |
| 9. Intention to Use VRT | 2.99 | 0.88 | 0.04 | -0.01 | 0.10 | 0.03 | 0.14* | 0.08 | -0.08 | 0.65** | 0.76 |

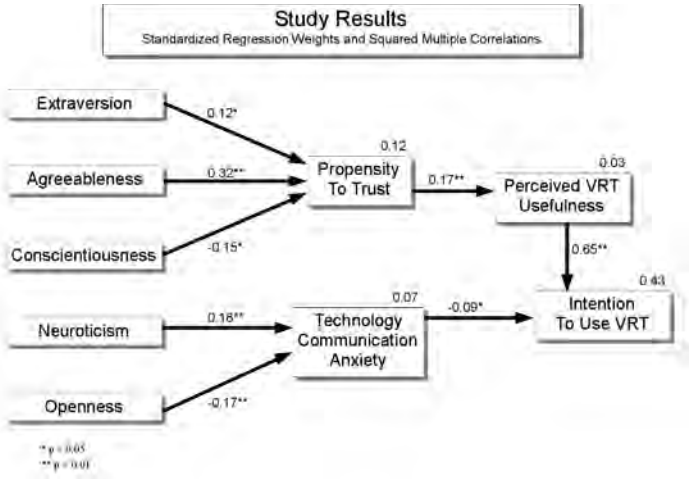
† Cronbach reliabilities shown along the diagonal

* $p < 0.05$

** $p < 0.01$

Evidence was found in support of Hypotheses 1a (standardized regression weight = 0.12, $p < 0.05$), Hypothesis 1b (standardized regression weight = 0.32, $p < 0.01$), and Hypothesis 1c (standardized regression weight = -0.15, $p < 0.05$). Evidence was also found to support Hypothesis 2a (standardized regression weight = 0.18, $p < 0.01$) and Hypothesis 2b (standardized regression weight = -0.17, $p < 0.01$). Propensity to trust was positively correlated with perceived VRT usefulness in support of Hypothesis 3 (standardized regression weight = 0.17, $p < 0.01$) and technology communication anxiety was found to negatively correlate with intention to use VRTs in support of Hypothesis 4 (standardized regression weight = -0.09, $p < 0.05$). Commensurate with previous research, perceived VRT usefulness was found to positively correlate with intention to use VRTs in support of Hypothesis 5 (standardized regression weight = 0.65, $p < 0.01$). Squared multiple correlations were 0.12 for propensity to trust, 0.07 for technology communication anxiety, 0.03 for perceived VRT usefulness, and 0.43 for intention to use VRTs. A summary of these findings is shown in Figure 2.

**Figure 2:** *Standardized Regression Weights and Multiple Correlations*




## Discussion

The results found in this paper suggest that personality traits predict two important factors in people's perceptions of the usefulness and intention to use virtual reality teams. VRTs amplify the saliency of subjects' trust in other group members because dispersed members are unable to monitor or control the behaviors of other members, a major component when assessing trust in others. People who have a propensity to distrust others find it difficult to operate within an environment where they must rely on others and when rewards are distributed in accordance with team, not individual, performance. Individuals who are generally anxious about using technology to communicate with others are unlikely to choose to work in VRTs where technology is a predominant component in accomplishing tasks with others. As such, additional and potentially costly training is necessary to ensure comfort levels with technology are achieved with these individuals.

Findings from previous research that suggest positive relationships between extraversion and agreeableness with propensity to trust were confirmed by this research and underscore the impact of these traits on an important antecedent to the quality of relationships between team members. In addition, these results suggest that individual contributors possessing attributes associated with conscientiousness may not adapt as well to VRT environment and that organizational interventions designed to develop and grow trust among new VRT members would be beneficial. Jarvenpaa et al. (1998) argue that trust in VRTs can be increased by emphasizing and reinforcing results orientation, rotating team leadership, and ensuring that task and goal/subgoal objectives are clear. At the same time, trust may be enhanced and anxiety levels may be lowered by enhancing self-esteem and self-confidence via on-demand availability of help when requested and in-depth positive feedback that includes reference to specific elements of team member performance. Jarvenpaa et al. (1998) argue that certain team process design features consistently associated with high-trust teams are the

development and ingraining of team processes to address the issue of free-riders, monitoring communication among team members to ensure that messages are complimentary and encouraging, and the development of an interdependent team culture so that individual members do not feel that they are on their own.

The concept of distrust based on an inability to monitor others' behaviors has important considerations for both intra and interorganizational communication. Levels of interorganizational trust can often be enhanced by incorporating contractual relationships that outline responsibilities, duties, and timelines for completion. Intraorganizational trust rarely benefits from formal agreements. Instead, trust among coworkers must develop from informal relationships. In VRTs, trust is more difficult to develop because of the reduced or nonexistent ability of coworkers to monitor each other for deviations from expected behaviors. Trust in these environments derives more from experiencing consistent behavior and from categorical knowledge about others such as expertise, certifications, or education rather than from informal exchanges which serve to build rapport. Communication in VRTs which tends to be more action oriented rather than socially constructed limits the informal exchanges from which trust develops. Therefore, results of this study suggest that candidates who trust openly can make the transition to a VRT environment more easily.

Also predictive of good VRT candidates is the concept of technology communication anxiety. Some individuals appear to be naturally resistant or apprehensive to new ways of doing things which was captured in this study with the openness construct. In predicting technology communication anxiety from subjects' openness, results from the present study suggest that a significant portion of apprehension toward communicating over technology derives from openness; a core personality trait indicating originality, curiosity, and inventiveness (McCrae, 1994; Piedmont, 1998). Essentially, individuals who possess a willingness to try new things tend to perceive VRTs as a new way to work and accomplish organizational tasks and are energized by the prospect of working within the novel context represented by the VRT environment.

The importance of this study is illuminated by the perceived VRT usefulness and intention use VRTs. In the present study, propensity to trust predicted the subjects' perception of the usefulness of VRTs. From this, it can be surmised that individuals who are generally distrustful of others do not view VRTs as being useful because not enough can be accomplished in an environment where monitoring others is reduced or eliminated completely. This finding suggests that the perceived utility of VRTs is at least partially constructed socially; beliefs of VRT usefulness can be predicted from the individual's perception of interactivity with team members in a hypothetical VRT. The importance of this indicates that people's projection of future trusting intentions affects their perceptions of the usefulness of using VRTs. In contrast, the finding that individual technology communication anxiety predicts intention to use VRTs if given the opportunity suggests that perceptions of VRTs are also formed by situation-specific traits. Consequently, choosing candidates for VRTs involves an examination of both core personality traits as well as situation-specific traits which are formed socially among others.

The importance of choosing the right people to work in VRTs is magnified when

the costs of failed VRT endeavors are factored into the equation. Organizations interested in implementing VRTs need to identify employees most likely to succeed in these environments. Rather than take a trial and error approach to choosing VRT candidates, these findings can help organizations begin to select employees based on traits to fit candidates to the VRT environment. This approach is particularly prudent for organizations just starting to implement VRTs into the organizational structure or when new communication processes dominated by technology are introduced.

The novelty of being in VRTs as a means to accomplish a goal may itself be a source of trust that can be leveraged. Bunker and Lewicki (1996) argue that a component of trust is identification-based trust and an element of VRT membership may be perceived by those individuals in the VRTs as an element of focal member's self-identity that each has in common. It may be inferred from the framework of trust articulated by Voci (2006) that those in VRTs develop a sense of self-identity that includes membership in the VRT which leads to enhanced levels of trust towards fellow colleagues who are also in the VRT.

While the scope of this study focuses on the relationship of individual level phenomenon, scholars have also recognized the effects of task and context on individual's behavior and attitudes. The characteristics of the task and the work context are also factors that bear on individual success in VRTs and the performance of them as a whole. Findings from Workman, Kahnweiler and Bommer (2003) offer helpful insights with respect to the task issues that managers must consider when implementing VRTs. They argue that VRTs can result in worker isolation and a reduced perception of task structure. To overcome these challenges, the optimization of media richness associated with VRT member interaction should be enhanced by initially assigning relatively structured tasks to VRTs and incorporating rich communications media such as video teleconferencing so as to facilitate team interaction and task completion. Furthermore, to accommodate individual differences in assimilating the amount of incoming sensory information, individual VRT members should be given choices in selecting media during communications so that the nature and form of inputs can be readily modified to be compatible with the member's preferences. An example would be to offer VRT members the capability of selecting or deselecting media inputs/outputs such as whether or not video signal is sent and/or received in a given interaction between individuals on a given VRT.

At the organizational level, Armenakis, Schraeder and Self (2007) offer insights that pertain to readiness issues when considering VRTs. Often when implementing change in an organization, managers underestimate the need to communicate the justification association with the change and the level of organizational support directed to employees impacted by changes such as implementation of VRTs. Furthermore, they underestimate the cost and time involved to affect levels of desired change because they fail to take into account the complexities associated with the role of the human element in the change process. Use of VRTs can enable change in organizations, but this technology is associated with VRT members having a limited ability to monitor other team members for deviations from expected behaviors. Often in VRTs, only the product is observable by team members resulting in the process being lost within leaner communication media, asynchronous communication, and a

lack of informal exchanges.

In some cases, use of VRTs is inherently ill-suited to situations where direct observations of behavior are desired. To this end, Gaspar (2001, p. 45) argues "If you manage by watching people work, then virtual teaming isn't a good choice." Given Cialini (1996) perspectives that observation/monitoring of individual's behaviors communicates the message that employees are not trustworthy, use of VRTs may represent an opportunity for unexpected positive outcomes for organizations that implement VRTs. Introducing VRTs within organizational structures represents a tactical measure to be mindfully incorporated into processes aimed at achieving organizational objectives by consideration of the mission/objective of VRTs with respect to situational factors such as organizational norms, task structure, organizational structure, and employee abilities, characteristics, and motives.

## Limitations

This paper explores the variables associated with appraisals of VRTs before working in this environment. It does not address factors associated with actually working in a VRT. However, identifying individuals who perceive VRTs as favorable can provide managers with a starting point from which to choose appropriate candidates for training. In addition, the sample used in this study consisted of undergraduate, management students with minimal prior experience in professional positions. In contrast, a work environment using VRTs would likely be more diverse in terms of participant age, experience using VRTs, and other relevant work and social experiences that may impact the relationships among constructs articulated in this research. The ability to generalize to all employees in organizations is reduced indicating that future research opportunities exist for extending this model to work environments.

## Conclusion

This study examined the effects personality traits have on antecedents of perceived usefulness and intention to use VRTs. Personality traits were found to significantly predict propensity to trust and technology communication anxiety, two indicators of potential success in VRTs. Choosing the right people for VRTs and VRT training can have real effects on costs associated with the training as well as the potential costs of failed attempts to implement virtual teams in an organization. A logical extension of the current study would be to examine the present model in work environments and extend those findings to actual work outcomes.

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