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The Missing Links between Task Communication and Training Evaluation: A Dual Process Model of Training Effectiveness

by

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Dedicated to my teachers, class fellows, and ex-colleagues who supported and encouraged me to reach my potentials.

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CERTIFICATE OF APPROVAL

This is to certify that the research work presented in the dissertation, entitled "**The Missing Links between Task Communication and Training Evaluation: A Dual Process Model of Training Effectiveness**" was conducted under the supervision of **Dr. S. M. M. Raza Naqvi**. No part of this dissertation has been submitted anywhere else for any other degree. This dissertation is submitted to the **Department of Management Sciences, Capital University of Science and Technology** in partial fulfillment of the requirements for the degree of Doctor in Philosophy in the field of **Management Sciences.** The open defence of the dissertation was conducted on **July 20, 2023**.

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List of Publications

It is certified that following publication(s) have been made out of the research work that has been carried out for this dissertation:-

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Abstract

This study has extended training literature by answering questions of how, why, and when a trainer's task communication influences communication satisfaction and information-seeking of trainees. It engaged uncertainty reduction theory to develop eleven hypotheses. These hypotheses culminated into a moderated dual mediation conceptual model that was tested with a time lagged design in services sector of Islamabad and Rawalpindi. Data were collected on six variables from four hundred and seven trainees. Before testing the conceptual model, overall validity of measurement model and psychometric properties of instruments were established with the help of confirmatory factor analysis. After obtaining evidence of satisfactory measurement properties, the structural equation modeling was used to simultaneously test all hypotheses. The results of hypothesis testing showed that task communication was positively related to communication satisfaction and negatively related to information-seeking, task uncertainty, and behavioral uncertainty. Task uncertainty was not related to communication satisfaction and information-seeking. Behavioral uncertainty was negatively related to communication satisfaction and positively related to information-seeking. Task uncertainty did not mediate the relationships of task communication with communication satisfaction and information-seeking. Behavioral uncertainty mediated the relationships of task communication with communication satisfaction and information-seeking. Trainee's uncertainty avoidance strengthened the negative relationships of task communication with task uncertainty and behavioral uncertainty. It also strengthened the indirect relationships of task communication with communication satisfaction and information-seeking via behavioral uncertainty. However, it did not moderate the indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty. Based on the findings of this study, trainers are recommended to work harder for effectively communicating their training content, identify and focus more on trainees with lower uncertainty-avoidance orientation as they are the ones who are least responsive to trainer's communication, and use their communication skills to reduce behavioral uncertainity of trainees that will eventually lead to trainees' experience of higher

communication satisfaction and their engagement in greater information-seeking both of which are the new hallmarks of training effectiveness.

Key words: Trainer, Trainee, Task Communication, Task Uncertainty, Behavioral Uncertainty, Communication Satisfaction, Information-seeking, Uncertainty Avoidance, Uncertainty Reduction Theory, Moderated Mediation, MPlus.

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Abbreviations

AVE	Average Variance Extracted
BU	Behavioral Uncertainty
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CR	Composite Reliability
CS	Communication Satisfaction
DF	Degree of Freedom
IMM	Index of Moderated Mediation
IS	Information-seeking
MLR	Maximum Likelihood Robust
NA	Not Applicable
PMPSI	Pakistan Ministry of Planning and Special Initiatives
RMSEA	Root Mean Squared Error of Approximation
SEM	Structural Equation Modeling
SRMR	Standardized Root Mean Squared Residual
TC	Task Communication
TLI	Tucker-Lewis Index
TU	Task Uncertainty
UA	Uncertainty Avoidance
URT	Uncertainty Reduction Theory
VIF	Variance Inflation Factor
ZPRED	Standardized Predicted Values
ZRESID	Standardized Residuals

Chapter 1

Introduction

This chapter is a preamble and explains the impact of this study on the field of training, the current state of knowledge, the underexplored areas, the importance of studying these areas, and the contribution to ongoing debates by justifying the importance of the topic, defining the problem, and realistically stating the potential contributions.

1.1 Background of Study

The thought of training takes us to an act of instruction in which a trainer is standing in a room full of attentive trainees (Kraiger & Cavanagh, 2015). These trainees come with general expectations of learning knowledge, behaviors, and feelings required to perform their jobs successfully (Grossman & Salas, 2011). Whether they have acquired the desired knowledge, behaviors, and feelings or not is an important piece of information for evaluating the effectiveness of trainer and the training program. Collecting this information is the subject of training evaluation research. Training evaluation refers to the "process of collecting and using evidence to make decisions about training" (Brown & Sitzmann, 2011, p. 486). This evidence includes the criteria of trainee reactions, learning, transfer, and results (Kirkpatrick, 2008). Among these four criteria, "trainee reactions" has remained the most frequently evaluated criterion. It refers to the trainee's subjective evaluations of their experiences during training (Kirkpatrick, 1976). These subjective

evaluations have several categories, one of which is affective outcomes that consist of motivation, efficacy, and satisfaction (Sitzmann & Weinhardt, 2019).

The affective outcome of satisfaction has appeared in training evaluation literature in several forms including training satisfaction, satisfaction with trainer, satisfaction with training material, and satisfaction with communication of trainer or communication satisfaction (Medina, 2017; Martocchio & Webster, 1992; Sitzmann & Johnson, 2014). Among these, communication satisfaction was the latest and the least explored training evaluation outcome which could provide ample research opportunities. Therefore, it was decided to consider communication satisfaction as the first dependent variable of this study. This selection led to a systematic search for theories that could explicitly elaborate the processes leading to the development of communication satisfaction.

The quest for theories dealing with communication satisfaction led to the identification of uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) whose propositions explained how, when, and why communication satisfaction develops in an individual. The study decided to utilize this theory as its underpinning theoretical framework. The selection of communication satisfaction and uncertainty reduction theory offered an opportunity to address the paucity of knowledge about relationships of communication satisfaction with its predicting factors, boundary conditions, and explanatory processes in the training context. The uncertainty reduction theory opened avenues for another promising yet underexplored area in training evaluation research: trainee's information-seeking. The construct of information-seeking already existed in uncertainty reduction theory as an outcome of the uncertainty reduction process. It drew attention when it became apparent that outcomes reflecting trainee's participation in the training process were rarely examined as training evaluation criteria despite calls from several training scholars (Nickols, 2005). Thus, it was decided to retain information-seeking as the second dependent variable of this study. There were other constructs of uncertainty reduction theory that could bring more dependent variables in this study but the concern for parsimony restricted the number of dependent variables to two. Thus, communication satisfaction and information-seeking were introduced as the two focal

outcomes of this study.

The first outcome of this study was communication satisfaction which refers to "an affective response to the accomplishment of communication goals and expectations" (Goodboy, Martin, & Bolkan, 2009, p. 373),. This outcome has its known positive associations with several desirable outcomes including cognitive learning, competitiveness, motivation, learner's satisfaction with online courses, relational maintenance, organizational citizenship behaviors, supervisor satisfaction, affective organizational commitment, job satisfaction, life satisfaction, job performance, reward power, referent power, expert power (Cranmer, Gagnon, & Mazer, 2020; Cole, 2016; Forsythe & Ledbetter, 2015; Fournier, 2008; Kandlousi, Ali, & Abdollahi, 2010; Chan, K, & Wu, 2009; Carriere & Bourque, 2009; Ćorić, Vokić, & Verčič, 2020; Alsayed, Motaghi, & Osman, 2012; Goodboy, Bolkan, Myers, & Zhao, 2011). It is also negatively associated with several undesirable outcomes including the learner's perception of the instructor's indolence, incompetence, and offensiveness (Hazel, Crandall, & Caputo, 2014). These outcomes highlight that seeking trainees' communication satisfaction is a worth-aiming goal for trainers and training firms.

The second outcome of this study was information-seeking which refers to a communication process in which an individual proactively gathers information from surroundings typically to reduce uncertainty (Tidwell & Sias, 2005). It is an indicator of the trainee's contribution to the training process. This outcome is known for its positive associations with several desirable consequences including team performance, team innovation, team reflexivity, life satisfaction, positive framing, feedback-seeking, relationship building with supervisor, sense of belonging, and information sharing (Wang, L, Jiang, Zhang, & Lin, 2020; Hofer, Hargittai, Büchi, & Seifert, 2019; Song, Liu, Shi, & Wang, 2017; Park, Gu, Leung, & Konana, 2014). It is also negatively associated with undesirable consequences including information anxiety and information avoidance (Soroya, Farooq, Mahmood, Isoaho, & Zara, 2021). These consequences underscore that encouraging trainees to seek information during training is a worth-trying target for trainers and training firms.

After briefly introducing the two outcomes of this study, it was important to highlight that studies treating communication satisfaction as a training evaluation

criterion have been rare, for an exception see. Similar was the case for information-seeking which was yet to be treated as a training evaluation criterion in training studies. These two notable omissions needed attention of training scholars. Besides these oversights, knowledge of the mechanisms connecting trainee's communication satisfaction and information-seeking to its predictors and the conditions influencing these relationships was deficient. These knowledge deficiencies required a systematic effort to unpack their hidden aspects. This effort led this study state the knowledge gaps clearly.

1.2 Research Gaps Analysis

Abdous and Yoshimura (2010) suggested that a detailed study of dynamics of interaction patterns in face to face instruction and other modes of delivery may yield insights that will help design more effective courses and enhance learning experiences. An explication of deficiencies in knowledge about predictors, moderators, and mediators of communication satisfaction and information-seeking revealed several unknown facets of the problems or gaps that this study had to encounter.

The first theoretical gap was related to identifying dependent variables of this study. In this regard, (Redmond, 2015) had observed that theorems stating relationships of several constructs of uncertainty reduction theory with communication satisfaction were missing. This omission included a theorem specifying the relationship between verbal communication and communication satisfaction. This study aimed to address this gap by proposing a new theorem that associates the trainer's task communication (a specific form of verbal communication) with the trainee's communication satisfaction. Thus, the first outcome of this study was the trainee's communication satisfaction. Studying this outcome was in line with the suggestion to expand training evaluation indicators beyond training satisfaction and training utility (Glerum, Joseph, McKenny, & Fritzsche, 2021). Taking communication satisfaction was also consistent with the suggestion that extending uncertainty reduction theory by including communication satisfaction shall identify links between its several constructs and communication satisfaction

(Redmond, 2015). The second outcome was based on calls from several training scholars (Nickols, 2005) that outcomes reflecting trainee's participation in the training process (such as trainee's information-seeking) were rarely examined as training evaluation criteria. Specifically, (Nickols, 2005) observed that obtaining trainee reactions allows trainees to evaluate training but not their contribution to training. He also lamented that responsible behaviors of trainees, despite being essential for training success, were rarely considered in training evaluations. Scholars invigorated these concerns by highlighting their expectation from training scholars to study trainee's information-seeking as a training evaluation criterion. Information-seeking reflects trainees' responsible behavior and also an indicator of evaluation of their contribution to training. To address the gap highlighted by the scholars, this study proffered trainee's information-seeking as the second outcome of this study.

The second theoretical gap was related to identifying the primary predictor of communication satisfaction and information-seeking. This search was facilitated by Glerum et al. (2021) who observed that training theory tended to underrate the role of the trainer in determining training effectiveness compared to other factors. It was also noted that existing studies on trainer behaviors had focused more on the behaviors that reflect the quality of the trainer's treatment of trainees, for instance, expressiveness, (Rangel et al., 2015; Towler, 2009) than on the behaviors that depict the quality of trainer's delivery of training content, for instance, trainer's task communication. Further, there was dissatisfaction about the knowledge of trainer's characteristics that profoundly influence trainee satisfaction (Glerum et al., 2021). Then, there was a paucity of knowledge about the trainee's responsible behaviors as training evaluation criteria. These statements depict existence of a gap in training literature about the lack of knowledge on the relationships of trainer's quality of content delivery with training evaluation criteria of trainees' satisfaction and their responsible behaviors. To fill this gap, this study identified the trainer's task communication that was simultaneously an attribute of the trainer, a depiction of quality of the content delivery, a facet of the verbal communication construct, and a possible predictor of the communication satisfaction and information-seeking in line with the predictions of uncertainty reduction theory

(Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015).

The third theoretical gap was related to identifying mediating mechanisms that could connect the trainer's task communication with the trainee's communication satisfaction and information-seeking. In this respect, the empirical study of Baig, Bashir, and Ishaq (2021) suggested exploring mediators that could explain uncertain social interactions between trainer and trainees. These mediating processes had to be some forms of uncertainty, in line with the uncertainty reduction theory, the reduction of which could be the result of some form of verbal communication and could also result into some form of communication satisfaction and information-seeking. In this regard, one form of uncertainty is task uncertainty which has been suggested to mediate between task communication and communication satisfaction.

The predictions of uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) suggest that task uncertainty can act as a mediator between task communication and information-seeking. An exhaustive review of literature for this study revealed that task uncertainty had not been studied as a mediator in the relationships of task communication with communication satisfaction and information-seeking. Thus, a gap exists in the literature that needs to be tackled. Another form of uncertainty suggested by uncertainty reduction theory is behavioral uncertainty (West & Turner, 2019). Behavioral uncertainty has remained an underexplored form of uncertainty (Niemann, Wisse, Rus, Van Yperen, & Sassenberg, 2015). Niemann et al. (2015) have suggested future researchers to study behavioral uncertainty in relation to its predictors. One such predictor is task communication, a type of verbal communication and thus possesses the potential to influence behavioral uncertainty according to the predictions of uncertainty reduction theory. Neuliep and Grohskopf (2000) have suggested further investigations of the relationship between uncertainty and communication satisfaction across a variety of various relationships between communication partners. One such relationship is that of trainer and trainee. Scholars have suggested future researchers to consider information-seeking as an outcome of behavioral uncertainty. Although behavioral uncertainty

has been studied as a mediator of the relationship between task communication and communication satisfaction, however its role as a mediator between task communication and information-seeking is still unclear. Predictions of uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) suggest that behavioral uncertainty can act as a mediator of the relationships of task communication with communication satisfaction and information-seeking. An extensive review of literature for this study revealed that task uncertainty and behavioral uncertainty had not been studied simultaneously as parallel mediators in the relationships of task communication with communication satisfaction and information-seeking despite the call to identify alternative mediators explaining social interactions between trainer and trainees under uncertainty Baig et al. (2021). Further, it was important to distinguish task uncertainty from behavioral uncertainty because a lack of distinction could distort the effects of overall uncertainty on its outcomes (Niemann et al., 2015). To address these concerns, this study proposed task uncertainty and behavioral uncertainty as two parallel mediating mechanisms in the relationships of task communication with communication satisfaction and information-seeking in line with the predictions of uncertainty reduction theory.

The fourth theoretical gap was related to identifying moderating conditions that influence the direct relationships of task communication with task uncertainty and behavioral uncertainty besides influencing the indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty. Redmond (2015) had noted that propositions of uncertainty reduction theory, the theoretical framework of this study, shall apply to some individuals but not others. Thus, moderation of individual differences was imminent in the predictions of this theory. Baig et al. (2021) had highlighted the need to identify cultural orientations as moderators of social interactions between trainer and trainees. More specifically, suggested studying the influence of interaction between uncertainty avoidance and trainer communication on trainee outcomes. Based on arguments in previous paragraphs, these trainee outcomes include trainee's task uncertainty, behavioral uncertainty, communication satisfaction, and information-seeking. An exhaustive review of the literature

showed that uncertainty avoidance orientation had not been studied as a moderator of the direct relationships of trainer's task communication with trainee task uncertainty and behavioral uncertainty as well as the indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty despite the suggestion to explore moderators and mediators explaining uncertain social interactions between trainer and trainees (Baig et al., 2021). The training scholars have also suggested that future researchers may study specific cultural dimensions that can influence training effectiveness (Xu & Jiang, 2010). Thus, there existed a knowledge gap in training literature regarding when trainee's cultural orientations influence the relationships between trainer communication and trainee outcomes. To address this gap, this study hypothesized uncertainty avoidance as a moderator of the direct relationships of task communication with task uncertainty and behavioral uncertainty as well as the moderator of the indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.

Filling these theoretical gaps needed this study to translate these into problem statement, research questions, and research objectives that could be theoretically and empirically solved, answered, and reached..

1.3 Problem Statement

The problem statement of this study has three aspects. First, training studies have rarely been undertaken from a communications perspective. This void has resulted in a lack of cross-disciplinary research in the domains of training and communication. This paucity of cross-fertilization of ideas in the literature of training and communication has resulted in the current state of ignorance where it is unclear how these two fields can inform each other. As a result, training scholars are unsure about how to apply knowledge of communication to solve training problems of theoretical and applied nature. Similarly, training practitioners are not confident about the success of adopting communication concepts in their trainings. These conditions have culminated in a situation in which scholars are unable to

offer novel, effective, and efficient solutions to training problems, and practitioners are unable to improve their trainings. This is a serious problem that demands attention of training scholars to borrow communication theories and design studies based on these theories. Second, majority of training scholars have confined their studies to limited training evaluation criteria, such as, training satisfaction and training utility. This trend is preventing growth of training evaluation literature beyond a narrow set of training evaluation criteria. New training problems need exploration of more relevant training evaluation indicators. Literature has suggested some of these new indicators, such as, communication satisfaction and information-seeking of trainees. But, contemporary training studies have shown resistance from using these novel training evaluation criteria resulting into practitioners remaining dependent upon older evaluation criteria that are becoming more and more irrelevant in an environment of surging new training problems. Third, a large number of training studies are obtaining trainee reactions that allow trainees to evaluate training but not their own contribution to training. Several training scholars have noted that responsible behaviors of trainees are essential to training success. This lack of self-evaluation is preventing trainees from correcting their responsible behaviors that are contributing to training ineffectiveness. Thus, a major aspect of training evaluation, that is, self-evaluation has been ignored by both scholars and practitioners resulting into a hurdle in the way of developing exciting and effective novel solutions to training problems. These three problems have been explicitly addressed in this study by hypothesizing and testing a process model of training effectiveness based an established theory of communication research and using novel training evaluation criteria of communication satisfaction and information-seeking."

1.4 Research Questions

This study has translated aforementioned theoretical gaps and problem statement into concrete research questions as under:

1. Does the trainer's task communication relate with the trainee's communication satisfaction?

2. Does the trainer's task communication relate with the trainee's information-seeking?
3. Does the trainer's task communication relate with the trainee's task uncertainty?
4. Does the trainer's task communication relate with the trainee's behavioral uncertainty?
5. Does the trainer task uncertainty relate with the trainee's communication satisfaction?
6. Does the trainee's task uncertainty relate with the trainee's information-seeking?
7. Does the trainee's behavioral uncertainty relate with the trainee's communication satisfaction?
8. Does the trainee's behavioral uncertainty relate with the trainee's information-seeking?
9. Does the trainer's task communication relate indirectly with the trainee's communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty?
10. Does the trainee's uncertainty avoidance orientation act as a moderator in the direct relationships of trainer's task communication with the trainee's task uncertainty and behavioral uncertainty?
11. Does the trainee's uncertainty avoidance orientation act as a moderator in the indirect relationships of the trainer's task communication with the trainee's communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty?

1.5 Research Objectives

This study has set the following research objectives to answer the aforementioned research questions:

1. To find out the relationship between trainer's task communication and trainee's communication satisfaction.

2. To find out the relationship between trainer's task communication and trainee's information-seeking.

3. To find out the relationship between trainer's task communication and trainee's task uncertainty.

4. To find out the relationship between trainer's task communication and trainee's behavioral uncertainty.

5. To find out the relationship between trainee's task uncertainty and trainee's communication satisfaction.

6. To find out the relationship between trainee's task uncertainty and trainee's information-seeking.

7. To find out the relationship between trainee's behavioral uncertainty and trainee's communication satisfaction.

8. To find out the relationship between trainee's behavioral uncertainty and trainee's information-seeking.

9. To find out an indirect relationship of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.

10. To find out that trainee's uncertainty avoidance orientation acts as a moderator in the direct relationships of task communication with task uncertainty and behavioral uncertainty.

11. To find out that trainee's uncertainty avoidance orientation acts as a moderator in the indirect relationships of task communication with communication satisfaction and information-seeking behavior via task uncertainty and behavioral uncertainty.

1.6 Significance of Study

1.6.1 Significance for Training Literature

This study has significance for training literature in several ways. First, introducing trainee's communication satisfaction as an outcome has expanded the existing set of variables in the reactions level of Kirkpatrick's training evaluation taxonomy (Kirkpatrick, 1976, 2008). This expansion is consistent with the scholarly suggestion to expand training evaluation criteria beyond satisfaction with training and the utility of training (Glerum et al., 2021). It was important to study trainee reaction criterion of communication satisfaction because training is assumed to be an effective learning experience when trainees provide favorable reactions towards the trainer (Sitzmann & Johnson, 2014). Further, the introduction of trainee's information-seeking as another outcome has introduced a new type of training evaluation criterion that allows the trainees to evaluate their own contribution to training. Studying this new type of criterion was suggested by several training scholars (Nickols, 2005). These two developments have formally introduced a communications perspective in training literature, thus allowing a more complete understanding of training evaluation criteria. Second, the introduction of trainer's task communication as a predictor has introduced a new training factor in training literature that is simultaneously related to the trainer, behavioral in nature, depicts the quality of content delivery, a form of verbal communication, and a possible antecedent of communication satisfaction and information-seeking. It was desirable to study such an antecedent because an inadequate trainer's performance could confuse trainees who were satisfied with all other aspects of training (Diamantidis & Chatzoglou, 2012). Studying such a training factor was consistent with the recommendation of Glerum et al. (2021) that training researchers should "model the trainer as a source of variance in training evaluation metrics" (p. 281). Third, introduction of trainee's task uncertainty and behavioral uncertainty as mediators has provided a novel explanation of why or why not training is effective. Previously, the role of uncertainty was not clear in training context. Studying these training effectiveness variables was consistent with the scholarly suggestion to explore mechanisms that could explain uncertain social interactions

between trainer and trainees (Baig et al., 2021). Fourth, introduction of trainee's uncertainty avoidance as a moderator has further justified the role of cultural factors in training literature by showing that these factors exacerbate or attenuate the effects of trainer-based-antecedent factors on trainee-based-outcomes. Inclusion of such cultural moderators was consistent with the scholarly suggestion to study specific cultural orientations that could influence training effectiveness (Xu & Jiang, 2010).

Identifying cultural orientations as moderators of social interactions between trainer and trainees was also needed (Baig et al., 2021). Redmond (2015) noted that propositions of uncertainty reduction theory shall apply to some individuals but not others. Thus, moderation of individual differences was imminent. Studying the influence of interaction between uncertainty avoidance and trainer communication on trainee outcomes was suggested by training scholars. Fifth, studying dual path models of training effectiveness was a rare practice in training literature, see and Sitzmann and Johnson (2014) for a few exceptions. This study has strengthened the newly entrenched tradition of developing complex models of training effectiveness in training literature. These five contributions collectively demonstrate the role played by this study in advancing training literature.

1.6.2 Significance for Training Practice

Beyond advancing training literature, this study has also contributed to training practice in eight ways. First, this study has provided training managers an opportunity to upgrade their training evaluation inventory by offering two psychometrically sound tools to evaluate trainees' satisfaction with the communication of trainer and information sought from trainer. Second, this study has informed training managers to make use of trainer's task communication as a way to enhance positive feedback (higher communication satisfaction) and to reduce negative feedback (lower communication satisfaction) of trainees. Third, this study has directed training managers to employ trainer's task communication as a technique to decrease or increase the number of questions (information-seeking) asked by trainees. Fourth, this study has guided training managers to use trainer's task

communication as a means to reduce or enhance task uncertainty and behavioral uncertainty of trainees. Fifth, this study has encouraged training managers to enhance communication skills of their otherwise technically competent trainers. Sixth, this study has alerted training managers to employ behavioral uncertainty and not the task uncertainty as a process for enhancing positive feedback (greater communication satisfaction) and reducing negative feedback (lower communication satisfaction) of trainees. Seventh, this study has cautioned training managers to use behavioral uncertainty instead of task uncertainty as a mechanism for enhancing or reducing questioning (information-seeking) of trainees. Eighth, this study has informed training managers to channel efforts of trainers on trainees who have lower uncertainty avoidance orientation as these trainees perceive lower reduction in their uncertainty in response to trainer's task communication than those who hold higher uncertainty avoidance orientation.

1.6.3 Significance for Uncertainty Reduction Theory

Other than contributing to training literature and practice, this study has contributed to uncertainty reduction theory in five ways. First, it has expanded the scope of verbal communication construct by introducing task communication as its specific instance. Second, it has expanded the scope of uncertainty construct by introducing task uncertainty as its specific instance. Third, it has extended uncertainty reduction theory by proposing a new axiom: verbal communication enhances communication satisfaction. The introduction of this new axiom is consistent with the speculation that new axioms shall be added in uncertainty reduction theory when it will be applied to new contexts (Redmond, 2015). Fourth, it has supported the theory's axiom of inverse relation between verbal communication and uncertainty in the training context. Fifth, it has provided evidence of external validity of the uncertainty reduction theory by testing it in training context. Earlier this theory was applied in the contexts of initial interactions, ongoing relationships, social networks, cross-cultural interactions, health communication, and organizational socialization (Berger, 2011). These five contributions are show that this study has propelled uncertainty reduction theory forward.

1.6.4 Significance for Pakistani Context

This study has importance for training in Pakistani context. The government has announced her vision for Pakistan for the year 2025 (PMPSI, 2021). This vision includes goals of elevating literacy rate to ninety percent, raising higher education rate to twelve percent, providing ninety percent population access to better sanitation facilities, alleviating infant death rate to four per one hundred births, reducing prevalence of major diseases to fifty percent, bringing minimum twenty five medals from Asian games, becoming part of fiftieth percentile of crime-free and corruption-free countries, enhancing agriculture efficiency by twenty percent, raising labor productivity three times, elevating Pakistan's knowledge economy index to four, and hosting two million tourists. The fulfillment of these goals requires training of a larger number of academics, engineers, medical practitioners, sports persons, technical persons, politicians, judges, law enforcement personnel, farmers, laborers, knowledge workers, and tourism professionals. No matter how much desirable, training is a costly activity that requires financial expenditures (Malvezzi, 2015).

The good news is that the cost of training reduces substantially with the rise in number of successful trainees (Goldstein, 1980). Success of trainees can be gauged with several training evaluation criteria. This study has shed light on how to obtain favorable results on the two training evaluation criteria, that is, communication satisfaction and information-seeking. It is expected that acting upon findings of this study shall raise the number of successful trainees. This rise in number of successful trainees shall lower the training costs. The lowered training costs shall make it feasible for training managers to impart trainings to a wider pool of professionals in line with the Pakistan Vision 2025. In this manner, this study plays an essential role in making Pakistan Vision 2025 a reality.

1.7 Supporting Theory

Atheoretical understanding of a phenomenon destines seekers of solutions of its associated practical problems to deploy relatively ineffective means (Berger, 2011).

To avoid this trap, this study engaged uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) as it's underpinning theoretical framework. This theory was relevant for the current study as it explicitly deals with the constructs of communication satisfaction and information-seeking, the main outcomes of this study. A central tenet of this theory is that people meeting for the first time are fundamentally motivated to reduce uncertainty about their own behavior and the behavior of their communication partner (Berger & Gudykunst, 1991). The uncertainty experienced by these people is the result of a proactive process of predicting future behaviors as well as a retroactive process of explaining prior behavior of each other (Berger & Calabrese, 1974).

Uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) has proposed nine axioms. First, verbal communication negatively predicts uncertainty that subsequently negatively predicts verbal communication. Second, nonverbal affiliative expressiveness negatively predicts uncertainty that subsequently negatively predicts nonverbal affiliative expressiveness. Third, similarity negatively predicts uncertainty. Fourth, shared communication networks negatively predict uncertainty. Fifth, uncertainty positively predicts information seeking. Sixth, uncertainty negatively predicts communication satisfaction. Seventh, uncertainty negatively predicts liking. Eight, uncertainty positively predicts reciprocity rate. Ninth, uncertainty negatively predicts intimacy level in communication content. Further, theorems have been derived from these propositions. For example, verbal communication is positively related with nonverbal affiliative expressiveness, intimacy level of communication content, liking and similarity. Verbal communication is negatively related with information seeking and reciprocity rate.

Uncertainty reduction theory by the (Berger & Calabrese, 1974; West & Turner, 2019; Neuliep & Grohskopf, 2000; Redmond, 2015) has also proposed twenty one theorems based on axioms. First, there is a positive association between verbal communication and nonverbal affiliative expressiveness. Second, there is a negative association between verbal communication and information seeking. Third, there is a positive association between verbal communication and intimacy level

of communication. Fourth, there is a negative association between verbal communication and reciprocity. Fifth, there is a positive association between verbal communication and similarity. Sixth, there is a positive association between verbal communication and liking. Seventh, there is a negative association between nonverbal affiliative expressiveness and information seeking. Eighth, there is a positive association between nonverbal affiliative expressiveness and intimacy level of communication. Ninth, there is a negative association between nonverbal affiliative expressiveness and reciprocity. Tenth, there is a positive association between nonverbal affiliative expressiveness and similarity. Eleventh, there is a negative association between nonverbal affiliative expressiveness and liking. Twelfth, there is a positive association between information seeking and intimacy level of communication. Thirteenth, there is a positive association between information seeking and reciprocity. Fourteenth, there is a negative association between information seeking and similarity. Fifteenth, there is a negative association between information seeking and liking. Sixteenth, there is a negative association between intimacy level of communication and reciprocity. Seventeenth, there is a positive association between intimacy level of communication and similarity. Eighteenth, there is a positive association between intimacy level of communication and liking. Nineteenth, there is a negative association between reciprocity and similarity. Twentieth, there is a negative association between reciprocity and liking. Twentieth first, there is a positive association between similarity and liking. Theorems among several constructs of this theory have not been developed yet, for instance, theorems involving communication satisfaction and shared communication networks.

Three axioms and one theorem of uncertainty reduction theory are relevant for this study. First, the verbal communication negatively predicts uncertainty (Berger & Calabrese, 1974; West & Turner, 2019). Second, uncertainty negatively predicts communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015). Third, uncertainty positively predicts information-seeking (Berger & Calabrese, 1974; Redmond, 2015; West & Turner, 2019). Fourth, verbal communication is negatively related with information-seeking (Berger & Calabrese, 1974; Redmond, 2015; West & Turner, 2019). Boundary conditions of this theory include individual differences in uncertainty, organizational communication, social exchange

processes, intercultural communication, computer mediated communication, established relationships, and initial interactions among strangers (Knobloch, 2016).

TABLE 1.1: Definition of Variables

Variables	**Definitions**
Communication Satisfaction	"An affective response to the accomplishment of communication goals and expectations" (Goodboy et al., 2009, p. 373).
Information Seeking	"proactive communication process of gathering information from one's environment, typically for the purposes of uncertainty reduction" (Tidwell & Sias, 2005, p. 52).
Task Uncertainty	"Extent to which information is needed to complete the task" (Cardinal, Turner, Fern, & Burton, 2011, p. 1007).
Behavioral Uncertainty	"Degree of uncertainty related to behaviors" (West & Turner, 2019, p. 137).
Task Communication	Elaborating tasks, clarifying ambiguities, seeking feedback, and answering queries (Vora & Markóczy, 2012).
Uncertainty Avoidance	The subjective feelings of individuals about threat of uncertain and unfamiliar situations that they partly share with other members of society (Hofstede, Hofstede, & Minkov, 2010).

Chapter 2

Literature Review

This chapter engages the relevant literatures of training and communication to develop specific hypotheses that address previously identified theoretical gaps. Developing this chapter required us to comply with several good practices including logical reasoning supported by previous literature, combining both theoretical and empirical literatures, bringing in specificity by grounding hypotheses in relevant literature instead of very general theories, using one or a few underpinning theories, and avoidance of supporting hypotheses too much to the extent that these seem obvious and thus disinteresting. These good practices are implemented while writing the following sections. But first, conceptual definitions of the variables are presented in **Table 1.1**.

2.1 Task Communication and Communication Satisfaction

Several context-specific definitions of task communication have appeared in scholarly literature over the years. For example, Penley and Hawkins (1985) defined task communication in the context of employee supervision as "the extent to which supervisors let subordinates know what needed to be done, explained changes in the workplace, and explained policy" (p. 313). Vora and Markóczy (2012) described task communication in the context of work groups as consisting of elaborating tasks, clarifying ambiguities, seeking feedback, and answering queries. Later

scholars defined task communication in the context of trainings as the "verbal communication of task-related training content by the trainer" (p. 7). These definitions, although addressing different contexts, have at least one thing in common: an expert (be it a supervisor, a team leader, or a trainer) is communicating his or her knowledge of the details associated with the task at hand to the persons who have to perform that task.

Operationally speaking, task communication in training context is composed of several communication behaviors: expressing ideas, sharing professional achievements, sharing professional disappointments, asking questions, answering queries, and suggesting solutions of problems (Yi, 2009). Effective trainers also demonstrate their accessibility, stimulation of open communication, and appreciation of the efforts of trainees (Gauld, 2014). These communication behaviors are displayed by all trainers but to a varying extent.

Task communication is a desirable behavior at workplace due to its associated beneficial outcomes. For example, one beneficial consequence of task communication is employee vitality. Vitality refers to "a sense of feeling energized and alive" (Porath, Spreitzer, Gibson, & Garnett, 2012, p. 250). A study identified task communication as a source for enhancing vitality (Tummers, Steijn, Nevicka, & Heerema, 2018). Group performance is another positive outcome of task communication. Group performance refers to "the sum of all group members' individual performances" (Kleingeld, van Mierlo, & Arends, 2011, p. 1291). A study found that task communication increases group performance (Vora & Markóczy, 2012). An outcome of task communication is trust on supervisor. Trust in supervisor refers to "employee's willingness to be vulnerable to their supervisor's decisions" (Lebel & Patil, 2018, p. 731). A study reported that task communication garners greater trust in supervisor (Ertürk, 2008). Openness to organizational change is another favorable consequence of task communication. Openness to organizational change refers to "individual's willingness to support organizational change and positive affect towards change" (Miller, Johnson, & Grau, 1994, p. 66). A study found that task communication is positively related to openness to organizational change (Ertürk, 2008). Another potential outcome of task communication is job autonomy. Job autonomy refers to "the degree to which a job provides

substantial freedom, independence, and discretion to the individual for scheduling work and determining the procedures to be used in carrying it out" (Hackman & Oldham, 1975, p. 162). Tummers et al. (2018) reported a positive association existed between task communication and job autonomy. Job satisfaction is a desirable outcome of task communication. Job satisfaction refers to "internal evaluations of the favorability of one's job" (Judge, Hulin, & Dalal, 2012, p. 5). A study reported that increased job satisfaction is an outcome of task communication (Penley & Hawkins, 1980). A careful look at these findings shows that task communication is a positively behavioral construct that can develop several positive outcomes including but not limited to communication satisfaction.

After elaborating trainer's task communication, it is important to note that trainer is a critical factor in determining trainee reactions and perceptions (Towler, Arman, Quesnell, & Hoffman, 2014). Since task communication is a characteristic of a trainer, therefore, we can expect its influence on trainee's reactions to the trainer. This expectation is supported by the findings of two empirical studies. First, Dachner and Saxton (2014) found that instructor's support enhances learner's satisfaction. Second, Glerum et al. (2021) reported that trainer influences trainee's reactions. One such trainee's reaction is communication satisfaction.

Several definitions of communication satisfaction have emerged over time. Initially it was defined as "the personal satisfaction inherent in successfully communicating to someone" (Thayer, 1968, p. 144). Then it was defined as "generalized feeling which an employee has toward his total communication environment" (Downs & Hazen, 1977, p. 64). Another definition of communication satisfaction was "satisfaction with communication that is linked with the employee's position in the organization" (Mount & Back, 1999, p. 403). Crino and White (1981) defined communication satisfaction as "individual's satisfaction with various aspects of communication in his organization" (p. 831-832). It is also defined as "affective response to the accomplishment of communication goals and expectations" (Goodboy et al., 2009, p. 373). These definitions highlight that communication satisfaction is a positive construct.

Communication satisfaction is a desirable outcome due to its associated benefits. One beneficial outcome of communication satisfaction is task performance. Task

performance refers to "the proficiency with which individuals perform the core substantive or technical tasks central to their job" (Koopmans et al., 2016, p. 610). A study found that communication satisfaction enhances task performance (Jalalkamali, Iranmanesh, Nikbin, & Hyun, 2018). Another beneficial outcome of communication satisfaction is job performance. Job performance refers to "a worker's effective execution of tasks or job and useful contribution to the social work environment" (Abramis, 1994, p. 549). Communication satisfaction was also positively related to job performance (Alsayed et al., 2012). Another beneficial outcome of communication satisfaction is job wellbeing. A study found that communication satisfaction enhances job wellbeing (Li, X, et al., 2021). Relational satisfaction is a functional outcome of communication satisfaction. Relational satisfaction refers to "an individual's attitude toward the partner and the relationship, typically in terms of the perceived quality of the relationship" (Dainton, Stafford, & Canary, 1994, p. 89). A study found that communication satisfaction enhances relational satisfaction (Zhang, 2015). Organizational citizenship behavior is an important benefit of communication satisfaction. Organizational citizenship behavior refers to "individual behavior that is discretionary, not directly or explicitly recognized by the formal system, and that in aggregate promotes the effective functioning of the organization" (Organ, 1988, p. 4). A study found that communication satisfaction enhances organizational citizenship behaviors (Chan & Lai, 2017). A second study found a positive relationship between communication satisfaction and organizational citizenship behaviors (Kandlousi et al., 2010).

A third study also found that communication satisfaction enhances organizational citizenship behaviors (Fournier, 2008). Emotional regulation can also be a desirable outcome of communication satisfaction. Emotional regulation refers to "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998, p. 1). A study found a positive association between communication satisfaction and emotional regulation (Li, X, et al., 2021). One favorable outcome of communication satisfaction is employee advocacy. Employee advocacy refers to "sharing good news and defending an organization against criticism" (Walden & Kingsley Westerman, 2018, p. 7). A study found a positive relationship between communication

satisfaction and employee advocacy (Thelen, 2021). Another desirable benefit of communication satisfaction is life satisfaction. Life satisfaction refers to "a conscious cognitive judgment of one's life in which the criteria for judgment are up to the person" (Pavot & Diener, 1993, p. 164), p. 164. A study reported a positive relationship between communication satisfaction and life satisfaction (Ćorić et al., 2020).

Relational maintenance is a desirable outcome of communication satisfaction. Relational maintenance refers to "behaviors that serve to uphold a desired relationship state" (Frisby & Booth-Butterfield, 2012, p. 467). Researchers identified that communication satisfaction enhances relational maintenance (Forsythe & Ledbetter, 2015). Another useful outcome of communication satisfaction is reward power. Reward power refers to "the perception of one agent that another agent can mediate relevant rewards" (Blichfeldt, Hird, & Kvistgaard, 2014, p. 79). A study found that communication satisfaction was positively related to reward power (Goodboy et al., 2011). A functional consequence of communication satisfaction is affective organizational commitment. Affective organizational commitment refers to "the extent of employees' emotional bond with their employers, i.e. the organizations in which they operate" (Mory, Wirtz, & Göttel, 2016, p. 1399). Communication satisfaction was positively related to affective organizational commitment (Carriere & Bourque, 2009).

A beneficial outcome of communication satisfaction is interactional justice. Interactional justice refers to fairness in "interpersonal treatment individuals are given during the implementation of procedure" (Wang, Liao, Xia, & Chang, 2010, p. 661). A study found that communication satisfaction enhances interactional justice (Chan & Lai, 2017). Another study found a positive association between communication satisfaction and interactional justice (Fournier, 2008). Communication satisfaction has been known to reduce feelings of burden (Miura, Arai, & Yamasaki, 2005). Communication satisfaction was reported to increase supervisor satisfaction (Chan et al., 2009). Satisfaction with online courses is another beneficial outcome of communication satisfaction. A study reported that communication satisfaction positively affects learner's satisfaction with online courses (Cole, 2016). Benefits of communication satisfaction highlighted in these studies

show that achieving communication satisfaction is a worth trying goal for communicators.

Communication satisfaction is known to have been influenced by several functional behaviors of communicators. Verbal clarity is one such functional behavior of the communicator. Verbal clarity refers to "the extent to which instructors effectively employ verbal and nonverbal messages to communicate knowledge in a way that facilitates student understanding" (Myers, Goodboy, & Members, 2014, p. 15), p. 15. A study found a positive relationship between verbal clarity and communication satisfaction (Myers et al., 2014). Another functional behavior is verbal receptivity. Verbal receptivity refers to "communication behaviors that signal openness, demonstrate inclusiveness, and establish rapport with another person" (LaBelle, Odenweller, & Myers, 2015, p. 58). A study reported that verbal receptivity positively influenced communication satisfaction (LaBelle et al., 2015). Humor is another beneficial behavior. Humor refers to "a behavior enacted by a leader and directed toward a subordinate that is intended to be amusing to the subordinate and that the subordinate perceives as an intentional act" (Cooper, Kong, & Crossley, 2018, p. 772). A study found a positive relationship between humor and communication satisfaction (Sidelinger, 2014). Another study supported this finding, (Myers et al., 2014) reported a positive relationship between humor and communication satisfaction. These findings were corroborated by findings of another study that reported humor enhances communication satisfaction (Jalalkamali et al., 2018). Showing care is another functional behavior. A study reported a positive relationship between showing care and communication satisfaction (Myers et al., 2014). This study also identified that the display of confirmation was positively related to communication satisfaction. A group of researchers found that both formal and informal communication positively affects communication satisfaction (Kandlousi et al., 2010). Another instrumental construct is surface acting. Surface acting refers to "the expression of unfelt emotions by faking, suppressing, or amplifying emotions" (Nguyen & Stinglhamber, 2021, p. 2), p. 2. A study found a positive relationship between surface acting (suppression of negative emotions) and communication satisfaction (Hu, Zhan, Jimenez, Garden, & Li, 2022). Another useful behavioral construct is servant leadership.

Servant leadership refers to "an understanding and practice of leadership that places the good of those led over the self-interest of the leader" (Leclerc, Kennedy, & Campis, 2021, p. 296). A study found a positive relationship between servant leadership and communication satisfaction (Thelen, 2021). Although functional communication enhances communication satisfaction, the dysfunctional communication reduces communication satisfaction. For example, a study reported that inappropriate conversation reduces communication satisfaction (Sidelinger, 2014).

The expected positive relationship between task communication and communication satisfaction is also based on findings of two studies. For example, Penley and Hawkins (1985) found that task communication has a positive association with communication satisfaction. This finding has been corroborated recently in training context who reported that trainer's task communication is positively related to trainee's communication satisfaction. This positive relationship is likely to emerge due to met-expectations hypothesis: met expectations enhance individual's satisfaction (Porter & Steers, 1973). Thus we can expect that when trainer's task communication fulfills the communication goals and expectations of trainees, the trainees are more likely to experience satisfaction with the communication of trainer and vice versa.

The potential positive relationship between task communication and communication satisfaction is also supported by the uncertainty reduction theory. Uncertainty reduction theory posited that people communicating verbally during a social interaction experience a decrease in their uncertainty levels (Berger & Calabrese, 1974; West & Turner, 2019). This theory also proposed that a decline in uncertainty levels culminates into enhanced communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015). These two propositions can be combined to generate a theorem using syllogism and the rules of deduction and multiplication (Redmond, 2015; West & Turner, 2019), such that, if verbal communication reduces uncertainty levels and decreased uncertainty garners enhanced communication satisfaction then verbal communication and communication satisfaction can be positively related. Following this reasoning, this study expected that task communication (a specific form of verbal communication) shall be positively related to communication satisfaction. Thus, it was hypothesized:

Hypothesis 1: Task communication shall be positively related to communication satisfaction.

2.2 Task Communication and Information Seeking

Obtaining trainee reactions does permit trainees to evaluate training but it does not allow them to appraise their own contributions to training (Nickols, 2005). Here the role of trainee's contributions comes, that can be judged by evaluating their responsible behaviors that are considered essential for training success but are rarely assessed in training evaluations (Nickols, 2005). One such behavior can be information-seeking that is an essential part of uncertainty reduction theory and refers to interrogating or asking questions with the purpose of reducing uncertainty and gaining predictability (Berger & Calabrese, 1974; West & Turner, 2019). Information-seeking is a communication process in which an individual proactively gathers information from surroundings typically to reduce uncertainty (Tidwell & Sias, 2005). It is a well researched volitional behavior (Ort, Siegenthaler, & Fahr, 2021).

One of the ways to elaborate the meaning of information-seeking is discussing various definitions that have emerged over time. Information seeking has been defined as "the purposive acquisition of information from selected information carriers (e.g., messages, sources, and channels)" (Johnson, Donohue, Atkin, & Johnson, 1995, p. 275). It has been defined as "a process in which humans purposefully engage in order to change their state of knowledge" (Marchionini, 1997, p. 5). It has also been defined as "the purposive seeking for information as a consequence of a need to satisfy some goal" (Wilson, 2000, p. 49). Tidwell and Sias (2005) defined information seeking as "proactive communication process of gathering information from one's environment, typically for the purposes of uncertainty reduction" (Tidwell & Sias, 2005, p. 52). This study selected the definition of information seeking proposed by (Tidwell & Sias, 2005) because it explicitly linked information seeking with uncertainty reduction.

To better understand the importance of information seeking, this study highlights its critical outcomes. These outcomes of information seeking came from a variety of fields. For example, one outcome of information-seeking is job performance. A study found that information seeking enhances job performance (Nifadkar, Wu, & Gu, 2019). Another outcome of information-seeking is voice behavior. Voice behavior refers to "a discretionary behavior that expresses constructive challenge intended to improve" (LePine & Van Dyne, 1998, p. 109). The study by Nifadkar et al. (2019) found that information seeking enhances voice behavior. Intention to stay is an important outcome of information-seeking. Intention to stay refers to an individual's "thoughts and attitude towards staying with their existing employer" (Kovner, Brewer, Greene, & Fairchild, 2009, p. 82). Nifadkar et al. (2019) reported that information seeking enhances intention to stay. Another vital outcome of information-seeking is role clarity. Role clarity refers to "(a) the extent to which the individual's work goals and responsibilities are clearly communicated and (b) the degree to which the individual understands the processes required to achieve those goals" (Sawyer, 1992, p. 130). Information seeking was found to enhance role clarity (Zou, Tian, & Liu, 2015). Another important outcome of information-seeking is affective organizational commitment. Affective organizational commitment refers to "the extent of employees' emotional bond with their employers, i.e. the organizations in which they operate" (Mory et al., 2016, p. 1399).

Another finding of the study of Zou et al. (2015) was that the information seeking enhances affective organizational commitment. Political efficacy is another vital outcome of information-seeking. Political efficacy refers to "the feeling that individual political action does have, or can have, an impact upon the political process" (Campbell, Gurin, & Miller, 1954, p. 187). A study found that information-seeking enhances internal political efficacy (Su, Lee, & Borah, 2021). A critical outcome of information-seeking is information overload. Information overload refers to "a state of affairs where an individual's efficiency in using information in their work is hampered by the amount of relevant, and potentially useful, information available to them" (Bawden & Robinson, 2009, p. 3-4). A study found that information-seeking enhances information overload (Jin, Lee, &

Dia, 2019). Communication efficacy is an important consequence of information-seeking. Communication efficacy refers to "individuals' perception that they possess the skills to complete successfully the communication tasks involved in the information-management process" (Afifi & Weiner, 2004, p. 178).

Information-seeking enhances communication efficacy (Jang & Tian, 2012). Another important consequence of information-seeking is leader-member exchange. Leader-member exchange refers to "(a) system of components and their relationships (b) involving both members of a dyad (i.e., the relationship between a leader and each of his/her subordinates), (c) involving interdependent patterns of behaviors, (d) sharing mutual outcome instrumentalities, and (e) producing conceptions of environments causing maps and value" (Scandura, Graen, & Novak, 1986, p. 580). Information-seeking enhances leader member exchange (Zheng et al., 2016). A study found a positive relationship between information-seeking and information processing (Lee, Ju, & You, 2020). Another study found that information-seeking promotes healthy behaviors such as exercise and prohibits risky behaviors such as alcohol consumption (Bigsby & Hovick, 2018). Information-seeking enhances group oriented consumer intention (Li, Choi, Forrest, & Lin, 2021). Another critical outcome of information-seeking is preventive behaviors. Preventive behaviors refer to "behaviors that can minimize the risk of COVID-19" (Wang et al., 2022, p. 515). Information-seeking enhances preventive behaviors against COVID-19 (P. L. Liu, 2020). Another study reported that information-seeking enhances preventive behaviors in the context of COVID-19 (Yang & Cao, 2022). Similarly information-seeking enhances protective action taking (Liu et al., 2020). These desirable outcomes delineate the importance of information-seeking for studying in training context.

An important way for understanding information-seeking is to highlight the factors known for influencing it. One such factor is trust in supervisor. Trust in supervisor refers to "employee's willingness to be vulnerable to their supervisor's decisions" (Lebel & Patil, 2018, p. 731). A study found that trust in supervisor enhances information-seeking (Nifadkar et al., 2019). Another factor that influences information-seeking is social capital. Social capital refers to "interpersonal, intergroup and interorganizational relationships, networks, and connections, as well

as the underlying group and community resources, social structure and cultural dynamics" (Luthans & Youssef, 2004, p. 149). Social capital had a positive effect on information-seeking (Bigsby & Hovick, 2018). Social support is an influential factor for information-seeking. Social support refers to "information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations" (Cobb, 1976, p. 300). Social support was positively related to information-seeking (McKinley & Wright, 2014).

An important factor influencing information-seeking is self-efficacy. Self-efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). A study found that perceived efficacy was positively related to information-seeking (Ort et al., 2021). Another study found that self-efficacy was positively related to information-seeking (McKinley & Wright, 2014). An important factor that influences information-seeking is informational subjective norms. Informational subjective norms are defined as "perceptions about whether others who are important to us expect us to be informed" (Kahlor, 2007, p. 420). A study found that informational subjective norms enhance information-seeking (Huang, Lei, Su, & Chen, 2021). A critical factor determining information-seeking is information sufficiency threshold. Information sufficiency threshold refers to "the confidence one wants to have in one's knowledge" (Griffin, Dunwoody, & Neuwirth, 1999, p. 236). A study found that information sufficiency threshold enhances information-seeking (Huang et al., 2021). A critical factor determining information-seeking is eHealth literacy. It refers to "the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem" (Norman & Skinner, 2006, p. 1). A study found that eHealth literacy enhances information-seeking (Gulec, Kvardova, & Smahel, 2022).

A major factor impacting information-seeking is intrinsic motivation. Intrinsic motivation refers to "any motivation that arises from the individual's positive reaction to qualities of the task itself" (Amabile, 1996, p. 115). Intrinsic motivation was found to enhance information-seeking (Gkorezis, Mousailidis, Kostagiolas, & Kritsotakis, 2021). Another determinant of information-seeking is sociability. Sociability refers to "friendliness in relationships between people in an organization"

(Rashid, Sambasivan, & Rahman, 2004, p. 164). Sociability enhances information-seeking (Li, X, et al., 2021). Transformational leadership is a factor that affects information-seeking. Transformational leadership refers to "a leader's behavior that influences followers by broadening and elevating their goals and providing them with confidence to perform beyond expectations specified in an implicit or explicit exchange agreement" (Ishikawa, 2012, p. 266). Transformational leadership reduces information-seeking (Zou et al., 2015). Work group structure is another factor that effects information-seeking. A study found that work group structure reduces information-seeking (Zou et al., 2015). Another factor impacting information-seeking is intuitive decision making style. Urieta et al. (2022, p. 5) refers to intuitive decision making style as "reliance upon hunches, feelings, impressions, instinct, and good feelings" to take decisions. Intuitive decision making style reduces information-seeking (Vonk, Brothers, & Zeigler-Hill, 2021). Communication efficacy was positively related with information-seeking (Jang & Tian, 2012). Specific curiosity is a factor that influences information-seeking. Specific curiosity refers to "actively seeking depth in one's knowledge and experience with a particular stimulus or activity" (Kashdan, Rose, & Fincham, 2004, p. 291). Specific curiosity enhances information-seeking (Harrison, Sluss, & Ashforth, 2011).

Another determinant of information seeking is information credibility. Information credibility refers to believability of information (Tseng & Fogg, 1999). Information credibility enhances information-seeking (Liu et al., 2020). A factor that influences information-seeking is current knowledge perceptions. Current knowledge perceptions had a positive relation with information-seeking (Hovick, Bigsby, Wilson, & Thomas, 2021). This study also found that informational seeking norms had a positive relation with information-seeking. Another finding of this study was a positive relation of negative affect with information-seeking. Trust in information source enhances information-seeking (Catellier & Yang, 2012). This study also found that positive affect enhances information-seeking. Another finding of this study was that negative affect enhances information-seeking. Anticipated organizational support enhances information-seeking (Zheng et al., 2016). These studies show that a large number of factors influence information-seeking and one additional factor can be task communication.

Another way of highlighting the prominent characteristics of information-seeking is to report its correlates. One such correlate of information-seeking is work passion. Work passion refers to "love of one's work" (Baum & Locke, 2004, p. 588). Work passion was positively associated with information-seeking (Gkorezis et al., 2021). This study also found a positive association between educational level and information seeking. Information seeking is positively associated with organizational socialization tactics (Zheng et al., 2016). Diversity curiosity was positively associated with information seeking (Harrison et al., 2011). Positive framing was positively associated with information seeking (Harrison et al., 2011). Religiosity is a correlate of information-seeking. Religiosity refers to "the extent to which a person follows their religion principles and rules" (Koburtay, Jamali, & Aljafari, 2022, p. 2), Religiosity holds a negative association with information seeking (Vonk et al., 2021). Outcome expectancies had a positive association with information seeking (Jang & Tian, 2012). A study reported a positive association between negative emotions and information-seeking (Huang et al., 2021). A study found a positive association between risk perception and information-seeking (Huang et al., 2021).

Previous studies have shown that a variety of behaviors are associated with information - seeking. One such behavior is charge taking behavior. Charge taking behavior refers to "voluntary and constructive efforts, by individual employees, to effect organizational functional change with respect to how work is executed" (Morrison & Phelps, 1999, p. 403). Charge taking behavior was positively associated with information seeking (Harrison et al., 2011). Another behavior associated with information-seeking is feedback seeking. Feedback seeking behavior of individuals refers to "to know how well they are doing and how certain behaviors are being perceived and/or evaluated by others" (Ashford & Cummings, 1983, p. 382). Feedback seeking was positively associated with information-seeking (Li, X, et al., 2021). Transformational leadership is another set of behaviors linked to information-seeking. Transformational leadership reduces information-seeking (Zou et al., 2015). These findings show that many behaviors are associated with information-seeking therefore this study expects that task communication can have an association with information - seeking.

Information-seeking is relevant in a training context as trainees are routinely engaged in information-seeking when attending trainings. When a trainer engages in task communication, the trainee reacts by learning the task-related content. The greater the learning, the greater is the reduction in uncertainty, and the lower is the need to ask questions. This narrative is consistent with the uncertainty reduction theory that proposed a negative relationship between verbal communication and information-seeking (Berger & Calabrese, 1974; West & Turner, 2019). Since, task communication is a facet of verbal communication; therefore, it is possible to expect a negative relationship between task communication and information-seeking in line with the uncertainty reduction theory. Based on these arguments, this study hypothesized:

Hypothesis 2: Task communication shall be negatively related to information-seeking.

2.3 Task Communication and Task Uncertainty

Several definitions of task uncertainty have emerged over time. For example, Hsieh and Hsieh (2001) defined task uncertainty as the degree of difficulty in performing a task and / or its variability. Cordery, Morrison, Wright, and Wall (2010) defined it as "lack of prior knowledge about which operational problems will arise when, and the best way of dealing with them" (p. 240). Cardinal et al. (2011) defined it as the "extent to which information is needed to complete the task" (p. 1007). Gardner, Gino, and Staats (2012) defined it also refers to "member's having incomplete information about the task they are facing" (p. 1004). Reading these definitions point out that dearth of information required to complete a task is the common point in majority of the definitions.

Previously several forms of uncertainty have appeared in literature and found to be related with a variety of important workplace and non-work phenomena. One such phenomenon is procedural justice. Procedural justice refers to "fairness of the process through which work outcomes (pay, promotions or budgetary allocations) are accomplished" (Gupta, Mittal, Ilavarasan, & Budhwar, 2022, p. 5). A study

found a negative association between perceived uncertainty and procedural justice (Milesi, 2022). Job insecurity is another workplace phenomenon. Job insecurity refers to "perception that their present job is threatened" (Cuyper, Mäkikangas, Kinnunen, Mauno, & Witte, 2012, p. 772). A study found that perceived uncertainty leads to job insecurity (Priyadarshi & Premchandran, 2021). Psychological stress is among important workplace phenomena. Psychological stress refers to "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19).

A study found that perceived uncertainty relates positively to psychological stress (Binyamin & Carmeli, 2010). Another study found that task uncertainty leads individuals to experience greater distress (Argote, Turner, & Fichman, 1989). Another important phenomenon is purchase intention. Purchase intention is defined as "the extent to which customers would want to purchase products" (Geng & Chen, 2021, p. 3). Perceived uncertainty relates negatively to purchase intentions (Chen, Zhang, Lu, & Wang, 2021). A study found that perceived uncertainty reduces commitment of supplier to buyer (Ma, Hofer, & Aloysius, 2021). This study also found that perceived uncertainty reduces trust of supplier in buyer. Another finding of this study was perceived uncertainty reduces willingness of supplier to invest in innovation. Work engagement is an important workplace phenomenon. Work engagement refers to "a positive, fulfilling feeling about one's job and is associated with higher productivity and morale" (Amano, Fukuda, Baden, & Kawachi, 2020, p. 1). Felt uncertainty was negatively associated with work engagement (Zheng, Graham, Farh, & Huang, 2021). An important phenomenon is social exclusion. Social exclusion refers to "the fact or threat of the breaking social bonds" (Baumeister & Tice, 1990, p. 165).

A study found that Covid-19 uncertainty enhanced social exclusion (Li, X, et al., 2021). Adoption intention is an individual level phenomenon. Adoption intention refers to "a person's subjective probability that he will perform such behavior" (Fishbein & Ajzen, 1975, p. 288). A study found that environmental uncertainty encourages cloud computing technology adoption intentions (Cegielski, Jones-Farmer, Wu, & Hazen, 2012). An important phenomenon at workplace is

affective conflict. Affective conflict refers to personalization of incompatibility between goals and means into hostility feelings (Brown, Lusch, & Smith, 1991). A study found that goal uncertainty enhances affective conflict (Mooney, Holahan, & Amason, 2007). Team cohesion is a desirable workplace phenomenon. Team cohesion refers to "the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives" (Tekleab, Quigley, & Tesluk, 2009, p. 174). A study found an inverse association between goal uncertainty and team cohesion (Bernards, 2021). A real phenomenon at workplace is transaction cost. Transaction cost refers to "cost of search, information, bargaining, decision making, policy and enforcement" (Shankar, 2007, p. 1333). A study found that branding uncertainty enhances transaction costs (Li & Fang, 2022). Opportunistic behaviors are a negative phenomenon at workplace. Opportunistic behavior refers to "self-interest seeking with guile, leading to deceit-oriented violation of implicit or explicit promises" (Cheng, Yeh, & Tu, 2008, p. 286). A study found that environmental uncertainty has been found to enhance opportunistic behaviors (You, Chen, Wang, & Shi, 2018). Environmental uncertainty was found to reduce organizational performance (Yang, Shinkle, & Goudsmit, 2022). Together these studies highlight the importance of studying uncertainty due to its association with a wide variety of workplace phenomenon.

Like a variety of forms of uncertainty discussed earlier, task uncertainty is one of the specific forms of uncertainty construct, therefore the way these other forms have an association with vocational phenomena, task uncertainty also has the potential to relate to other workplace phenomena. One such phenomenon is climate for innovation. Climate for innovation refers to "the degree to which organization members perceive an organizational climate as supportive of innovation" (Scott & Bruce, 1994, p. 583). A study found that task uncertainty fosters climate for innovation (Ali, Wang, & Boekhorst, 2021). Team effectiveness is another workplace phenomenon. Team effectiveness refers to "the extent to which group members are motivated and committed to their joint work" (Chen & Tjosvold, 2002, p. 558). Task uncertainty has been found detrimental for team effectiveness (Leuteritz, Navarro, & Berger, 2017). Task uncertainty was also found to hinder group effectiveness (Gibson, 1999). A desirable workplace phenomenon is

team innovation. Team innovation refers to "the process, outcomes, and products of attempts to develop and introduce new and improved ways of doing things" (Anderson, Potočnik, & Zhou, 2014, p. 1298). A study found negative association between task uncertainty and team innovation (Begum, 2021). Affective conflict is a individual-level workplace phenomenon. Um and Oh (2021) found that task uncertainty enhances affective conflict. Team performance is a critical workplace phenomenon. Team performance refers to "the degree to which a team accomplished its goal or mission" (Devine & Philips, 2001, p. 512). A study found that task uncertainty as a source of decline in team performance (Yang, Huang, & Wu, 2019). Another study also reported a negative association between task uncertainty and project team performance (Begum, 2021). There is a third study that found that task uncertainty reduces team performance (Cordery et al., 2010). A fourth study found that task uncertainty reduces team performance (Faraj & Yan, 2009). Task importance is another workplace phenomenon. A study found that task uncertainty was positively associated with task importance (Mullin & Hogg, 1999). Psychological safety is an important phenomenon at workplace. Psychological safety refers to "feeling able to show and employ one's self without fear of negative consequences to self-image, status, and career" (Kahn, 1990, p. 705).

A study reported a negative association between task uncertainty and psychological safety (Faraj & Yan, 2009). Continuance commitment is an important workplace phenomenon. Continuance commitment refers to "the extent to which employees feel committed to their organization by virtue of the costs that they feel are associated with leaving" (Meyer & Allen, 1984, p. 375). A positive association was found between task uncertainty and continuance commitment (Ujma & Ingram, 2019). An important construct related to task uncertainty is task interdependence. Task interdependence refers to "the degree to which task work is designed so that members depend upon one another for access to critical resources and create workflows that require coordinated action" (Courtright, Thurgood, Stewart, & Pierotti, 2015, p. 5). A study reported that task uncertainty was positively associated with task interdependence (Zhang & Wang, 2020). A study found that prediction task uncertainty enhances attention to the task (Polyportis, Kokkinaki, Horváth, & Christopoulos, 2020). A study found that task uncertainty

discourages adoption intentions for cloud computing technology (Cegielski et al., 2012). A study found that task uncertainty is positively related to unit influence attempts (Gresov & Stephens, 1993). A study found a positive associating between task uncertainty and anger (Johnson, Cooper, & Chin, 2009). This study also found a negative association between task uncertainty and communication media richness. A study found that task uncertainty reduces goal uncertainty (Hartmann, Naranjo-Gil, & Perego, 2010).

Task uncertainty was found to marginally reduce active emotion-focused coping (Hertel, Rauschenbach, Thielgen, & Krumm, 2015). A study found negative association between task uncertainty and knowledge integration capability of teams (Gardner et al., 2012). Task uncertainty was positively related to performance information use (Allegrini, Monteduro, & Del Prete, 2021). An important workplace phenomenon is team cohesion. Team cohesion refers to "the total field of forces which act on members to remain in the group" (Festinger, Schachter, & Back, 1950, p. 164). A study found inverse association between task uncertainty and team cohesion (Bernards, 2021). After showing the relationships of task uncertainty with a variety of constructs this study turns towards how task communication can influence task uncertainty.

Task uncertainty has the potential to drop as a result of task communication due to two reasons. First, the participants of social interactions continuously process, decode, and respond to incoming signals in reasonable, reciprocal, and dynamic manner (Gilbert, 2015). Second, superior training performance enhances the trainee's perceived absorption of training content (Diamantidis & Chatzoglou, 2012). These two cognitive processes are likely to reduce task uncertainty of trainees. What happens is that the trainees are usually unaware or unsure of the correct behaviors required to perform the task before training. For them, there are countless alternative ways to perform the task that raises their pre-training task uncertainty. However, during the training, as the trainer engages more and more in describing how to perform the task, the larger number of alternative ways to perform the task shrinks to a more manageable number, thus reducing task uncertainty. These arguments are supported by recent findings of a negative association between quality of communication and perceived uncertainty (Milesi,

2022). Another study found a negative relationship between communication quality and uncertainty (Bordia, Hunt, Paulsen, Tourish, & DiFonzo, 2004). Finally, Tummers et al. (2018) has speculated that task communication has the potential to enhance perception of competence. Since trainees can perceive trainers as competent when they find that trainer's task communication is reducing their task uncertainty, therefore task communication has the potential to reduce task uncertainty of trainees.

This line of reasoning is consistent with the uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019). Uncertainty reduction theory proposes that uncertainty declines as a result of verbal communication. Following these arguments, this study expects trainer's task communication (a form of verbal communication) to be negatively associated with trainee's task uncertainty (a form of uncertainty). Thus, it was hypothesized:

Hypothesis 3: Task communication shall be negatively related to task uncertainty.

2.4 Task Communication and Behavioral Uncertainty

A large number of studies on uncertainty confirm that behaviors of significant others hold relationships with various facets of this construct. For examples, one such behavior is authoritarian leadership. Authoritarian leadership refers to "the behavior that asserts absolute authority and control over subordinates and demands unquestionable obedience from subordinates" (Cheng et al., 2004, p. 91). A study found a positive relationship between authoritarian leadership and felt uncertainty (Zheng et al., 2021). Another important behavior is humor. Humor refers to "a behavior enacted by a leader and directed toward a subordinate that is intended to be amusing to the subordinate and that the subordinate perceives as an intentional act" (Cooper et al., 2018, p. 772). A study found that a partner's use of positive humor was negatively related to relational uncertainty and the use of negative humor was positively related to relational uncertainty (Miczo & Averbeck,

2020). Opportunism is another example of other's behaviors. Opportunism refers to "an act or behavior performed by a party to seek its own unilateral gains at the substantial expense of another party" (Luo, 2007, p. 41). A study found a positive relationship between buyer opportunism and environmental uncertainty (Liu, Su, Li, & Liu, 2010). Important other's behaviors include transformational leadership. One study found a negative association between transformational leadership and job uncertainty (Van Dierendonck, Stam, Boersma, De Windt, & Alkema, 2014). Together these studies highlight the potential of behaviors of significant others in influencing different forms of uncertainty and one such uncertainty can be behavioral uncertainty.

Behavioral uncertainty has been defined at individual level in different manners over time. Berger and Bradac (1982) defined behavioral uncertainty as "the extent to which behavior is predictable in a given situation" (p. 7). Sunnafrank (1986) defined behavioral uncertainty as "predictability of behavior in particular circumstances" (p. 5). Joshi and Stump (1999) defined behavioral uncertainty as "the inability to predict a partner's behavior or changes in the external environment" (p. 293). Knobloch and Solomon (1999) defined behavioral uncertainty as "not knowing what to say or do within an interaction" (p. 264). Poppo, Zhou, and Li (2016) defined behavioral uncertainty as "the extent to which one party cannot effectively observe or evaluate the activities of the other party" (p. 726). Stewart, Dainton, and Goodboy (2014) defined behavioral uncertainty as "the boundaries between what is considered to be acceptable and unacceptable standards of behavior within the relationship" (p. 16). West and Turner (2019) defined behavioral uncertainty as "degree of uncertainty related to behaviors" (p. 137). Majority of these definitions focuses on behaviors and on a difficulty in predicting these behaviors.

Behavioral uncertainty can be influenced by a variety of behaviors of significant others. For example, one such behavior is structural leadership. Structural leadership refers to "exercising of leadership influence through rationality, efficiency, structure, and policies" (Shum & Cheng, 1997, p. 165). A study found positive relationship between structural leadership and behavioral uncertainty (Weed &

Mitchell, 1980). Another example of behaviors is information sharing. Information sharing refers to "the degree to which each party discloses information that may facilitate the other party's activities, as opposed to keeping all information proprietary" (Heide & Miner, 1992, p. 275). A study found a positive association between information sharing and behavioral uncertainty (Egberink, 2015). Opportunistic behavior is another example of other's behaviors. A study found a negative association between opportunistic behavior and behavioral uncertainty (Egberink, 2015). The results of these studies indicate that the behaviors of significant other persons are highly likely to influence behavioral uncertainty of individuals and one such behavior can be task communication of trainers.

Arguments in the previous hypothesis described how task communication was negatively related to task uncertainty. Besides diminishing task uncertainty of trainees, a study found that the task communication of trainer also reduces their behavioral uncertainty. Individuals experience behavioral uncertainty when they find it difficult to predict and explain their own behaviors and the behaviors of others (Douglas, 1990; Knobloch, 2016). They want to reduce their uncertainty because uncertainty is an uncomfortable experience due to required mental and emotional energy (West & Turner, 2019). A source of behavioral uncertainty is paucity of knowledge about oneself and about others (Whitt, 2015).

Usually, trainees meet their trainer for the very first time in formal trainings. They are uncertain about the potential behaviors of trainer as well as about their own reactions to the potential behaviors of the trainer. When trainer engages in task communication, trainees get an opportunity to observe and respond to the behaviors of trainer. The result of this interaction is observational learning and consequently a reduction in their behavioral uncertainty. Previous empirical studies support this view. For instance, task communication was found to be negatively related to behavioral uncertainty. Similarly, a negative association was found between quality of communication and perceived uncertainty (Milesi, 2022). Uncertainty reduction theory also supports this view by proposing a negative relationship between verbal communication and uncertainty (Berger & Calabrese, 1974; West & Turner, 2019). Based on this proposition, this study expects task

communication (a form of verbal communication) to reduce behavioral uncertainty (a form of uncertainty). Thus, it was hypothesized:

Hypothesis 4: Task communication shall be negatively related to behavioral uncertainty.

2.5 Task Uncertainty and Communication Satisfaction

The empirical literature tells us that uncertainty holds direct relationships with a variety of human cognitions. One of these cognitions is workgroup identification. Workgroup identification refers to "the individual's knowledge that he or she belongs to certain groups together with the emotional and value significance to him or her of the group member ship" (Israel & Tajfel, 1972, p. 31). A negative association was found between perceived uncertainty and workgroup identification (Milesi, 2022). Another cognitive construct is work engagement. Work engagement refers to "a positive, fulfilling feeling about one's job and is associated with higher productivity and morale" (Amano et al., 2020, p. 1). A negative association was found between felt uncertainty and work engagement (Zheng et al., 2021). Psychological availability is another cognitive construct. Psychological availability refers to "the perception of having physical, emotional, or intellectual resources to perform one's tasks at work" (Li & Tan, 2013, p. 410). Evidence was found for a negative relationship between perceived uncertainty and psychological availability (Binyamin & Carmeli, 2010).

Another cognitive construct is team cohesion. Tekleab et al. (2009) have defined team cohesion as "the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives" (p. 174). A study found a negative association between goal uncertainty and team cohesion (Bernards, 2021). Decision satisfaction is another cognitive construct. This construct refers to "the degree of satisfaction with one's choice in a decision making task" (Mosteller, 2007, p. 31). A study found a negative relationship between communicating uncertainty and decision satisfaction (Politi, Clark, Ombao, Dizon, & Elwyn, 2011). A review

of these studies reveals that uncertainty generally holds a negative relationship with many positive cognitive constructs and one such cognitive construct can be communication satisfaction.

Communication satisfaction is influenced by a variety of cognitive factors. One such cognition is behavioral uncertainty. Behavioral uncertainty refers to "degree of uncertainty related to behaviors" (West & Turner, 2019, p. 137). A study found that behavioral uncertainty had a negative relationship with communication satisfaction. Another cognitive factor is relationship uncertainty. Relationship uncertainty refers to "the ambiguity about the nature and definition of the relationship" (Imai et al., 2016, p. 145). A study reported a negative relationship between relationship uncertainty and communication satisfaction (Forsythe & Ledbetter, 2015). Perspective-taking is also a cognitive construct. Perspective-taking refers to "a cognitive process in which individuals adopt others' viewpoints in an attempt to understand their preferences, values, and needs" (Grant & Berry, 2011, p. 79). A study reported a positive association between perspective-taking and communication satisfaction (Edwards, 2020). Another study reported a strong correlation between uncertainty and communication satisfaction but the correlation was not statistically significant due to small sample size (J. W. Neuliep, 2012). A careful examination of these studies suggests that cognitive factors can have a profound influence on communication satisfaction and one such cognitive factor can be task uncertainty.

Now the question arises about how task uncertainty can influence communication satisfaction. The answer to this question leads us to review the third hypothesis of this study where trainer's task communication was postulated to have a negative relationship with task uncertainty. Once the trainee's task uncertainty declines as a result of trainer's task communication, the trainees are more likely to react with elevated satisfaction with the communication of trainer. This expectation is in line with the suggestion of scholars that trainee attributes determine their reactions in much the same way that employee attributes determine their job attitudes (Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008). This expectation also stems from findings of an empirical study that reported individuals with lower task uncertainty had a lower stress and a greater clarity and certainty about the

task performance than individuals with higher task uncertainty (Argote et al., 1989). Lower stress is likely to enhance communication satisfaction because stress holds a negative correlation with communication satisfaction (Rajesh & Suganthi, 2015). Similarly, greater task clarity and certainty gained during training are likely to foster favorable trainee reactions towards the trainer. One such favorable reaction of trainee is an elevated communication satisfaction. These arguments are also supported by uncertainty reduction theory's proposition that a declining uncertainty leads to rise in communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015). Collectively these arguments lead this study to expect that task uncertainty (a form of uncertainty) of trainees shall hold a negative relationship with their communication satisfaction. Thus, it was hypothesized:

Hypothesis 5: Task uncertainty shall be negatively related to communication satisfaction.

2.6 Task Uncertainty and Information-Seeking

Empirical studies provide evidence that the construct of uncertainty holds relationships with several individual behaviors. One such individual behavior is self-disclosure. Self-disclosure refers to "voluntary disclosing information about ones' self which the disclosee is unlikely to discover from other sources" (Imai, Taniguchi, & Umemura, 2021, p. 2). A study found a negative relationship between relationship uncertainty and self-disclosure (Imai et al., 2021). Another study found a positive association between pre-observation global uncertainty and self-disclosure within first minute of conversation (Douglas, 1994). Ingratiation is another individual behavior. Ingratiation refers to "behaviors involving other enhancement, opinion conformity, and favor rendering, which have been suggested to increase liking and interpersonal attraction" (Capezio, Wang, Restubog, Garcia, & Lu, 2017, p. 2). A study found a positive relationship between perceived uncertainty and ingratiation (Kim, Lee, Gao, & Johnson, 2021). Tangible social support is another individual behavior. Tangible social support refers to "the provision of material assistance (goods, services, or similar resources)" (Xu & Burleson, 2001, p. 537).

A study found a positive relationship between mental illness uncertainty and tangible social support (Thompson, Pulido, & Caban, 2022). These studies support the view that various forms of uncertainty are related to a variety of individual behaviors and one such individual behavior can be information seeking.

Information seeking is influenced by a variety of cognitive factors. One cognitive factor is informational subjective norms. Informational subjective norms refer to "individual's perceived social expectations about how much they should know about certain risks" (Yang, Rickard, Harrison, & Seo, 2014, p. 303). A study found a positive relationship between informational subjective norms and information seeking (Yang, Liu, & Wong, 2022). Another cognitive factor is risk perception. Risk perception refers to "an individual's assessment of how risky a situation is in terms of probabilistic estimates of the degree of situational uncertainty, how controllable that certainty is, and confidence in those estimates" (Sitkin & Weingart, 1995, p. 1575). A study reported a positive relationship between risk perception and information seeking (Huang & Yang, 2020). Information insufficiency is still another cognitive factor. Information insufficiency refers to "an individual's assessment of the amount of information he or she needs to cope with the risk" (Griffin, Neuwirth, Dunwoody, & Giese, 2004, p. 24). A study reported a positive relationship between information insufficiency and information seeking (Ford, Douglas, & Barrett, 2022). A close look at these studies reveals that cognitive factors influence information seeking and one such cognitive factor could be task uncertainty. A careful pondering over fifth hypothesis makes us realize that besides experiencing communication satisfaction, trainees with an alleviated task uncertainty shall also be less likely to engage in information-seeking behaviors. To understand this stipulation, it is wise to bring the literature on organizational newcomers in the current discussion as there are several similarities between trainees and newcomers: both experience task uncertainty, both seek information, and both are strangers to their handlers (the trainers and the supervisors respectively). The first argument was put forward by Miller (1996) that perception of uncertainty partly determines newcomer's information-seeking behaviors. This argument was further elaborated by Tidwell and Sias (2005) who suggested that uncertainty regarding performance of a task might lead newcomers to seek task information by asking direct questions

more frequently. Retrospectively, this suggestion points towards the possibility that a reduced uncertainty about task performance may discourage newcomers as well as trainees from seeking task information by asking fewer direct questions. These views were strengthened by the uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019), according to which people respond to diminished uncertainty with reduced information-seeking and increased uncertainty with increased information-seeking. Based on this proposition, this study expects a reduction in task uncertainty, a form of uncertainty. A study supporting this proposition found that perceived uncertainty had a positive relationship with external information seeking (Joshi & Anand, 2018). Another study found a positive association between pre-observation global uncertainty and question asking beyond first minute of conversation (Douglas, 1994). A recent study found a positive relationship between information insufficiency and information seeking (Yang, Liu, & Wong, 2022). However, a study found that felt uncertainty discouraged employees from raising ethical voice (Zheng et al., 2021). Another study corroborated both findings by showing on one hand that COVID-19 susceptibility uncertainty was marginally positively related to risk information-seeking, but on the other hand the same study reported a negative relationship between COVID-19 severity uncertainty and risk information-seeking (Huang & Yang, 2020). In view of the inconsistent findings, this study sticks to the theoretical proposition and hypothesized that:

Hypothesis 6: Task uncertainty shall be positively related to information-seeking.

2.7 Behavioral Uncertainty and Communication Satisfaction

Studies on uncertainty inform us that this construct has direct relationships with a number of cognitions. Relationship satisfaction is a cognitive construct. Relationship satisfaction refers to "the degree to which an individual favorably evaluates a relationship and perceives that his or her partner fulfills important needs" (Imai

et al., 2021, p. 1). A study found a negative association between behavioral uncertainty and relationship satisfaction (Stewart et al., 2014). Relational uncertainty is a cognitive construct. Relational uncertainty refers to "the inability to predict and explain others' actions" (Kellermann & Reynolds, 1990, p. 5). A study found a negative relationship between relational uncertainty and relational satisfaction (Miczo & Averbeck, 2020). Benevolence trust is another cognitive construct. Benevolence trust refers to "the extent to which a trustee is believed to want to be good to the trustor, aside from an egoistic motive" (Mayer, Davis, & Schoorman, 1995, p. 718).

A study reported positive associations of behavioral uncertainty with benevolence trust (Egberink, 2015). Trust in accountant is another example of cognition. Trust refers to "confidence in an exchange partner's reliability and integrity" (Morgan & Hunt, 1994, p. 23). A study found a positive association between behavioral uncertainty and trust in accountant (?, ?). Relational governance is another cognitive construct. Relational governance refers to "the extent that business exchanges are coordinated via social relations and shared norms" (Zhou & Xu, 2012, p. 679). A study found a negative relationship between behavioral uncertainty and relational governance (Berbée, Gemmel, Droesbeke, Casteleyn, & Vandaele, 2009; Vandaele & Gemmel, 2007). Learning is one of the cognitive constructs. Learning refers to "the process in which individuals obtain attitude, skill, and knowledge to further enable them to demonstrate if their behavior pattern is appropriate in the context" (Y. Shen, 2018, p. 48). A study reported an inverse association between goal uncertainty and learning (Bernards, 2021). These studies show that uncertainty generally holds a direct relationship with many cognitive constructs and one such cognitive construct can be communication satisfaction.

Many cognitive constructs are known to hold relationships with communication satisfaction. One such cognitive construct is conformity orientation. Conformity orientation refers to "the degree to which family communication stresses a climate of homogeneity of attitudes, values, and beliefs" (Koerner & Cvancara, 2002, p. 134). A study found a negative relationship between conformity orientation and communication satisfaction (Padron Eberline & Shue, 2022). Respect is another cognitive construct. Respect refers to "the perception of the degree to which each

member of the dyad had built a reputation, within and/or outside the organization, of excelling at his or her line of work" (Liden & Maslyn, 1998, p. 49). A study found a positive relationship between respect and communication satisfaction (Jiang & Lam, 2021). Another cognitive construct is conversation orientation. Conversation orientation refers to "the degree to which families create a climate in which all family members are encouraged to participate in unrestrained interactions about a wide array of topics" (Koerner & Cvancara, 2002, p. 134). Together these studies highlight that human cognitions have a potential to influence their communication satisfaction and one such cognition is behavioral uncertainty.

According to fourth hypothesis, task communication negatively influences behavioral uncertainty. Once behavioral uncertainty of trainees reduces as a consequence of trainer's task communication, the trainees are more likely to experience heightened levels of satisfaction with the communication of trainer. This expectation is consistent with the suggestion of (Sitzmann et al., 2008) that trainee reactions were determined by their attributes in the same way that job attitudes were predicted by the employee attributes. This suggestion directed this study to expect a direct relation of behavioral uncertainty, an attribute of trainees, with the communication satisfaction, a reaction of trainees. This expectation was based on the findings that behavioral uncertainty had direct relations with communication satisfaction (Neuliep & Grohskopf, 2000). Whereas, Neuliep and Grohskopf (2000) reported a negative association between uncertainty and communication satisfaction, the findings of were more nuanced. To resolve this complexity of findings, this study followed the predictions of uncertainty reduction theory (Neuliep & Grohskopf, 2000; Redmond, 2015). Uncertainty reduction theory proposed that a decline in uncertainty results into a rise in communication satisfaction. An empirical study also supported the theory's speculation. Forsythe and Ledbetter (2015) reported that uncertainty reduces communication satisfaction. Based on the fore mentioned arguments and evidences, this study expects a negative relationship between behavioral uncertainty and communication satisfaction. Thus, it was hypothesized:

Hypothesis 7: Behavioral uncertainty shall be negatively related to communication satisfaction.

2.8 Behavioral Uncertainty and Information-Seeking

Behavioral uncertainty has been found to hold relationships with several individual behaviors. One example of individual behaviors is opportunistic behavior. Opportunistic behavior refers to "self-interest seeking with guile, leading to deceit-oriented violation of implicit or explicit promises" (Cheng et al., 2008, p. 286). A study found that behavioral uncertainty enhances opportunistic behaviors (You et al., 2018). Another example of individual behaviors is information sharing. Information sharing refers to "the degree to which each party discloses information that may facilitate the other party's activities, as opposed to keeping all information proprietary" (Heide & Miner, 1992, p. 275). A study found a positive association between behavioral uncertainty and information sharing (Egberink, 2015). Question asking is another example of individual behaviors. A study found a positive association between pre-observation global uncertainty and question asking beyond first minute of conversation (Douglas, 1994). Collectively these studies show that behavioral uncertainty has the potential to influence individual behaviors and one such individual behavior can be information seeking.

Information seeking can have relationships with a variety of cognitive determinants. Attitude toward information seeking is one such cognitive factor. It refers to "perception of how trustworthy, accessible, and useful" is information seeking (Yang & Kahlor, 2013, p. 194) A study found a positive relationship between attitude toward information seeking and information seeking (Ford et al., 2022). Level of involvement is another cognitive construct. It refers to "the extent to which people connect themselves with the situation" (Grunig & Hunt, 1984, p. 152). A study found a positive relationship between level of involvement and information seeking (Shen, Xu, & Wang, 2019). Another cognitive construct is problem recognition. Problem recognition refers to "perception that something is missing and that there is no immediately applicable solution to it" (Kim & Grunig, 2011, p. 128). A study found a positive relationship between problem recognition and information seeking (Shen et al., 2019). Relevant channel belief is another cognitive construct. Relevant channel belief refers to "the mix of cognitive and

affective ways in which people assess information channels" (Dunwoody & Griffin, 2013, p. 222). A study found a positive relationship between relevant channel belief and information seeking (Zhou, Roberto, & Lu, 2021). Another cognitive construct is diverse curiosity. Diverse curiosity refers to "motive of seeking general stimulations to reduce boredom" (Tang & Salmela-Aro, 2021, p. 1). A study found a positive relationship between diverse curiosity and information seeking (Hardy, Ness, & Mecca, 2017). Anticipated organizational support is another cognitive construct. Anticipated organizational support refers to "a perception of how much applicants expected they would be valued and cared by the organization if they became employees" (Casper & Buffardi, 2004, p. 394). A study found a positive effect of anticipated organizational support on information seeking (Zheng et al., 2016). Together, these studies highlight the possibility that several cognitions can influence the information seeking and one such cognition can be behavioral uncertainty.

Uncertainty reduction theory (Berger & Calabrese, 1974; West & Turner, 2019) proposed that people respond to diminished uncertainty with reduced information-seeking and enhanced uncertainty with increased information-seeking. This prediction is consistent with the premise that uncertainty elicits negative reactions in a person that motivates him or her to reduce uncertainty by information-seeking (Corriero & Tong, 2016). Extending this argument, a decline in uncertainty, as a result of task communication, will reduce negative reactions that will reduce motivation to reduce uncertainty thus reducing information-seeking. In other words, a decline in behavioral uncertainty, as a consequence of task communication, is likely to reduce discomforting experiences associated with behavioral uncertainty and with it the intentions for information-seeking. Since, intentions are a direct determinant of behaviors (Ajzen, 2020); therefore, a decline in intentions for information-seeking shall diminish information-seeking behaviors. While, these theoretical arguments are compelling, the empirical evidence is inconsistent. For example, Douglas (1990) found a null relationship between behavioral uncertainty and information-seeking. Similarly, Niemann et al. (2015) found a negative relationship of behavioral uncertainty and direct feedback seeking (a specific form of information-seeking). The study of Zheng et al. (2021) found that felt uncertainty

discouraged employees from raising ethical voice. Joshi and Anand (2018) found a positive relationship between perceived uncertainty and external information seeking. As none of these studies were carried out in the training domain, therefore, this study sticks to the theoretical justifications for hypothesizing a positive relationship between trainee's behavioral uncertainty and information-seeking as under:

Hypothesis 8: Behavioral uncertainty shall be positively related to information-seeking.

2.9 Mediation of Task Uncertainty and Behavioral Uncertainty

Previously several forms of uncertainty construct have played the mediating role in a variety of workplace phenomena. For example, a study found that structuring of HR processes had an indirect effect on psychological availability and perceived uncertainty played a mediating role in this relationship (Binyamin & Carmeli, 2010). Another study found that design sources had an indirect effect on purchase intention and perceived uncertainty played a mediating role in this relationship (Chen et al., 2021). Still another study found that authoritarian leadership had an indirect effect on ethical voice and felt uncertainty played a mediating role in this relationship (Zheng et al., 2021). A study found that social support had an indirect effect on fear of cancer recurrence and illness uncertainty played a mediating role in this relationship (Yu, Sun, & Sun, 2022). A study found that dependence asymmetry had an indirect effect on trust in buyer and perceived uncertainty mediated this relationship (Ma et al., 2021). This study also found that dependence asymmetry had an indirect effect on commitment to buyer and perceived uncertainty mediated this relationship. This study also found that dependence asymmetry had an indirect effect on investment in innovation willingness and perceived uncertainty mediated this relationship. These studies show that various forms of uncertainty play a mediating role in several workplace phenomena. Several studies have reported that task communication influences its outcomes via cognitive factors. For

example, task communication was indirectly related to openness to organizational change via mediation of trust in supervisor (Ertürk, 2008). Thus we can expect that other psychological mechanisms, such as trainee's uncertainty, may have the potential to act as mediators in the relationship between task communication and its outcomes. Like the other forms of uncertainty, both task uncertainty and behavioral uncertainty are its specific forms, therefore the way the other forms have played the role of a mediator, task uncertainty and behavioral uncertainty also have the potential to act as mediators in this study. For example, transformational leadership had an indirect effect on team effectiveness and task uncertainty played a mediating role in this relationship (Leuteritz et al., 2017). Certainty associated emotions had an indirect effect on predicted utility and prediction task uncertainty played a mediating role in this relationship (Polyportis et al., 2020). After elaborating potential mediating role of uncertainty, next we discuss how task uncertainty and behavioral uncertainty shall play mediating roles in this study.

Superior training performance enhances the trainee's perception of absorption of training content (Diamantidis & Chatzoglou, 2012). This elevated perception of training content absorption can lower the need for seeking further information to complete the task. This need for information is known as task uncertainty (Cardinal et al., 2011). Thus, a superior training performance in the form of effective task communication may reduce task uncertainty. As task uncertainty positively relates to distress (Argote et al., 1989) and stress negatively correlates to communication satisfaction (Rajesh & Suganthi, 2015), therefore, a lowered task uncertainty may enhance communication satisfaction. Besides enhancing communication satisfaction, a lowered task uncertainty may reduce information-seeking because task uncertainty has the potential to positively relate with information-seeking (Tidwell & Sias, 2005). These arguments highlight the potential mediating role of task uncertainty in the indirect relationships of task communication with communication satisfaction and information-seeking.

Task communication reduces behavioral uncertainty and reduced behavioral uncertainty enhances communication satisfaction. Besides enhancing communication satisfaction, reduced behavioral uncertainty may reduce information-seeking because a decline in uncertainty will reduce its associated negative reactions that will

reduce motivation to reduce uncertainty thus reducing information-seeking. This argument is a logical extension of the premise that uncertainty elicits negative reactions in individuals that motivates them to reduce their uncertainty by seeking information (Corriero & Tong, 2016). These arguments highlight the potential mediating role of behavioral uncertainty in the relationships of task communication with communication satisfaction and information-seeking.

This study resorts to uncertainty reduction theory for seeking guidance on potential mediating roles of task uncertainty and behavioral uncertainty. Uncertainty reduction theory speculated a negative relationship between verbal communication and uncertainty (Berger & Calabrese, 1974; West & Turner, 2019). It also postulated a negative relationship between uncertainty and communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015) and a positive relationship between uncertainty and information-seeking (Berger & Calabrese, 1974; West & Turner, 2019). These propositions highlight the potential mediating role of uncertainty in the relationships of verbal communication with communication satisfaction and information-seeking. Following these propositions, this study expects mediation of task uncertainty and behavioral uncertainty (specific forms of uncertainty) in the relationships of task communication (a specific form of verbal communication) with communication satisfaction and information-seeking. Based on these arguments, this study hypothesized:

Hypothesis 9: Task communication shall be indirectly related to communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.

2.10 Moderation of Uncertainty Avoidance

The concept of uncertainty avoidance has evolved over time in terms of levels of analysis. Initially, societal level definitions of uncertainty avoidance emerged. For example, uncertainty avoidance was defined as "the extent to which members of an organization or society strive to avoid uncertainty by relying on established social norms, rituals, and bureaucratic practices" (House, Hanges, Javidan, Dorfman, &

Gupta, 2004, p. 11). Matthews, Kelemen, and Bolino (2021) defined uncertainty avoidance as "the degree to which people are uncomfortable with and avoid ambiguity and risk in their lives" (p. 4). Later, scholars realized that there is significant individual level variation in uncertainty avoidance (Boulamatsi et al., 2021). These individual differences fostered a sense of realization among contemporary scholars that uncertainty avoidance is an individual orientation that remains relatively unchanged (Donia, Mach, O'Neill, & Brutus, 2022). Thus, a number of individual level definitions of uncertainty avoidance have emerged in recent times. For example, uncertainty avoidance has been recently defined as "the extent to which individuals feel vulnerable to unpredictable and unknown situations" (Venkatesh, Davis, & Zhu, 2022, p. 7). It has been conceptualized as a cultural orientation that refers to "the feeling of uncertainty about the future and how comfortable an individual is with the idea that the future is uncertain" (Alikaj & Hanke, 2021, p. 7). Hofstede et al. (2010) asserted that uncertainty avoidance represents the subjective feelings of individuals about threat of uncertain and unfamiliar situations that they partly share with other members of society.

Previously, some studies have identified moderators of the relationship between task communication and its cognitive outcomes. For example, Tummers et al. (2018) reported that the relationship between task communication and employee vitality was moderated by job autonomy. Vora and Markóczy (2012) also reported that the relationship between task communication and group performance was moderated by faultline strength. Drawing on results of these studies, we can expect that other factors, such as uncertainty avoidance, can play a moderating role in the relationships of task communication with its cognitive outcomes, such as, task uncertainty and behavioral uncertainty. The potential of uncertainty avoidance to act as a moderator has been found in many contemporary studies. For example, uncertainty avoidance moderated the positive direct relationship between superficial harmony and social anxiety (Shang, Cui, & Kong, 2022). Uncertainty avoidance was reported to moderate the direct positive relationship between learning adaptability and positive framing (Boulamatsi et al., 2021). Uncertainty avoidance moderated the direct positive relationship between preciseness and safety awareness (Koers, 2021). Uncertainty avoidance moderated

the direct positive relationship between ego-resiliency and perceived mentoring (Baig et al., 2021). Uncertainty avoidance moderated the direct positive relationship between formal mentoring support and person-organization fit (Cai, Wu, Xin, Chen, & Wu, 2020). This study also found that uncertainty avoidance moderated the direct positive relationship between formal mentoring support and person-job fit. Uncertainty avoidance moderated the direct positive relationship between core job characteristics and employee creativity (Wang, 2020). Uncertainty avoidance moderated the direct positive relationship between core job characteristics and hindrance stressors (Naseer, Donia, Syed, & Bashir, 2020). Uncertainty avoidance moderated the direct positive relationship between transformational leadership and affective commitment (Newman & Butler, 2014). Uncertainty avoidance moderated the direct positive relationship between transformational leadership and job involvement (Sheikh, Newman, & Al Azzeh, 2013). Uncertainty avoidance moderated the direct positive relationship between team-level uncertainty avoidance and team performance (Cheng, Chua, Morris, & Lee, 2012). These findings point towards a potential moderating role of uncertainty avoidance orientation in the current study.

Now let us discuss how uncertainty avoidance orientation shall moderate the relationships of task communication with task uncertainty and behavioral uncertainty. Individuals with weaker uncertainty avoidance orientation take uncertainty as a normal thing, feel comfortable when in ambiguity, and embrace uncertainty as opposed to their counterparts with stronger uncertainty avoidance orientation who view uncertainty as threatening and avoid it (Neuliep, 2015). Since, their weaker uncertainty avoidance orientation does not let them perceive uncertainty as something undesirable therefore uncertainty might not elicit negative reactions, and they might not be motivated to reduce uncertainty as much as their counterparts with stronger uncertainty avoidance orientation. On the other hand, individuals with stronger uncertainty avoidance orientation view uncertainty as threatening (Neuliep, 2015). This greater threat of ambiguity shall develop a greater desire to reduce uncertainty among individuals (Sully De Luque & Sommer, 2000) with strong uncertainty avoidance orientation. This view is corroborated in the study of Koers (2021) who argued that uncertainty avoidance fosters a desire in individuals

to seek certainty in work by meticulously complying rules and procedures. Therefore, it can be expected that trainer's task communication might not reduce task and behavioral uncertainty among trainees who hold weaker uncertainty avoidance orientation as much as it can among trainees with strong uncertainty avoidance orientation. This expectation is partially supported by the uncertainty reduction theory whose boundary conditions include individual differences in uncertainty (Knobloch, 2016). One such individual difference is uncertainty avoidance (Zhang & Zhou, 2014) that is likely to moderate the negative relationships of task communication with task uncertainty and behavioral uncertainty. Thus, this study hypothesized:

Hypothesis 10a: Uncertainty avoidance shall moderate the negative relationship between task communication and task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

10b: Uncertainty avoidance shall moderate the negative relationship between task communication and behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

2.11 Moderated Mediation of Uncertainty Avoidance

The moderating effects of uncertainty avoidance shall not remain confined to the negative direct relationships of task communication with task uncertainty and behavioral uncertainty. Rather, these effects shall extend to communication satisfaction and information-seeking via mediation of task uncertainty and behavioral uncertainty. These effects are known as moderated mediation effects (Preacher, Rucker, & Hayes, 2007). Previously, uncertainty avoidance has been proved to moderate mediated relationships among a wide variety of workplace phenomena.

For example, uncertainty avoidance moderated the positive indirect relationship between superficial harmony and negative workplace gossip via mediation of social anxiety (Shang et al., 2022). Uncertainty avoidance was reported to moderate the indirect positive relationship between learning adaptability and innovative behavior via mediation of positive framing (Boulamatsi et al., 2021). Uncertainty avoidance was found to moderate the indirect positive relationship between extrinsic rewards and creativity via mediation of psychological availability (Lin, Shipton, Teng, & Kitt, 2021). Uncertainty avoidance moderated the indirect positive relationship between formal mentoring support and intention to leave via mediation of person-organization fit (Cai et al., 2020). This study also found that uncertainty avoidance moderates the indirect direct positive relationship between formal mentoring support and intention to leave via mediation of person-job fit. Uncertainty avoidance moderated the indirect positive relationship between transformational leadership and employee creativity via mediation of core job characteristics (Wang, 2020). Uncertainty avoidance moderated the indirect positive relationship between core job characteristics and counterproductive work behaviors via mediation of hindrance stressors (Naseer et al., 2020). This study also found that uncertainty avoidance moderated the indirect negative relationship between core job characteristics and in-role performance via mediation of hindrance stressors. Another finding of this study was that uncertainty avoidance moderated the indirect negative relationship between core job characteristics and organizational citizenship behaviors via mediation of hindrance stressors. Finally, this study found that uncertainty avoidance moderated the indirect negative relationship between core job characteristics and creativity via mediation of hindrance stressors. Next, this study describes how uncertainty avoidance shall moderate the indirect paths from task communication to communication satisfaction and information-seeking via task and behavioral uncertainties.

The moderated mediation effects for communication satisfaction shall take place in two ways. First, task communication shall reduce task and behavioral uncertainties, an expectation based on uncertainty reduction theory's proposition that verbal communication negatively relates to uncertainty (Berger & Calabrese, 1974; West & Turner, 2019), but to a smaller extent for individuals with weaker

uncertainty avoidance due to their greater acceptance of uncertainty and lower motivation to reduce it (Neuliep, 2015). This lower reduction in task and behavioral uncertainties shall enhance communication satisfaction, a speculation based on uncertainty reduction theory's proposition that uncertainty is negatively related to communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015), but to a lower extent. In other words, the positive indirect effect of task communication on communication satisfaction will be weaker for trainees with weak uncertainty avoidance. Second, task communication shall reduce task and behavioral uncertainties, an expectation based on uncertainty reduction theory's proposition that verbal communication negatively relates to uncertainty (Berger & Calabrese, 1974; West & Turner, 2019), but to a larger extent for trainees with stronger uncertainty avoidance due to their greater avoidance of uncertainty and greater motivation to reduce it (Neuliep, 2015). This greater reduction in task and behavioral uncertainties shall enhance communication satisfaction, a speculation based on uncertainty reduction theory's proposition that uncertainty is negatively related to communication satisfaction (Neuliep & Grohskopf, 2000; Redmond, 2015), but to a larger extent. In other words, the positive indirect effect of task communication on communication satisfaction will be stronger for trainees with strong uncertainty avoidance orientation.

The moderated mediation effects for information-seeking shall also take place in two ways. First, task communication shall reduce task and behavioral uncertainties, an expectation based on uncertainty reduction theory's proposition that verbal communication negatively relates to uncertainty (Berger & Calabrese, 1974; West & Turner, 2019), but to a smaller extent for trainees with weaker uncertainty avoidance orientation due to their greater acceptance of uncertainty and lower motivation to reduce it (Neuliep, 2015). This lower reduction in task and behavioral uncertainties shall reduce information-seeking, an expectation based on uncertainty reduction theory's proposition that uncertainty positively relates to information-seeking (Berger & Calabrese, 1974; West & Turner, 2019), but to a lower extent. In other words, the negative indirect effect of task communication on information-seeking will be weaker for trainees with weak uncertainty avoidance orientation. Second, task communication shall reduce task and behavioral

uncertainties, an expectation based on uncertainty reduction theory's proposition that verbal communication negatively relates to uncertainty (Berger & Calabrese, 1974; West & Turner, 2019), but to a larger extent for trainees with stronger uncertainty avoidance orientation due to their greater avoidance of uncertainty and greater motivation to reduce it (Neuliep, 2015). This greater reduction in task and behavioral uncertainties shall reduce information-seeking, a speculation based on uncertainty reduction theory's proposition that uncertainty positively relates to information-seeking (Berger & Calabrese, 1974; West & Turner, 2019), but to a larger extent. In other words, the negative indirect effect of task communication on information-seeking will be stronger for trainees with strong uncertainty avoidance orientation. Combining the above arguments leads this study to hypothesize that:

Hypothesis 11(a): Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Hypothesis 11(b): Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Hypothesis 11(c): Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Hypothesis 11(d): Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via behavioral uncertainty such that the relationship shall

get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

A summary of hypotheses is presented in **Table 2.1** to conclude this chapter. **Figure 2.1** displays the conceptual model based on hypotheses of this study.

2.12 Conceptual Framework

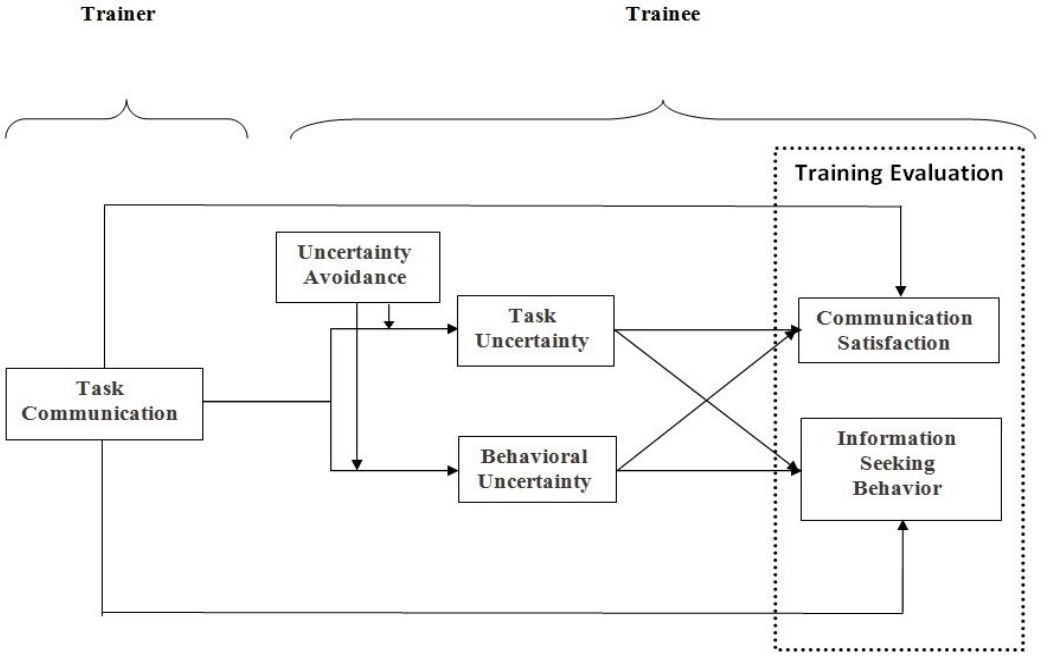

FIGURE 2.1: Conceptual Framework

TABLE 2.1: Summary of Hypotheses

Sr.No	Hypotheses
1	Task communication shall be positively related to communication satisfaction.
2	Task communication shall be negatively related to information-seeking.
3	Task communication shall be negatively related to task uncertainty.
4	Task communication shall be negatively related to behavioral uncertainty.

Continued Table 2.1 Summary of Hypotheses

Sr.No	Hypotheses
5	Task uncertainty shall be negatively related to communication satisfaction.
6	Task uncertainty shall be positively related to information-seeking.
7	Behavioral uncertainty shall be negatively related to communication satisfaction.
8	Behavioral uncertainty shall be positively related to information-seeking.
9	Task communication shall be indirectly related to communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.
10a	Uncertainty avoidance shall moderate the negative relationship between task communication and task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
10b	Uncertainty avoidance shall moderate the negative relationship between task communication and behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(a):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Continued Table 2.1 Summary of Hypotheses

Sr.No	**Hypotheses**
11(b):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(c):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(d):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Chapter 3

Research Methodology

This chapter provides details of decisions taken at the research design stage along with justifications, clear descriptions of instruments used, and details of sample characteristics for lending credibility to the research design, all done to allow others to replicate the study and obtain similar results in future.

3.1 Research Paradigm and Philosophy

A research paradigm is defined as "a set of basic and taken-for-granted assumptions which underwrite the frame of reference, mode of theorizing and ways of working in which a group operates" (Saunders, Lewis, & Thornhill, 2019, p.140). Four research paradigms exist: functionalism, interpretivism, radical structuralism, and radical humanism (Saunders et al., 2019). This study follows a functionalist paradigm that is based on objectivism (external existence of social reality) and regulation (improving things without a radical change) (Saunders et al., 2019). The reason for selecting this paradigm is its prevalence in management and business research (Saunders et al., 2019). This paradigm is based on the positivist philosophy of research (Saunders et al., 2019).

The research philosophy is defined as "a system of beliefs and assumptions about the development of knowledge" (Saunders et al., 2019, p. 130). Some of the beliefs in positivist philosophy include scientific research is the mode of knowing

the truth, the truth is objective and outside the mind of the researcher, every truth has cause and effect relationships, researches are replicable, observations are reliable, findings are generalizable, testing theories using deductive reasoning and empirical data (Sekaran & Bougie, 2019).

3.2 Research Design

The research design refers to the "blueprint or plan for the collection, measurement, and analysis of data, created to answer your research empirical questions" (Sekaran & Bougie, 2019, p. 103). There can be three types of research design: quantitative, qualitative, and mixed methods (Saunders et al., 2019). The design of this study is quantitative in which a theory is tested by analyzing data (Saunders et al., 2019). This design was selected as there was a need to study relationships among several variables (Saunders et al., 2019). In quantitative research design there are two methodological choices: mono method quantitative and multi-method quantitative (Saunders et al., 2019). This study opted mono method quantitative methodology in which the investigators use "a single data collection technique, such as a questionnaire, and corresponding quantitative analytical procedure" (Saunders et al., 2019, p. 178). This study used questionnaires as the sole method of quantitative data collection because other methods, such as observation and interviews, were not appropriate due to their resource intensiveness. In mono method quantitative methodology, there are two research strategies: survey and experiment (Saunders et al., 2019).

This study selected survey research strategy that refers to "a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behaviors" (Sekaran & Bougie, 2019, p. 371). This strategy was selected as it was associated with the deductive approach (Saunders et al., 2019). The alternative experimental strategy was not opted because this study was a seminal test of uncertainty reduction theory-based relationships in the training context. In survey strategy, there are three techniques of data collection: structured questionnaire, interview, and observation (Saunders et al., 2019). This study choose structured questionnaire as a data collection technique because validated measures

were available for the variables of this study. The other elements of the research design included the extent of interference, study setting, unit of analysis, and time horizon (Sekaran & Bougie, 2019). The degree of the researcher's interference in the natural flow of training activities was minimum, thus it was a correlational study (Sekaran & Bougie, 2019) that did not intend to establish cause-effect relationships. The setting of this study was a typical classroom training environment in which events were taking place in their natural flow, thus making this study a noncontrived field study (Sekaran & Bougie, 2019). Carrying out this study in the traditional face-to-face training contexts was in line with the suggestion that a situation that allows oral delivery of training content may highlight the importance of the trainer's delivery more than a situation in which oral delivery is absent (Towler & Dipboye, 2001). Non-traditional trainings, such as computer-mediated training, were not included in this study because, in general, the method of instruction and not the method of delivery determine the effectiveness of instruction and learning during training (Dachner & Saxton, 2014; Sitzmann, Kraiger, Stewart, & Wisher, 2006). The unit of analysis of this study was individual trainee whose perception of the trainer's task communication, cultural orientation of uncertainty avoidance, experienced task and behavioral uncertainties, satisfaction with the trainer's communication, and own information-seeking had to be obtained. The time horizon for this study was cross-sectional time-lagged as the data on demographic variables were gathered at one time before the commencement of training, the data on independent, moderating, and mediating variables were collected at another time in the middle of training, and data on dependent variables were obtained at the end of training.

3.3 Population

Population refers to an "entire group of people, events, or things of interest that the researcher wishes to investigate" (Sekaran & Bougie, 2019, p. 221). The author of this study was interested in investigating psychological conditions and mechanisms experienced by trainees during the training process; therefore, trainees attending diverse types of trainings made up the population. The decision to take

the population of trainees attending different trainings instead of those attending one specific type of training was to enhance the study's external validity. This choice was in line with the recommendations of proposal defense committee. It was also supported by the suggestion of Brown (2005), who encouraged using different populations in research on training reactions. The unit of population is known as an element defined as "a single member of the population" (Sekaran & Bougie, 2019, p. 221). The element of this study was an individual trainee.

3.4 Sample and Sampling Frame

A sample is defined as "a subgroup or subset of the population" (Sekaran & Bougie, 2019, p. 222). The sample for this study was a group of trainees attending different types of trainings. These trainings included knowledge building, skill developing, and abilities enhancing learning sessions on softwares (e.g., security softwares, web application development, use of java scripts, image modeling, internet of things, and quick books), soft skills (personality development, conflict resolution, leadership, code of conduct, professional ethics, problem solving, work life balance, persuasion skills, and team building skills), behavioral skills (e.g., customer dealing, taking outbound calls, product selling, sales management, and key to revenue generation), operations (e.g., compliance, anti-money laundering, counter-terrorist financing, banking, quality control, and financial risk management), and technical skills (e.g., endodontics, lab safety, polio monitoring, skin acne treatment, industrial automation, and hydraulic equipment and systems maintenance). The settings of trainings included inbound and outbound training rooms of service providers such as software houses (e.g., RockVilla Technologies, Pen and Web, Ceilowigle Inc, Netlinks Technologies, RedXsoft), telecommunication companies (e.g., Telenor, Zong, Ufone, Ptcl) banks (e.g., Ztbl, Allied Bank, Bank AlHabib, Bank Alfalah, Soneri Bank, Faysal Bank, Meezan Bank), insurance companies (e.g., EFU and Jubilee), and small and medium enterprises (e.g., Transonic BPO, Dental Valley Co, Citi Labs, J Telemarketing, Touchstone Communications, Al-Makkah. City, Property Nama, Zameen.com, Flashman Hotel, Apex Counselling, Adsells Advertising). The unit of sample is called subject that is defined as "a

single member of the sample" (Sekaran & Bougie, 2019, p. 223). The subject of this study was an individual trainee. A sampling frame refers to a list of population elements from which researchers draw a sample (Sekaran & Bougie, 2019). The sampling frame for this study was not available.

3.5 Sampling Design

The unavailability of a sampling frame prohibited this study from using probability sampling design. As a result, this study selected convenience sampling that is "the collection of information from members of the population who are conveniently available to provide it" (Sekaran & Bougie, 2019, p. 247). Use of this design was based on the belief that data for this study could only be provided by available trainees. For example, trainees are the ones who mainly develop perceptions about the trainer's task communication and feelings of satisfaction with the trainer's communication. Convenience sampling is a non-probability sampling design (Sekaran & Bougie, 2019) that was used for two reasons. First, it was the seminal study involving direct, indirect, and conditional relationships of task communication with communication satisfaction and information-seeking; therefore, the generalizability of findings was of lesser concern than gathering initial data swiftly and economically (Sekaran & Bougie, 2019). Second, the probability of selection in the sample could not be attached to the elements of population, the trainees, due to the unavailability of a sampling frame.

3.6 Sample Size

Two rules of thumb given by Roscoe (1979) were followed to determine sample size. First, sample sizes within the range of thirty one to four hundred and ninety responses are suitable for most studies. Second, sample sizes should be equal to or greater than ten times the number of measured variables in a multivariate study. The sample size of this study was four hundred and seven trainees. This sample size was consistent with the two rules of thumb mentioned above: it was within the

suggested range of responses and was more than ten times greater than thirty eight measured variables. This sample size is not too large (greater than five hundred) due to which chances of committing type II error are reduced (Sekaran & Bougie, 2019).

3.7 Sample

Trainees of four hundred and eighteen trainers were approached within a period of one year using personal contacts. They were given structured questionnaires to be filled out before commencement of training, during the break, and after the conclusion of training. These trainees were encouraged to participate in the study by the patronage of the trainer and assurance of anonymity. Four hundred and eighteen filled questionnaires were received back, out of which four hundred and seven were found completely filled and thus usable. The response rate was 67.8%.

3.8 Measurement

This study measured thirty eight observed variables linked to their respective six constructs for testing the eleven hypotheses. Measurement is defined as the "assignment of numbers or other symbols to characteristics (or attributes) of objects according to a prespecified set of rules" (Sekaran & Bougie, 2019, p. 190). It was carried out with an instrument that refers to "a tool or mechanism by which individuals, events, or objects are distinguished on the variables of interest in some meaningful way" (Sekaran & Bougie, 2019, p. 379). Rating scales were used to obtain responses on thirty eight observed variables representing six latent constructs. Rating scale is a scale that "offers several categories of response, out of which the respondent picks the one most relevant for answering the question" (Sekaran & Bougie, 2019, p. 375). Questionnaires were administered in English as it is the formal mode of business communication in Pakistan (De Clercq, Fatima, & Jahanzeb, 2022). **Table 3.1** presents the sources and items of the instruments used to measure the variables of this study.

TABLE 3.1: Instruments, Sources, and Items

Instruments	**Source**	**No. of Items**
Communication Satisfaction	Goodboy et al. (2009)	8
Information Seeking	Miller (1996)	4
Task Uncertainty	Chang, Chang, and Paper (2003)	5
Behavioral Uncertainty	Douglas (1990)	6
Trainer's Task Communication	Yi (2009)	8
Uncertainty Avoidance	Jung and Kellaris (2004)	7

3.8.1 Communication Satisfaction

This study measured communication satisfaction of trainees with an eight-item scale (Goodboy et al., 2009). One of its items stated "My communication with my teacher felt satisfying." The instrument was adapted by replacing the word of "teacher" with "trainer". Seven-point response options ranged from 1 (strongly disagree) to 7 (strongly agree).

3.8.2 Information-Seeking

This study measured information-seeking of trainees with a four-item information-seeking tactics scale (Miller, 1996). One of its items stated "I would ask specific, straight, to the point questions to get the information I wanted." The instrument was adapted by replacing future tense with past tense in line with prior studies (e.g., (Tidwell & Sias, 2005). Five-point response categories ranged from 1 (never) to 5 (frequently).

3.8.3 Task Uncertainty

This study measured the trainee's task uncertainty with five items taken from the task uncertainty scale (Chang et al., 2003). One item of this instrument stated

"To what extent can you actually rely on established procedures and practices." Seven-point response categories ranged from 1 (I know very little) to 7 (I know very much).

3.8.4 Behavioral Uncertainty

This study measured trainee's behavioral uncertainty with a six-item domain uncertainty scale developed by (Douglas, 1990). One of its items stated "If I meet my partner again, I will know what to say." The instrument was adapted by replacing the words of "my partner" with "the trainer". Nine-point response categories ranged from 1 (not confident at all) to 9 (extremely confident).

3.8.5 Task Communication

This study measured the trainee's perception of trainer's task communication with eight items of organizational communication dimension of KSBC instrument (Yi, 2009). One item of this instrument stated "expressed ideas and thoughts in organizational meetings." The instrument was adapted by adding the stem words "The trainer" and "task-related". Five point response options ranged from 1 (strongly disagree) to 5 (strongly agree).

3.8.6 Uncertainty Avoidance

This study measured trainee's uncertainty avoidance orientation with a seven-item scale (Jung & Kellaris, 2004). One of its items stated "I feel stressful when I cannot predict consequences". This instrument uses a seven-point Likert scale to obtain responses, where 1 represents strongly disagree and 7 represents strongly agree.

3.8.7 Control Variables

This study measured trainee's gender, prior exposure to training, and prior acquaintance with the trainer as control variables. These variables were controlled

due to several reasons. First, the male learners were more likely than female learners to ask questions and give comments in classes (Fassinger, 1995). Second, the female trainees had more favorable attitude towards training than male trainees (Narayan & Steele-Johnson, 2007). These findings guided this study to control gender while predicting information-seeking and communication satisfaction.

Second, Narayan and Steele-Johnson (2007) reported a positive relationship between prior exposure to relevant training and subsequent favorable attitudes towards training. Thus, this study controlled prior exposure to similar training while predicting communication satisfaction. Third, Towler and Dipboye (2001) speculated that the effects reported in their study might strengthen when trainees are not strangers to the trainer. Therefore, this study controlled the trainee's prior acquaintance with trainer while predicting communication satisfaction.

3.9 Data Collection

One of the data collection strategies used in quantitative research is survey that is implemented by use of questionnaires (Saunders et al., 2019). Data were collected in three cross-sectional waves. The selection of this method was based on the suggestion to measure variables separately in trainee reaction studies to avoid shared transient error thus reducing inflation of correlations due to common method bias (Sitzmann et al., 2008).

In this design, the trainees reported data on their demographics before the commencement of training. This was the first wave of data collection. Then trainees provided information on their perceived task communication of trainer, uncertainty avoidance orientation, task uncertainty, and behavioral uncertainty during the middle of the training. This was the second wave of data collection. Finally, trainees provided data on their communication satisfaction and information-seeking at the end of training. This was the third wave of data collection. Obtaining data on these variables in the third wave was in line with the view that training effectiveness is usually measured at the conclusion of the training program (Hayes et al., 2016).

3.10 Data Screening and Treatment

Prior to beginning statistical analyses, data were screened for missing values and outliers and treated for reverse coded items. There were fourteen items in the instruments of this study that needed reverse coding. The data generated by these items were treated by reversing the scores: five items of task uncertainty, six items of behavioral uncertainty, two items of communication satisfaction, and one item of information-seeking. There were eleven cases with missing values. As these missing values were a very small proportion of the data, these cases were removed from the analyses of this study.

3.11 Outliers and Influence Cases

An outlier is defined as "a case that differs substantially from the main trend in the data" (Field, 2018, p. 508). Stevens (2002) has asserted that there is no need to worry about an outlier that is without influence because it does not have large effects on model parameters. Several statistics evaluate the influence of a case, such as DFFit, Cook's distance, and DFBeta etc. (Field, 2018). DFFit refers to "the difference between the predicted values for a case when the model is estimated including or excluding that case" (Field, 2018, p. 513). Cook's distance is "a measure of the overall influence of a case on the model" (Field, 2018, p. 511). DFBeta measures "the difference between a parameter estimated using all cases and estimated when one case is excluded... is calculated for every case and for each of the parameters in the model" (Field, 2018, p. 513). Smaller values of DFFit, Cook's distance (less than 1), and DFBetas (less than 1) show that outliers have an insignificant influence on model parameters (Cook & Weisberg, 1982; Field, 2018).

3.12 Testing the Assumptions

Results of statistical tests can be trusted if the assumptions underlying these tests are fulfilled. Five assumptions of statistical tests were assessed in this study. First,

the assumption of linearity holds that the regression (structural) coefficient represents an unconditional linear relationship between a predictor and an outcome that remains constant over all levels of all measured and unmeasured predictors (Kline, 2016). The factor scores were used to represent the values of variables. This assumption was tested by comparing linear, quadratic, and cubic models of ten pairs of variables using the curve estimation function in SPSS. It was supported if the linear model showed better fitness to data (F test statistic) than its competing quadratic and cubic models. The second assumption requires no perfect multicollinearity among independent variables. Multicollinearity refers to "the degree of correlation among the variables in a variate that may result in a confounding effect in the interpretation of the individual variables of the variate" (Hair, Black, Babin, & Anderson, 2019, p. 14).

Multicollinearity can be assessed by examining correlations (Malone & Lubansky, 2011). This is known as the ball-park method, wherein the correlation matrix is scanned for very high correlations ($r > .80$) among exogenous variables (Field, 2018). It should be noted that the ball-park method can fail to spot subtler forms of multicollinearity (Field, 2018). To avoid this possibility, this study performed variance inflation factor tests (Bowerman & O'Connell, 1990). Variance inflation factor (VIF) is an indicator of "whether a predictor has a strong linear relationship with the other predictor(s)" (Field, 2018, p. 534). If the largest VIF value is greater than ten, then there is a serious multicollinearity issue (Bowerman & O'Connell, 1990). This study performed four regression tests and obtained the largest VIF statistics to evaluate whether these exceed the value of 10 or not. The third assumption of no zero variance holds that "the predictors should have some variation in value (i.e., they should not have variances of zero)" (Field, 2018, p. 517). All latent factors were predictors of their respective observed variables in this study; therefore, this study measured their variances to assess this assumption. The fourth assumption of homoscedasticity holds that "the residuals have constant variance across all levels of predictors" (Kline, 2016, p. 34). Violation of this assumption does not result in biased estimated parameters but reduces the power of statistical tests in detecting significant relations (Hair et al., 2019). This assumption was tested by reviewing the scatter plots of standardized predicted

values (zpred) versus standardized residuals (zresid) generated by regressing endogenous factors over exogenous factors. If the points on a scatter plot are in the shape of a funnel then there are chances that the assumption of homoscedasticity is violated (Field, 2018) or the variance of residuals is increasing or decreasing across the levels of a predictor. The fifth assumption of normality is required for significance testing and sample to population generalization of results (Field, 2018). The first step in assessing normality is testing the assumption of univariate normality. To test univariate normality in data, indices of skewness and kurtosis were used. Skewness refers to the shape of a unimodal frequency distribution that is asymmetric about its mean and kurtosis refers to the shape of a frequency distribution that is pointy and has heavy tails (Kline, 2016). Skewness and kurtosis values of zero depict normality and their deviation from zero indicates non-normality (Field, 2018). When univariate normality is violated, one can be sure that the assumption of multivariate normality shall also be violated (Brown, 2015). To test this expectation, this study proceeded to test the assumption of multivariate normality. Multivariate normality is the degree to which "the individual variables are normal in a univariate sense and that their combinations are also normal" (Hair et al., 2019, p. 94). It is an important assumption in structural equation modeling analysis that has to be met every time before a data set is analyzed (Byrne, 2013). This assumption was tested with the help of (Small, 1980) statistics of multivariate skewness (Q1) and kurtosis (Q2) along with Small's statistic-based omnibus test (Q3) (c.f. (Looney, 1995).

3.13 Analytical Strategy

This study used structural equation modeling (SEM) to analyze the collected data. Structural equation modeling refers to a "multivariate technique combining aspects of factor analysis and multiple regression that enables the researcher to simultaneously examine a series of interrelated dependence relationships among the measured variables and latent constructs (variates), as well as between several latent constructs" (Hair et al., 2019, p. 606). The choice of this analytical strategy was based on the complexity of the conceptual model that included a predicting

construct, a moderating construct, two mediating constructs (in parallel), multiple outcomes constructs, and each construct measured by multiple observed variables.

3.14 Analytical Software

This study used IBM SPSS (Version 27) to type in the data, test parametric assumptions, and generate descriptive statistics. MPlus Version 7 (Muthén & Muthén, 1998-2012) was used for structural equation modeling. The reasons for using MPlus software were its advanced capabilities in simultaneously estimating the whole statistical model, run latent moderated mediation models, handle multiple mediating constructs, and handle non-normal and heteroscedastic distributions.

3.15 Estimator for Structural Equation Model

Whenever statistical assumptions of normality and homoscedasticity are violated, there are at least two choices to deal with non-normal distributions of endogenous variables and heteroscedastic residuals: transformations and robust estimators (Kline, 2012; Hair et al., 2019). Transformations cause difficulty in the interpretation of results (Hair et al., 2019) whereas robust estimation (MLR, robust maximum likelihood) results are easier to interpret, widely used in contemporary studies (e.g., Busque-Carrier, Ratelle, & Le Corff, 2021), and available in software packages such as MPlus (Muthén & Muthén, 1998-2012). Robust estimation corrects standard errors and test statistics for non-normality and heteroscedasticity (Kline, 2012; Field & Wilcox, 2017). These findings led this study to use robust estimator (MLR, robust maximum likelihood) in structural equation modeling.

3.16 Overall Measurement Model Validity

The plausibility of a conceptual model rises when the empirical data is a good fit to the measurement model. A measurement model is "(1) the distinction between

indicators and their corresponding constructs, and (2) specification of directional effects between observed and latent variables" (Kline, 2012, p. 112). The validity of measurement model in this study was evaluated with acceptable values of goodness-of-fit indices (Hair et al., 2019). The goodness of fit refers to the "measure indicating how well a specified model structure reproduces the covariance matrix among the indicator variables, alternatively, the accuracy of a proposed theory" (Hair et al., 2019, p. 605). It is evaluated with the help of several fit indices: Chi-square, RMSEA, CFI, TLI, and SRMR etc. Chi-Square (χ^2) measures the extent to which a "model holds exactly in the population" (Brown, 2015, p. 71). Satorra-Bentler scaled χ^2 (χ^2 (Satorra & Bentler, 1994) is generated when a robust maximum likelihood estimator is used (Kline, 2016). RMSEA is an acronym for root mean square error of approximation (Steiger & Lind, 1980) that measures "the extent to which a model fits reasonably well in the population" (Brown, 2015, p. 71). CFI is an acronym of comparative fit index (Bentler, 1990) and TLI is an acronym of Tucker Lewis non-normed fit index (Tucker & Lewis, 1973).

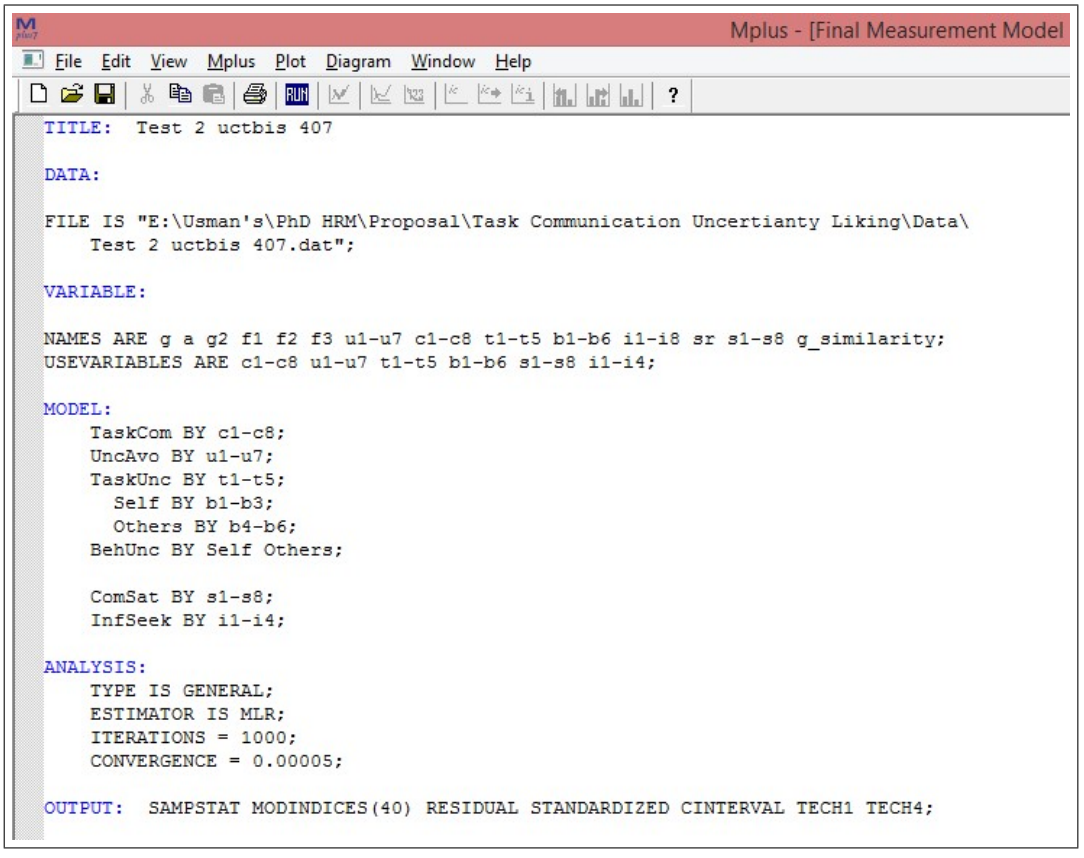

FIGURE 3.1: MPlus Measurement Model Syntax

These measures reflect "proportionate improvement in model fit by comparing the hypothesized model in which structure is imposed with the less restricted nested baseline model" (Byrne, 2013, p. 70). SRMR is an acronym for standardized root mean square residual and is a positive square root of "average discrepancy between the correlations observed in the input matrix and the correlations predicted by the model" (Brown, 2015, p. 70). Hair et al. (2019) noted that a significant chi-square ($p < .05$), greater than .92 CFI or TLI, equal or lower than .08 SRMR, and lower than .07 RMSEA are expected in a situation where there are more than two hundred fifty observations and observed variables are thirty or more. These standards are relevant for this study as its observations are four hundred and seven and its observed variables are thirty eight. **Figure 3.1** shows measurement model syntax in MPlus software.

3.17 Competing Measurement Models

A more robust test of the validity of a hypothesized model is comparing its fit indices with those of its competing models than evaluating its fit indices only (Hair et al., 2019). This comparison tells us whether a hypothesized model is superior, equivalent, or poor fit to the data than its competing models (Heck & Thomas, 2020). Therefore, this study generated and compared fifteen competing measurement models using chi-square difference test. Therefore, this study generated and compared fifteen competing measurement models using chi-square difference test.

3.18 Common Method Bias

The collection of all data from trainees raised the possibility of distortion in structural coefficients. To rule out this possibility, common method bias was required to be assessed. Common method bias refers to the biasing effect of the common measurement method of multiple constructs on their relationship estimates (Podsakoff, MacKenzie, & Podsakoff, 2012). One widespread technique to test common method bias is Harman's one-factor test (Podsakoff, MacKenzie, Lee, &

Podsakoff, 2003). Harman's one-factor test is implemented in confirmatory factor analysis by loading all items on a single method factor; good global fit indices of this single factor model provide evidence of common method bias (Mossholder, Bennett, Kemery, & Wesolowski, 1998). And poor global fit indices of the single factor measurement model indicate that magnitude and direction of relationship parameter estimates cannot be attributed to common method bias.

3.19 Convergent Validity

Confidence of readers in the accuracy of a hypothesis enhances when the instruments measuring the constructs in the hypothesis hold convergent validity. Convergent validity refers to the strength of relationships between observed variables and their causal latent constructs (Brown, 2015). This study used two techniques to establish convergent validity: factor loadings (λ) and average variance extracted (AVE) (Hair et al., 2019). Factor loadings (λ) refer to "the paths that point from factors to indicators represent the direct effects of factors on indicators" (Kline, 2016, p. 191). Average variance extracted (AVE) refers to "the average of the squared standardized pattern coefficients for indicators that depend on the same factor but are specified to measure no other factors" (Kline, 2016, p. 313). Significant and larger than .50 standardized factor loadings (λ) and greater than .50 average variance extracted (AVE) suggest adequate convergent validity (Hair et al., 2019).

3.20 Discriminant Validity

The faith of readers in the authenticity of a hypothesis rises when the instruments measuring the constructs in the hypothesis hold discriminant validity. Discriminant validity demonstrates that two factors correspond to two separate constructs (Brown, 2015). This study established discriminant validity with the help of two methods: comparing Chi-square fit index of a bi-factor measurement model with that of a uni-factor measurement model and Pearson product moment correlation

coefficient (Hair et al., 2019). Significant differences in bi-factor and uni-factor measurement models, as measured by Chi-square difference test ($\Delta\chi^2$), of two variables provide evidence of their discriminant validity. Not too large inter-factor correlations (r) indicate discriminant validity of constructs, whereas, very large inter-factor correlations point to weak discriminant validity (Kline, 2016). Weak discriminant validity may be implied by larger than .80 inter-factor correlations (Brown, 2015).

3.21 Nomological Validity

Nomological validity refers to a "test of validity that examines whether the correlations between the constructs in the measurement theory make sense" (Hair et al., 2019, p. 659). One of the ways to assess nomological validity is the construct correlation (Hair et al., 2019). Correlation is "a measure of the strength of association or relationship between two variables" (Field, 2018, p. 1273). If construct correlations are consistent with the theoretical predictions then there is evidence of nomological validity. If construct correlations are consistent with the theoretical predictions then there is evidence of nomological validity.

3.22 Construct Reliability

Trust of readers in the veracity of a hypothesis strengthens when the instruments measuring the constructs in the hypothesis are reliable. Construct reliability of instruments refers to "the precision or consistency of measurement (i.e., the overall proportion of true-score variance to total observed variance of the measure)" (Brown, 2015, p. 305). This study estimated reliability with factor rho coefficient (ρ) that is computed by a "ratio of explained variance over total variance" (Kline, 2016, p. 313). Trust of readers in the veracity of a hypothesis strengthens when the instruments measuring the constructs in the hypothesis are reliable. Larger than .70 rho coefficients (ρ) have been suggested to indicate good construct reliability (Hair et al., 2019).

3.23 Hypotheses Testing

Hypothesis is defined as "a tentative, yet testable, statement that predicts what you expect to find in your empirical data" (Sekaran & Bougie, 2019, p. 375). The plural of hypothesis is hypotheses. This study tested four types of hypotheses simultaneously in one structural equation model. The use of one structural equation model and the use of MLR estimator did not permit the generation of bootstrapped confidence intervals. While facing this difficulty, this study generated Monte Carlo confidence intervals that can be used to test hypotheses when parametric bootstrapped confidence intervals cannot be generated (Preacher & Selig, 2012). First, the direct hypotheses were tested with the significance (p values) of the unstandardized structural coefficients of the direct effects (β). The cut-off value for the significance of structural coefficients was set at .05. Thus, a p-value equal to or lower than .05 indicated that a structural coefficient was significantly different from zero and hypothesis was supported. The second type of hypotheses was indirect or mediation hypothesis that refers to a situation "when the causal effect of an independent variable (X) on a dependent variable (Y) is transmitted by a mediator (M)" (Preacher et al., 2007, p. 186). Four indirect hypotheses were tested by generating 95% Monte Carlo confidence intervals (Preacher & Selig, 2012) for the product of unstandardized structural coefficients (βab) of the mediation path a and path b (Hayes & Rockwood, 2017). The same signs of lower and upper limits of 95% confidence intervals indicated that these did not include zero. The absence of zero in the lower and upper limits of 95% confidence intervals led to the inference that structural coefficient was significantly different from zero and the hypothesis was supported. **Figure 3.3** shows a web tool for calculating Monte Carlo confidence intervals. The third type of hypotheses was moderation hypothesis that refers to a situation "when the strength of the relationship between two variables is dependent on a third variable" (Preacher et al., 2007, p. 191).

Two moderation hypotheses were tested with the significance (p values) of the unstandardized structural coefficients for interaction effects (βxw). A p-value of .10 or lower indicated significance of moderation hypothesis. This significance criterion was based on unidirectionality of moderation hypothesis, history of low

power of statistical tests in detecting moderation when predictor or moderator or both were continuous variables (McClelland & Judd, 1993), and previous studies that accepted moderation hypothesis at $p < .10$ significance level (Donia, Raja, Panaccio, & Wang, 2016; Raja, Johns, & Ntalianis, 2004). As the moderation hypothesis was unidirectional (i.e., requiring one tailed significance test), both predictor and moderator were continuous variables leading to very low power of moderation tests (McClelland & Judd, 1993), and scores of previous studies have accepted moderation hypotheses with $p < .10$ (Donia et al., 2016), therefore, this study also accepted this moderation hypothesis. For significant interaction effects, simple slope tests were carried out to probe the interactions. The fourth type of hypotheses was conditional indirect hypothesis that refers to a situation "when mediation relations are contingent on the level of a moderator" (Preacher et al., 2007, p. 193). Four conditional indirect direct hypotheses were tested with the significance (p values) and Monte Carlo confidence intervals of the indices of moderated mediation (Hayes, 2015; Preacher & Selig, 2012). For significant indices of moderated mediation, conditional slope tests were carried out to probe the conditional indirect effects using 95% Monte Carlo confidence intervals. For non-significant indices of moderated mediation, no further conditional slope tests were carried out. **Figure 3.2** shows structural model syntax in MPlus software.

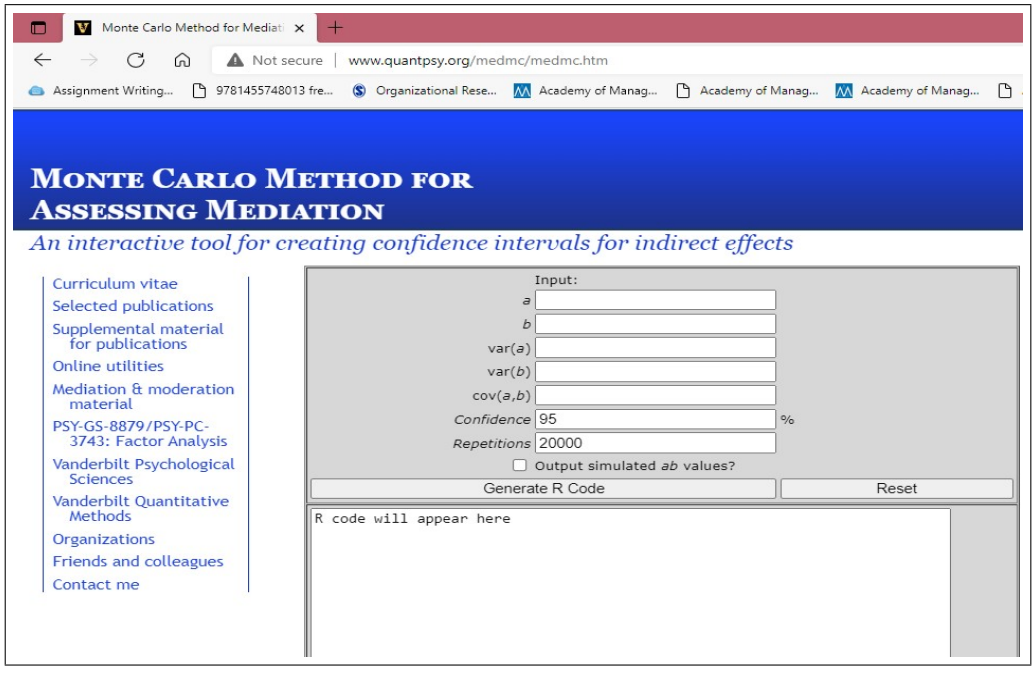

FIGURE 3.2: Online Tool for Calculating Monte Carlo Confidence Intervals

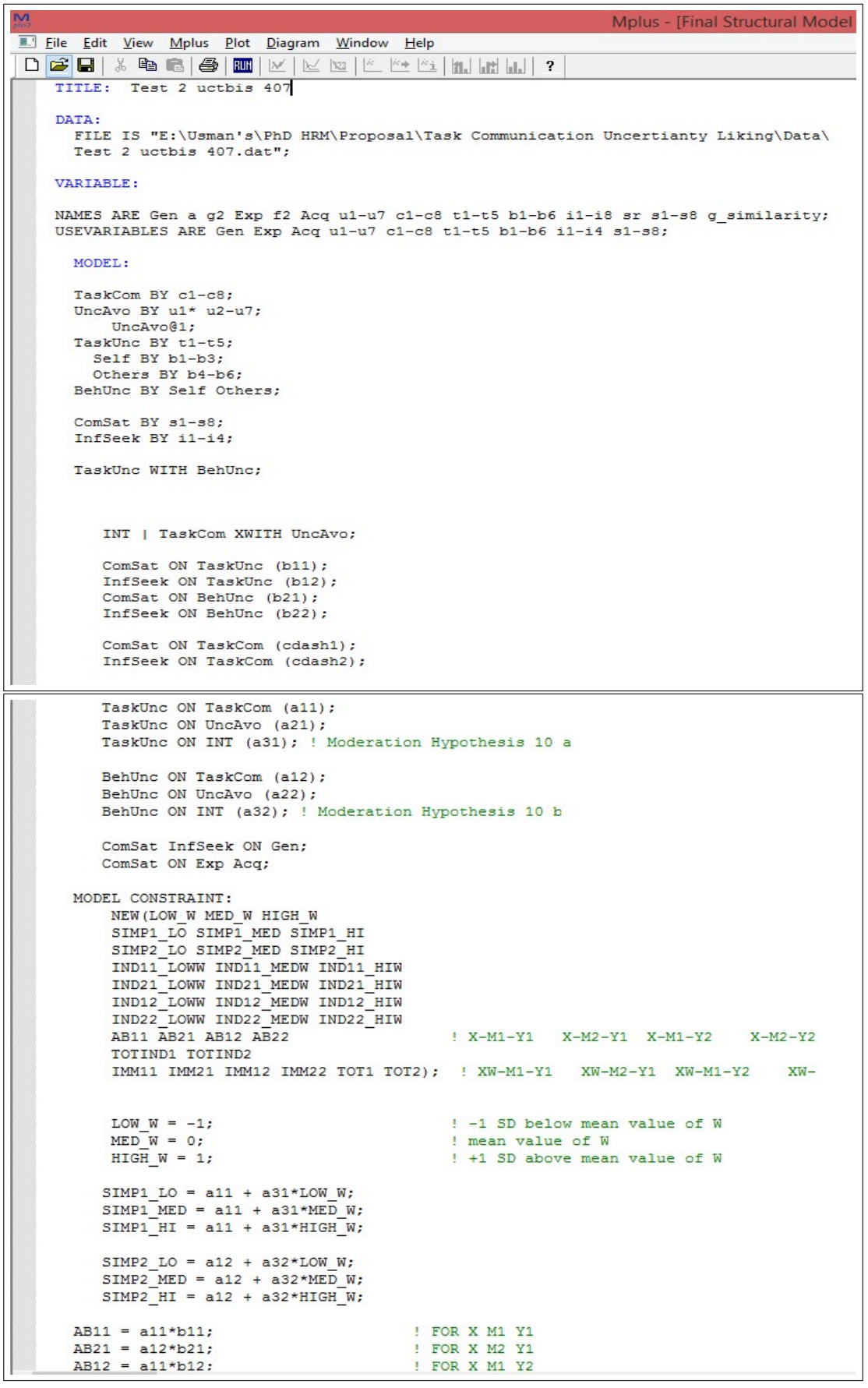

FIGURE 3.3: MPlus Structural Model Syntax

```
    TaskUnc ON TaskCom (a11);
    TaskUnc ON UncAvo (a21);
    TaskUnc ON INT (a31); ! Moderation Hypothesis 10 a

    BehUnc ON TaskCom (a12);
    BehUnc ON UncAvo (a22);
    BehUnc ON INT (a32); ! Moderation Hypothesis 10 b

    ComSat InfSeek ON Gen;
    ComSat ON Exp Acq;

MODEL CONSTRAINT:
     NEW(LOW_W MED_W HIGH_W
     SIMP1_LO SIMP1_MED SIMP1_HI
     SIMP2_LO SIMP2_MED SIMP2_HI
     IND11_LOWW IND11_MEDW IND11_HIW
     IND21_LOWW IND21_MEDW IND21_HIW
     IND12_LOWW IND12_MEDW IND12_HIW
     IND22_LOWW IND22_MEDW IND22_HIW
     AB11 AB21 AB12 AB22                 ! X-M1-Y1   X-M2-Y1  X-M1-Y2    X-M2-Y2
     TOTIND1 TOTIND2
     IMM11 IMM21 IMM12 IMM22 TOT1 TOT2);  ! XW-M1-Y1   XW-M2-Y1  XW-M1-Y2    XW-


     LOW_W = -1;                         ! -1 SD below mean value of W
     MED_W = 0;                          ! mean value of W
     HIGH_W = 1;                         ! +1 SD above mean value of W

    SIMP1_LO = a11 + a31*LOW_W;
    SIMP1_MED = a11 + a31*MED_W;
    SIMP1_HI = a11 + a31*HIGH_W;

    SIMP2_LO = a12 + a32*LOW_W;
    SIMP2_MED = a12 + a32*MED_W;
    SIMP2_HI = a12 + a32*HIGH_W;
```

```
AB22 = a12*b22;                     ! FOR X M2 Y2

TOTIND1 = AB11 + AB21;              ! FOR X M1 + M2 Y1
TOTIND2 = AB12 + AB22;              ! FOR X M1 + M2 Y2

TOT1 = TOTIND1 + cdash1;
TOT2 = TOTIND2 + cdash2;


IMM11 = a31*b11;                    ! FOR XW M1 Y1
IMM21 = a32*b21;                    ! FOR XW M2 Y1
IMM12 = a31*b12;                    ! FOR XW M1 Y2
IMM22 = a32*b22;                    ! FOR XW M2 Y2

IND11_LOWW = a11*b11 + a31*b11*LOW_W;
IND11_MEDW = a11*b11 + a31*b11*MED_W;
IND11_HIW = a11*b11 + a31*b11*HIGH_W;

IND21_LOWW = a12*b21 + a32*b21*LOW_W;
IND21_MEDW = a12*b21 + a32*b21*MED_W;
IND21_HIW = a12*b21 + a32*b21*HIGH_W;

IND12_LOWW = a11*b12 + a31*b12*LOW_W;
IND12_MEDW = a11*b12 + a31*b12*MED_W;
IND12_HIW = a11*b12 + a31*b12*HIGH_W;

IND22_LOWW = a12*b22 + a32*b22*LOW_W;
IND22_MEDW = a12*b22 + a32*b22*MED_W;
IND22_HIW = a12*b22 + a32*b22*HIGH_W;

ANALYSIS:
  TYPE IS GENERAL RANDOM;
  ESTIMATOR IS MLR;
  ALGORITHM = INTEGRATION;
  ITERATIONS = 1000;
  CONVERGENCE = 0.00005;

OUTPUT:   MODINDICES(10) RESIDUAL STANDARDIZED CINTERVAL TECH3 TECH4;
```

Continued FIGURE 3.2 MPlus Structural Model Syntax

Chapter 4

Results

This chapter presents relevant statistical information in a complete and summarized form, approaches the research questions empirically and presents their answers with clarity, makes the results credible by approaching the same questions from alternative techniques, thus enabling the reader to understand the results and characteristics of data.

4.1 Demographics and Background

This study obtained information on three demographic and three background variables. The demographic variables were trainee gender, trainee age, and trainer gender. The background variables were prior familiarity with the trainer (met the trainer before), prior familiarity with the trainer's training style (attended training by this trainer before), and prior familiarity with the topic of training (attended training on this topic before). 75.4 % of trainees were male (n = 307) and remaining 24.6 % were female (n = 100). 29.5% trainees were 23 to 25 years old (n = 120), 36.6% were 26 to 30 years old (n = 149), 16% were 31 to 35 years old (n = 65), 6.7% were 36 to 40 years old (n = 27), 5.1% were 41 to 45 years old (n = 21), 3.6% were 46 to 50 years old (n = 15), and 2.4% were 51 to 55 years old (n = 10). 85.3 % of trainers were male (n = 347) and remaining 14.7 % were female (n = 60). 59% of trainees had not met the trainer before (n = 240) and 41% had met the trainer before (n = 167). 68.6% of trainees had not attended any training

by their current trainer (n = 279) and 31.4% had attended a training by their current trainer before (n = 128). 64.1% of trainees had not attended any training on the current topic (n = 261) and 35.9% had attended a training on the current topic before (n = 146). Table 4.1 summarizes the information on demographic and background variables of this study.

TABLE 4.1: Sample Attributes

Demographics and Background Variables	**Categories**	**Frequency**	**Percentage**
Trainer Gender	Female	60	14.70%
	Male	307	75.40%
	23 to 25 Years	120	29.50%
	26 to 30 Years	149	36.60%
Trainee Age	31 to 35 Years	65	16%
	36 to 40 Years	27	6.70%
	41 to 45 Years	21	5.10%
	46 to 50 Years	15	3.60%
	51 to 55 Years	10	2.40%
Trainee Gender	Female	100	24.60%
	Male	347	85.30%
Met this trainer before	Yes	167	41%
	No	240	59%
Attended any taining by this trainer before	Yes	128	31.40%
	No	279	68.60%
Attended any taining by on this topic before	Yes	146	35.90%
	No	261	64.10%

n = 407.

4.1.1 Outliers and Influential Cases

An outlier is defined as "a case that differs substantially from the main trend in the data" (Field, 2018, p. 508). Stevens (2002) has asserted that there is no need to worry about an outlier that is without influence because it does not have large effects on model parameters. Several statistics evaluate the influence of a case, such as DFFit, Cook's distance, and DFBeta etc. (Field, 2018). DFFit refers to "the difference between the predicted values for a case when the model is estimated including or excluding that case" (Field, 2018, p. 513). Cook's distance is

"a measure of the overall influence of a case on the model" (Field, 2018, p. 511). DFBeta measures "the difference between a parameter estimated using all cases and estimated when one case is excluded... is calculated for every case and for each of the parameters in the model" (Field, 2018, p. 513). Smaller values of DFFit, Cook's distance (less than 1), and DFBetas (less than 1) show that outliers have an insignificant influence on model parameters (Cook & Weisberg, 1982; Field, 2018). DFFit, Cook's distance, and DFBeta statistics were used for the assessment of influence of all cases (including outliers) on model parameters. Smaller values of these statistics provide evidence of insignificant influence of outliers on model parameters (Cook & Weisberg, 1982; Field, 2018). **Table 4.2** shows that Cook's distance, DFFit, and DFBeta had values smaller than 1 indicating that no significant influence of outliers on model parameters. Thus, this study could proceed further without worrying for outliers and influential cases.

TABLE 4.2: Outliers' Influence Evaluation

Influence Statistics	**Communication Satisfaction**	**Observation wise Maximum Value Information-seeking**
Cook's distance	0.063	0.086
DFFit	0.054	0.053
DFBeta Intercept	0.113	0.076
DFBeta Task Communication	0.027	0.013
DFBeta Uncertainty Avoidance	0.004	0.012
DFBeta Task Uncertainty	0.021	0.015
DFBeta Behavioral Uncertainty	0.009	0.008

4.2 Testing the Assumptions

Five assumptions of parametric data, correlation, and regression were evaluated before estimating measurement and structural models. These assumptions were linearity, multicollinearity, non-zero variance, homoscedasticity, and multivariate normality. The results of assessment of these assumptions are presented next.

4.2.1 Linearity

The assumption of linearity holds that the regression (structural) coefficient represents an unconditional linear relationship between a predictor and an outcome that remains constant over all levels of all measured and unmeasured predictors (Kline, 2016). The factor scores were used to represent the values of variables. This assumption was evaluated by comparing linear, quadratic, and cubic models of ten pairs of variables using the curve estimation function in SPSS. This assumption was supported as the linear models showed better fit to data than their rival quadratic and cubic models. The linear model was a better fit to the data than quadratic and cubic models for the relationship between task communication and communication satisfaction (F *Linear* = 536.228, p = .000; F Quadratic = 267.578, p = .000; F *Cubic* = 182.329, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between task communication and information-seeking (F *Linear* = 204.009, p = .000; F *Quadratic* = 101.775, p = .000; F *Cubic* = 72.603, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between task communication and task uncertainty (F *Linear* = 524.776, p = .000; F *Quadratic* = 267.010, p = .000; F *Cubic* = 182.409, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between task communication and behavioral uncertainty (F *Linear* = 273.111, p = .000; F *Quadratic* = 136.549, p = .000; F *Cubic* = 94.823, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between task uncertainty and communication satisfaction (F *Linear* = 404.069, p = .000; F *Quadratic* = 203.006, p = .000; F *Cubic* = 136.419, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between task uncertainty and information-seeking (F *Linear* = 235.382, p = .000; F *Quadratic* = 117.739, p = .000; F *Cubic* = 80.343, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between behavioral uncertainty and communication satisfaction (F *Linear* = 445.397, p = .000; F *Quadratic* = 222.350, p = .000; F *Cubic* = 154.567, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between behavioral uncertainty

and information-seeking (F *Linear* = 348.182, p = .000; F *Quadratic* = 173.726, p = .000; F *Cubic* = 117.155, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between uncertainty avoidance and task uncertainty (F *Linear* = 111.123, p = .000; F *Quadratic* = 70.675, p = .000; F *Cubic* = 47.067, p = .000). The linear model was a better fit to the data than quadratic and cubic models for the relationship between uncertainty avoidance and behavioral uncertainty (F *Linear* = 54.838, p = .000; F *Quadratic* = 31.315, p = .000; F *Cubic* = 20.840, p = .000).

4.2.2 No Perfect Multicollinearity

This assumption requires no perfect multicollinearity among independent variables. Multicollinearity refers to "the degree of correlation among the variables in a variate that may result in a confounding effect in the interpretation of the individual variables of the variate" (Hair et al., 2019, p. 14). The assumption of no perfect multicollinearity was assessed in two ways: inter-factor correlations and variance inflation factor (Malone & Lubansky, 2011; Bowerman & O'Connell, 1990). First, six correlations between factors of task communication, uncertainty avoidance, task uncertainty, and behavioral uncertainty were evaluated. An absence of very high correlations, that is, r > .80 (Field, 2018) among these factors provided initial evidence of no perfect multicollinearity. The correlation between task communication and uncertainty avoidance was negative (r = - 0.365, p = .000). The correlation between task communication and task uncertainty was negative (r = - 0.678, p = .000). The correlation between task communication and behavioral uncertainty was negative (r = - 0.622, p = .000). The correlation between uncertainty avoidance and task uncertainty was positive (r = 0.418, p = .000). The correlation between uncertainty avoidance and behavioral uncertainty was positive (r = 0.343, p = .000). The correlation between task uncertainty and behavioral uncertainty was positive (r = 0.750, p = .000).

Second, variance inflation factor (VIF) statistics were obtained from four regression tests. Regressing task communication on uncertainty avoidance, task uncertainty, and behavioral uncertainty yielded largest VIF score of 2.714. Regressing

uncertainty avoidance on task communication, task uncertainty, and behavioral uncertainty yielded largest VIF score of 3.380. Regressing task uncertainty on task communication, uncertainty avoidance, and behavioral uncertainty yielded largest VIF score of 1.785. Regressing behavioral uncertainty on task communication, uncertainty avoidance, and task uncertainty yielded largest VIF score of 2.477. These largest VIF values were not greater than 10 that provided further evidence of no perfect multicollinearity (Bowerman & O'Connell, 1990).

4.2.3 Non-Zero Variance

The assumption of no zero variance holds that "the predictors should have some variation in value (i.e., they should not have variances of zero)" (Field, 2018, p. 517). All latent factors were predictors of their respective observed variables; therefore, this study evaluated their variances to assess this assumption. An absence of zero variance in latent factor scores provided evidence of non-zero variance (See Table 4.3).

Table 4.3: Factor Variances

Factors	**Variance** σ^2
Task Communication	0.479
Uncertainty Avoidance	1.781
Task Uncertainty	0.83
Behavioral Uncertainty	1.998
Information-seeking	0.617
Communication Satisfaction	1.037

n = 407.

4.2.4 Homoscedasticity

This assumption holds that "the residuals have constant variance across all levels of predictors" (Kline, 2016, p. 34). Violation of this assumption does not result in

biased estimated parameters but reduces the power of statistical tests in detecting significant relations (Hair et al., 2019). The assumption of homoscedasticity was evaluated by reviewing the eight scatter plots of standardized predicted values (zpred) versus standardized residuals (zresid). The funnel shaped scatter plots showed that the assumption of homoscedasticity was violated.

The first scatter plot generated by regressing factor scores of communication satisfaction on task communication and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.1** shows these results.

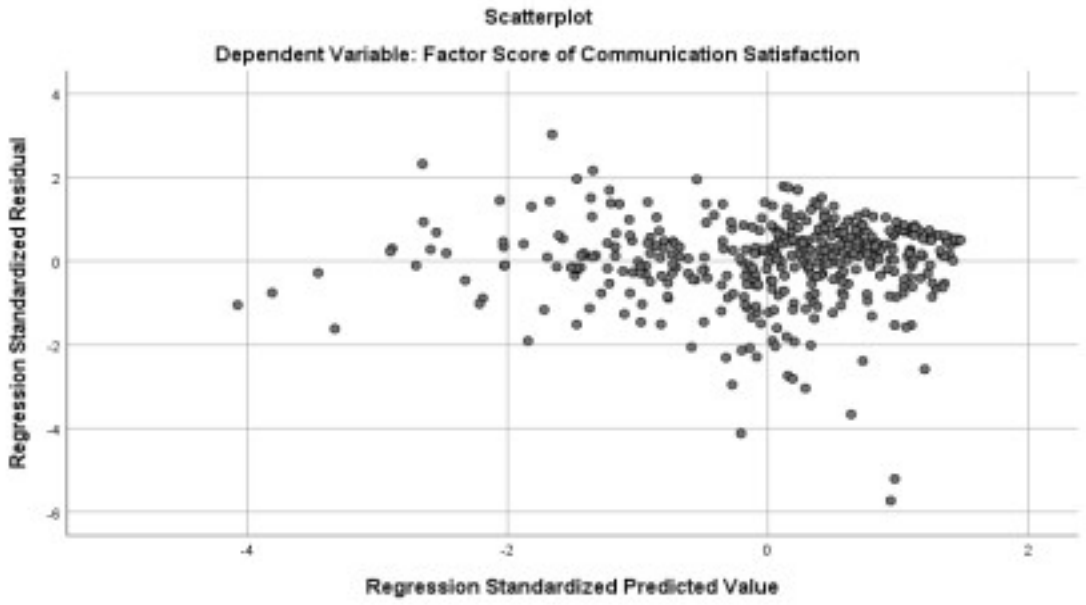

FIGURE 4.1: Scatter Plot for Communication Satisfaction Regressed on Task Communication

The second scatter plot generated by regressing factor scores of information-seeking on task communication and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.2** shows these results.

The third scatter plot generated by regressing factor scores of task uncertainty on task communication and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.3** shows these results.

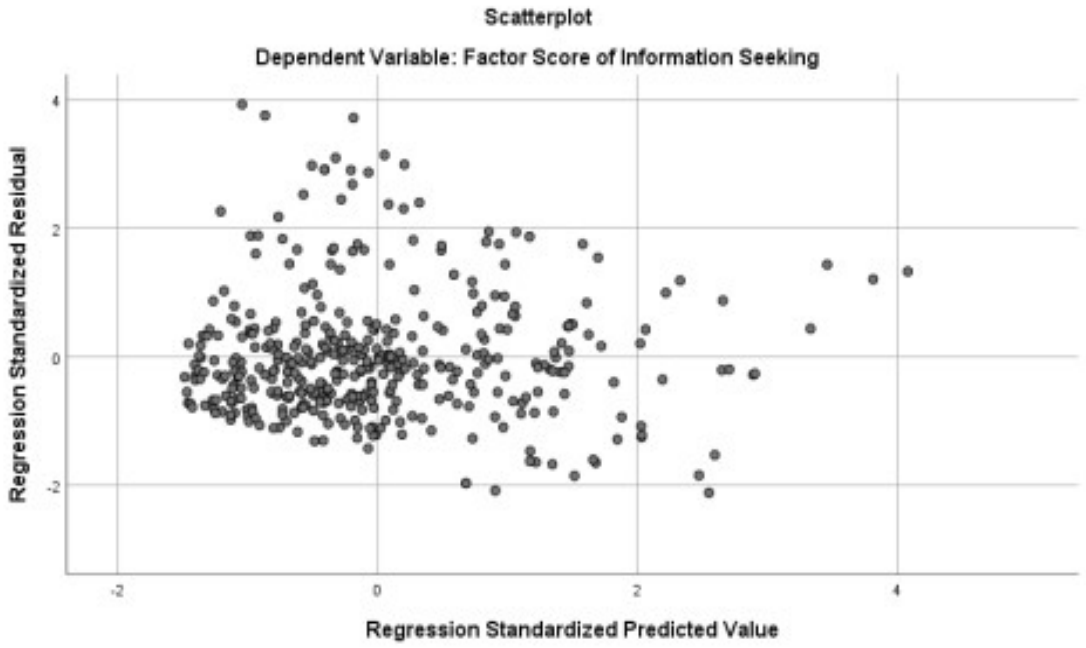

FIGURE 4.2: Scatter Plot for Information-Seeking Regressed on Task Communication

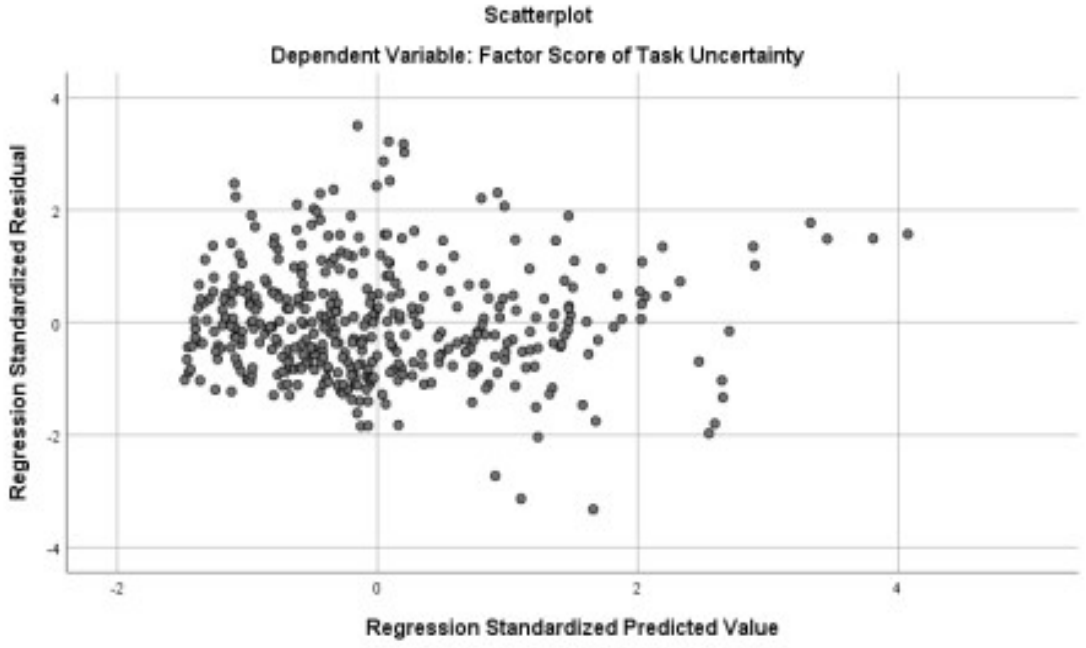

FIGURE 4.3: Scatter Plot for Task Uncertainty Regressed on Task Communication

The fourth scatter plot generated by regressing factor scores of behavioral uncertainty on task communication and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.4** shows these results.

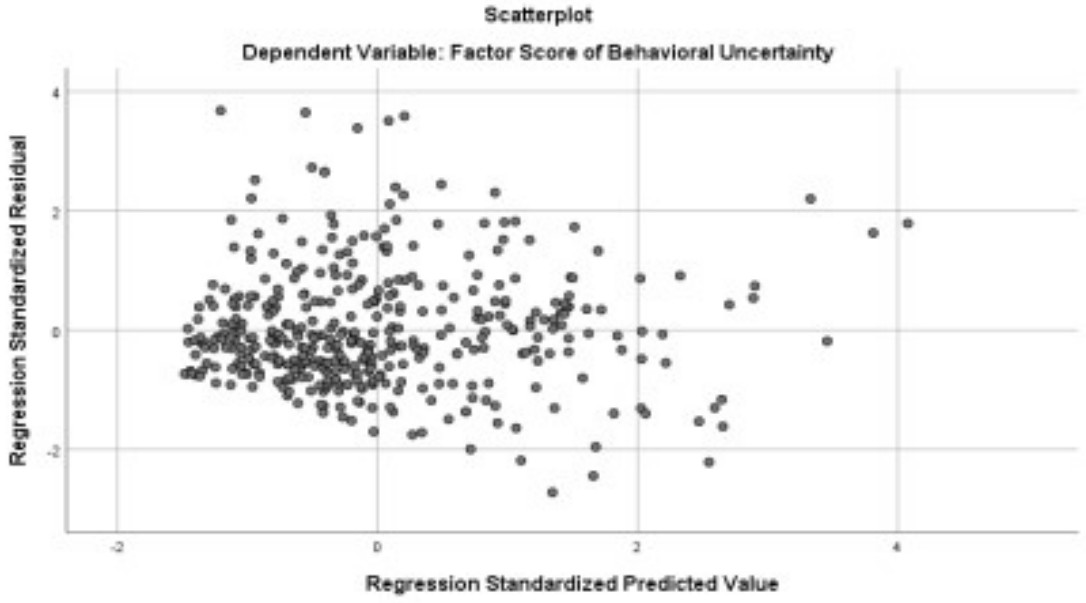

FIGURE 4.4: Scatter Plot for Behavioral Uncertainty Regressed on Task Communication

The fifth scatter plot generated by regressing factor scores of communication satisfaction on task uncertainty and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.5** shows these results.

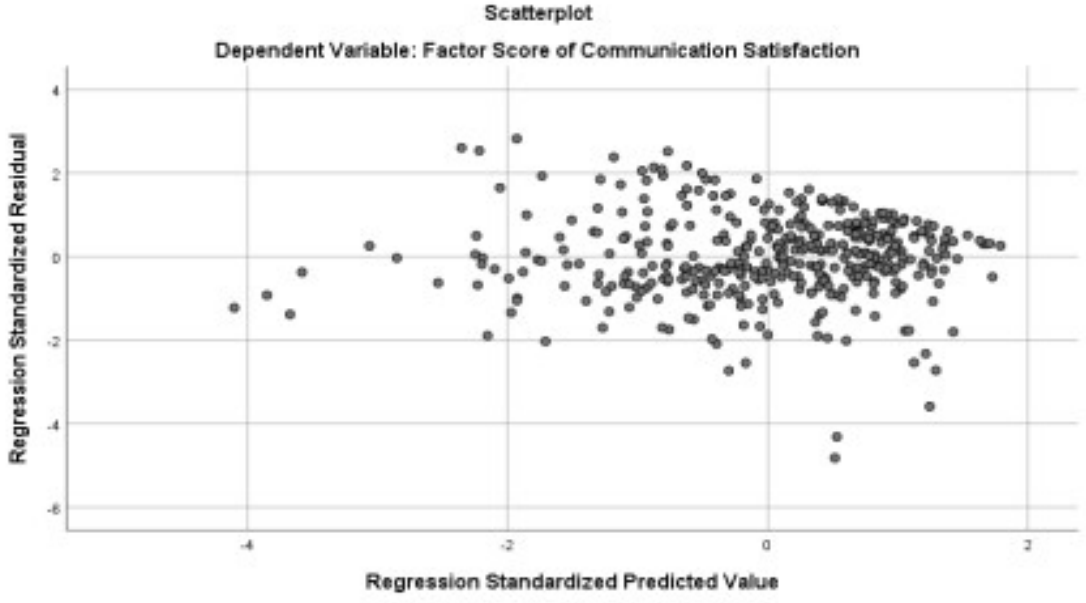

FIGURE 4.5: Scatter Plot for Communication Satisfaction Regressed on Task Uncertainty

The sixth scatter plot generated by regressing factor scores of information-seeking

on task uncertainty and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.6** shows these results.

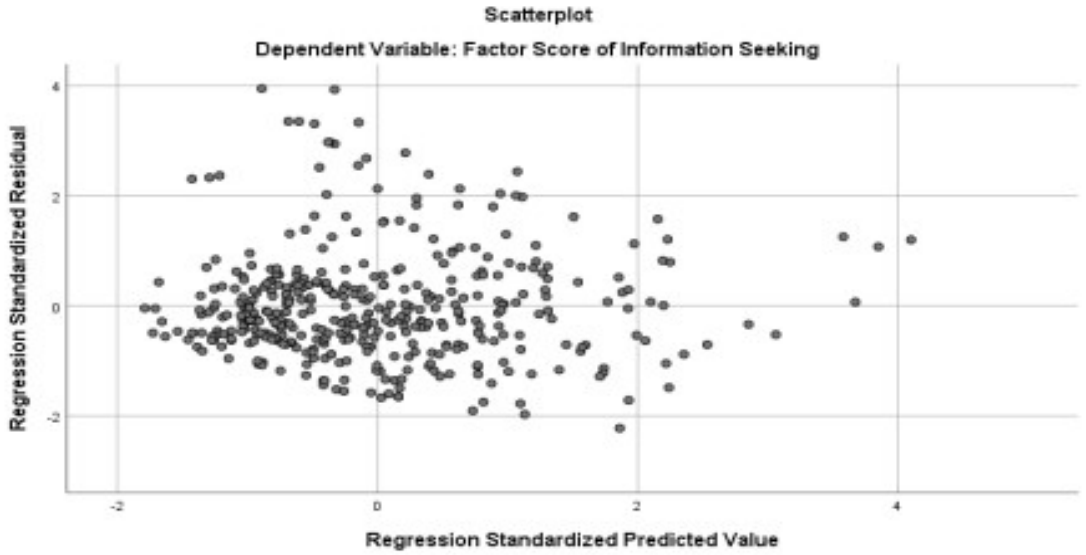

FIGURE 4.6: Scatter Plot for Information Seeking Regressed on Task Uncertainty

The seventh scatter plot generated by regressing factor scores of communication satisfaction on behavioral uncertainty and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.7** shows these results.

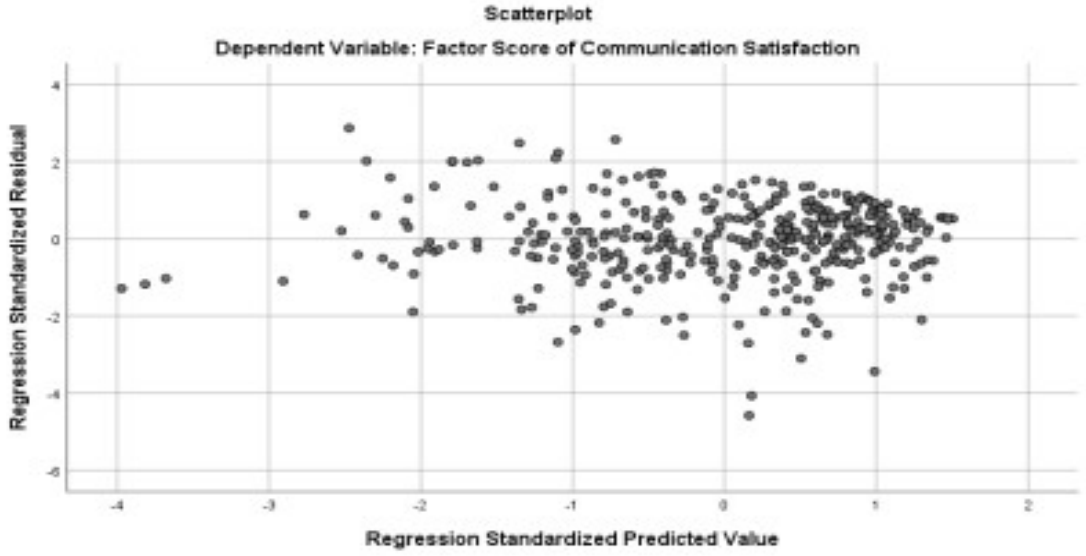

FIGURE 4.7: Scatter Plot for Communication Satisfaction Regressed on Behavioral Uncertainty

The eight scatter plot generated by regressing factor scores of information-seeking on behavioral uncertainty and plotting standardized predicted values (zpred) versus standardized residuals (zresid) shows the points are funneling out thus violating homoscedasticity assumption. **Figure 4.8** shows these results.

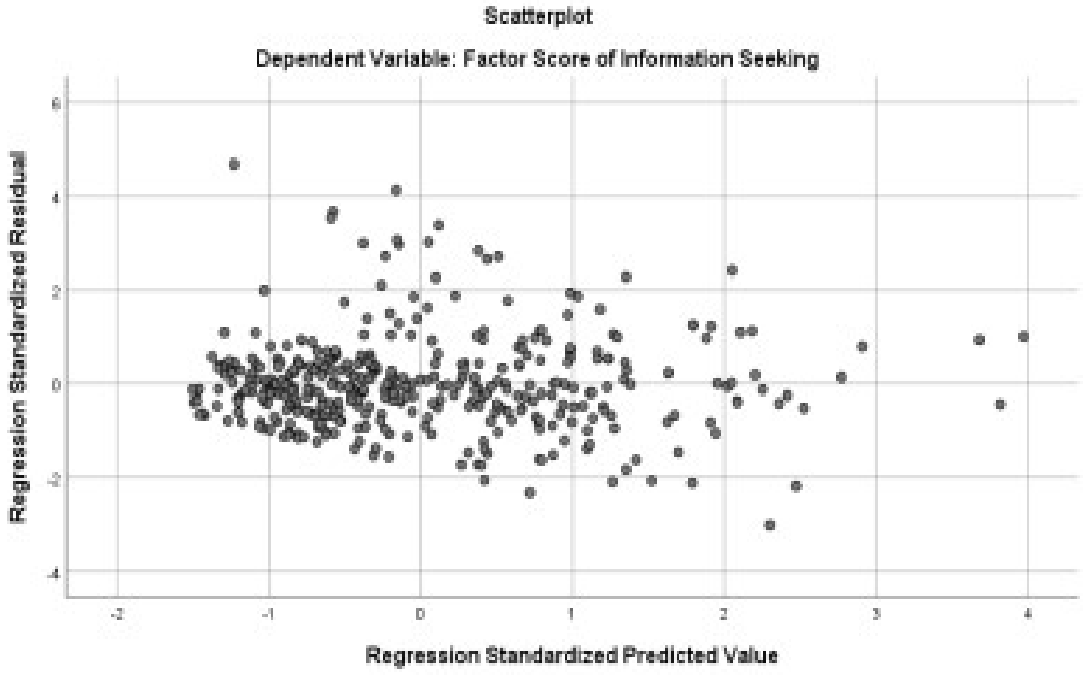

FIGURE 4.8: Scatter Plot for Information-Seeking Regressed on Behavioral Uncertainty

4.2.5 Normality

The assumption of normality is required for significance testing and sample to population generalization of results (Field, 2018). The first step in assessing normality is testing the assumption of univariate normality. To test univariate normality in data, indices of skewness and kurtosis are used. Skewness refers to the shape of a unimodal frequency distribution that is asymmetric about its mean and kurtosis refers to the shape of a frequency distribution that is pointy and has heavy tails (Kline, 2016). Skewness and kurtosis values of zero depict normality, and their deviation from zero indicates non-normality (Field, 2018). The second step in assessing normality is testing the assumption of multivariate normality. Multivariate normality is the degree to which "the individual variables are normal in a univariate sense and that their combinations are also normal" (Hair et al., 2019, p. 94).

This assumption is tested with the help of (Small, 1980) statistics of multivariate skewness (Q_1) and kurtosis (Q_2) along with Small's statistic-based omnibus test (Q_3) (Looney, 1995). The assumption of normality was evaluated in two steps: univariate normality and multivariate normality. First, the univariate normality in data was assessed with the indices of skewness and kurtosis. **Table 4.4** shows that skewness and kurtosis values found for all latent factors and observed variables were either below or above zero respectively. These results provided evidence that the assumption of univariate normality could not hold in the current data set. Although tests of significance were not carried out, this is not a big problem, though. Visual inspection of skewness and kurtosis values is often done in cases of rather large sample sizes, and in large sample sizes (like this study) impact of significant deviations from zero values of skewness and kurtosis is in general small. Second, the multivariate normality in data was assessed with the help of Small (1980) statistics of multivariate skewness (Q_1) and kurtosis (Q_2) along with Small's statistic based omnibus test (Q_3) (c.f. Looney, 1995). Significant multivariate skewness, kurtosis, and omnibus test statistics indicated the assumption of multivariate normality was not supported in the data ($Q_1 = 485.202$, $df = 38$, $p = .000$; $Q_2 = 275.883$, $df = 38$, $p = .000$; $Q_3 = 761.086$, $df = 76$, $p = .000$).

TABLE 4.4: Testing Assumption of Normality

Items	**Skewness**	**Kurtosis**
Task Communication (Factor)	-1.074	1.251
1. The trainer expressed task-related ideas and thoughts in training.	-0.798	0.159
2. The trainer participated fully in brainstorming sessions in training.	-0.658	-0.226
3. The trainer proposed task-related problem-solving suggestions in training.	-0.800	0.395
4. The trainer answered task-related questions from trainees.	-0.951	0.490
5. The trainer asked good questions that elicit task-related thinking and discussion.	-0.787	0.187
6. The trainer shared task-related success stories that may benefit the trainees.	-0.985	0.500
7. The trainer revealed past task-related failures and mistakes to help trainees avoid repeating these.	-0.964	0.706

Continued Table: 4.4 Testing Assumption of Normality

Items	Skewness	Kurtosis
Uncertainty Avoidance (Factor)	0.774	-0.087
8. The trainer made task-related presentations in training.	-0.784	0.383
1. I prefer structured situations over unstructured situations.	0.937	0.067
2. I prefer specific instructions over broad guidelines.	0.811	-0.216
3. I tend to get anxious easily when I don't know an outcome.	0.416	-0.741
4. I feel stressful when I cannot predict consequences.	0.315	-0.807
5. I would not take risks when an outcome cannot be predicted.	0.401	-0.706
6. I believe that rules should not be broken for mere pragmatic reasons.	0.623	-0.456
7. I don't like ambiguous situations.	0.629	-0.226
Task Uncertainty (Factor)	0.988	1.298
1. To what extent is there a clearly known way to conduct or perform the learned task?	0.801	0.501
2. Is there anyone who can guide you to perform the learned task?	0.631	-0.196
3. To what extent do you understand the sequence of steps to perform the learned task?	0.749	0.408
4. To what extent can you actually rely on established procedures and practices to perform the learned task?	0.831	0.598
5. To what extent is there an understandable sequence of steps that can be followed to perform the learned task?	0.676	0.022
Behavioral Uncertainty (Factor)	0.955	0.814
1. If I meet the trainer again, I will know what to say.	0.964	0.409
2. If I meet the trainer again, I will know how to act.	1.148	0.906
3. If I meet the trainer again, I will know what to talk about.	1.029	0.532
4. If I meet the trainer again, I know what he / she will say.	0.59	-0.098
5. If I meet the trainer again, I know how he / she will act.	0.586	-0.026
6. If I meet the trainer again, I know what he / she will talk about.	0.624	-0.007

Continued Table: 4.4 Testing Assumption of Normality

Items	Skewness	Kurtosis
Information-seeking (Factor)	0.943	0.455
1. I asked trainer specific, straight, to the point questions to get the information I wanted.	0.928	0.408
2. I identified what I didn't know and asked trainer for information about that matter.	0.806	0.481
3. I went directly to trainer and asked for information.	0.733	0.173
4. I "beat around the bush" in asking for information from trainer.	0.645	0.007
Communication Satisfaction (Factor)	-0.825	0.539
1. My communication with my trainer felt satisfying.	-1.109	0.939
2. I disliked talking with my trainer.	-0.669	-1.034
3. I am not satisfied after talking to my trainer.	-0.637	-1.024
4. Talking with my trainer gave me feeling like I accomplished something.	-0.768	0.112
5. My trainer fulfilled my expectations when I talked to him.	-0.986	0.506
6. My conversations with my trainer were worthwhile.	-0.893	0.436
7. When I talked to my trainer, the conversations were rewarding.	-0.934	0.654
8. My trainer made an effort to satisfy the concerns I have.	-1.192	1.183

Note: n = 407.

4.3 Maximum Likelihood Robust Estimator

Statistical assumptions of normality and heteroscedasticity were violated in the data of this study. To deal with the non-normal distributions of endogenous variables and heteroscedastic residuals, there were at least two choices: transformations and robust estimators (Kline, 2012; Hair et al., 2019). Transformations cause difficulty in interpretation of results (Hair et al., 2019) whereas robust estimation (MLR, robust maximum likelihood) results are easier to interpret, widespread use in contemporary studies, (e.g Busque-Carrier et al., 2021; Ma et al., 2021), and

available in software packages such as MPlus (Muthén & Muthén, 1998-2012). Robust estimation also corrects standard errors and test statistics for non-normality and heteroscedasticity (Kline, 2012; Field & Wilcox, 2017). Therefore, it was decided to use robust estimator instead of transforming the data. Before moving to measurement properties, Table 4.5 presents the hypotheses of this study.

Table 4.5: Hypotheses Summary

SR	**Hypotheses**
1	Task communication shall be positively related with communication satisfaction.
2	Task communication shall be negatively related with information-seeking.
3	Task communication shall be negatively related with task uncertainty.
4	Task communication shall be negatively related with behavioral uncertainty.
5	Task uncertainty shall be negatively related with communication satisfaction.
6	Task uncertainty shall be positively related with information-seeking.
7	Behavioral uncertainty shall be negatively related with communication satisfaction.
8	Behavioral uncertainty shall be positively related with information-seeking.
9	Task communication shall be indirectly related with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.
10(a)	Uncertainty avoidance shall moderate the negative relationship between task communication and task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
10(b)	Uncertainty avoidance shall moderate the negative relationship between task communication and behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(a):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(b):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

Continued Table 4.5 Summary of Hypotheses

Sr.No	Hypotheses
11(c):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.
11(d):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.

4.4 Overall Measurement Model Validity

A measurement model is "(1) the distinction between indicators and their corresponding constructs, and (2) specification of directional effects between observed and latent variables" (Kline, 2012, p. 112). The validity of measurement model is evaluated with the goodness-of-fit indices (Hair et al., 2019). The goodness of fit refers to the "measure indicating how well a specified model structure reproduces the covariance matrix among the indicator variables, alternatively, the accuracy of a proposed theory" (Hair et al., 2019, p. 605). It is evaluated with the help of several fit indices: Chi-square, RMSEA, CFI, TLI, and SRMR etc. Chi-Square (χ^2) measures the extent to which a "model holds exactly in the population" (Brown, 2015, p. 71). Satorra-Bentler scaled χ^2 (χ^2SB, (Satorra & Bentler, 1994) is used when a robust maximum likelihood estimator is used (Kline, 2016). RMSEA is an acronym for root mean square error of approximation (Steiger & Lind, 1980) that measures "the extent to which a model fits reasonably well in the population" (Brown, 2015, p. 71). CFI is an acronym of comparative fit index (Bentler, 1990) and TLI is an acronym of Tucker Lewis non-normed fit index (Tucker &

Lewis, 1973). Validity of overall measurement model was evaluated by obtaining acceptable values of several goodness-of-fit indices (Hair et al., 2019); Chi-square, RMSEA, CFI, TLI, and SRMR etc.

Hair et al. (2019) expected a significant chi-square ($p < .05$), greater than .92 CFI or TLI, equal or lower than .08 SRMR, and lower than .07 RMSEA in a good fitting model for a situation where observations are more than two hundred fifty and observed variables are more than twenty nine. These standards are relevant for this study as its observations are four hundred and seven and its observed variables are thirty eight. **Table 4.6** shows that an initial six factor model yielded weak fit indices ($\chi^2 = 1336.774$, $df = 650$, $p = .000$; $RMSEA = 0.051$; $CFI = .898$, $TLI = 0.890$; $SRMR = 0.052$). Changing the behavioral uncertainty construct from a first-order one dimensional construct to a second-order two dimensional construct yielded acceptable fit indices ($\chi^2 = 1107.904$, $df = 648$, $p = .000$; $RMSEA = 0.042$; $CFI = .932$, $TLI = 0.926$; $SRMR = 0.048$). This was done in line with the measurement theory of behavioral uncertainty construct that was composed of two dimensions: behavioral uncertainty (self) and behavioral uncertainty (others). Next, this study compared the aforementioned six factor model with its rival plausible models to obtain stronger evidence of validity of overall measurement model.

4.4.1 Results of Competing Measurement Models

A more robust test of the validity of a hypothesized model is comparing its fit indices with those of its competing models than evaluating its fit indices only (Hair et al., 2019). This comparison tells us whether a hypothesized model is superior, equivalent, or poor fit to the data than its competing models (Heck & Thomas, 2020). This study compared the six-factor measurement model with thirty four plausible rival measurement models. Model 1 in the table 4.6 is the hypothesized six factor measurement model with behavioral uncertainty as a second order two dimensional construct. **Table 4.6** shows that fit indices of the competing models were weaker than those of the hypothesized measurement model. Thus, this study obtained stronger evidence of validity of the hypothesized measurement model.

Table 4.6: Competing Measurement Models

Model t	X^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 1: Six factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, behavioral uncertainty as a second order fourth factor, communication satisfaction as fifth factor, and information-seeking as sixth factor)	1107.904***	648	.042	.932	.926	.048	-
Model 2: Six factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, behavioral uncertainty as fourth factor, communication satisfaction as fifth factor, and information-seeking as sixth factor)	1336.774***	650	.051	.898	.89	.052	228.870**
Model 3: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, behavioral uncertainty as fourth factor, and communication satisfaction and information-seeking combined as fifth factor)	1653.041***	655	.061	.852	.842	.061	545.137**
Model 4: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty and behavioral uncertainty combined as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	1567.192***	655	.058	.865	.855	.059	459.288**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 5: Five factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty as second factor, behavioral uncertainty as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	2333.096***	655	.079	.752	0.734	.086	1225.192**
Model 6: Five factor model (with task communication and task uncertainty combined as first factor, uncertainty avoidance as second factor, behavioral uncertainty as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	1591.166***	655	0.059	0.862	0.851	0.061	483.262**
Model 7: Five factor model (with task communication and behavioral uncertainty combined as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	1847.662***	655	0.067	0.824	0.811	0.065	739.758**
Model 8: Five factor model (with task communication as first factor, uncertainty avoidance and task uncertainty combined as second factor, behavioral uncertainty as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	1928.546***	655	0.069	0.812	0.798	0.111	820.642**
Model 9: Five factor model (with task communication as first factor, uncertainty avoidance and behavioral uncertainty combined as second factor, task uncertainty as third factor, communication satisfaction as fourth factor, and information-seeking as fifth factor)	2267.798***	655	0.078	0.761	0.744	0.123	1159.894**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 10: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty and communication satisfaction combined as third factor, behavioral uncertainty as fourth factor, and information-seeking as fifth factor)	1648.699***	655	0.061	0.853	0.842	0.063	540.795**
Model 11: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, behavioral uncertainty and communication satisfaction combined as fourth factor, and information-seeking as fifth factor)	1740.507***	655	0.064	0.839	0.828	0.061	632.603**
Model 12: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, behavioral uncertainty as third factor, task uncertainty and information seeking combined as fourth factor, and communication satisfaction as fifth factor)	1622.696***	655	0.06	0.857	0.846	0.059	514.792**
Model 13: Five factor model (with task communication as first factor, uncertainty avoidance as second factor, behavioral uncertainty and information seeking combined as third factor, task uncertainty as fourth factor, and communication satisfaction as fifth factor)	1602.315***	655	0.06	0.86		0.058	494.411**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 14: Five factor model (with task communication as first factor, uncertainty avoidance and communication satisfaction combined as second factor, task uncertainty as third factor, behavioral uncertainty as fourth factor, and information seeking as fifth factor)	2389.690***	655	0.081	0.743	0.725	0.09	1281.786**
Model 15: Five factor model (with task communication as first factor, uncertainty avoidance and information seeking combined as second factor, task uncertainty as third factor, behavioral uncertainty as fourth factor, and communication satisfaction as fifth factor)	1858.986***	655	0.067	0.822	0.809	0.103	751.082**
Model 16: Four factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty and behavioral uncertainty combined as second factor, communication satisfaction as third factor, and information-seeking as fourth factor)	2563.888***	659	0.084	0.718	0.699	0.091	1455.984**
Model 17: Four factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty and behavioral uncertainty combined as third factor, and communication satisfaction and information-seeking combined as fourth factor)	1881.772***	659	0.068	0.819	0.807	0.068	773.868**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 18: Four-factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty as second factor, behavioral uncertainty as third factor, and communication satisfaction and information-seeking combined as fourth factor)	2651.215***	659	0.086	0.705	0.686	0.092	1543.311**
Model 19: Four-factor model (with task communication as first factor, uncertainty avoidance, task uncertainty, and behavioral uncertainty combined as second factor, communication satisfaction as third factor, and information-seeking as fourth factor)	2542.394***	659	0.084	0.721	0.703	0.09	1434.490**
Model 20: Four-factor model (with task communication, uncertainty avoidance, and task uncertainty combined as first factor, behavioral uncertainty as second factor, communication satisfaction as third factor, and information-seeking as fourth factor)	2545.969***	659	0.084	0.721	0.702	0.091	1438.065**
Model 21: Four-factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty as second factor, behavioral uncertainty and communication satisfaction combined as third factor, and information-seeking as fourth factor)	2734.155***	659	0.088	0.693	0.673	0.092	1626.251**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 22: Four-factor model (with task communication as first factor, uncertainty avoidance and task uncertainty combined as second factor, behavioral uncertainty as third factor, communication satisfaction and information-seeking combined as fourth factor)	2245.445***	659	0.077	0.765	0.75	0.116	1137.541**
Model 23: Four-factor model (with task communication as first factor, uncertainty avoidance as second factor, task uncertainty as third factor, behavioral uncertainty, communication satisfaction and information-seeking combined as fourth factor)	1991.651***	659	0.07	0.803	0.79	0.066	883.747**
Model 24: Four-factor model (with task communication and information-seeking combined as first factor, uncertainty avoidance as second factor, task uncertainty and behavioral uncertainty combined as third factor, communication satisfaction as fourth factor)	1915.446***	659	0.068	0.814	0.802	0.07	807.542**
Model 25: Four-factor model (with task communication and information-seeking combined as first factor, uncertainty avoidance and communication satisfaction combined as second factor, task uncertainty as third factor, and behavioral uncertainty as fourth factor)	2743.187***	659	0.088	0.692	0.671	0.098	1635.283**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 26: Three-factor model (with task communication, uncertainty avoidance, and task uncertainty combined as first factor, behavioral uncertainty as second factor, and communication satisfaction was combined with information-seeking as third factor)	2862.146***	661	0.09	0.675	0.654	0.097	1754.242**
Model 27: Three-factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty and behavioral uncertainty combined as second factor, and communication satisfaction and information-seeking combined as third factor)	2881.051***	662	0.091	0.672	0.651	0.097	1773.147**
Model 28: Three-factor model (with task communication, uncertainty avoidance, and behavioral uncertainty combined as first factor, task uncertainty as second factor, and communication satisfaction and information-seeking combined as third factor)	3136.857***	662	0.096	0.634	0.661	0.102	2028.953**
Model 29: Three-factor model (with task communication, uncertainty avoidance, task uncertainty, and behavioral uncertainty combined as first factor, communication satisfaction as second factor, and information-seeking as third factor)	2959.097***	662	0.092	0.66	0.639	0.099	1851.193**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 30: Three-factor model (with task communication as first factor, uncertainty avoidance, task uncertainty, and behavioral uncertainty combined as second factor, communication satisfaction and information-seeking combined as third factor)	2857.153***	662	0.09	0.675	0.655	0.096	1749.249**
Model 31: Three-factor model (with task communication and uncertainty avoidance combined as first factor, task uncertainty, behavioral uncertainty, and communication satisfaction combined as second factor, and information-seeking as third factor)	2944.099***	662	0.092	0.662	0.642	0.095	1836.195**
Model 32: Three-factor model (with task communication as first factor, uncertainty avoidance and task uncertainty combined as second factor, behavioral uncertainty, communication satisfaction and information-seeking combined as third factor)	2573.011***	662	0.084	0.717	0.7	0.119	1465.107**
Model 33: Two-factor model (with task communication and uncertainty avoidance combined as first factor and task uncertainty, behavioral uncertainty, communication satisfaction, and information-seeking combined as second factor)	3193.731***	664	0.097	0.626	0.604	0.099	2085.827**

Continued Table 4.6 Competing Measurement Models

Model t	χ^2_{SB}	***df***	***RMSEA***	***CFI***	***TLI***	***SRMR***	$\Delta\ \chi^2_{SB}$
Model 34: Two-factor model (with task communication, uncertainty avoidance, task uncertainty, and behavioral uncertainty combined as first factor and communication satisfaction and information-seeking combined as second factor)	3270.054***	664	0.098	0.615	0.592	0.104	2162.150**
Model 35: One-factor model (with task communication, uncertainty avoidance, task uncertainty, behavioral uncertainty, communication satisfaction, and information-seeking combined as one factor)	3568.236***	665	0.104	0.571	0.546	0.107	2460.332**

Note: n = 407. χ^2_{SB} = Satorra-Bentler scaled chi-square. *** = p < .001. ** = p < .01. df = degrees of freedom. RMSEA = Root mean squared error of approximation. CFI = Comparative fit index. TLI = Tucker Lewis index. SRMR = Standardized Root Mean Squared Residual. $\Delta\chi^2_{SB}$ = Satorra-Bentler scaled chi-square difference test.

A six-factor measurement model was estimated in model 1. **Figure 4.9** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty as the third factor, behavioral uncertainty as the fourth factor, communication satisfaction was the fifth factor, and information-seeking was the sixth factor. All factors except behavioral uncertainty were conceptualized as first-order factor, whereas, behavioral uncertainty was conceptualized as second order factor. This model showed strong global fit indices (χ^2_{SB} = 1107.904, df = 648, RMSEA = 0.042, CFI = .932, TLI = 0.926, SRMR = 0.048).

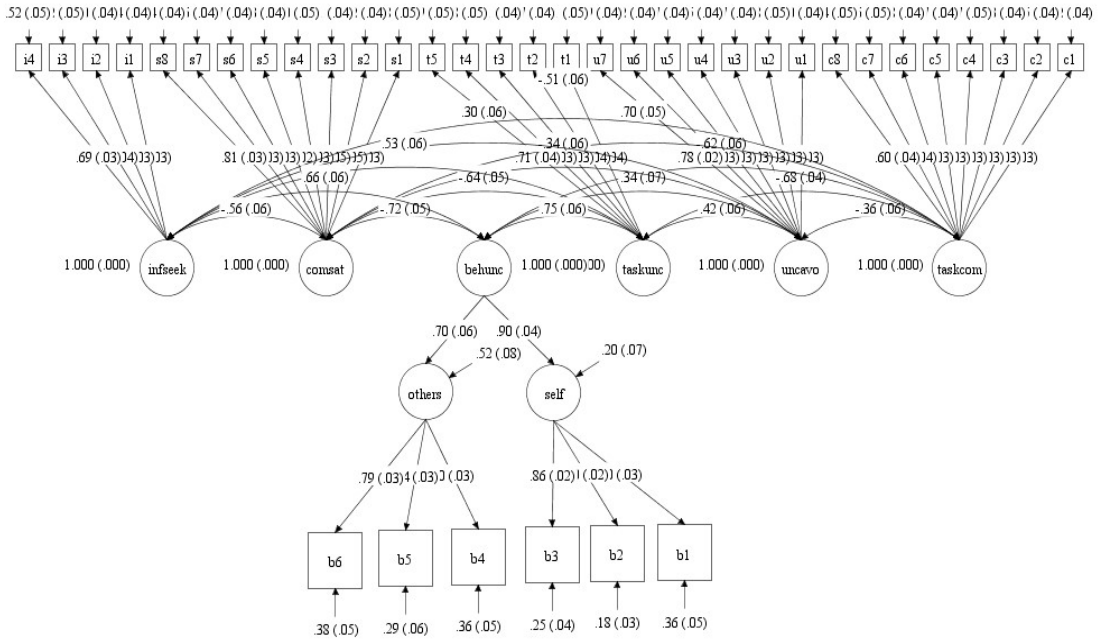

FIGURE 4.9: Six-Factor Measurement Model (Model 1)

A six-factor measurement model was estimated in model 2. **Figure 4.10** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty as the third factor, behavioral uncertainty as the fourth factor, communication satisfaction was the fifth factor, and information-seeking was the sixth factor. All factors were first-order factors. This model showed weak global fit indices (χ^2_{SB} = 1336.774, df = 650, RMSEA = 0.051, CFI = .898, TLI = 0.890, SRMR = 0.052). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2_{SB}$ = 228.870, df = 2, p = .01).

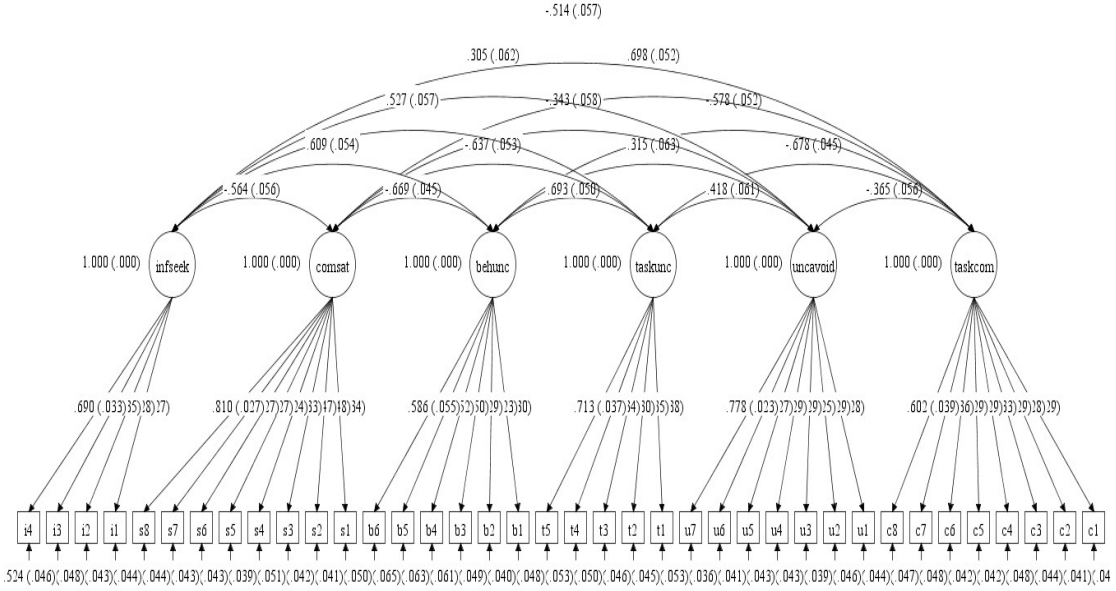

FIGURE 4.10: Six-Factor Measurement Model (Model 2)

A five-factor measurement model was estimated in model 3. **Figure 4.11** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty was the third factor, behavioral uncertainty as the fourth factor, and communication satisfaction and information-seeking were combined as the fifth factor. This model showed weak global fit indices (χ^2SB = 1653.041, df = 655, RMSEA = 0.061, CFI = .852, TLI = 0.842, SRMR = 0.061). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 545.137, df = 7, p = .01).

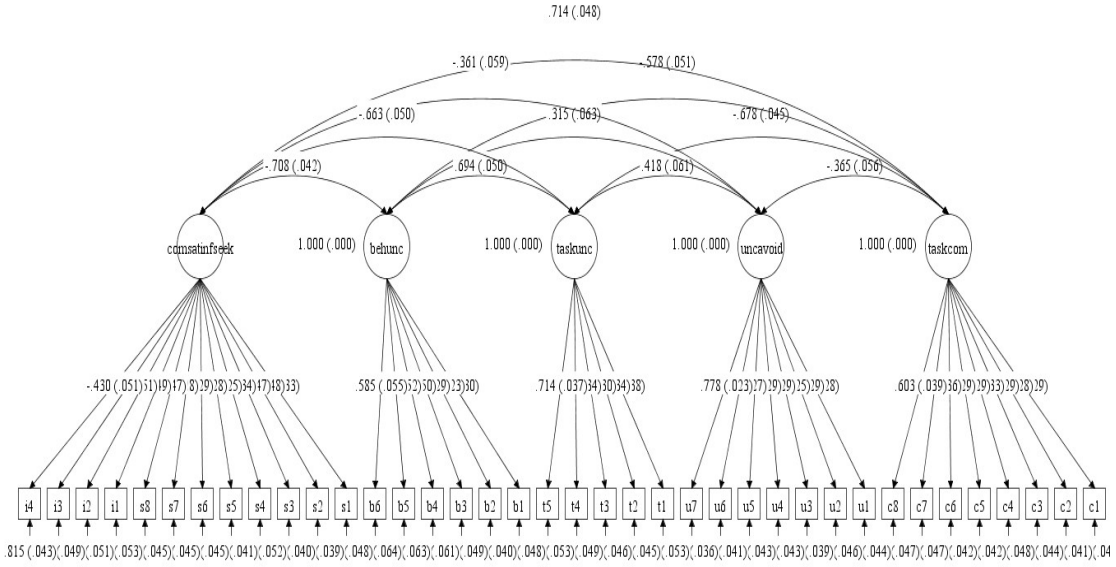

FIGURE 4.11: Five-Factor Measurement Model (Model 3)

A five-factor measurement model was estimated in model 4. **Figure 4.12** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty and behavioral uncertainty were combined as the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1567.192, df = 655, RMSEA = 0.058, CFI = .865, TLI = 0.855, SRMR = 0.059). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 459.288, df = 7, p = .01).

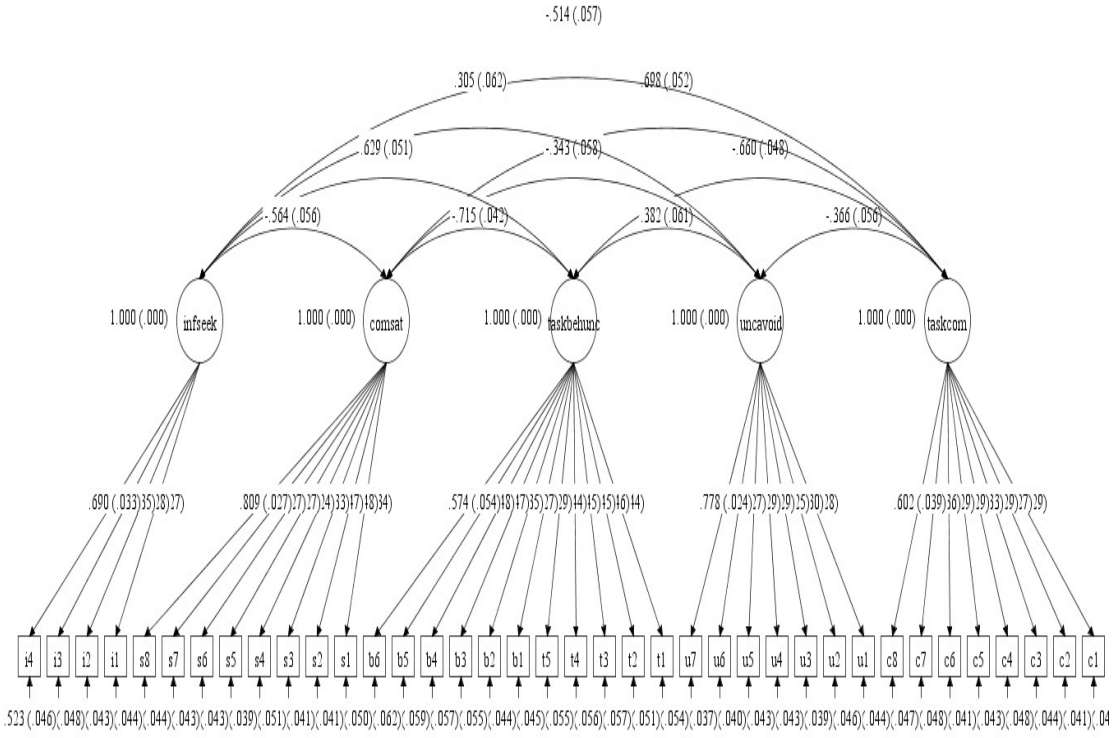

FIGURE 4.12: Five-Factor Measurement Model (Model 4)

A five-factor measurement model was estimated in model 5. **Figure 4.13** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor, task uncertainty was the second factor, behavioral uncertainty was the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 2333.096, df = 655, RMSEA = 0.079, CFI = .752, TLI = 0.734, SRMR = 0.086). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1222.192, df = 7, p = .01). A five-factor measurement model was estimated in model 5. **Figure 4.13** presents this model.

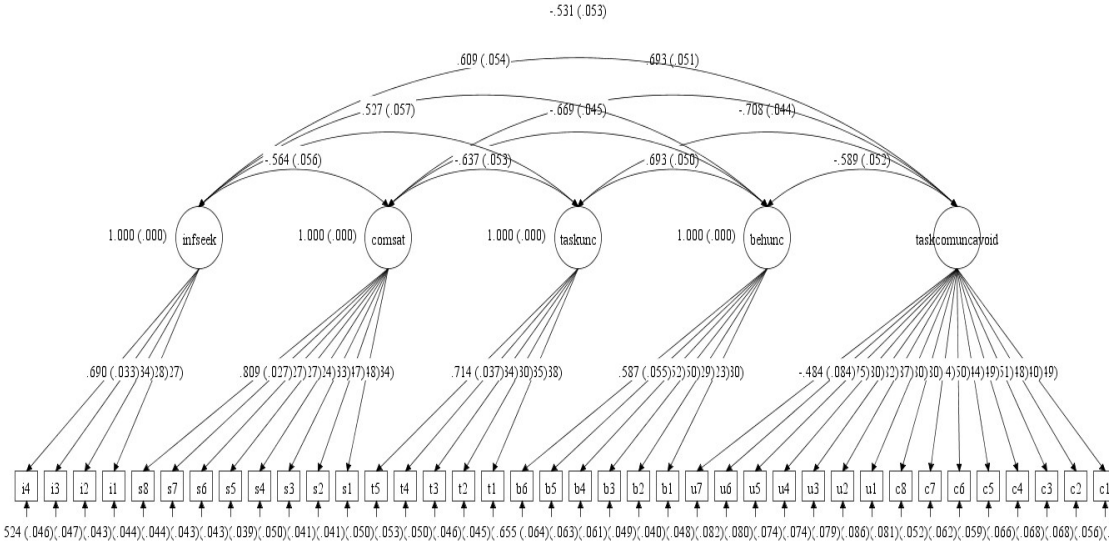

FIGURE 4.13: Five-Factor Measurement Model (Model 5)

A five-factor measurement model was estimated in model 6. **Figure 4.14** presents this model. In this model, task communication and task uncertainty were combined as the first factor, uncertainty avoidance was the second factor, behavioral uncertainty was the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1591.166, df = 655, RMSEA = 0.059, CFI = .862, TLI = 0.851, SRMR = 0.061). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 483.262, df = 7, p = .01).

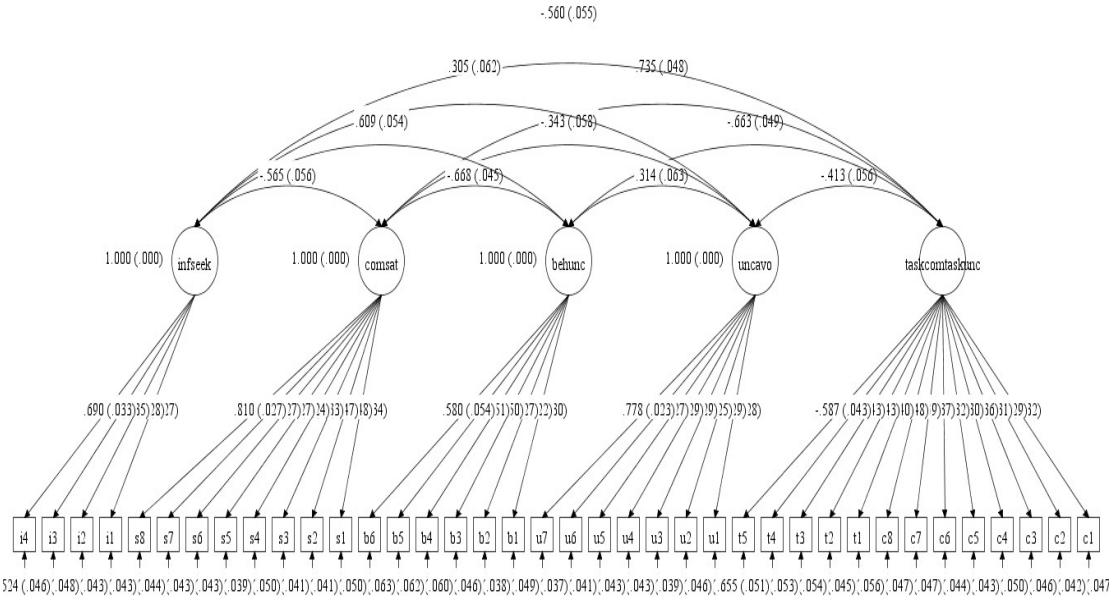

FIGURE 4.14: Five-Factor Measurement Model (Model 6)

A five-factor measurement model was estimated in model 7. **Figure 4.15** presents this model. In this model, task communication and behavioral uncertainty were combined as the first factor, uncertainty avoidance was the second factor, task uncertainty was the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1847.662, df = 655, RMSEA = 0.067, CFI = .824, TLI = 0.811, SRMR = 0.065). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 739.758, df = 7, p = .01).

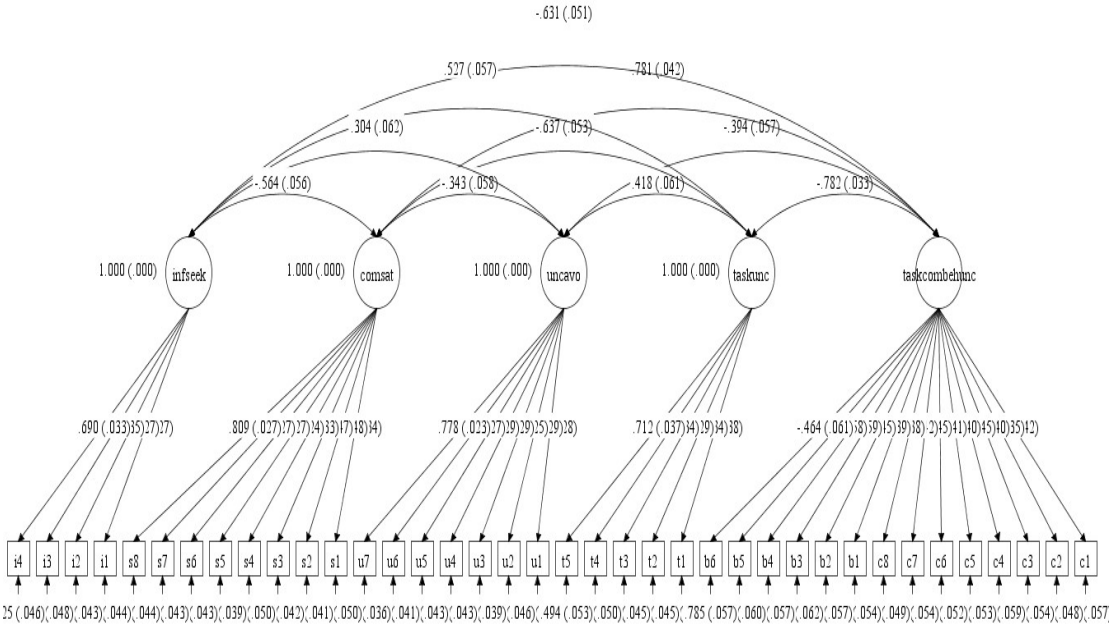

FIGURE 4.15: Five-Factor Measurement Model (Model 7)

A five-factor measurement model was estimated in model 8. **Figure 4.16** presents this model. In this model, task communication was the first factor, uncertainty avoidance and task uncertainty were combined as the second factor, behavioral uncertainty was the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1928.546, df = 655, RMSEA = 0.069, CFI = .812, TLI = 0.798, SRMR = 0.111). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 820.642, df = 7, p = .01). In this model, task communication was the first factor, uncertainty avoidance and task uncertainty were combined as the second factor.

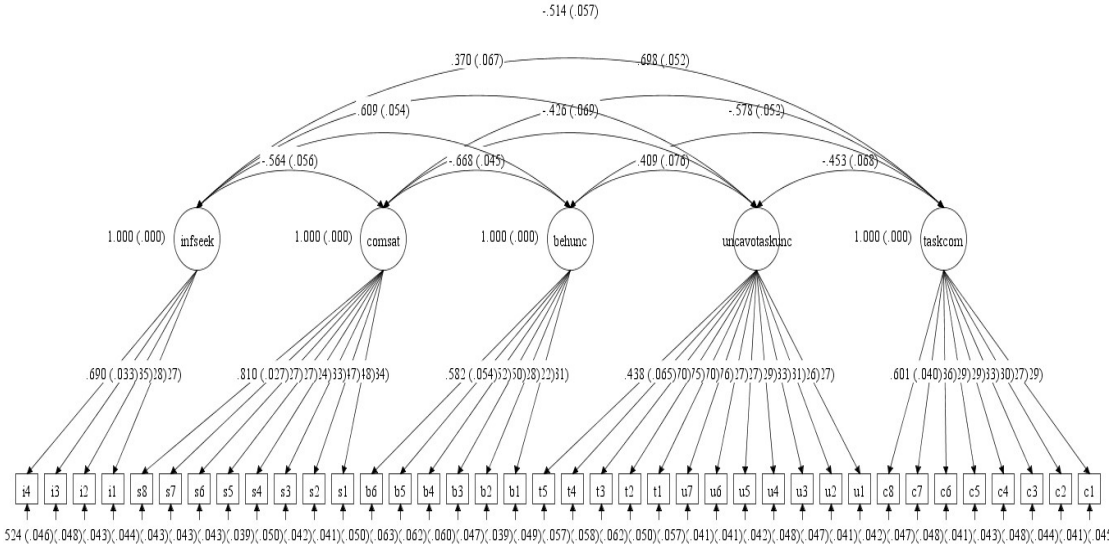

FIGURE 4.16: Five-Factor Measurement Model (Model 8)

A five-factor measurement model was estimated in model 9. **Figure 4.17** presents this model. In this model, task communication was the first factor, uncertainty avoidance and behavioral uncertainty were combined as the second factor, task uncertainty was the third factor, communication satisfaction was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 2267.798, df = 655, RMSEA = 0.078, CFI = .761, TLI = 0.744, SRMR = 0.123). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1159.894, df = 7, p = .01).

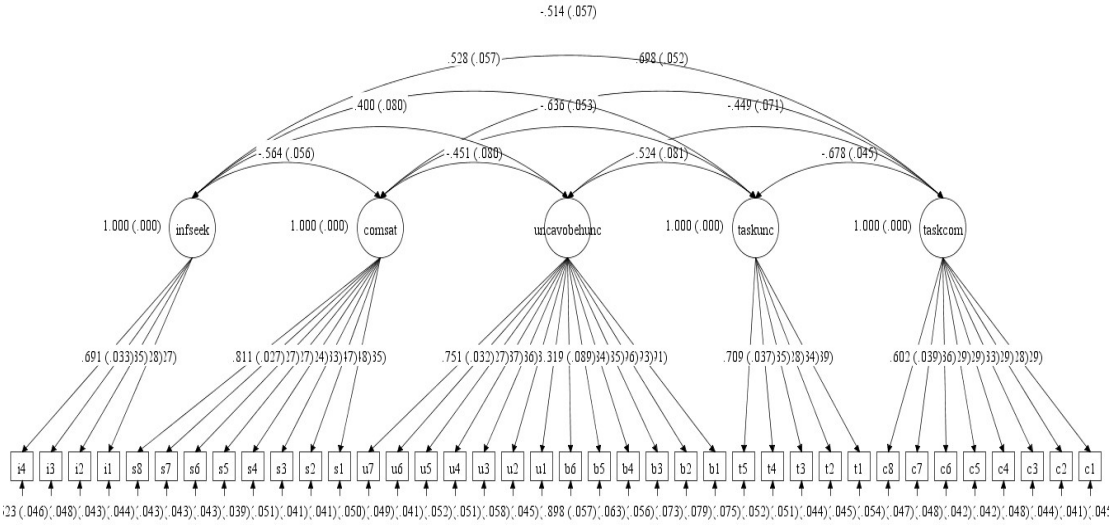

FIGURE 4.17: Five-Factor Measurement Model (Model 9)

A five-factor measurement model was estimated in model 10. **Figure 4.18** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty and communication satisfaction were combined as the third factor, behavioral uncertainty was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1648.699, df = 655, RMSEA = 0.061, CFI = .853, TLI = 0.842, SRMR = 0.063). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 540.795, df = 7, p = .01).

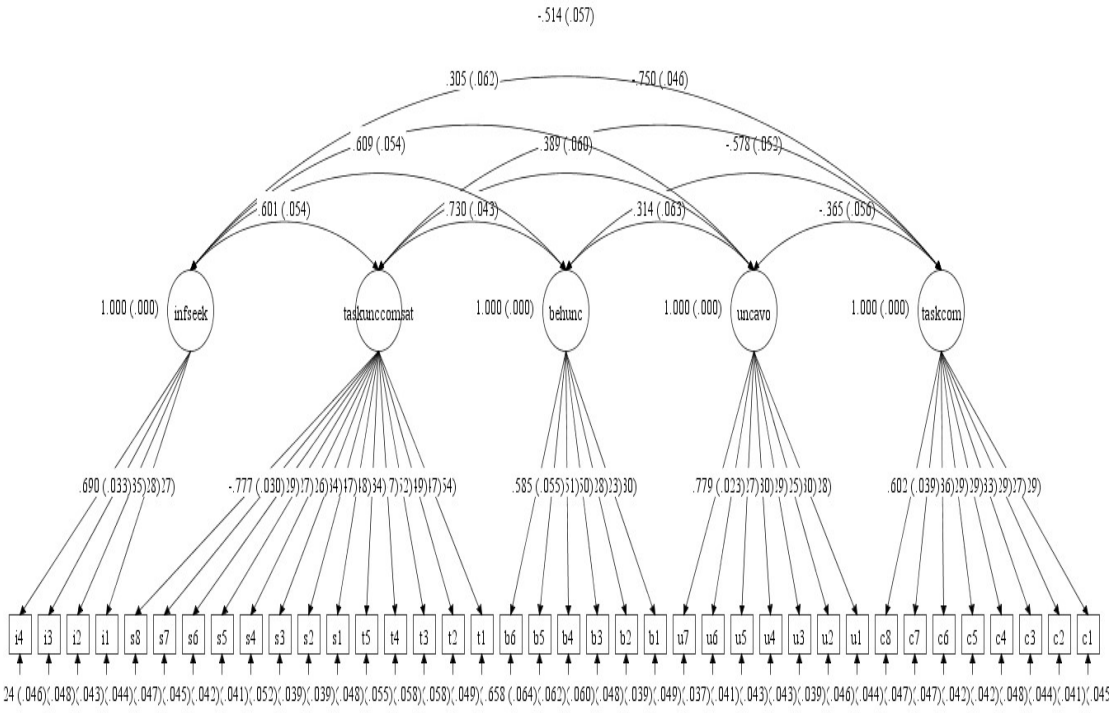

FIGURE 4.18: Five-Factor Measurement Model (Model 10)

A five-factor measurement model was estimated in model 11. **Figure 4.19** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty was the third factor, behavioral uncertainty and communication satisfaction were combined as the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 1740.507, df = 655, RMSEA = 0.064, CFI = .839, TLI = 0.828, SRMR = 0.061). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 632.603, df = 7, p = .01).

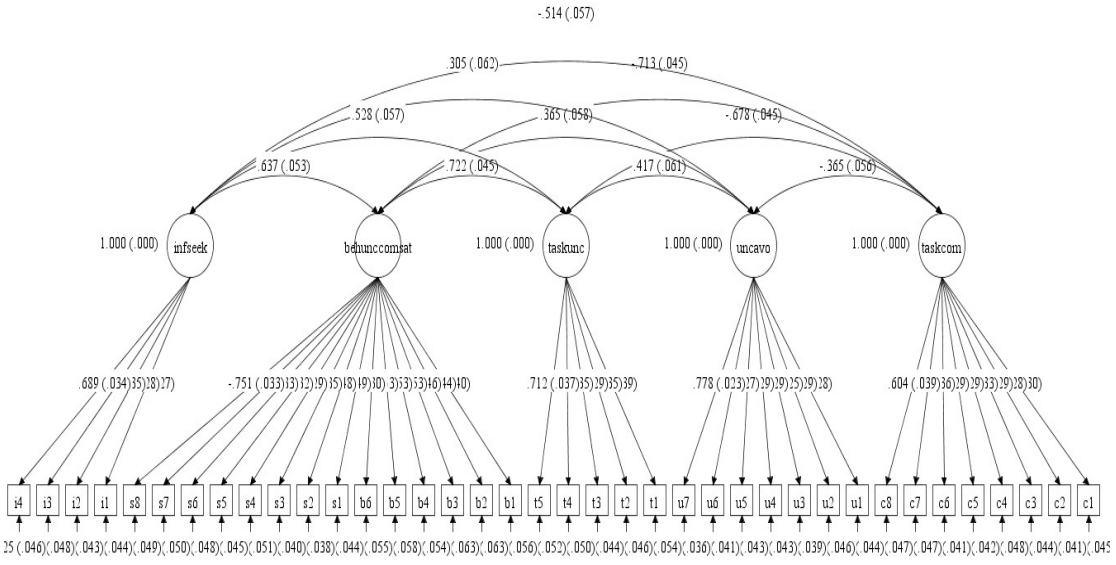

FIGURE 4.19: Five-Factor Measurement Model (Model 11)

A five-factor measurement model was estimated in model 12. **Figure 4.20** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, behavioral uncertainty was the third factor, task uncertainty and information-seeking were combined as the fourth factor, and communication satisfaction was the fifth factor. This model showed weak global fit indices (χ^2SB = 1622.696, df = 655, RMSEA = 0.060, CFI = .857, TLI = 0.846, SRMR = 0.059). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 514.792, df = 7, p = .01).

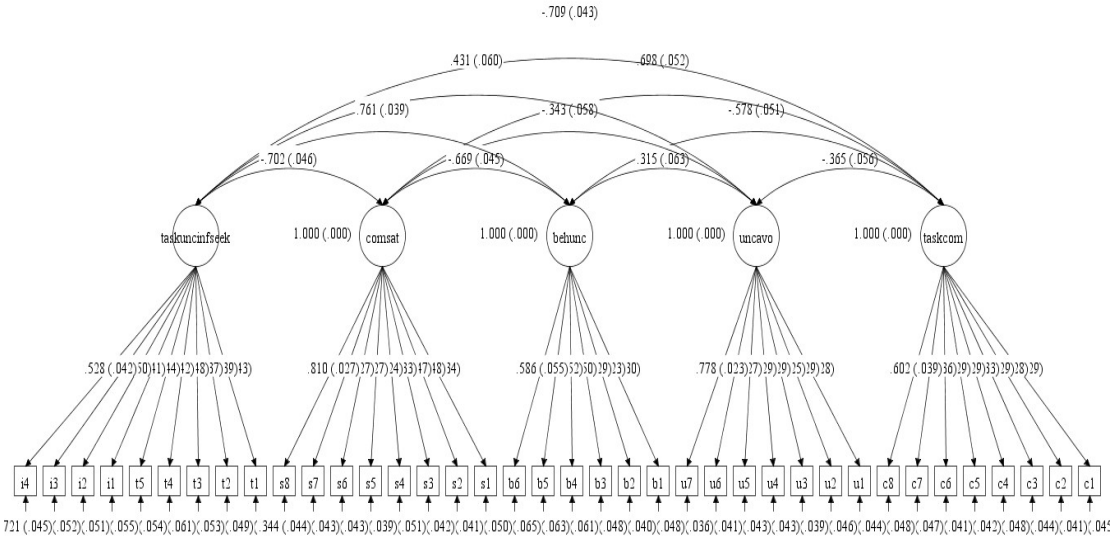

FIGURE 4.20: Five-Factor Measurement Model (Model 12)

A five-factor measurement model was estimated in model 13. **Figure 4.21** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, behavioral uncertainty and information-seeking were combined as the third factor, task uncertainty was the fourth factor, and communication satisfaction was the fifth factor. This model showed weak global fit indices (χ^2SB = 1602.315, df = 655, RMSEA = 0.060, CFI = .860, TLI = 0.850, SRMR = 0.058). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 494.411, df = 7, p = .01). In this model, task communication was the first factor, uncertainty avoidance was the second factor, behavioral uncertainty and information-seeking were combined as the third factor.

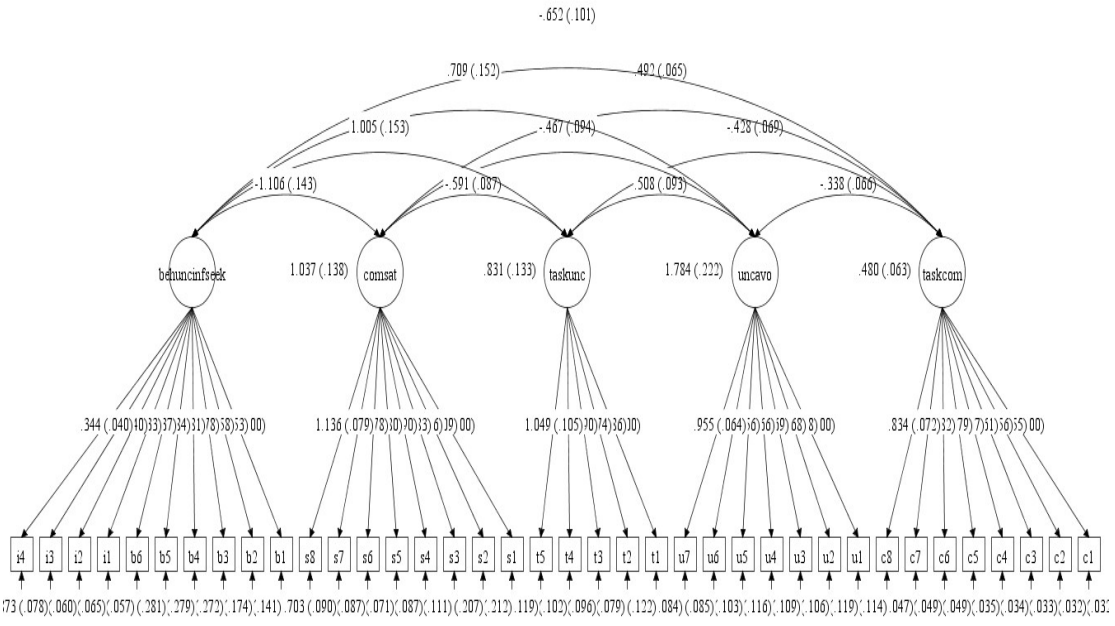

FIGURE 4.21: Five-Factor Measurement Model (Model 13)

A five-factor measurement model was estimated in model 14. **Figure 4.22** presents this model. In this model, task communication was the first factor, uncertainty avoidance and communication satisfaction were combined as the second factor, task uncertainty was the third factor, behavioral uncertainty was the fourth factor, and information-seeking was the fifth factor. This model showed weak global fit indices (χ^2SB = 2389.690, df = 655, RMSEA = 0.081, CFI = .743, TLI = 0.725, SRMR = 0.090). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1281.786, df = 7, p = .01).

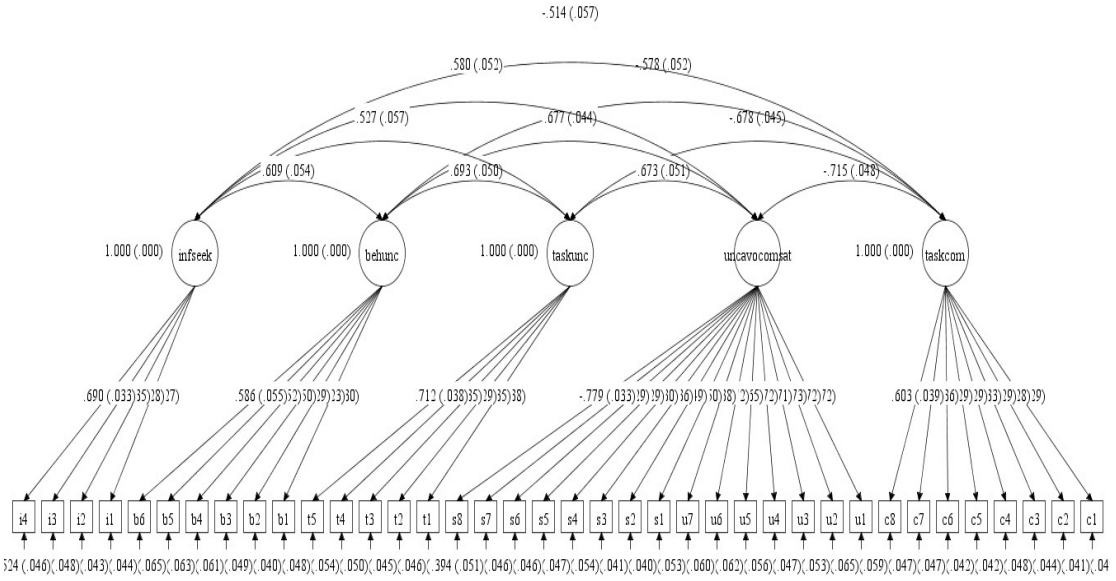

FIGURE 4.22: Five-Factor Measurement Model (Model 14)

A five-factor measurement model was estimated in model 15. **Figure 4.23** presents this model. In this model, task communication was the first factor, uncertainty avoidance and information seeking were combined as the second factor, task uncertainty was the third factor, behavioral uncertainty was the fourth factor, and communication satisfaction was the fifth factor. This model showed weak global fit indices (χ^2SB = 1858.986, df = 655, RMSEA = 0.067, CFI = .822, TLI = 0.809, SRMR = 0.103). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 751.082, df = 7, p = .01).

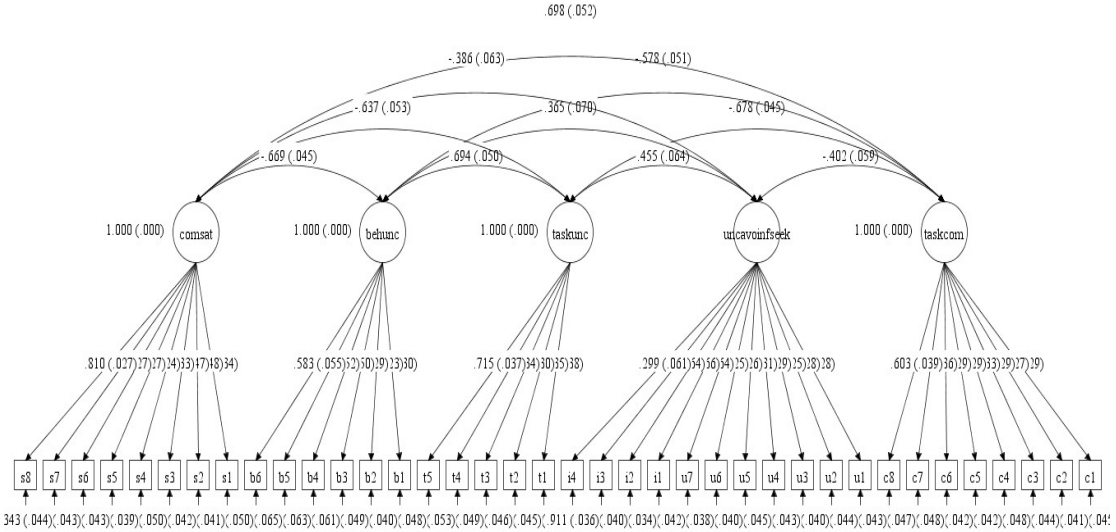

FIGURE 4.23: Five-Factor Measurement Model (Model 15)

A four-factor measurement model was estimated in model 16. **Figure 4.24** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor, task uncertainty and behavioral uncertainty were combined as the second factor, communication satisfaction was the third factor, and information-seeking was the fourth factor. This model showed weak global fit indices (χ^2SB = 2563.888, df = 659, RMSEA = 0.084, CFI = .718, TLI = 0.699, SRMR = 0.091). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1455.984, df = 11, p = .01).

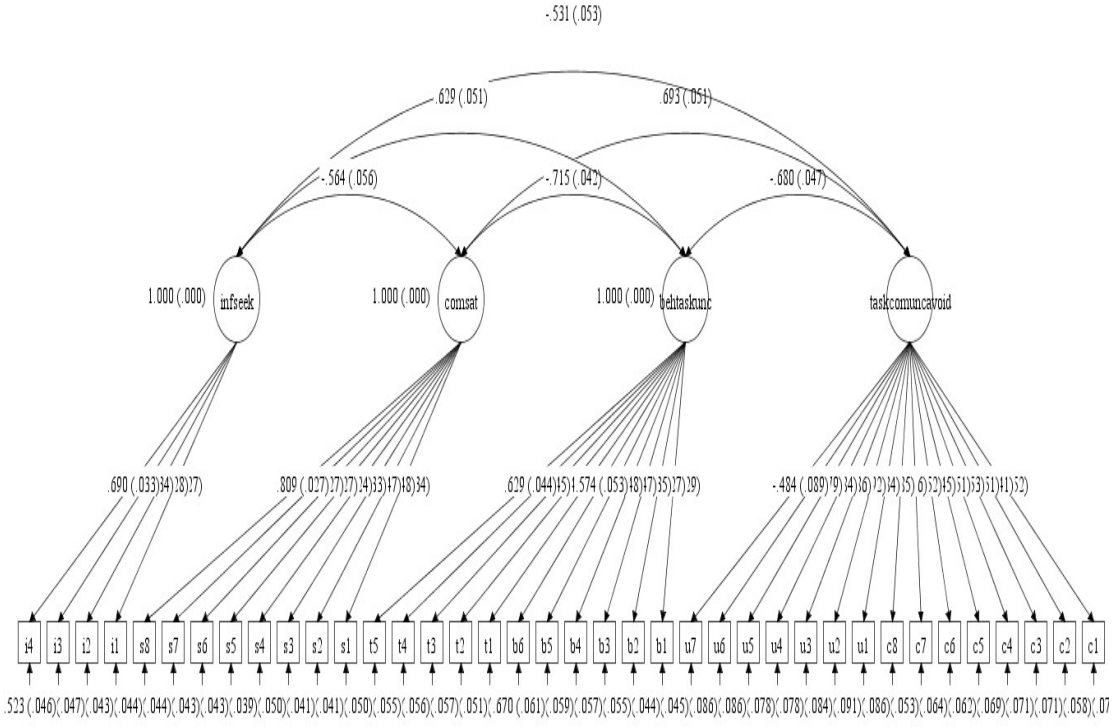

FIGURE 4.24: Four-Factor Measurement Model (Model 16)

A four-factor measurement model was estimated in model 17. **Figure 4.25** presents this model. In this model, task communication was the first factor, uncertainty avoidance was the second factor, task uncertainty and behavioral uncertainty were combined as the third factor, and communication satisfaction was combined information-seeking as the fourth factor. This model showed weak global fit indices (χ^2SB = 1881.772, df = 659, RMSEA = 0.068, CFI = .819, TLI = 0.807, SRMR = 0.068). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 773.868, df = 11, p = .01).

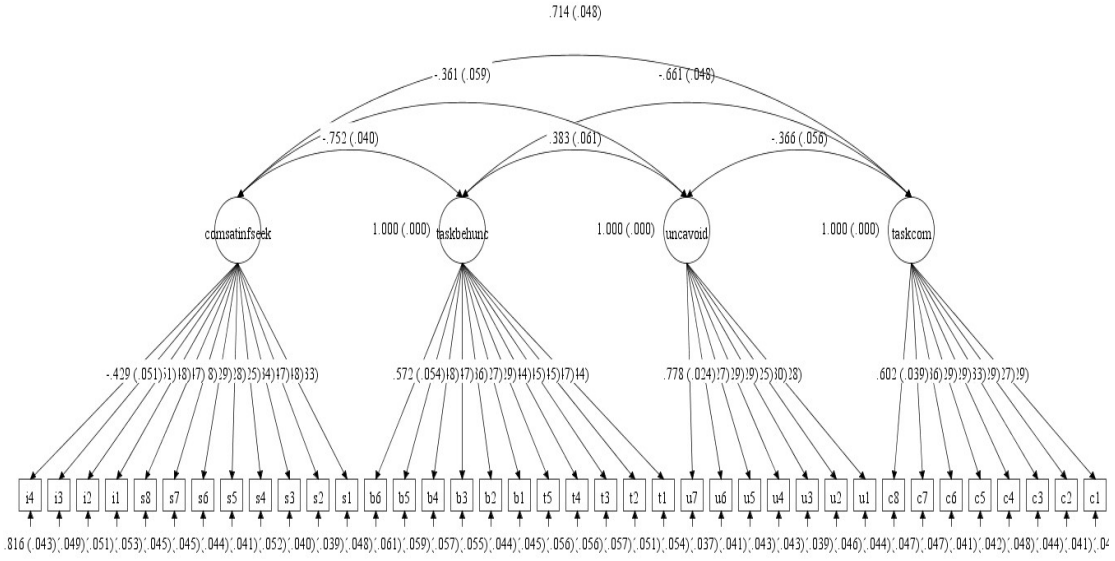

FIGURE 4.25: Four-Factor Measurement Model (Model 17)

A four-factor measurement model was estimated in model 18. **Figure 4.26** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor, task uncertainty was the second factor, behavioral uncertainty was the third factor, and communication satisfaction was combined with information-seeking as the fourth factor. This model showed weak global fit indices (χ^2SB = 2651.215, df = 659, RMSEA = 0.086, CFI = .705, TLI = 0.686, SRMR = 0.092). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1543.311, df = 11, p = .01).

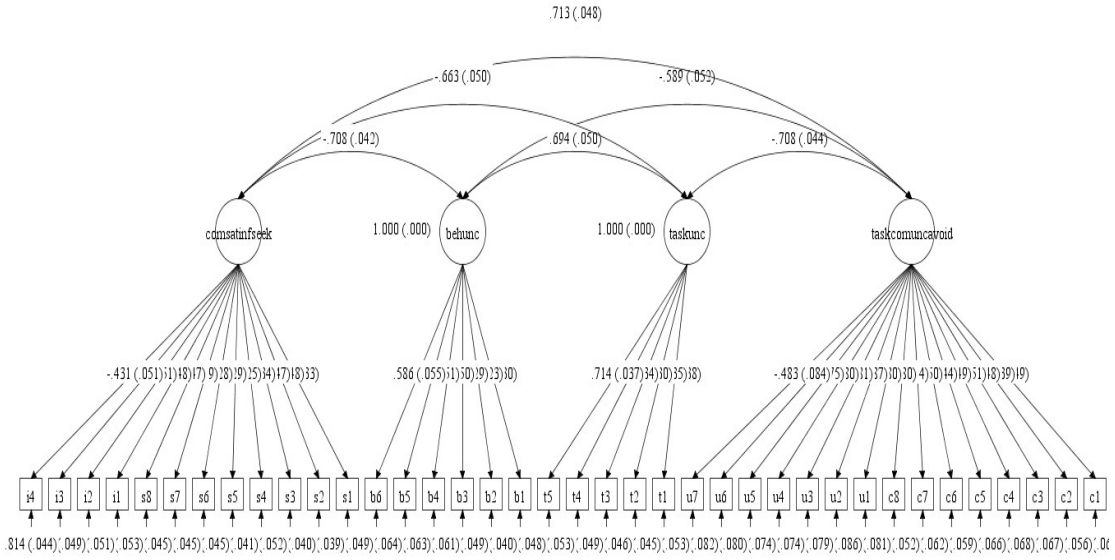

FIGURE 4.26: Four-Factor Measurement Model (Model 18)

A four-factor measurement model was estimated in model 19. **Figure 4.27** presents this model. In this model, task communication was the first factor, uncertainty avoidance was combined with task uncertainty and behavioral uncertainty to form the second factor, communication satisfaction was the third factor, and information-seeking was the fourth factor. This model showed weak global fit indices (χ^2SB = 2542.394, df = 659, RMSEA = 0.084, CFI = .721, TLI = 0.703, SRMR = 0.090). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1434.490, df = 11, p = .01).

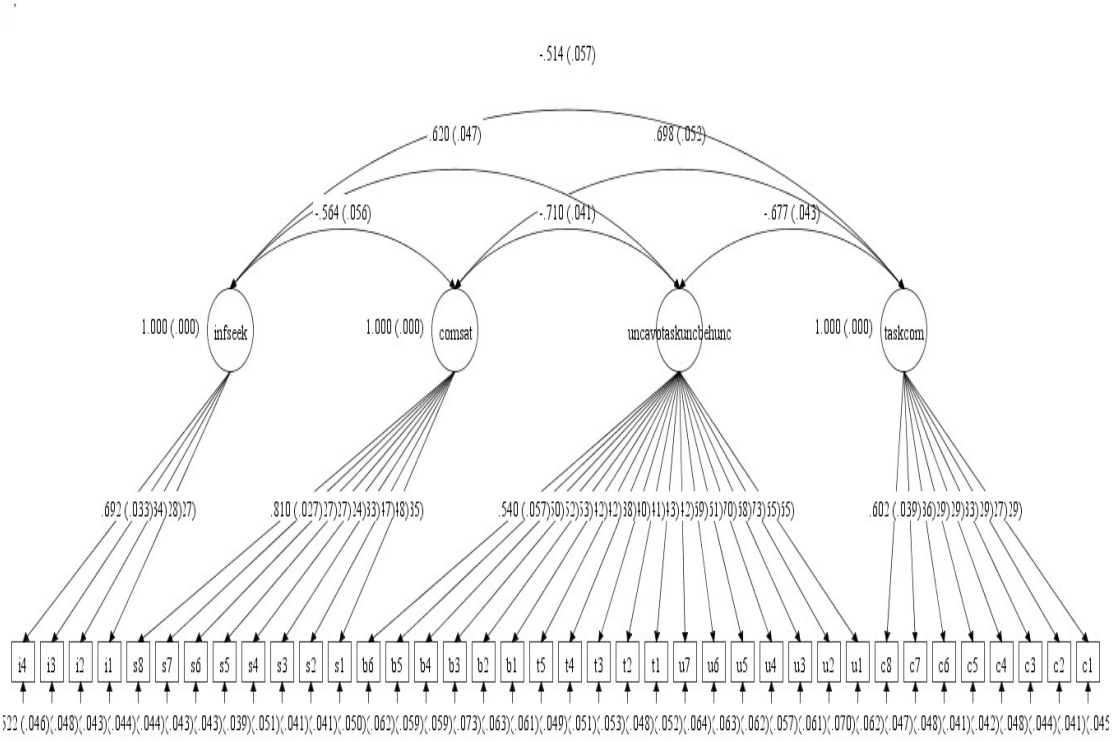

FIGURE 4.27: Four-Factor Measurement Model (Model 19)

A four-factor measurement model was estimated in model 20. **Figure 4.28** presents this model. In this model, task communication was combined with uncertainty avoidance and task uncertainty to form the first factor, behavioral uncertainty was the second factor, communication satisfaction was the third factor, and information-seeking was the fourth factor. This model showed weak global fit indices (χ^2SB = 2545.969, df = 659, RMSEA = 0.084, CFI = .721, TLI = 0.702, SRMR = 0.091). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1438.065, df = 11, p = .01).

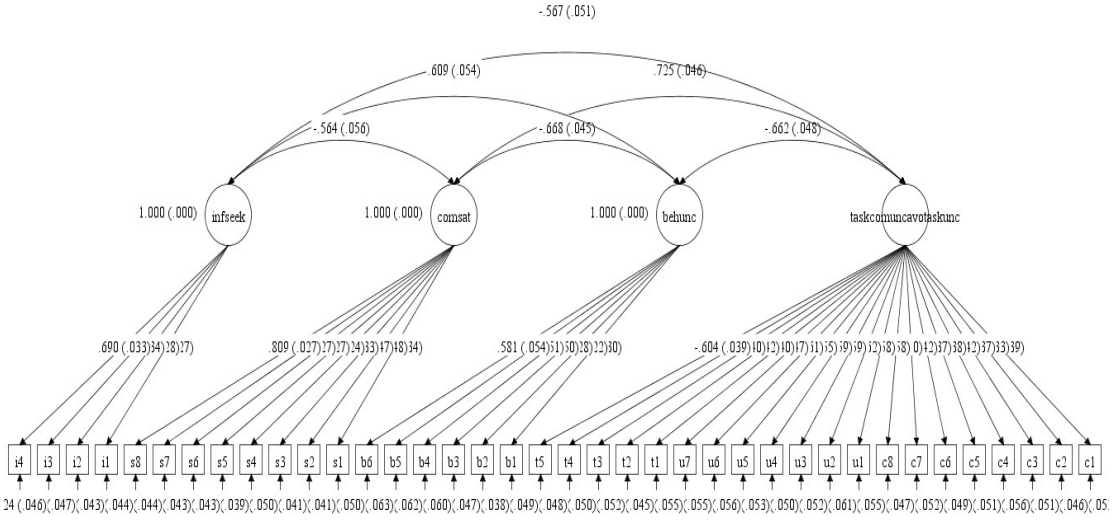

FIGURE 4.28: Four-Factor Measurement Model (Model 20)

A four-factor measurement model was estimated in model 21. **Figure 4.29** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor, task uncertainty as the second factor, behavioral uncertainty and communication satisfaction combined as the third factor, and information-seeking was the fourth factor. This model showed weak global fit indices (χ^2SB = 2734.155, df = 659, RMSEA = 0.088, CFI = .693, TLI = 0.673, SRMR = 0.092). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1626.251, df = 11, p = .01).

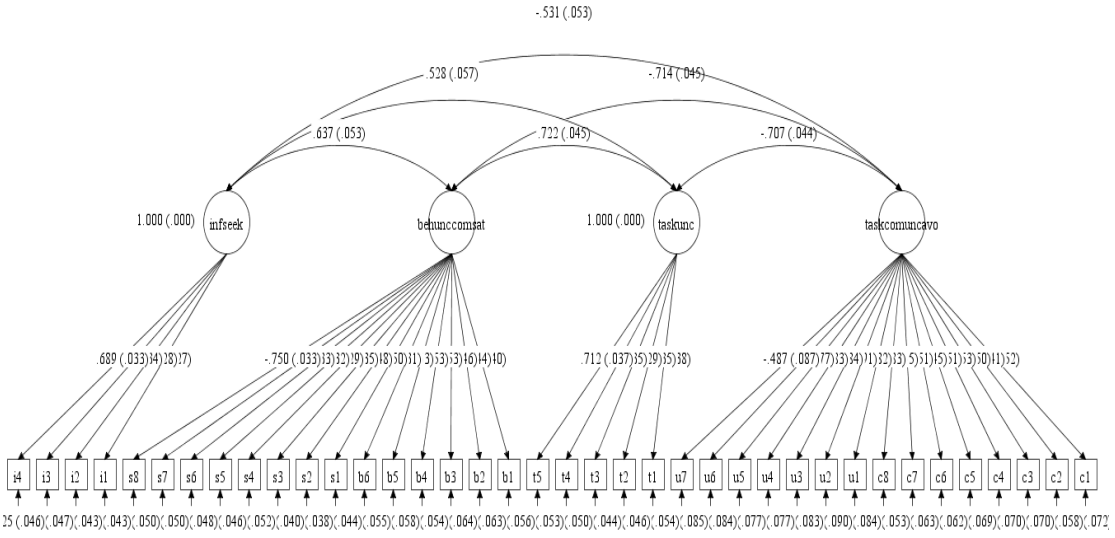

FIGURE 4.29: Four-Factor Measurement Model (Model 21)

A four-factor measurement model was estimated in model 22. **Figure 4.30** presents this model. In this model, task communication as the first factor, uncertainty avoidance and task uncertainty combined as the second factor, behavioral uncertainty as the third factor, communication satisfaction and information-seeking combined as the fourth factor. This model showed weak global fit indices (χ^2SB = 2245.445, df = 659, RMSEA = 0.077, CFI = .765, TLI = 0.750, SRMR = 0.116). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1137.541, df = 11, p = .01).

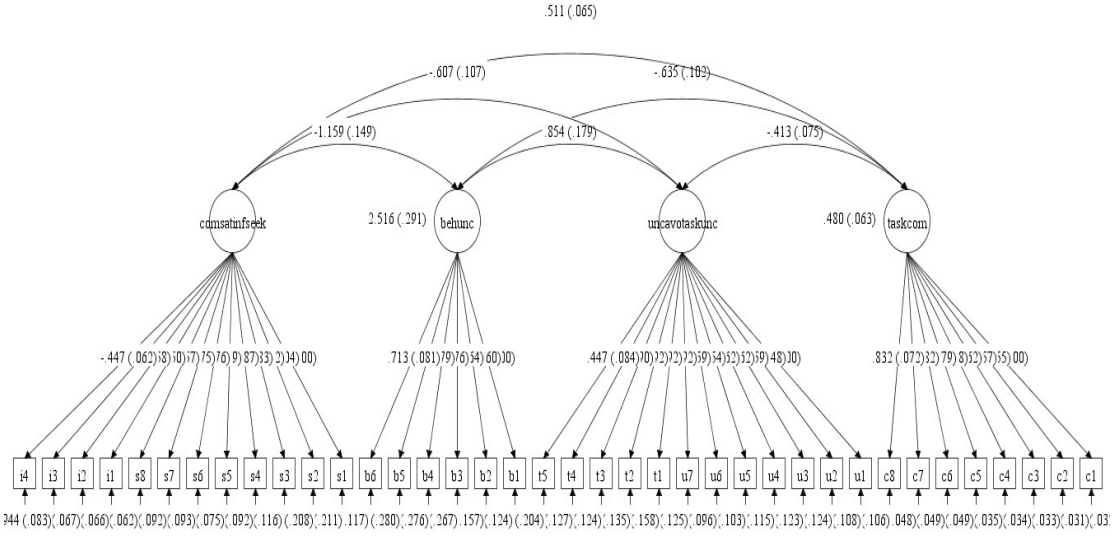

FIGURE 4.30: Four-Factor Measurement Model (Model 22)

A four-factor measurement model was estimated in model 23. **Figure 4.31** presents this model. In this model, task communication as the first factor, uncertainty avoidance as the second factor, task uncertainty as the third factor, behavioral uncertainty were combined with communication satisfaction and information-seeking as the fourth factor. This model showed weak global fit indices (χ^2SB = 1991.651, df = 659, RMSEA = 0.070, CFI = .803, TLI = 0.790, SRMR = 0.066). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 883.747, df = 11, p = .01).

A four-factor measurement model was estimated in model 24. **Figure 4.32** presents this model. In this model, task communication and information-seeking combined as the first factor, uncertainty avoidance as the second factor, task uncertainty and behavioral uncertainty combined as the third factor, communication

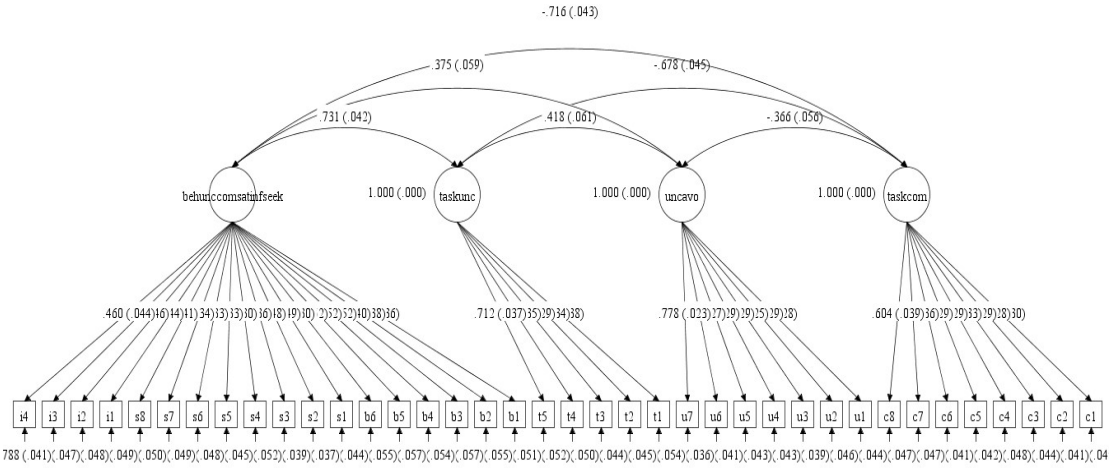

FIGURE 4.31: Four-Factor Measurement Model (Model 23)

satisfaction as the fourth factor. This model showed weak global fit indices (χ^2SB = 1915.446, df = 659, RMSEA = 0.068, CFI = .814, TLI = 0.802, SRMR = 0.070). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 807.542, df = 11, p = .01).

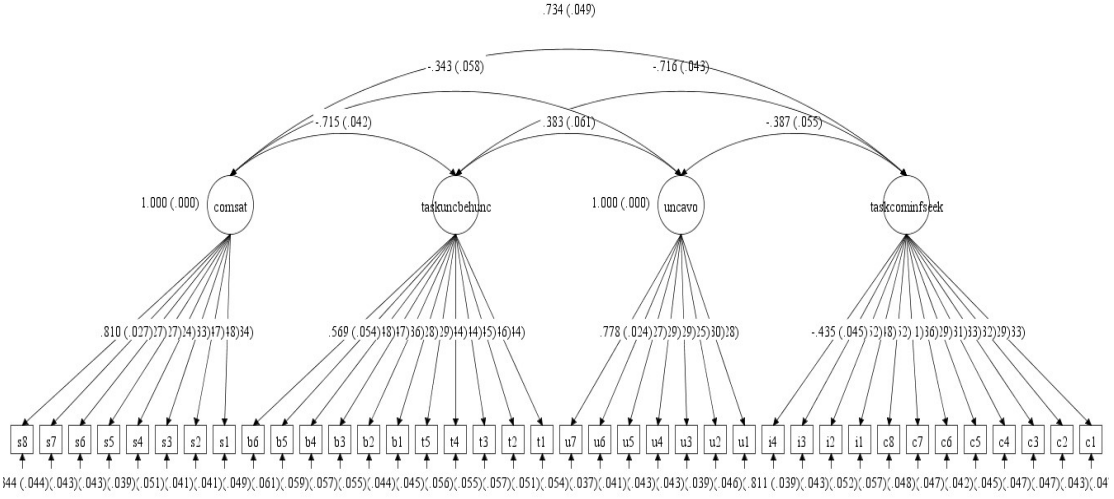

FIGURE 4.32: Four-Factor Measurement Model (Model 24)

A four-factor measurement model was estimated in model 25. **Figure 4.33** presents this model. In this model, task communication and information-seeking combined as the first factor, uncertainty avoidance and communication satisfaction combined as the second factor, task uncertainty as the third factor, and behavioral uncertainty as the fourth factor. This model showed weak global fit indices (χ^2SB = 2743.187, df = 659, RMSEA = 0.088, CFI = .692, TLI = 0.671, SRMR

= 0.098). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1635.283, df = 11, p = .01).

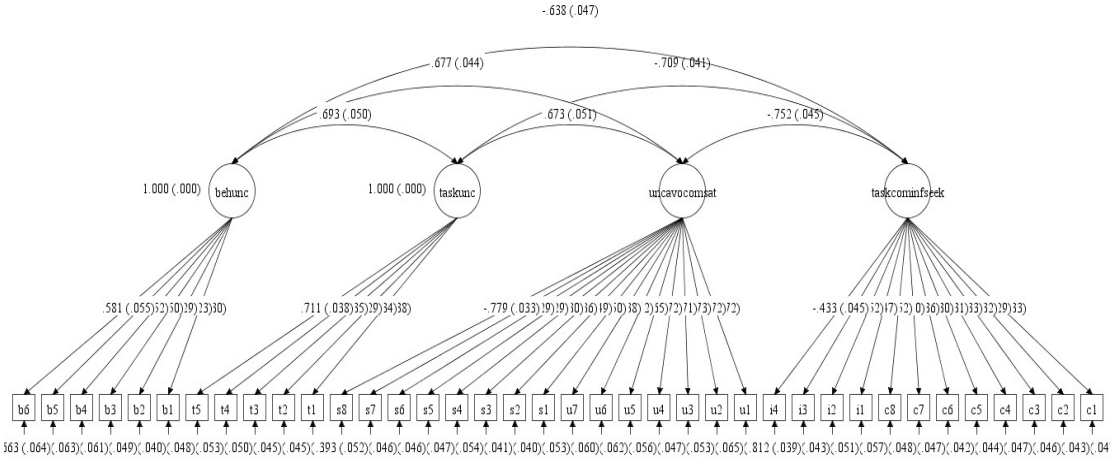

FIGURE 4.33: Four-Factor Measurement Model (Model 25)

A three-factor measurement model was estimated in model 26. **Figure 4.34** presents this model. In this model, task communication, uncertainty avoidance, and task uncertainty were combined as the first factor, behavioral uncertainty as the second factor, and communication satisfaction was combined with information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 2862.146, df = 661, RMSEA = 0.090, CFI = .675, TLI = 0.654, SRMR = 0.097). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1754.242, df = 13, p = .01).

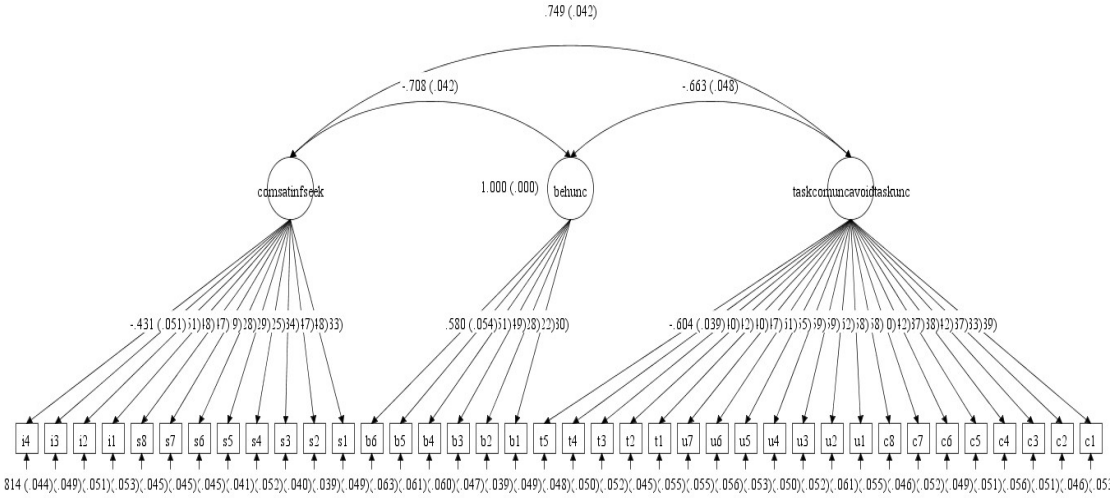

FIGURE 4.34: Three-Factor Measurement Model (Model 26)

A three-factor measurement model was estimated in model 27. **Figure 4.35** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor, task uncertainty and behavioral uncertainty were combined as the second factor, and communication satisfaction was combined with information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 2881.051, df = 662, RMSEA = 0.091, CFI = .672, TLI = 0.651, SRMR = 0.097). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1773.147, df = 14, p = .01).

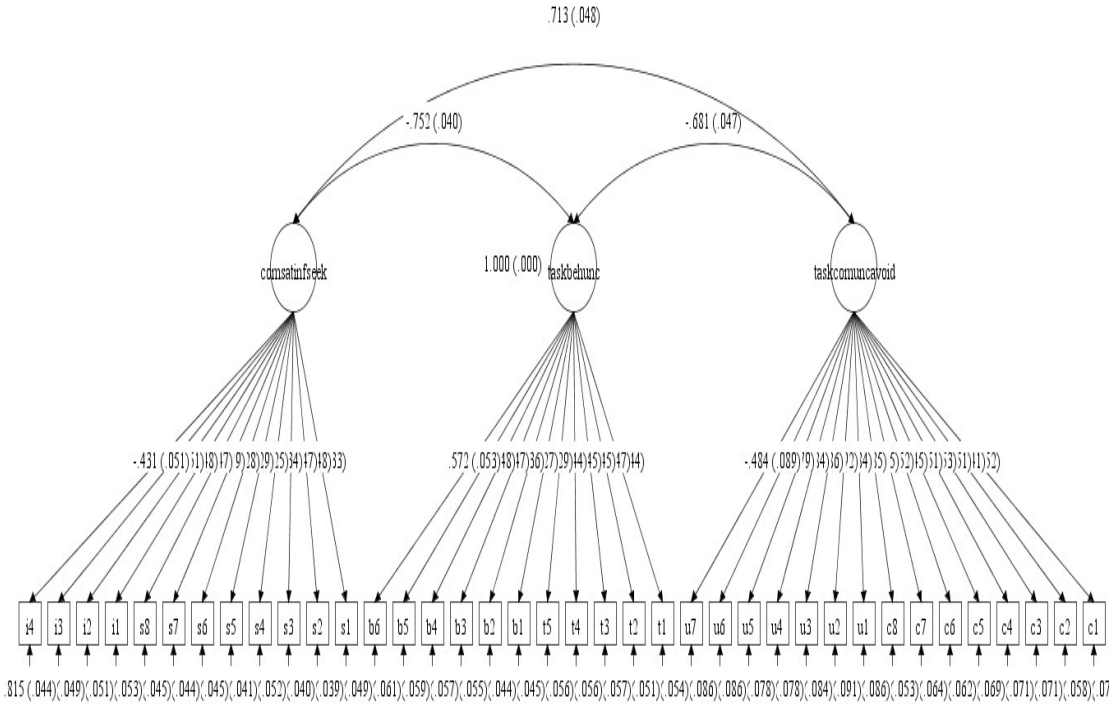

FIGURE 4.35: Three-Factor Measurement Model (Model 27)

A three-factor measurement model was estimated in model 28. **Figure 4.36** presents this model. In this model, task communication, uncertainty avoidance, and behavioral uncertainty were combined as the first factor, task uncertainty as the second factor, and communication satisfaction was combined with information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 3136.857, df = 662, RMSEA = 0.096, CFI = .634, TLI = 0.661, SRMR = 0.102). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 2028.953, df = 14, p = .01).

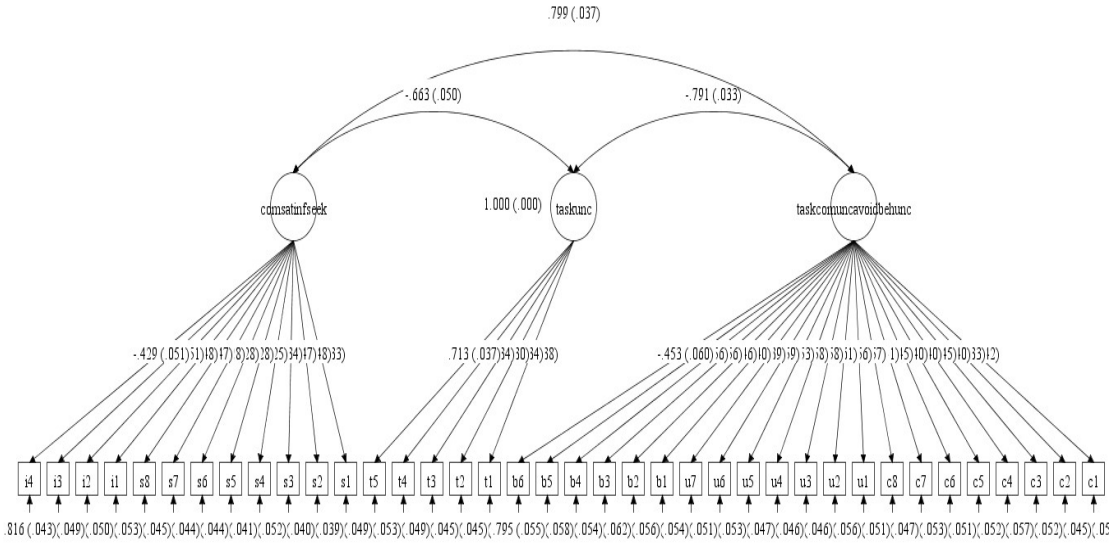

FIGURE 4.36: Three-Factor Measurement Model (Model 28)

A three-factor measurement model was estimated in model 29. **Figure 4.37** presents this model. In this model, task communication, uncertainty avoidance, task uncertainty, and behavioral uncertainty were combined as the first factor, communication satisfaction as the second factor, and information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 2959.097, df = 662, RMSEA = 0.092, CFI = .660, TLI = 0.639, SRMR = 0.099). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1851.193, df = 14, p = .01).

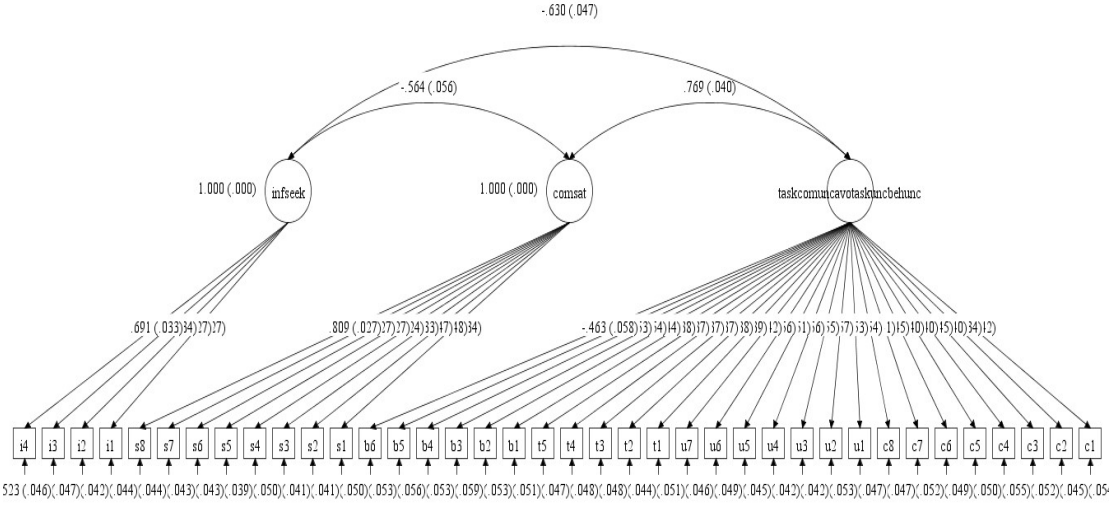

FIGURE 4.37: Three-Factor Measurement Model (Model 29)

A three-factor measurement model was estimated in model 30. **Figure 4.38** presents this model. In this model, task communication as the first factor, uncertainty avoidance was combined task uncertainty and behavioral uncertainty as the second factor, and communication satisfaction was combined with information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 2857.153, df = 662, RMSEA = 0.090, CFI = .675, TLI = 0.655, SRMR = 0.096). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1749.249, df = 14, p = .01).

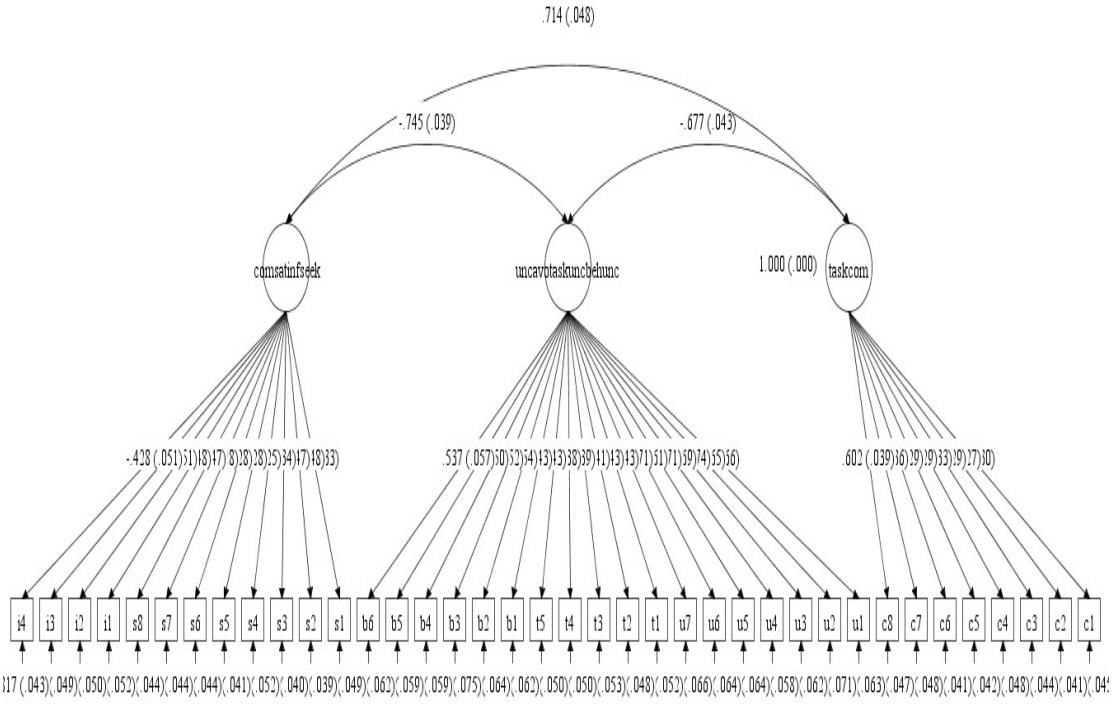

FIGURE 4.38: Three-Factor Measurement Model (Model 30)

A three-factor measurement model was estimated in model 31. **Figure 4.39** presents this model. In this model, task communication was combined with uncertainty avoidance as the first factor, task uncertainty, behavioral uncertainty, and communication satisfaction were combined as the second factor, and information-seeking was the third factor. This model showed weak global fit indices (χ^2SB = 2944.099, df = 662, RMSEA = 0.092, CFI = .662, TLI = 0.642, SRMR = 0.095). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1836.195, df = 14, p = .01).

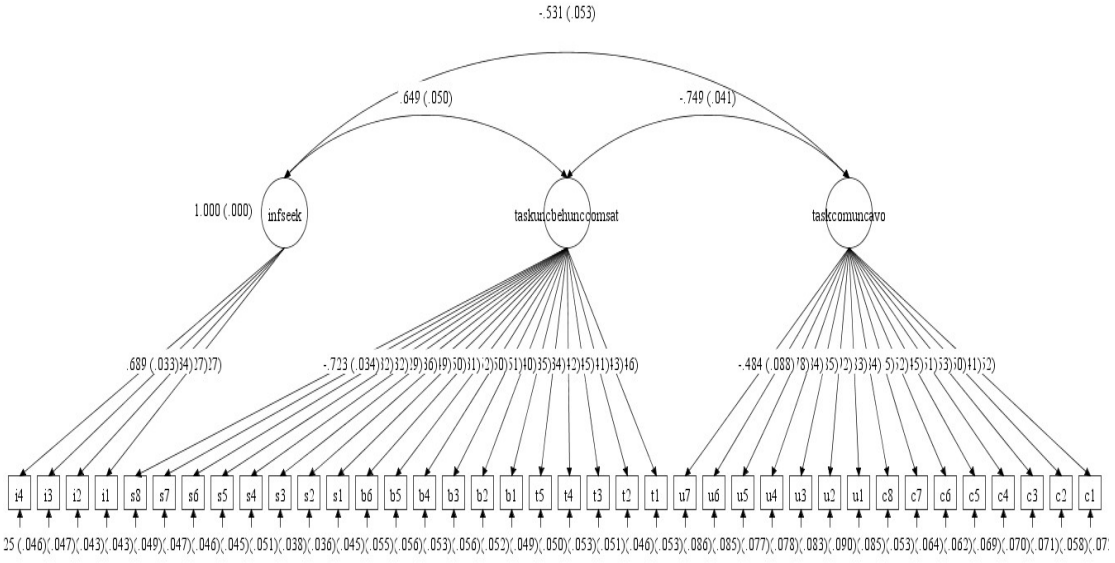

FIGURE 4.39: Three-Factor Measurement Model (Model 31)

A three-factor measurement model was estimated in model 32. **Figure 4.40** presents this model. In this model, task communication was the first factor, uncertainty avoidance and task uncertainty were combined as the second factor, and behavioral uncertainty was combined with communication satisfaction and information-seeking as the third factor. This model showed weak global fit indices (χ^2SB = 2573.011, df = 662, RMSEA = 0.084, CFI = .717, TLI = 0.700, SRMR = 0.119). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 1465.107, df = 14, p = .01).

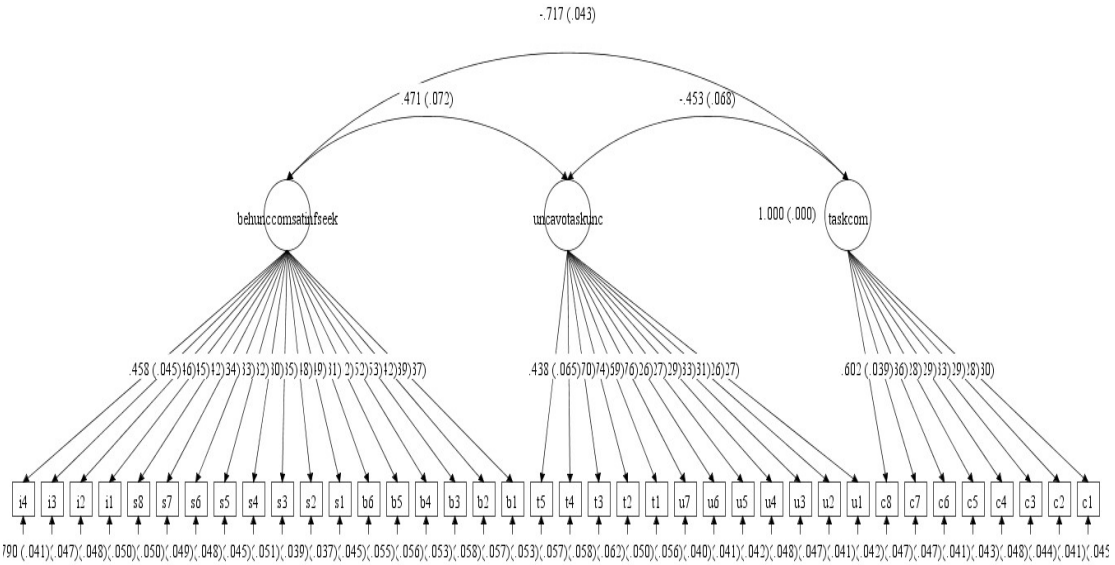

FIGURE 4.40: Three-Factor Measurement Model (Model 32)

A two-factor measurement model was estimated in model 33. **Figure 4.41** presents this model. In this model, task communication and uncertainty avoidance were combined as the first factor and task uncertainty was combined with behavioral uncertainty, communication satisfaction, and information-seeking as the second factor. This model showed weak global fit indices (χ^2SB = 3193.731, df = 664, RMSEA = 0.097, CFI = .626, TLI = 0.604, SRMR = 0.099). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 2085.827, df = 16, p = .01).

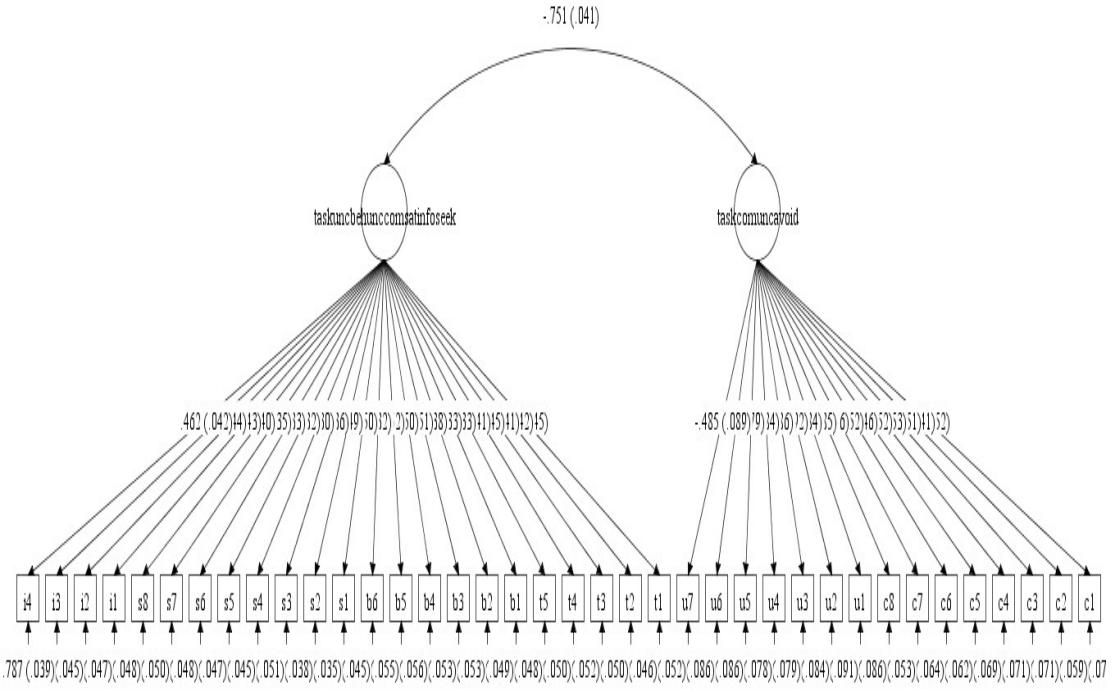

FIGURE 4.41: Two-Factor Measurement Model (Model 33)

A two-factor measurement model was estimated in model 34. **Figure 4.42** presents this model. In this model, task communication, uncertainty avoidance, task uncertainty, and behavioral uncertainty were combined as the first factor and communication satisfaction was combined with information-seeking as the second factor. This model showed weak global fit indices (χ^2SB = 3270.054, df = 664, RMSEA = 0.098, CFI = .615, TLI = 0.592, SRMR = 0.104). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 2162.150, df = 16, p = .01).

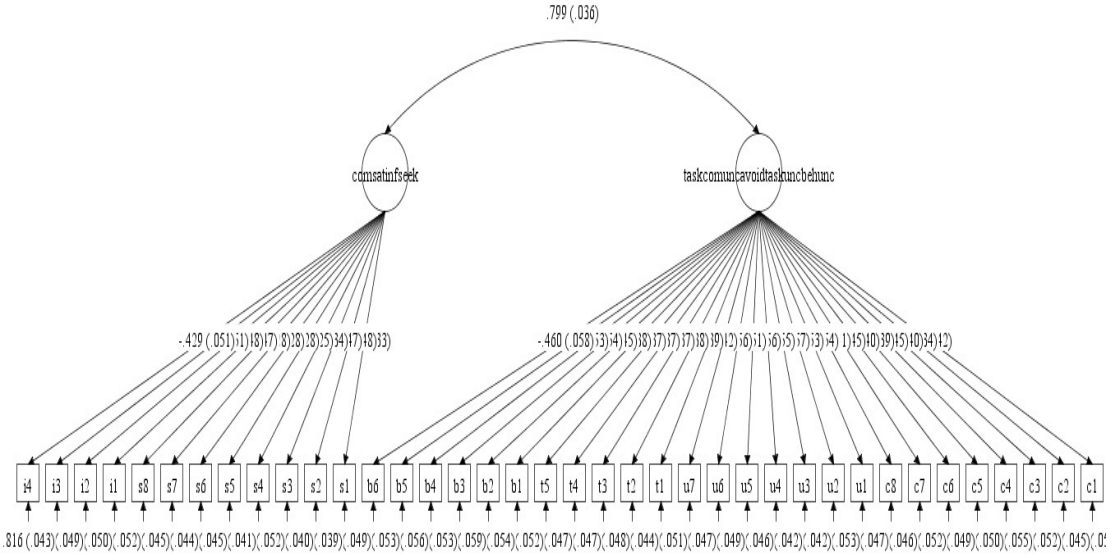

FIGURE 4.42: Two-Factor Measurement Model (Model 34)

A one-factor measurement model was estimated in model 35. **Figure 4.43** presents this model. In this model, task communication, uncertainty avoidance, task uncertainty, behavioral uncertainty, communication satisfaction, and information-seeking were combined as the single factor. This model showed weak global fit indices (χ^2SB = 3568.236, df = 665, RMSEA = 0.104, CFI = .571, TLI = 0.546, SRMR = 0.107). The fitness of this model was significantly weaker than the hypothesized model ($\Delta\chi^2$SB = 2460.332, df = 17, p = .01).

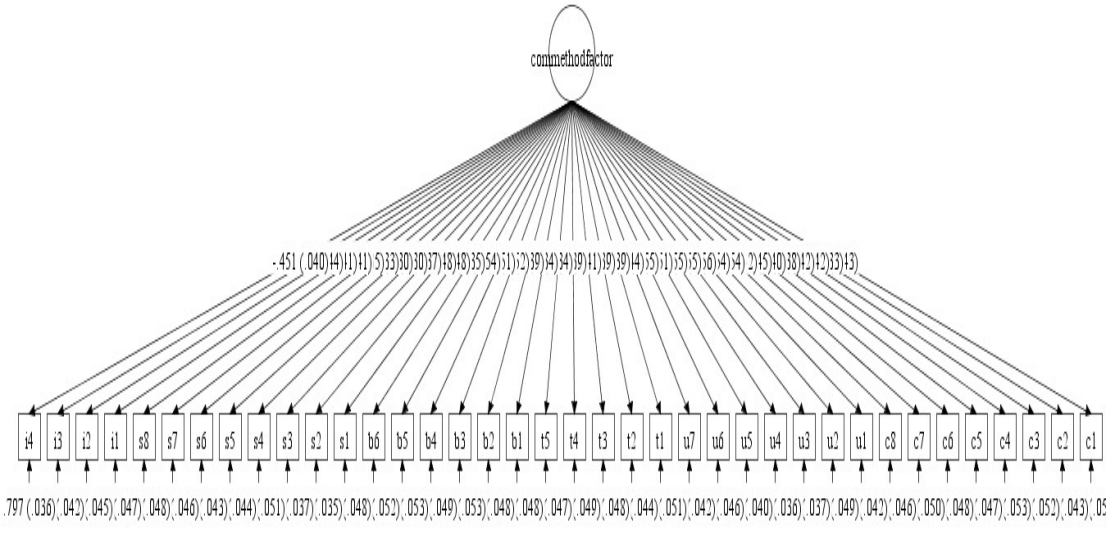

FIGURE 4.43: One-Factor Measurement Model (Model 35)

4.4.2 Results of Common Method Bias

Common method bias refers to the biasing effect of the common measurement method of multiple constructs on their relationship estimates (Podsakoff et al., 2012). One widespread technique to test common method bias is Harman's one-factor test (Podsakoff et al., 2003). Harman's one-factor test is applied in confirmatory factor analysis by loading all items on a single method factor; good global fit indices of this single factor model provide evidence of common method bias (Mossholder et al., 1998). And poor global fit indices of the single factor measurement model indicate that magnitude and direction of relationship parameter estimates cannot be attributed to common method bias. After obtaining evidence of validity, this study proceeded to rule out common method effects on parameters of this study by estimating a single factor model. Table 4.6 shows that single factor model yielded poor global fit indices ($\chi^2_{SB} = 3568.236$, $p = .000$, $df = 665$, $RMSEA = .104$, $CFI = .571$, $TLI = 0.546$, $SRMR = 0.107$). These poor fit indices provided evidence that model parameters were not adversely affected by common method bias.

4.4.3 Results of Convergent Validity

Convergent validity refers to the strength of relationships between observed variables and their causal latent constructs (Brown, 2015). This study used two techniques to establish convergent validity: factor loadings (λ) and average variance extracted (AVE) (Hair et al., 2019). Factor loadings (λ) refer to "the paths that point from factors to indicators represent the direct effects of factors on indicators" (Kline, 2016, p. 191). Average variance extracted (AVE) refers to "the average of the squared standardized pattern coefficients for indicators that depend on the same factor but are specified to measure no other factors" (Kline, 2016, p. 313). Significant and larger than 0.50 standardized factor loadings (λ) and greater than 0.50 average variance extracted (AVE) suggest adequate convergent validity (Hair et al., 2019). This study evaluated convergent validity of each of the six instruments with the values of standardized factor loadings and average variance extracted (AVE). **Table 4.7** shows that standardized factor loadings (λ)

of all observed variables were significant and larger than 0.50 and average variance extracted (AVE) of all latent constructs were larger than 0.50 providing evidence of convergent validity of the six factors representing six theoretical constructs of this study.

TABLE 4.7: Convergent Validity

Variables	**Items**	**Standardized Factor Loadings (λ)**	***AVE***
Task Communication	Item 1	0.758***	
	Item 2	0.741***	0.509
	Item 3	0.753***	
	Item 4	0.728***	
	Item 5	0.727***	
	Item 6	0.722***	
	Item 7	0.664***	
	Item 8	0.602***	
Uncertainty Avoidance	Item 1	0.775***	0.588
	Item 2	0.786***	
	Item 3	0.796***	
	Item 4	0.740***	
	Item 5	0.729***	
	Item 6	0.760***	
	Item 7	0.778***	
Task Uncertainty	Item 1	0.700***	0.508
	Item 2	0.656***	
	Item 3	0.768***	
	Item 4	0.723***	
	Item 5	0.713***	
Behavioral Uncertainty	Item 1	0.801***	0.735
	Item 2	0.903***	
	Item 3	0.865***	
	Item 4	0.797***	0.655
	Item 5	0.843***	
	Item 6	0.787***	
	First-Order Factor 1	0.895***	0.643
	First-Order Factor 2	0.696***	
Information-seeking	Item 1	0.814***	.554

Continued Table: 4.7 Convergent Validity

Variables	**Items**	**Standardized Factor Loadings (λ)**	***AVE***
	Item 2	0.773***	
	Item 3	0.693***	
	Item 4	0.690***	
Communication Satisfaction	Item 1	0.724***	.512
	Item 2	0.429***	
	Item 3	0.442***	
	Item 4	0.773***	
	Item 5	0.819***	
	Item 6	0.796***	
	Item 7	0.799***	
	Item 8	0.810***	

*Note: n = 407. ***p < .001. AVE = Average Variance Extracted.*

4.4.4 Results of Discriminant Validity

Discriminant validity demonstrates that two factors correspond to two separate constructs (Brown, 2015). This study established discriminant validity using two methods: comparing Chi-square fit index of a bi-factor measurement model with that of a uni-factor measurement model and Pearson product moment correlation coefficient (Hair et al., 2019). Significant differences in bi-factor and uni-factor measurement models, as measured by Chi-square difference test ($\Delta\ \chi^2$), of two variables provide evidence of their discriminant validity. Not too large inter-factor correlations (r) indicate discriminant validity of constructs, whereas, very large inter-factor correlations point to weak discriminant validity (Kline, 2016). Weak discriminant validity may be implied by larger than .80 inter-factor correlations (Brown, 2015).

This study evaluated discriminant validity of the six constructs by comparing their bi-factor and uni-factor measurement models and examining the values of their inter-factor correlations. **Table 4.8** shows that significant differences in bi-factor and uni-factor measurement models, as measured by Chi-square difference test ($\Delta\ \chi^2$), of all fifteen factor pairs were found that provide evidence of their discriminant validity. In addition, **Table: 4.9** shows that all inter-factor correlations of this study were not too large ($r < .80$).

Table 4.8: Discriminant Validity

	2 Factor CFA	**1 Factor CFA**	$\Delta\chi^2(\Delta df)$	**Discriminant Validity**
Factor Pairs	χ^2 (df)	χ^2 (df)		
1. Task Communication and Communication Satisfaction	271.684*** (103)	602.315*** (104)	330.631** (1)	Supported
2. Task Communication and Information-seeking	92.504***	390.153*** (54)	297.649** (1)	Supported
3. Task Communication and Task Uncertainty	100.834** (64)	298.726*** (65)	197.892** (1)	Supported
4. Task Communication and Behavioral Uncertainty	302.348*** (76)	716.435*** (77)	414.087** (1)	Supported
5. Task Communication and Uncertainty Avoidance	196.077*** (89)	1191.141*** (90)	995.064** (1)	Supported
6. Uncertainty Avoidance and Task Uncertainty	173.671*** (53)	615.313*** (54)	441.642** (1)	Supported
7. Uncertainty Avoidance and Behavioral Uncertainty	378.113*** (64)	1072.591*** (65)	694.478** (1)	Supported
8. Uncertainty Avoidance and Communication Satisfaction	329.382*** (89)	1416.485*** (90)	1087.103** (1)	Supported

Continued Table 4.8 Discriminant Validity

	2 Factor CFA	**1 Factor CFA**	$\Delta\chi^2(\Delta df)$	**Discriminant Validity**
Factor Pairs	χ^2 (df)	χ^2 (df)		
9. Uncertainty Avoidance and Information-seeking	147.327*** (43)	588.837*** (44)	441.51** (1)	Supported
10. Task Uncertainty and Behavioral Uncertainty	235.085*** (43)	388.701*** (44)	153.616** (1)	Supported
11. Task Uncertainty and Communication Satisfaction	182.878*** (64)	417.517*** (65)	234.639** (1)	Supported
12. Task Uncertainty and Information-seeking	33.086 (26)	316.126*** (27)	283.04** (1)	Supported
13. Behavioral Uncertainty and Communication Satisfaction	406.823*** (76)	712.048*** (77)	305.225** (1)	Supported
14. Behavioral Uncertainty and Information-seeking	231.904*** (34)	458.917*** (35)	227.013** (1)	Supported
15. Communication Satisfaction and Information-seeking	180.285*** (53)	443.752*** (54)	263.467** (1)	Supported

*Note: n = 407. *** p < .001. ** p < .01.*

4.4.5 Results of Nomological Validity

Nomological validity refers to a "test of validity that examines whether the correlations between the constructs in the measurement theory make sense" (Hair et al., 2019, p. 659). One of the ways to assess nomological validity is the construct correlation (Hair et al., 2019). Correlation is "a measure of the strength of association or relationship between two variables" (Field, 2018, p. 1273). If construct correlations are consistent with the theoretical predictions then there is evidence of nomological validity.

This study evaluated nomological validity of the six constructs by examining the direction of their inter-factor correlations. **Table 4.9** contains inter-construct correlations among the six constructs. These correlations show that task communication was negatively correlated with uncertainty avoidance, task uncertainty, behavioral uncertainty, and information-seeking (r = -.365, p = .000; r = -.678, p = .000; r = -.622, p = .000; r = -.514, p = .000) and positively correlated with communication satisfaction (r = .698, p = .000). Then, uncertainty avoidance was positively correlated with task uncertainty, behavioral uncertainty, information-seeking (r = .418, p = .000; r = .343, p = .000; r = .305, p = .000), and negatively correlated with communication satisfaction (r = -.343, p = .000). This study evaluated nomological validity of the six constructs by examining the direction of their inter-factor correlations. **Table 4.9** contains inter-construct correlations among the six constructs. These correlations show that task communication was negatively correlated with uncertainty avoidance.

Task uncertainty was positively correlated with behavioral uncertainty, information-seeking (r = .750, p = .000; r = .658, p = .000), and negatively correlated with communication satisfaction (r = -.637, p = .000). And, behavioral uncertainty was positively correlated with information-seeking (r = .658, p = .000) and negatively correlated with communication satisfaction (r = -.722, p = .000). Finally, information-seeking was negatively correlated with communication satisfaction (r = -.564, p = .000). These correlations are consistent with the theoretical expectations thus providing evidence of nomological validity of the constructs.

Table 4.9: Inter-Construct Correlations

Sr. No	**Latent Constructs**	**Mean**	**Std.Dev.**	**1**	**2**	**3**	**4**	**5**	**6**
1	Task Communication	0	0.692	(0.890)					
2	Uncertainty Avoidance	0	1.334	-.365***	(0.908)				
3	Task Uncertainty	0	0.911	-.678***	.418***	(0.836)			
4	Behavioral Uncertainty	0	1.413	-.622***	.343***	.750***	(0.781)		
5	Information-seeking	0	0.785	-.514***	.305***	.658***	.658***	(0.828)	
6	Communication Satisfaction	0	1.018	.698***	-.343***	-.637***	-.722***	-.564***	(0.867)

Note: n = 407; Diagonal values in parenthesis are construct reliabilities.

4.4.6 Results of Construct Reliability

Construct reliability of instruments refers to "the precision or consistency of measurement (i.e., the overall proportion of true-score variance to total observed variance of the measure)" (Brown, 2015, p. 305). This reliability is estimated with a factor's rho coefficient (ρ) that is computed by a "ratio of explained variance over total variance" (Kline, 2016, p. 313). Larger than .70 rho coefficients (ρ) have been suggested to indicate good construct reliability (Hair et al., 2019).

This study evaluated reliability of the six instruments by calculating their rho coefficients (ρ). **Table 4.10** shows that all rho coefficients (ρ) were larger than .70, thus providing evidence of construct reliability for the six factors representing six theoretical constructs of this study.

Table 4.10: Construct Reliability

Variables	**Items**	**Unstandardized Loadings (ω)**	**CR (ρ)**
		1	0.890
Task Communication	Item 1	0.939	
	Item 2	0.991	
	Item 3	0.949	
	Item 4	0.968	
	Item 5	1.121	
	Item 6	0.952	
	Item 7	0.834	
	Item 8		
Uncertainty Avoidance	Item 1	1	0.908
	Item 2	0.989	
	Item 3	1.021	
	Item 4	0.921	
	Item 5	0.939	
	Item 6	0.98	
	Item 7	0.956	
Task Uncertainty	Item 1	1	0.835
	Item 2	1.072	
	Item 3	1.125	
	Item 4	1.064	
	Item 5	1.051	
	Item 1	1	
	Item 2	1.058	

Continued Table: 4.10 Construct Reliability

Variables	**Items**	**Unstandardized Loadings** (ω)	**CR** (ρ)
	Item 3	0.995	
	Item 1	1	
	Item 2	1.046	
	Item 3	0.989	
Behavioral Uncertainty	1st Order Factor 1		0.781
	1st Order Factor 2	1	
		0.762	
Information-seeking	Item 1	1	0.828
	Item 2	0.901	
	Item 3	0.895	
	Item 4	0.945	
Communication Satisfaction	Item 1	1	0.867
	Item 2	0.832	
	Item 3	0.836	
	Item 4	1.101	
	Item 5	1.204	
	Item 6	1.025	
	Item 7	1.091	
	Item 8	1.136	

Note: n = 407. CR = Construct Reliability

4.5 Results of Hypothesis Testing

This study estimated a single structural equation model to test all hypotheses simultaneously. **Figure 4.44** shows this structural equation model. Results of these hypotheses have been reported in **Table 4.11** to **4.17** and described next. This model explained sixty one percent of the variance in latent variable of communication satisfaction (R^2 = 61.3%) and sixty six percent in information-seeking (R^2 = 66.5%). These large values of explained variances show that the hypothesized model holds high level of predictive power.

A positive relationship between task communication and communication satisfaction was predicted in hypothesis 1. Both the total and direct effects of task communication on communication satisfaction were positive ($\beta = 0.947$, p = .000; $\beta = 0.575$, p = .000), thus, supporting hypothesis 1. A negative relationship between task communication and information-seeking was expected in hypothesis 2. Both the total and direct effects of task communication and information-seeking were negative (β = - 0.516, p = .000; β = - 0.197, p = .037), thus, hypothesis 2 was supported.

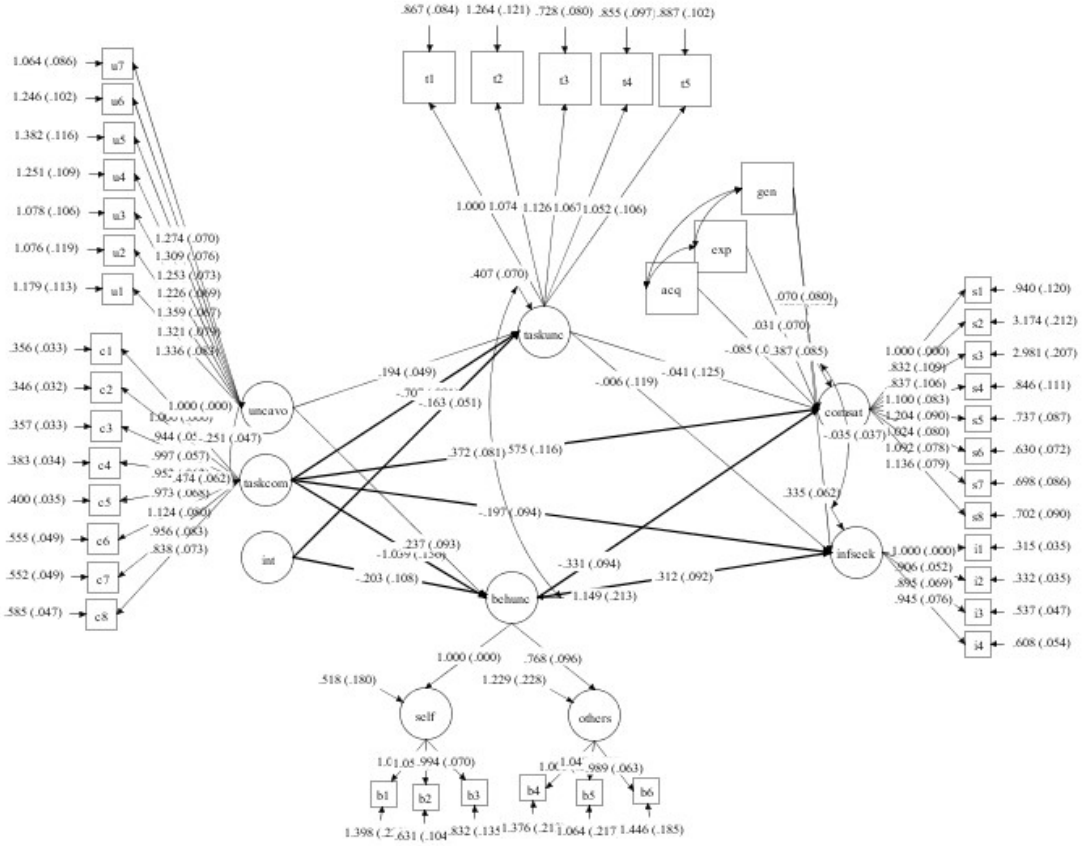

FIGURE 4.44: Structural Equation Model (All Hypotheses Tested)

A negative relationship between task communication and task uncertainty was predicted in hypothesis 3. The relationship between task communication and task uncertainty was negative (β = - 0.707, p = .000), thus, supporting hypothesis 3. A negative relationship between task communication and behavioral uncertainty was expected in hypothesis 4. This relationship between task communication and behavioral uncertainty was negative (β = - 1.039, p = .000), thus, supporting hypothesis 4.

Table 4.11: Total and Direct Effects

Predictors	**Communication Satisfaction**		**Information-seeking**	
	β	***p***	β	***p***
Gender	-0.038	.677	0.070	.381
Exposure to similar training	0.031	.657	-	-
Acquaintance with trainer	-0.085	.272	-	-
Task Communication				
Total Effect	0.947	.000	-0.516	.000
Direct Effect	0.575	.000	-0.197	.037
Task Uncertainty	-0.041	.742	-0.006	.957
Behavioral Uncertainty	-0.331	.000	0.312	.001
Model Explained Variance (R^2)	61.30%		66.50%	
	Task Uncertainty		**Behavioral Uncertainty**	
Task Communication	-0.707	.000	-1.039	.000
Uncertainty Avoidance	0.194	.000	0.237	.011

Note: n = 407.

A negative relationship between task uncertainty and communication satisfaction was predicted in hypothesis 5. The study found a null relationship between task uncertainty and communication satisfaction (β = - 0.041, p = .742), thus, hypothesis 5 was not supported. A positive relationship between task uncertainty and information-seeking was expected in hypothesis 6. The study found a null relationship between task uncertainty and information-seeking (β = - 0.006, p = .957), thus, hypothesis 6 was not supported. A negative relationship between behavioral uncertainty and communication satisfaction was predicted in hypothesis 7. The study found a negative relationship between behavioral uncertainty and communication satisfaction (β = - 0.331, p = .000), thus, hypothesis 7 was supported. A positive relationship between behavioral uncertainty and information-seeking was expected in hypothesis 8. The study found a positive relationship between behavioral uncertainty and information-seeking (β= 0.312, p = .001), thus, hypothesis 8 was supported. Four parallel indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty were predicted in hypothesis 9. The study found null indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty (βa1b1 = 0.029, 95% Monte Carlo Confidence Intervals: [-0.196, 0.249]; βa1b2 = 0.005, 95% Monte Carlo Confidence Intervals: [- 0.207, 0.208]). The study found indirect relationships of task communication with communication satisfaction and information-seeking via behavioral uncertainty ($\beta a2b1$ = 0.343, 95% *Monte Carlo Confidence Intervals*: [0.006, 0.677]; $\beta a2b2$ = -0.324, 95% *Monte Carlo Confidence Intervals*: [-0.659, - 0.0006]). **Table 4.12** summarizes these results. Thus, hypothesis 9 was partially supported.

Table 4.12: Indirect Effects (Mediation)

Structural Relations / Hypotheses	β**ab**	**Lower and Upper Limits of Monte Carlo 95% Confidence Intervals**
TC →TU → CS	0.029	-0.196, 0.249
TC → BU → CS	0.343	0.006, 0.677
TC → TU → IS	0.005	- 0.207, 0.208
TC → BU → IS	-0.324	- 0.659, - 0.0006

Note: n = 407. TC = Task Communication. TU = Task Uncertainty. CS = Communication Satisfaction. BU = Behavioral Uncertainty. IS = Information-seeking.

Uncertainty avoidance orientation was expected to moderate (strengthen) the two direct negative relationships of task communication with task uncertainty and behavioral uncertainty in hypotheses 10(a) and 10(b). "Introduction of uncertainty avoidance as a moderator resulted in incremental variance in task uncertainty ($\Delta R^2 = 1.4\%$) and behavioral uncertainty ($\Delta R^2 = 1.8\%$)".

The study found the first product term of uncertainty avoidance and task communication was negatively related with task uncertainty (β Int1 = - 0.163, p = .001). The slope test showed this negative relationship of task communication with task uncertainty was weaker for lower uncertainty avoidance (β = - 0.544, p = .000) and stronger for higher uncertainty avoidance (β = - 0.870, p = .000). **Table 4.13** summarizes these results.

Table 4.13: Conditional Effects (Moderation)

	Task Uncertainty		**Behavioral Uncertainty**	
Predictors	β	***p***	β	***p***
Task Communication	-0.707	.000	-1.039	.000
Uncertainty Avoidance	0.194	.000	0.237	.011
Task Communication × UA	-0.163	.001	-0.203	.060
Slope Test				
Low UA	-0.544	.000	-0.836	.000
Medium UA	-0.707	.000	-1.039	.000
High UA	-0.870	.000	-1.242	.000

Note: n = 407, UA = Uncertainty Avoidance.

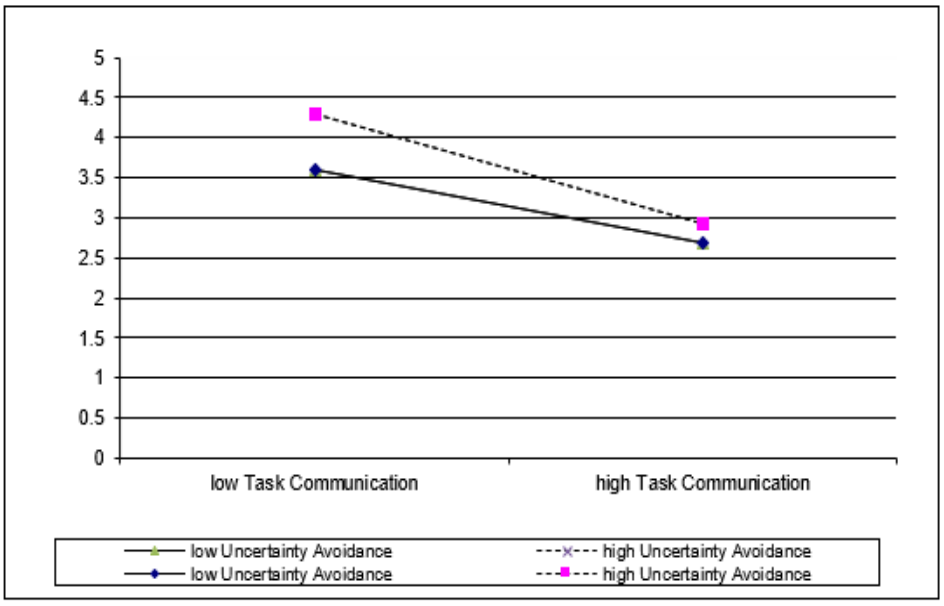

FIGURE 4.45: Interaction Graph 1 for Task Uncertainty

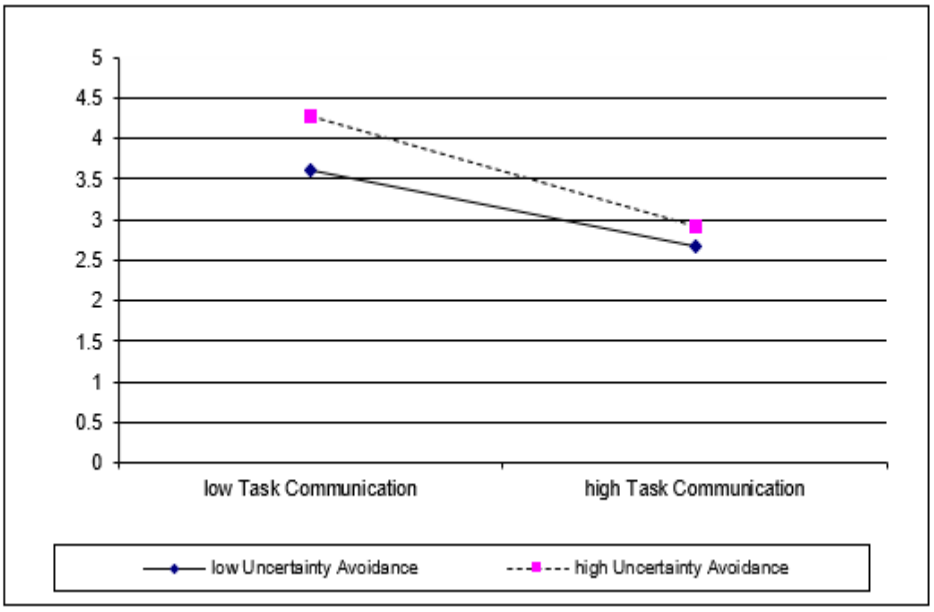

FIGURE 4.46: Interaction Graph 2 for Behavioral Uncertainty

The study found the negative relationship of second interaction term of uncertainty avoidance and task communication with behavioral uncertainty approached significance or was marginally significant (β Int2 = - 0.203, p = .060). As the moderation hypothesis was unidirectional (i.e., requiring one tailed significance test), both predictor and moderator were continuous variables leading to very low power of moderation tests (McClelland & Judd, 1993), and scores of previous studies have accepted moderation hypotheses with p < .10 (Donia et al., 2016; Raja

et al., 2004), therefore, this study also accepted this moderation hypothesis. The slope test showed the negative relationship of task communication with behavioral uncertainty was weaker for lower uncertainty avoidance (β = - 0.836, p = .000) and was stronger for higher uncertainty avoidance (β = - 1.242, p = .000. **Table 4.13** summarizes these results. Thus, hypotheses 10(a) and 10(b) were supported.

The uncertainty avoidance orientation was expected to moderate (strengthen) the two positive indirect relationships of task communication with communication satisfaction via task uncertainty and behavioral uncertainty, and the two negative indirect relationships of task communication with information-seeking via task uncertainty and behavioral uncertainty in hypotheses 11(a)(b)(c)(d). The detailed results are presented in next paragraphs.

The uncertainty avoidance orientation did not moderate (strengthened) the indirect relationship between task communication and communication satisfaction via task uncertainty (β IMM1 = 0.007, 95% Monte Carlo confidence intervals: [-0.046, 0.071]). **Table 4.14** summarizes these results.

TABLE 4.14: Conditional Indirect Effects 1 (Moderated Mediation)

Structural Relation / Hypothesis	β**ab**	**Lower and Upper Limits of 95% Monte Carlo Confidence Intervals**
Index of Moderated Mediation (IMM1)		
TCxUA →TU →CS	0.007	-0.046, 0.071
Slope Test		
Low UA	NA	NA
Medium UA	NA	NA
High UA	NA	NA

Note: n = 407. TC = Task Communication. UA = Uncertainty Avoidance. TU = Task Uncertainty. CS = Communication Satisfaction. NA = Not Applicable.

The uncertainty avoidance orientation moderated (strengthened) the indirect relationship between task communication and communication satisfaction via behavioral uncertainty (β IMM3 = 0.067, 95% Monte Carlo confidence intervals: [0.0006, 0.159]). The slope test showed the positive indirect relationship of task communication with communication satisfaction via behavioral uncertainty was

weaker for lower uncertainty avoidance (β = 0.276, 95% Monte Carlo confidence intervals: [0.003, 0.392]). The positive indirect relationship was stronger for higher uncertainty avoidance (β = 0.410, 95% Monte Carlo confidence intervals: [0.004, 0.591]). **Table 4.15** summarizes these results.

Table 4.15: Conditional Indirect Effects 2 (Moderated Mediation)

Structural Relation / Hypothesis	βab	**Lower and Upper Limits of 95% Monte Carlo Confidence Intervals**
Index of Moderated Mediation (IMM3)		
TCxUA →BU →CS	0.067	0.0006, 0.159
Slope Test		
Low UA	0.276	0.003, 0.392
Medium UA	0.343	0.002, 0.487
High UA	0.410	0.004, 0.591

Note: n = 407. TC = Task Communication. UA = Uncertainty Avoidance. BU = Behavioral Uncertainty. CS = Communication Satisfaction.

The uncertainty avoidance orientation could not moderate (strengthen) the indirect relationship between task communication and information-seeking via task uncertainty (β IMM2 = 0.001, 95% Monte Carlo confidence intervals: [-0.049, 0.060]). **Table 4.16** summarizes these results.

The uncertainty avoidance moderated (strengthened) the negative indirect relationship between task communication and information-seeking via behavioral uncertainty (β IMM4 = - 0.063, 95% Monte Carlo confidence intervals: [-0.161, -0.0004]). The slope test showed the negative indirect relationship of task communication with information-seeking via behavioral uncertainty was weaker for lower uncertainty avoidance (β = -0.261, 95% Monte Carlo confidence intervals: [-0.574, -0.002]). The negative indirect relationship was stronger for higher uncertainty avoidance (β = -0.387, 95% Monte Carlo confidence intervals: [-0.790, -0.006]). **Table 4.17** summarizes these results. Thus, hypothesis 11 was partially supported.

Table 4.16: Conditional Indirect Effects 3 (Moderated Mediation)

Structural Relation / Hypothesis	βab	**Lower and Upper Limits of 95% Monte Carlo Confidence Intervals**
Index of Moderated Mediation (IMM2)		
TCxUA →TU →IS	0.001	-0.049, 0.060
Slope Test		
Low UA	NA	NA
Medium UA	NA	NA
High UA	NA	NA

Note: n = 407. TC = Task Communication. UA = Uncertainty Avoidance. TU = Task Uncertainty. IS = Information-seeking. NA = Not Applicable.

Table 4.17: Conditional Indirect Effects 4 (Moderated Mediation)

Structural Relation / Hypothesis	βab	**Lower and Upper Limits of 95% Monte Carlo Confidence Intervals**
Index of Moderated Mediation (IMM4)		
TCxUA →BU →IS	-0.063	-0.161, -0.0004
Slope Test		
Low UA	-0.261	-0.574, -0.002
Medium UA	-0.324	-0.664, -0.004
High UA	-0.387	-0.790, -0.006

Note: n = 407. TC = Task Communication. UA = Uncertainty Avoidance. BU = Behavioral Uncertainty. IS = Information-seeking.

The results presented above should be interpreted keeping in view the demographics and background characteristics of the sample as summarized in table 4.1. The demographic variables were trainer's gender, trainee's gender, and trainee's age. The background variables were prior familiarity with the trainer (met the trainer before), prior familiarity with the trainer's training style (attended any training by this trainer before), and prior familiarity with the topic of training (attended any training on this topic before). The sample was dominated by trainees of male trainers (n = 347; 85.3 %). These trainees were predominantly male (n = 307;

75.4 %). Majority of these trainees were younger than 35 years (n = 334; 82%). Majority of the trainees had not met their trainer before (n = 240; 59%). Most of them had not attended any training by their trainer before (n = 279; 68.60%). Majority of the trainees had not attended any training on the topic before (n = 261; 64.10%). **Table 4.18** concludes this chapter by summarizing the results of all hypotheses.

Table 4.18: Hypotheses Testing Summary

SR	Hypothesis	Results
1	Task communication shall be positively related with communication satisfaction.	Supported
2	Task communication shall be negatively related with information-seeking.	Supported
3	Task communication shall be negatively related with task uncertainty.	Supported
4	Task communication shall be negatively related with behavioral uncertainty.	Supported
5	Task uncertainty shall be negatively related with communication satisfaction.	Not Supported
6	Task uncertainty shall be positively related with information-seeking.	Not Supported
7	Behavioral uncertainty shall be negatively related with communication satisfaction.	Supported
8	Behavioral uncertainty shall be positively related with information-seeking.	Supported
9	Task communication shall be indirectly related with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty.	Partially Supported
10(a)	Uncertainty avoidance shall moderate the negative relationship between task communication and task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Supported
10(b)	Uncertainty avoidance shall moderate the negative relationship between task communication and behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Supported

Continued Table 4.18 Hypotheses Testing Summary

SR	Hypothesis	Results
11(a):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Not Supported
11(b):	Uncertainty avoidance shall strengthen the positive indirect relationship between task communication and communication satisfaction via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Supported
11(c):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via task uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Not Supported
11(d):	Uncertainty avoidance shall strengthen the negative indirect relationship between task communication and information seeking via behavioral uncertainty such that the relationship shall get stronger when uncertainty avoidance is higher and the relationship shall get weaker when uncertainty avoidance is lower.	Supported

Chapter 5

Discussion and Conclusion

This chapter provides explanation of answers to research questions, clarifies their meanings as persuasively as possible by linking findings with relevant literatures, highlights theoretical and practical insights for advancing the field, acknowledges constraints in the scope of study, and spur a fresh beginning by challenging the future researchers to pursue the unanswered questions.

5.1 Findings

This study hypothesized and tested a moderated dual mediation model to answer the research questions raised in the introduction chapter. This conceptual model was based on uncertainty reduction theory (Berger & Calabrese, 1974; Neuliep & Grohskopf, 2000). The results of statistical analyses provided support to major parts of the conceptual model. Next, the study connects supported and unsupported hypotheses with the findings of previous studies.

5.1.1 Task Communication and Communication Satisfaction

The first research question of this study was to investigate the nature of the direct relationship between trainer's task communication and trainee's communication satisfaction. To answer this question, this study laid down a research objective to

find out the relationship between these two constructs. To reach this objective, this study hypothesized a positive relationship between task communication of trainer and communication satisfaction of trainee. This hypothesis was supported showing that a more effective task communication is associated with a greater communication satisfaction and a less effective task communication is related to lower communication satisfaction. This finding lent support to the results of prior studies. For instance, instructor's positive communication behaviors (e.g., verbal immediacy and verbal expressiveness) were found to enhance learner's satisfaction with the communication of instructor, elaboration of content, enthusiasm of instructor, preparation of instructor, content delivered, and positive trainee reactions towards the trainer (Spitzberg & Hecht, 1984; Meier & Feldhusen, 1979; Towler & Dipboye, 2001). Thus, effective communication of trainers fosters positive reactions among trainees.

5.1.2 Task Communication and Information-Seeking

The second research question of this study was to investigate the nature of the direct relationship between trainer's task communication and trainee's information-seeking. To answer this question, this study set a research objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a negative relationship between task communication of trainer and information-seeking of trainee. This hypothesis was supported showing that a more effective task communication was associated with lower information-seeking and a less effective task communication was related to higher information-seeking. This finding was inconsistent with the results of prior studies. For example, verbal communication of instructor was positively related with overt information-seeking of college students (Myers & Knox, 2001). Similarly, feedback received from various sources was positively associated with active inquiry (Ashford, 1986). The difference between findings of this study and those of previous studies can be attributed to contextual differences of trainer-trainee relationship from teacher-student and supervisor-employee relationships, such as, duration of interaction. Thus, effective communication of trainers frees the trainees from the hassle of asking questions.

5.1.3 Task Communication and Task Uncertainty

The third research question of this study was to investigate the nature of the direct relationship between trainer's task communication and trainee's task uncertainty. To answer this question, this study penned down an objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a negative relationship between task communication of trainer and task uncertainty of trainee. This hypothesis was supported showing that a more effective task communication reduces task uncertainty and less effective task communication elevates task uncertainty. This finding was consistent with the negative correlation found between feedback received and uncertainty (Ashford, 1986). It was also in line with the positive relationship found between trainer performance and trainee absorption of training content (Diamantidis & Chatzoglou, 2012). Thus, effective communication of trainers reduces negative perceptions of trainees.

5.1.4 Task Communication and Behavioral Uncertainty

The fourth research question of this study was to investigate the nature of the direct relationship between trainer's task communication and trainee's behavioral uncertainty. To answer this question, this study set an objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a negative relationship between task communication of trainer and behavioral uncertainty of trainee. This hypothesis was supported showing that a more effective task communication alleviates behavioral uncertainty and a less effective task communication elevates behavioral uncertainty. This finding supported the speculation that trainee's confusion was the result of inadequate trainer performance (Diamantidis & Chatzoglou, 2012). However, this finding contradicted the null relationship found between verbal communication and uncertainty (Whitt, 2015). One of the reasons of the null relation in Whitt (2015) study could be the use of CL7 Attribution Confidence instrument (Clatterbuck, 1979) that did not differentiate between uncertainty towards self and towards others. Still, more studies are required to better explain this inconsistency.

5.1.5 Task Uncertainty and Communication Satisfaction

The fifth research question of this study pertained to investigating the direct relationship between trainee's task uncertainty and communication satisfaction. To answer this question, this study set an objective to find out the relationship between these two constructs. To reach this objective, a hypothesis of negative relationship between task uncertainty and communication satisfaction of trainee was deduced from the theory and the literature. This hypothesis was not supported showing that different levels of task uncertainty (that is an attribute of trainee) do not influence communication satisfaction. This finding supports the conclusion of Brown (2005) that attributes of person have the potential to predict overall trainee reactions, whereas this study was investigating a specific trainee reaction, that is, communication satisfaction. Thus, this study could have found evidence of a negative relation if the criterion was overall training satisfaction instead of communication satisfaction. Although, it appears that no matter how much task uncertainty changes, it does not affect communication satisfaction, this study speculates that the relationship may exist but depends on certain conditions and processes that were not investigated.

5.1.6 Task Uncertainty and Information-Seeking

The sixth research question of this study was to investigate the nature of the direct relationship between trainee's task uncertainty and information-seeking. To answer this question, this study set an objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a positive relationship between task uncertainty and information-seeking of trainee. This hypothesis was not supported showing that the task uncertainty of trainees does not systematically affect their information-seeking. This finding supports the argument of (Hannaway, 1985) that uncertainty does not culminate into initiative taking despite producing tension. This lack of relationship can be attributed to not studying mediators operating in this relationship. Supporting this assertion, (Ashford, 1986) found that uncertainty was positively related to value of feedback

that in turn was related to frequency of inquiry. A recent study found that emotional appraisal mediates the relationship between uncertainty and information-seeking in health communication context (Huang & Yang, 2020). A lack of systematic relationship between task uncertainty and information-seeking also highlights the reticence of trainees in seeking support of trainer while learning tasks about which they are not certain. This reluctance may culminate into less than optimal effectiveness of training. In light of this situation, this study suggests future research to identify the conditions and mechanisms that discourage trainees to reduce their task uncertainty by engaging in information-seeking.

5.1.7 Behavioral Uncertainty and Communication Satisfaction

The seventh research question of this study was to investigate the nature of the direct relationship between trainee's behavioral uncertainty and communication satisfaction. To answer this question, this study set an objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a negative relationship between behavioral uncertainty and communication satisfaction of trainee. This hypothesis was supported showing that a reduction in behavioral uncertainty enhances communication satisfaction and an elevation in behavioral uncertainty reduces communication satisfaction. A reduction in behavioral uncertainty of trainee during training depicts that she or he has learned about the behaviors of trainer as well as about her or his own behavioral responses towards the behaviors of trainer. This learning in the form of reduced behavioral uncertainty has been found to foster communication satisfaction. This finding supports the assertion of Warr, Allan, and Birdi (1999) that learning during training predicts outcomes in most training programs.

5.1.8 Behavioral Uncertainty and Information-Seeking

The eighth research question of this study was to investigate the nature of the direct relationship between trainee's behavioral uncertainty and information-seeking.

To answer this question, this study set an objective to find out the relationship between these two constructs. To reach this objective, this study hypothesized a positive relationship between behavioral uncertainty and information-seeking. This hypothesis was supported showing that a decreasing behavioral uncertainty was associated with decreasing information-seeking and an increasing behavioral uncertainty was associated with increasing information-seeking. This finding is partially consistent the results of a recent study that reported a marginal positive relationship between COVID-19 susceptibility uncertainty and risk information-seeking but inconsistent with the negative relationship between COVID-19 severity uncertainty and risk information-seeking (Huang & Yang, 2020).

This finding is also inconsistent with the observation of Tidwell and Sias (2005) that individuals engage in direct information-seeking under lower perceived social cost and but not under higher perceived social cost. It is conceivable that lower behavioral uncertainty might be associated with lower perceived social cost and should have increased information-seeking instead of reducing it. These differences can be a reflection of differences in context of the studies and pose an interesting avenue for future research.

5.1.9 Mediation of Task and Behavioral Uncertainty

The ninth research question of this study was to investigate the indirect relationship of trainer's task communication with trainee's communication satisfaction and information-seeking via trainee's task uncertainty and behavioral uncertainty. To answer this question, this study set an objective to find out the relationship between these five constructs. To reach this objective, this study hypothesized four indirect relationships of task communication with communication satisfaction and information-seeking via task uncertainty and behavioral uncertainty. These four indirect relationships were tested simultaneously. In the first of these indirect relationships, task communication was expected to relate indirectly with communication satisfaction via task uncertainty. In the second indirect relationship, task communication was expected to relate indirectly with information-seeking via

task uncertainty. The third indirect relationship stipulated task communication to be indirectly related with communication satisfaction via behavioral uncertainty. Finally, the fourth indirect relationship expected task communication to relate indirectly with information-seeking via behavioral uncertainty.

The first two parts of the hypothesis were not supported showing that trainee task uncertainty could not account for the indirect effects of task communication on communication satisfaction and information-seeking. These findings are attributed to an absence of direct relationships of task uncertainty with communication satisfaction and information-seeking. One reason of these findings could be a lack of assessment of any threat-related construct along with task uncertainty while predicting communication patterns within groups. This measurement of threat along with task uncertainty was suggested by Argote et al. (1989) based on their observation of covariation between the two constructs. The reason of absence of a relationship between task uncertainty and communication satisfaction could be a difference in their focus: whereas task uncertainty is focused on a specific task, the communication satisfaction is focused on overall communication pattern. This finding corroborates the growing evidence that learning and reactions of trainees are not associated (Diamantidis & Chatzoglou, 2012). In this study, task uncertainty reflects incomplete task information (Ben-Menahem, Von Krogh, Erden, & Schneider, 2016) and its reduction is akin to learning of the task, whereas communication satisfaction represents a reaction of trainee towards the communication of trainer. The finding of a null relation between task uncertainty and information-seeking was a bit surprising given the common focus of both constructs: the task. This finding also contradicts the argument of Miller (1996) that perceived uncertainty is one of the causes of information-seeking. One of the theoretical reasons for this null association could be an exceedingly low uncertainty that has the potential to discourage communication due to enhanced boredom (Gudykunst & Kim, 1997).

The other two parts of the hypothesis were supported demonstrating that the behavioral uncertainty was responsible for the indirect effects of task communication on communication satisfaction and information-seeking. The observation of a positive indirect effect of task communication on communication satisfaction via

behavioral uncertainty was consistent with the prior evidence of a positive indirect relationship between task communication and communication satisfaction via behavioral uncertainty. The finding of a negative indirect effect of task communication on information-seeking via behavioral uncertainty was consistent with the propositions of uncertainty reduction theory: a rise in communication was accompanied by a decline in uncertainty and a decline in uncertainty was accompanied by a decrease in information-seeking (Berger & Calabrese, 1974; West & Turner, 2019).

5.1.10 Moderation of Uncertainty Avoidance

The tenth research question of this study was to investigate the moderating role of trainee's uncertainty avoidance beliefs in the direct relationships of trainer's task communication with trainee's task uncertainty and behavioral uncertainty. To answer this question, this study set an objective to find out the conditional direct effects of task communication on task uncertainty and behavioral uncertainty under varying uncertainty avoidance beliefs. To reach this objective, this study hypothesized that the trainee's uncertainty avoidance shall strengthen the negative direct effects of task communication on task uncertainty and behavioral uncertainty. Both hypotheses were supported showing that the negative direct relationships of task communication with task uncertainty and behavioral uncertainty were stronger for trainees who held higher uncertainty avoidance beliefs than those who held lower uncertainty avoidance beliefs.

5.1.11 Moderated Mediation of Uncertainty Avoidance

The eleventh research question of this study was to investigate the moderating effects of trainee's uncertainty avoidance beliefs on the indirect relationships of trainer's task communication with trainee's communication satisfaction and information-seeking via trainee's task uncertainty and behavioral uncertainty. To answer this question, this study set an objective to find out the conditional indirect effects of task communication on trainee's communication satisfaction and

information-seeking via trainee's task uncertainty and behavioral uncertainty under varying uncertainty avoidance beliefs of trainees. To reach this objective, this study hypothesized that the trainee's uncertainty avoidance shall strengthen the positive indirect effects of task communication on communication satisfaction via task uncertainty and behavioral uncertainty and the negative indirect effects of task communication on information-seeking via task uncertainty and behavioral uncertainty. This hypothesis had four parts that were simultaneously tested. The first part of the hypothesis proposed that the uncertainty avoidance shall strengthen the positive indirect effect of task communication on communication satisfaction via task uncertainty. The second part of the hypothesis proposed that the uncertainty avoidance shall strengthen the negative indirect effect of task communication on information-seeking via task uncertainty. The third part of the hypothesis proposed that the uncertainty avoidance shall strengthen the positive indirect effect of task communication on communication satisfaction via behavioral uncertainty. The fourth part of the hypothesis proposed that the uncertainty avoidance shall strengthen the negative indirect effect of task communication on information-seeking via behavioral uncertainty.

The first two parts of the hypothesis were not supported showing that the trainee's uncertainty avoidance orientation could not strengthen the indirect effects of task communication on communication satisfaction and information-seeking via task uncertainty. These findings are attributed to an absence of direct relations of task uncertainty with communication satisfaction and information-seeking. These findings join a small literature that failed to find moderation of uncertainty avoidance orientation in the mediated relationships. For example, uncertainty avoidance orientation could not moderate the indirect effect of organizational justice on organizational citizenship behaviors via perceived supervisor support (Schilpzand, Martins, Kirkman, Lowe, & Chen, 2013). It could not moderate the indirect relationship between learning adaptability and innovative behavior via task mastery (Boulamatsi et al., 2021). The other two parts of the hypothesis were supported demonstrating that the trainee's uncertainty avoidance orientation strengthens the indirect effects of task communication on communication satisfaction and information-seeking via behavioral uncertainty. These findings supported the

growing view that uncertainty avoidance orientation plays a critical role in moderating the mediated relationships among a wide variety of variables operating at the workplace. For example, uncertainty avoidance has been found to moderate the indirect relationship between mentoring and turnover intention via person-job-organization fit perceptions (Cai et al., 2020), the relationship of core job characteristics and job performance via hindrance stressor (Naseer et al., 2020), and the relationship between learning adaptability and innovative behavior via positive framing (Boulamatsi et al., 2021).

5.2 Theoretical Contributions

This study has contributed to training theory in three principal ways. First, it has introduced trainee's communication satisfaction as a new training reactions criterion in Kirkpatrick's model (Kirkpatrick, 1976, 2008). This new criterion can be used in future corporate trainings and empirical academic studies. The introduction of this new training reaction criterion indicates that the Kirkpatrick's list of training reactions is not complete yet and scholars need to expand it further by including new promising reaction criteria.

Second, this study has fused communication literature with training literature by explicitly studying a training problem within the frame of a communications theory, the uncertainty reduction theory. This fusion has highlighted the potential utility of communication research in offering alternative solutions to the pressing theoretical and practical training problems such as the ones addressed in this study. For instance, if training is not proving to be very effective and every training factor is apparently working fine then cause of ineffectiveness can be traced to ineffective communication mechanisms. Correcting the problems in the communication process can improve training effectiveness.

Third, this study has reinforced the current view that positive trainer behaviors can reduce negative trainee perceptions. These negative perceptions include uncertainties, ambiguities, negative attitudes, negative emotions, and negative motivations.

This study has also contributed to the uncertainty reduction theory (Berger & Calabrese, 1974; Neuliep & Grohskopf, 2000) in five main ways. First, in line with the omission highlighted by Redmond (2015) that theorems among several constructs of uncertainty reduction theory and communication satisfaction are missing, the first finding of this study has supported the existence of a missing link between verbal communication and communication satisfaction. Thus, this study has proffered a new theorem in the uncertainty reduction theory: verbal communication enhances communication satisfaction.

Second, this study has extended the scope of uncertainty reduction theory by supporting the conceptualization of task communication as a specific instance of verbal communication (a construct of uncertainty reduction theory).

Third, this study has extended the scope of uncertainty reduction theory by supporting the conceptualization of task uncertainty as a specific instance of uncertainty (a construct of uncertainty reduction theory).

Fourth, this study has supported the theory's axiom of inverse relation between verbal communication and uncertainty for the first time in training context.

Fifth, this study has introduced cultural value orientation of uncertainty avoidance as a condition that influences the strength of predictions of uncertainty reduction theory.

5.3 Managerial Implications

Several implications for human resource managers can be gleaned from the findings of this study. First, this study suggests human resource managers to recruit and select candidates for trainer positions who could effectively communicate training materials. Such trainers should be able to transmit knowledge, skills, abilities, and attitudes accurately and effectively. This better communication of competencies shall ensure that trainees experience superior learning and get good value for their training investments. This will ultimately benefit training organizations that shall get trainee endorsements and a stable stream of training customers.

Second, this study encourages human resource managers to provide ample training and development opportunities to their trainers for raising their communicative-competencies. These opportunities shall help trainers to polish their training skills and get acquainted with the latest developments in the knowledge of communications and trainings techniques. These skills and learning shall enable trainers to obtain higher communication satisfaction ratings from trainees.

Third, this study advises human resource managers to measure trainees' communication satisfaction as part of a training evaluation exercise. This practice will help appraise communication aspect of trainers' performance and in turn become a source of information for taking decisions about their training needs and compensation packages. For instance, if evaluation shows that trainees are less satisfied with the communication of their trainer, then, it is a signal for human resource managers to take corrective measures. These corrective measures include arranging training and development activities for their low performing trainers. Otherwise, if evaluation shows that trainees are more satisfied with the communication of their trainer, then, such trainers need to be rewarded for their superior performance.

Fourth, this study suggests human resource managers to engage their trainers in using task communication for increasing or decreasing information-seeking or questions of trainees as required in a training. If they think that trainees need to actively participate in training by asking questions then they can do so by decreasing task communication signaling them that trainer welcomes their questions thus encouraging them to seek more information. Otherwise, if trainers think that the training is going off track due to too many questions being asked by trainees then they can increase task communication signaling trainees about the undesirability of their information-seeking.

Fifth, this study suggests human resource managers to ensure that their trainers are able to recognize task and behavioral uncertainty levels of trainees and attempt to adjust these using their task communication. Too low uncertainty is known to enhance boredom, overconfidence, and communication demotivation in interactions with others (Gudykunst & Nishida, 2001; Gudykunst & Kim, 1997), And too high uncertainty prohibits effective communication (Gudykunst & Nishida, 2001).

Boredom, overconfidence, demotivation, and ineffective communication can make it difficult for trainees to grasp training content and interact effectively with the trainer. Trainer's task communication can solve these issues by adjusting trainee's task and behavioral uncertainty to the right levels.

Sixth, this study suggests human resource managers to ensure that their trainers try to reduce behavioral uncertainty of trainees as it will eventually garner favorable evaluation in the form of high communication satisfaction of trainees. This can be done by more elaborate interaction of trainers with their trainees in the form of expression of ideas, sharing professional achievements, sharing professional failures, raising questions, answering queries, solving problems, showing accessibility, stimulating open communication, and appreciating efforts of trainees (Yi, 2009; Gauld, 2014).

Seventh, since trainees seek more information from unfamiliar trainers than they do from familiar ones, therefore human resource managers can recruit new trainers when they want more interactive sessions in which trainees ask more questions. On the other hand, they may recruit popular trainers when they want trainees to ask fewer questions.

Eighth, this study suggests human resource managers to sensitize their trainers to identify trainees who hold lower uncertainty avoidance orientation. They are the ones who respond lesser to the trainer's task communication with respect to task and behavioral uncertainty compared to trainees with higher uncertainty avoidance orientation. In other words, they lag in observational learning and trainers need to put greater efforts while communicating training content to such trainees.

5.4 Limitations

Readers should keep in mind several limitations of this study while interpreting its findings. The first limitation of this study was that several relevant variables were not included despite they were in line with the underpinning theory. For example, variables related to constructs such as non-verbal affiliative expressiveness,

reciprocity, similarity, and liking were not included. Similarly, variables related to other boundary conditions of the underpinning theory were not included, for instance, violation of expectations, expectations to meet again, and rewards power of interacting person. However, not including a large number of relevant variables was consistent with the scientific principle of parsimony in which the researcher tries to find a small number of factors that could explain large portions of a phenomenon (Sekaran & Bougie, 2019).

The second limitation of this study was that alternative conceptual models, such as, non-linear, non-recursive, and moderating mediation models were not theorized and consequently tested. It should be noted here that hypothesizing and testing such complex models was beyond the scope of the current study but presents a promising avenue for future research.

The third limitation of this study was the use of single source data i.e., trainee and the use of single data collection method i.e., questionnaire. This limitation prohibited this study to confidently rule out common method error in estimated parameters. Therefore, severity of common method error was evaluated by estimating a single factor measurement model in which all items were loaded on a single latent factor in line with the suggestions of Podsakoff et al. (2012). Poor global fit indices of this model indicated the common method error had not severely biased the estimated parameters. Thus, estimated parameters of this study could be trusted.

The fourth limitation of this study was cross-sectional time lagged design in which data were collected from trainees in three waves: pre-training, mid-training, and post-training. This design prohibited the investigator from testing causal and reciprocal relationships among variables despite that the underpinning theory proposed both causal and reciprocal relationships. However, not testing causal and reciprocal relationships does not nullify validity of the findings of this study as its research questions and objectives did not require drawing causal and reciprocal relationships.

The fifth limitation of this study was a lack of theorizing and testing non-linear relationships among the variables. It was not done because the underpinning

theory of this study did not require theorizing non-linear relationships.

The sixth limitation of this study was the use of convenience sampling technique that is a non-probability sampling. This type of sampling barred this study from confidently generalizing its findings to other samples of trainees. The reason for using convenience sampling was the unavailability of a sampling frame of trainees. This study tried to overcome this limitation by collecting data from a wide variety of trainings delivered by a large number of trainers.

The seventh limitation of this study was the violation of the assumptions of normality and homoscedasticity in residuals of data. This limitation could severely restrict generalizability of findings and reduce power of statistical tests. However, the use of robust estimator (MLR) overcame this limitation. This estimator was designed to correct the parameters for non-normality and heteroscedasticity of residuals in the data.

The eighth limitation of this study was the simultaneous estimation of all free parameters for testing all hypotheses in a single structural equation model. Although this technique has its own merits, however it has a drawback of propagating specification error throughout the model. To overcome this limitation, modification indices were used to detect and correct specification errors. These limitations provide opportunities for improvement in future studies.

5.5 Future Directions

This study puts forth several suggestions for future researchers based on its findings and limitations. First, the significant relationships of task communication with other variables of this study encourage researchers to look for other types of communicative behaviors of trainers including knowledge sharing, knowledge hiding, ebullience, bullying, verbosity, directedness, expressiveness, and immediacy. The identification of these behaviors shall open new avenues for research on trainer's communication. It will help us identify which trainer behaviors need to be promoted and which need to be prohibited for achieving effectiveness in trainings. Identifying trainer communicative behaviors that do not influence desirable

training outcomes shall save resources that could have been wasted in developing these. Similarly, discovering trainer behaviors that lead to unfavorable training outcomes shall avoid resource wastage by discouraging trainers to display these. The trainer behaviors that promote desirable training outcomes shall improve resource productivity by encouraging trainers to display these.

Second, the researchers can expand the current conceptual model by adding variables based on other constructs of uncertainty reduction theory such as reciprocity, similarity, and liking. Some variables based on constructs of reciprocity, similarity, and liking are positive and negative reciprocity, perceived similarity, personality similarity, gender similarity, surface level similarity, deep level similarity, and interpersonal liking. The development of such expanded conceptual models shall provide comprehensive solutions to unresolved training problems. These proposed solutions could then be tested with empirical data obtained from trainings. Well-supported solutions shall be adopted by practitioners and ill-supported solutions shall render themselves to training scholars for further investigations, refinements, and testing.

Third, the researchers are advised to explore other moderators in the current conceptual model. For instance, significant moderating role of uncertainty avoidance in this study suggests exploring other cultural moderators including but not limited to power distance and collectivism. Exploring moderators of the current conceptual model shall allow the training scholars to identify the conditions in which this model works and the conditions in which it does not work. These conditions include place of training, time of training, context of training, type of training, individual orientations, and social relations. Here scholars need to understand that most of the tenets of moderation promulgated by Baron and Kenny (1986) are too restrictive, conservative, and no more applicable. In other words, they do not allow subtler forms of moderation to be detected. The current understanding of moderation accepts evidence of moderation when product term of predictor and moderator significantly affects outcome even when predictor and moderator do not have significant effects on outcome (Hayes & Rockwood, 2017).

Fourth, the evidence of partial mediation of behavioral uncertainty and no mediation of task uncertainty suggest researchers to seek other forms of uncertainty as

mediators in the current conceptual model such as contextual uncertainty, relational uncertainty, and environmental uncertainty. The identification of these alternative or complementary mediators shall enhance the explanatory power of the current conceptual model. However, the focus of training scholars should remain on identifying mediators with greater explanatory power than the current ones. Such mediators shall replace the currently known mediators with lower explanatory power. This practice shall facilitate the search for parsimonious explanatory mechanisms between trainer communication and trainee outcomes.

Fifth, the researchers are advised to theorize and test non-linear, non-recursive, and causal relationships in the current concept model by using longitudinal study designs. For instance, theoretically it is possible to expect that trainee's task uncertainty and behavioral uncertainty can predict trainer's task communication. Testing such unconventional relationships between variables of the current conceptual model shall either enhance our confidence in the current model or reveal the previously hidden nomological network of variables. It shall enhance our understanding of the problems being studied in this research and shall direct us towards more interesting insights.

Sixth, the researchers can develop current moderated mediation model into more complex models including moderating mediation model. For instance, it can be hypothesized that uncertainty avoidance or another variable moderates both stages of mediation. Conceptualizing such complex models shall enable the researchers to have a more nuanced understanding of when, where, and for whom the current conceptual model solves the theoretical and practical training problems. A more complete understanding gained from a more sophisticated theorizing and testing shall allow the training scholars to present such solutions of training problems that remain valid across a variety of situations, times, and trainees.

Seventh, the researchers can conceptualize current conceptual framework as a multilevel model in which trainer's task communication act as a level-two predictor while other variables act as level-one variables. Training is usually a group activity that involves multiple trainees and trainers, therefore many training variables lie on different levels of analysis. For instance, contextual variables and variables reflecting trainer behaviors lie at group level and variables representing trainee

reactions lie at individual level of analysis. Such conceptual models are more realistic than same level conceptual models due to a more accurate representation of events taking place in trainings. Testing such multilevel models shall require a very large scale study over extended period of time in which a minimum of two hundred and seventy trainings shall be required to satisfactorily estimate the model parameters. This number of trainings is based on estimated free parameters in a multilevel model. Such conceptual models are more realistic than same level conceptual models due to a more accurate representation of events taking place in trainings.

Eighth, future studies can reduce concerns of common method bias by obtaining multisource data (e.g., trainer, trainees, and observers) and using a combination of data collection techniques (e.g., observation and questionnaire). These design options shall provide a more objective measurement of variables that will complement existing subjective measures in bringing out the reality hidden behind common method bias. Reducing or even eliminating such biases shall present a more accurate picture of real phenomena taking place inside the training rooms. Ninth, the generalization of findings to the population of trainees can be enhanced by using probability sampling designs in future studies, for example, cluster or stratified random sampling. These sampling designs shall be possible if sampling frame is available to the training researchers. Obtaining such sampling frames requires trust of organizational management on researchers due to confidentiality involved. Wining trust of managers requires training scholars to frequently meet with them and develop a working relationship.

This partnership of managers and academicians shall enable the academicians to access sampling frames and the vast amounts of training data existing inside the organizations. Tenth, the future studies can replicate the current conceptual model in other types of trainings such as on the job training, computer mediated training, and uncertainty enhancing training. This replication shall provide evidence of the generalizability of the current conceptual model and its underpinning theory. This generalizability shall enhance the confidence of scholars and managers in using the current model to solve the relevant training problems highlighted in this study whenever these problems arise across a variety of places, times, and trainings.

5.6 Conclusion

To date, few studies have explicitly engaged communication theory and research to inform problems faced by training scholars and practitioners. This study is one of those rare attempts that fused two apparently disparate yet related streams of research: training and communication. Using a well validated theory of communication, the uncertainty reduction theory, this study attempted to answer how, when, and why trainer's task communication influences trainee's communication satisfaction and information-seeking. This theory provided basis for developing eleven hypotheses including eight direct hypotheses, one mediation hypothesis, one moderation hypothesis, and one moderated mediation hypothesis. Task uncertainty and behavioral uncertainty were theorized to act as mediators and uncertainty avoidance to act as moderator. Majority of the hypotheses were supported depicting that the study successfully achieved most of its objectives. However, the readers are advised to take the findings as an impetus for designing more extensive empirical research that could answer burgeoning questions in training research and practice.

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Appendix-A

Questionnaire Cover Letter

Subject: Questionnaire for a PhD Study on Training Evaluation and Effectiveness

Dear Trainee,

You are invited to participate in a PhD study on training evaluation and training effectiveness as a respondent by filling the attached questionnaire. This study aims at understanding the trainees' perceptions towards trainer's task communication, own task uncertainty, own behavioral uncertainty, own communication satisfaction, and own information-seeking. The questionnaire consists of three forms: pre-training, mid-training, and post-training. The objective of these forms is as under:

- Pre-training Form: Trainee has to fill this form before training begins.
- Mid-training Form: Trainee has to fill this form during the mid-training break.
- Post-training Form: Trainee has to fill this form after the end of training.

I assure that information collected in these forms shall remain confidential and shall be used only for improving theory and practice of trainings. By filling these forms, you agree to provide your free and informed consent to participate in this study. You can contact the undersigned for any questions.

Sincerely yours,

M. Usman A. Baig (PhD Candidate)

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Pre-Training Form

Questions	**Answers**
Topic of Training	
Name, organization, & designation of Trainee	
Gender of Trainee	
Age of Trainee	
Name of Trainer	
Gender of Trainer	
Have you met the trainer before?	
Have you attended any training by the trainer before?	
Have you attended training on this topic before?	
Assigned Code	

Mid-Training Form

Assigned Code:_____

Write one number that represents your thoughts about yourself? Your choice is:

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

1	I prefer structured situations over unstructured situations.	
2	I prefer specific instructions over broad guidelines.	
3	I tend to get anxious easily when I don't know an outcome.	
4	I feel stressful when I cannot predict consequences.	
5	I would not take risks when an outcome cannot be predicted.	
6	I believe that rules should not be broken for mere pragmatic reasons.	

7	I don't like ambiguous situations.	

I know very little 1 2 3 4 5 6 7 I know very much

1	To what extent is there a clearly known way to conduct or perform the task?	
2	Is there anyone who can guide you to perform the learned task?	
3	To what extent do you understand the sequence of steps to perform the learned task?	
4	To what extent can you actually rely on established procedures and practices to perform the learned task?	
5	To what extent is there an understandable sequence of steps that can be followed to perform the learned task?	

1 = Never — 2 = Rarely — 3 = Once in a while — 4 = Often — 5 = Always

1	The trainer expressed task-related ideas and thoughts in training.	
2	The trainer participated fully in task-related brainstorming sessions in training.	
3	The trainer proposed task-related problem-solving suggestions in training.	
4	The trainer answered task-related questions from trainees.	
5	The trainer asked good questions that elicit task-related thinking and discussion.	
6	The trainer shared task-related success stories that may benefit the trainees.	
7	The trainer revealed past task-related failures or mistakes to help trainees avoid repeating these.	
8	The trainer made task-related presentations in training.	

Not confident at all 1 2 3 4 5 6 7 8 9 Extremely confident

1	If I meet the trainer again, I will know what to say.	
2	If I meet the trainer again, I will know how to act.	
3	If I meet the trainer again, I will know what to talk about.	
4	If I meet the trainer again, I know what he / she will say.	
5	If I meet the trainer again, I know how he / she will act.	
6	If I meet the trainer again, I know what he / she will talk about.	

Post-Training Form

Assigned Code:_____

Strongly disagree 1 2 3 4 5 6 7 Strongly agree.

1	My communication with my trainer felt satisfying.	
2	I disliked talking with my trainer.	
3	I am not satisfied after talking to my trainer.	
4	Talking with my trainer gave me feeling like I accomplished something.	
5	My trainer fulfilled my expectations when I talked to him.	
6	My conversations with my trainer were worthwhile.	
7	When I talked to my trainer, the conversations were rewarding.	
8	My trainer made an effort to satisfy the concerns I have.	

1 = Never — 2 = Rarely — 3 = Once in a while — 4 = Often — 5 = Frequently

1	I asked trainer specific, straight, to the point questions to get the information I wanted.	
2	I identified what I didn't know and asked trainer for information about that matter.	
3	I went directly to trainer and asked for information.	
4	I "beat around the bush" in asking for information from trainer.	

Thank you very much for your participation.