Impact of Project Uncertainty on Project Success with Mediating Role Project Control and Moderating Role of Uncertainty Avoidance

By

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A research thesis submitted to the Department of Management Sciences,

Capital University of Science and Technology, Islamabad

In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN PROJECT MANAGEMANT

DEPARTMENT OF MANAGEMENT SCIENCES

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

February, 2017

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Certificate

This is to certify that Mr. Shoaib Ayub has incorporated all observations, suggestions, and comments made by the external evaluators as well as the internal examiners and thesis supervisor. The title of his Thesis is: Impact of Project Uncertainty on Project Success with Mediating Role Project Control and Moderating Role of Uncertainty Avoidance

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DEDICATION

I dedicate my work to my father who had been an inspiration for throughout my life.

Acknowledgement

In the name of Almighty Allah, most gracious, the most merciful.

I want to thank my dissertation supervisor Dr. Sajid Bashir for his continuous guidance and persuasion throughout the time.

I would like to thank my father and family who had motivated me continuously to achieve this milestone.

A word of applause for my friends and classmates who had given me assistance in sharing knowledge and other resources required to conduct research.

Thank you all.

Shoaib Ayub

Table of Contents

Table of Tables

Abstract

This study focuses on the relationship between Project uncertainty (PU) and project success with the mediating role of Project Control (PC) and moderating role of Uncertainty Avoidance (UA). The specific context of the study is the project based organization in Pakistan. Data were collected using questionnaire from 300 employees working on various projects across Pakistan. Results indicate that Project Uncertainty is negatively associated with project success. Moreover mediating role of Project Control is also established. In addition to above, results also confirm the moderating role of Uncertainty avoidance and practical implications are discussed.

Keywords: project uncertainty, project control, uncertainty avoidance, project success.

1. Introduction

1.1: Background of the study:

Project is a temporary endeavor of any organization which is designed to achieve any specific objective. According to PMI (2013), projects have two unique characteristics. First, the projects are temporary in nature and should be having a finite time. Secondly the projects must be having some new and unique objective to achieve. In modern world project based working is getting popularity in global organization. Companies are investing in medium and large scale projects in different functions such as innovation, new technology, new process and constructions based activities. Studies in the domain of project management has emphasized the need of project management practices and its growing as a profession and wide range of studies are also being published (Crawford, 20016). The practices related to project management are applied to several industries and organizations now consider project management tools as strategically important to achieve organizational objectives. These tools are not only used on the strategic and decision making but also at the operational level as well.

In general projects are assumed to achieve three major parameters such as time, cost and performance. These parameters classify project based activities distinct from day to day routine activities. The major challenges faced by project managers in modern era are to deal uncertainty in different functions. The uncertainties can surround the projects in many ways such as time estimations, cost and resource deployment. These uncertainties sometimes are controllable and sometimes the uncertainties are unknown and uncontrollable to the project managers. Such uncertainties affect the progress of the project and may also hinder the project outcomes. (Hubbard, 2009). It is critical for managers to monitor these risks, assess and identify

contingency plans in order to mitigate it effectively (Hillson, 2002). Project uncertainty has received attention in studies related t project management, (Meredith and Mantel, 2010) and authors have reported different approaches to address this issue (Harris and Woolley, 2009).

In project management, uncertainty refers to the factors related to several kinds of risks associated and studies also have been published to differentiate risk and uncertainty (Perminova et al., 2008; Sanderson, 2012). Several authors have studied uncertainty and the factors related to uncertainty which hinder project success (Lihong et al., 2008; Nakatsu and Iacovou, 2009). It is evident to mention that uncertainty depends on the type of the project, the kind of technical complexity involved inside and the nature of experience the management possess. Studies have also mentioned that the uncertainties in a project are not avoidable (Hubbard, 2007). Traditional project management tools also recommend identifying the kind of risks and converting into opportunity instead of a threat (Siebert, 2005). A key argument that an uncertainty is either inherent or exterior in the actual world or it's nothing more than a literature perception is yet a topic of discussion. The findings in the literature of project management accentuate that the source of this term is uncertain as this phenomena is noticed because of the development of the interrelation among the bodies which are part of the system (Benbya and McKelvey, 2006).

Uncertainty has been studied in different knowledge domains such as psychology, economics and mathematics (Bammer & Smithson, 2009; Osman, 2010). In addition to the knowledge domains uncertainty relates to the human life as well. Perminova et al, (2008) defined project uncertainty as a situation where the manager has incomplete information regarding a particular situation of a project. In addition to it, Association of Project Management (2006) also presented a definition of project uncertainty where it referred to a state of knowledge which may not be complete and believed that it is related to the risks and threats related to a project. Studies have

shed light on the sources of risks that how it may arise in a project (Martinsuo et al., 2014; Saunders et al., 2015) and presented several techniques to prevent these uncertainties in order to achieve success (Vidal, 2015).

The arena of project literature has gone over several researches which have examined the sources which may be the reason for emergence of uncertainty in projects. The consumer requirement and the scope definition may subject complexity. Winch, (2010) gave an account of genre of technology tools used by the body. Moreover, the external factors just as the regulatory authorities linked with project and the process sanctioned, can cause uncertainty to be arose (Aaltonen, 2011; Winch, 2010). Another factor can be observed at the managerial position, where the type and style of manager accountable for the project can give rise to uncertainty (Madsen & Pries Heje, 2009).

Uncertainty because of its subjective nature is sometimes tough to evaluate (Perminova et al., 2008).Chapman and Ward, (2011) analyzed the fact that several factors on the project can give rise to uncertainty such as who are linked with the project directly or indirectly. Environmental factor, technical factors and lack of resources are some various factors which can add uncertainty (Colarelli O′Connor &Rice, 2013 and Lechler et al., 2014) or the natural factors like changing economy, design of the project and the interdependence of the functions on each other (Ramesh & Browning 2014).

Risk management is one more studied sphere of project management literature. Risk pertains to the general occasions. Managers consult traditional risk management techniques for planning and other functions to avoid and single out solutions to uncertainty (De Meyer et al., 2002). Risk management and uncertainty observes no harmony in their definition. Hence authors also go for using the term broader uncertainty rather than risk management which also cope with inside and

outside fears and threats (Cleden, 2009). An uncertainty doesn't refer simply to develop a management plan for the problems and chances which obstruct the performance of the project but also the root cause analysis of the problem (Ward &Chapman, 2003). There are numerous typologies used for project uncertainty. Out of different, one of the typologies established on the basis of various factors which may give rise to uncertainty are financial in type, organizational operations and policies and technical specifications too. Ward and Chapman (2003) and Leifer et al. (2000) endorsed this typology. Moreover another typology was recommended by De Meyer et al. (2002) and Loch et al. (2006) for the uncertainty factors based on the nature of project itself.

Every activity contrived may deal with different types of deviations in range of the planned values. In accordance to the variations observed in each project, the managers can plan the up-coming activities. The time duration of every activity differs in accordance to the range of deviation a manager observes. Uncertainties are different in nature, some are predictable and certain, such uncertainties are like those risks which can be easily identified. On the contrary, there are uncertainties which are unpredictable in nature and likelihood is unknown. Such kinds of uncertainties arise without any prediction (De Meyer et al., 2002).

It is something mandatory to assess the difference between the project uncertainty and project chaos based on its stability factor because projects with uncertainty in any of its functions may outset with equitable stability while projects with chaos have uncertain outset, uncertain execution and uncertain end. Furthermore projects having uncertainty may deal with obstacles and finish up in a different way but the inceptive intention somehow is obvious (De Meyer et al., 2002). There are numerous aspects discussed in project uncertainty literature, out of which the first dimension into certainty is concerned with environmental approach and can be sourced from outer environment. These factors are leveraged by the macro environment such as ruling bodies

and other organizations making rules and strategies, incompatible demands of the related stakeholders and competitors stress too (Aaltonen, 2011; Winch, 2010).

Besides, the conception of uncertainty evolving from individuals based upon numerous factors such as bounded rationality and various psychological and physical characteristics. Bounded rationality basically refers to the assumption that while making decision managers are bounded by their ability to process information due to resource constraints like incomplete knowledge about situation, inability to consider all the alternatives and limited time and money as well (March and Simon, 1958). Furthermore the discrepancies and the differences among individuals are dissimilar due to the diversity in culture, experiences and mindset (Madsen and Pries-Heje, 2009).

The actors which may increase uncertainty can be asserted from the functionalities or requirement specification of the client. Such consumers may escalate project complexity by asking for enhanced technological factors (Danilovic and Sandkull, 2005). Complexity of the project varies as the progress is made over the course of time (Cleden, 2009). Assumption is that the uncertainty is of low level at the initial planning stage of the project as the managers made quite a certain estimates because not a lot of fluctuations are involved in cost and time trade off and the objective remains unchanged (Atkinson et al., 2006; Ward and Chapman, 2003). Other than that increased conflict may not be observed by the stakeholders concerned with this phase as well. The different forms of uncertainty related outcomes and the contingencies projects got to deal with have become a prominent domain in literature (Lu and Suh, 2009; Whitty and Maylor, 2009).

1.2: Research Gap and present study:

Saunders et al., (2016) studied various dimensions of project uncertainty and also recommended to study project uncertainty in other sectors as well. The six primary determinants studied by Saunders et al were Information, Complexity, Individual, Environment, Time and Capability. Taking the advance directives of Fiona et al (2016) for examining the various project environments and the constructs of project uncertainty associated respectively, the study consolidated the changeable factors of the project uncertainty with the complete model and considered as independent variable.

Control systems is another factor studied in project management literature and is also endorsed as a critical factor in project success by some studies due to negligible behavior of researchers towards control tools (Yakubu Olawale & Ming Sun, 2015). Maxwell et al (2014) analyzed the cultural ethics and values and their impact on efficiency and execution of the project with various dimensions and they observed a positive and powerful impact of culture on project performance. Extending the suggestions by Maxwell et al. (2014) to examine the moderating impact of culture or its facets this study inspects the middling role of uncertainty prevention betwixt project uncertainty and project success.

1.3: Problem statement

The studies on project management generally indicate a concern for assessing factors which caues issues in implementation of of successful project. One the major factor which affects any type of organization is risk associated due to uncertainty about events. However we find limirted evidence that how this uncertainty can affect project success. This study mainly addressers this dearth in body of knowledge. The uncertainty is unfavorable factor which lessens the control of decision makers and project managers in implementation of a successful project. Thus we argue

that its mediating role is important to assess in this particular relationship. Moreover abundance of studies in US/Western contexts on project management limit their generalizabilty to other cultural context like Pakistan. What will be combined effect of uncertainty is a culture with uncertainty avoidance? The answer to this question is missing in extant literature, which current study is going to address.

1.4: Research Questions

At its core, the present study is intended to find answers for some briefly summarized questions which are as follows;

Question 1: What is the effect of project uncertainty on project success?

Question2: What is project control and does it mediate the relationship between project uncertainty and project success?

Question 3: What is effect of culture on project, and either it moderates the relationship between uncertainty and success?

1.5: Research Objectives

The core objective of the current study is threefold. First, this study aims to examine the relationship between project uncertainty and project success. Second, the present study, aims to examine the mediating role of project control between project uncertainty and project success and the moderating role of uncertainty avoidance between project uncertainty and project control. Finally, most of the organizational theories were developed and tested in the Western setting. The overall objective of the study is to develop and test anticipated model to find out the relationship among project uncertainty, project control and project success of project. Additionally the uncertainty avoidance is added the possible moderator for the relationship of the

mentioned variables in the research model (project uncertainty, project control and project success).

1.6: Significance of the study:

The study will serve the project practitioners in Pakistan and to the body of knowledge in numerous manners. The study at first will highlight the significance of uncertainties and their impact on the success of a project. Besides, the study will outline the various uncertainties and their nature mentioned in literature. Furthermore, it will also delineate how uncertainty and complexity are different in theory and practice. Pakistan being still in its developing phase and the victim of political and economic uncertainty demands for more and more research in this ambience for the sake of studying the type and severity of uncertainty on project life cycle encompassing its planning, execution and closure. Thus this study will also serve the literature concerning developmental projects as this domain is not focused much.

Moreover it is important to consider that projects are time limited activities with high complexity, high tolerance to ambiguity and results are not easy to quantify. In accordance to this notion, it is thus essential to go through the management processes and learning in various cultural settings having high uncertainty. Two prominent authors in organizational culture Hofstede and Fons Trompenaars have provided with approaches and thought it true that culture gets to play a most important part in establishing the value system. Since the projects are executed in specific settings, it is therefore essential to study the culture and related dimensions so that the impact can be assessed. Pakistan has got a huge investment in projects from government and foreign bodies like USAID, United Nations and different NGO's in different provinces but affected negatively on large scale by the socio cultural status. The study will hence investigate and makes practitioners focused on modifying their strategies to enhance the

performance of the project by providing them with an empirical evidence of cultural impact. Lastly regarding academic research, Project Management observes a rise and growing interest in Pakistan too. Thus this study will serves the project management literature and fills the gap with the less amount of studies conducted in this domain and opens up new ways for the up- coming researchers as well.

The study is lined up in the following breakup: Chapter 2 describes the previous literature support to the variables chosen for this study and also theoretical support in order to enrich the assumptions the section will provide the literature related to project uncertainty and its effect on project success. In addition it will cover the relevance of culture and its dimension i.e uncertainty avoidance and role of project control on success. Chapter 3 will provide detailed information on the research methodology related to data collection, sampling and data analysis techniques deployed for this study. Chapter 4 will provide the results produced after the data collection which will includes tables and statistical tests. Chapter 5 will provide discussion of the results, recommendations, limitation of the study and future lines for upcoming researchers.

1.7: Supporting theory

1.7.1: Control theory

The conventional organizational control theory (Eisenhardt, 1985; Ouchi, 1977, Rustagi et al., 2008) models the choices of control modes including output, behavior, clan and input controls as independent of each other. The framework's focus is on the choice of control modes and not on effects of control modes on performance, and it ignores potential interactions among the control modes (Liu et al., 2010; Tiwana, 2010; Tiwana and K eil, 2007). There is evidence however that performance is enhanced where different control modes are employed simultaneously, with significant correlations reported among control modes (Long et al., 2002). For example, Snell

(1992) concludes: "…the advantages and disadvantages of each type of control might suggest their combined use in human resource management". And, Turner and Makhija, (2006) in their study recommend that organizations can use more than one control modes and can make a combination of control mechanisms in order to increase performance.

More recently, Cardinal et al., (2004) proposed the concept of balance of control modes. Their central argument, which builds upon Long et al. (2002), is that the use of output control, input control and behavior control simultaneously outperform the use of a single control mode. However the balance is vaguely defined as "harmonious use of multiple forms of control". This stream of research, including Snell (1992), Turner and Makhija (2006), implicitly assumes interaction among control modes but does not examine how control modes interact. While utilizing multiple control modes could also lead to unsatisfactory results (Tiwana, 2010; Tiwana and Keil, 2007). Understanding how the various control modes interact is critical to understanding how combinations could improve performance. A further limitation of control theory is that it historically assumed the perspective of managers "controlling" subordinates (Krisch et al., 2002).

2. Literature Review

2.1: Project Uncertainty and Project Success

A concept of uncertainty is broad regarding its meaning. Uncertainty can evoke fear or warned about future options and chances that can be examined, based upon the context. An entrepreneur may take uncertainties generously with in specific market which he can exploit. Being a multi-dimensional concept, it has been studied among wide scholarly disciplines such as physics, mathematics and psychology. A mathematician takes uncertainty as a concept which may entail the likelihood of outcome (Attewell, 2009); A psychologist thinks uncertainty as a concept which is broadly discussed as an objective or subjective phenomena (Kahnemann and Tversky, 1982) and a businessman thinks uncertainties serves as the basis for many strategic decisions (Harrison, 1992).

Numerous scholars have made distinct the probable sources of uncertainty in projects. Among all, the complications appear because of product requirement, choices made regarding use of technology or involvement of different characters in the project (Cleden 2009; Martinsuo et al., 2014). Weick, (1995) further mentioned two more sources of uncertainty that is the information overcharged with vagueness and the rate at which the changes arises in project and randomness in timing and direction of change. Uncertainty may also arise due to the factors incorporated by the external environment, for example, decision making processes of a system, or from the outer market or by the actions of a competitor (Aaltonen, 2011; Winch, 2010). Another major source of project uncertainty is observed at an individual level, like uncertainty may be taken and interpreted differently by various employees depending upon the nature of respective personality

(Madsen and Pries-Heje, 2009), thus uncertainty is tough to determine when taken as a subjective phenomenon (Perminova et al., 2008).

Project uncertainty is assumed to have negative impact on project success (Jiang et al., 2002). The lack of awareness regarding needs of a client or absenteeism of skills in the particular application domain of the project developer team leads it towards complexity to completely define the clear and accurate requirement, and that may cause client's need not to be met properly and hence be the reason for fall in the performance. Using the unknown technologies may cause software related problems and thus lessen the performance of software natured product (Nidumolu, 1995).

Numerous studies indicate the inter-relation of project uncertainty with project success (Rai and Al-Hindi, 2000; Sussman and Guinan, 1999). Level of project success is defined differently by different school of thoughts. Literature concerned with information technology defines project success as conformance with the minimum technological requirements necessary to complete the project (Schultz and Slevin, 1975). On the other hand, project success is also measured in terms of how effectively the constraints of cost, quality standards and time, etc are met (Slevin and Pinto, 1986). Referring to scholars of information system Rai and Al-Hindi, (2000), the success of projects can also be measured in terms of efficiency of process and effectiveness of project.

***H1**: **Project uncertainty is negatively associated with project success**.*

2.2: Project Uncertainty and Project Control

By Mehta et al., (2014), just collecting a large volume of information is not enough when level of uncertainty is high. To resolve uncertainty, it is required that team members collect complete information and interpret it clearly to make accurate use of it in decision making. Team members remain involved throughout the project life cycle by the interactive use of information, it thus

can be seen as a reserved and organized mechanism that permits project managers to not just collect bulk of information, but also stimulate the mutual understanding of the gathered information (Kerzner, 2006; Henry et al., 2007). It is important to mention here that studies related to the domain of management control has observed that environment with high uncertainty asks for more interactive use of control system, like organizational restructuring and innovations (Bisbe and Otley, 2004).

Interactive use of control system demands proper focus of the participants and manager, presence at formal in person meetings, gathering and sharing of information, and hence it calls for substantial time and effort (Widener, 2007). This recommends that this type of use is beneficial in the environment with high uncertainty but adds costs and outweighs the benefits of system when uncertainty is low and thus results in poor performance. As use of this system inflict unneeded meetings and interactions which may cause surcharge of information and thus made it unable to meet the cost and time constraint specified for the project (Chong, 1996).This notion has also been studied by Sakka et al., (2013) who made an observation about interactive systems that it affects the performance positively.

As mentioned by Koufteros et al., (2002, p. 339), ambiguousness demands the structural mechanism that not just provide the bulk of data but escalate discussion, clarification and execution, which recommends that contexts with high level of ambiguity calls for interactive use of control systems because the implementation of this system adds extra costs, it would be fair enough to consider that it will be suitable to enhance performance of projects to be executed in environment with high ambiguity but not with low ambiguity. Sakka et al., (2013) is an exception who figured out that when technical complexity is of high level, the interactive use of control system improves project performance

H2: **Project uncertainty is negatively associated with project control**.

2.3 Project control and project success

Project control basically refers to completion of project by meeting effectively the time and cost constraint by analyzing the actual performance and progress of the project and applying different techniques. To determine the actual performance of the project regarding time and budget, the starting point is evaluated by the baseline schedule or PV (planned value). These concepts of Earned Value Management in particular (Fleming and Koppelman, 2005; Vanhoucke, 2010a) and project management and control (Kerzner, 2013) in general are described in books on project management.

Effective control in real time is based on two types of information: (a) a list of tasks to be executed on the respective day and (b) measurement of the actual performance in the same terms. Most of the project control models and techniques related studies have devised computer supported project control system embodying quantitative project management concepts (Acebes et al., 2014). Such studies are intended to simplify the project control models regarding their practical implementation, as cited by Jung and Kang, (2007), Kim and Liu, (2007), Benjaoran, (2009) and Marco et al., (2009). Gorog, (2009) and Cho et al., (2010) established various models which integrates the information about resources with information about cost and schedule so that effectual planning for construction process can be achieved. Such studies do not target control process during implementation but project planning process. Projects demands monitoring and control processes because they are of vigorous nature and are executed in dynamic environments. Barraza and Bueno, (2007) criticized the ignorance of such dynamic characteristics of projects by the present project control studies.

2.4: Mediating role of project control between project uncertainty and project success

Jacob, (2006) and Kane, (2004) stated that the much utilized and apprehended output scales are the true measures for project performance such that they are employed on the activity level rather than higher WBS levels or control account level but Van Houcke, (2011) presented the idea of examining the project top-down, i.e., in two ways, based in earned value metrics. Preferably, we pursue the idea put forward by Vanhoucke, (2010) which asserts that at higher WBS levels, well performing activities (ahead of planned time) mask the negative impacts of underperforming activities (delays). This can result in hiding any potential obstacles. He argues that for practitioners to lower WBS levels in case of complications, only project-based approach can be considered. Lipke et al., (2009) observed that a thorough inspection of a comprehensive schedule can contribute to disrupting effect on the project team and can prove to be quite stressful.

The second approach is bottom-up approach which is in total contrast to top-down approach, and depends on subset of project activities to stimulate the corrective action process. Subset of activities has a giant impression on the overall performance and progress of the project, thus it is pivotal to serve analysis of schedule risk for examining the sensitivity of activity information to drive the manager's focus towards activities' subset. These activities because of their extremely sensitive nature are the basis for exhaustive control; on the contrary other activities do not demand much attention during the execution of project. Vanhoucke, (2012)tried to figure out the cause for effective results by earned value method and schedule risk analysis in few projects than in others. Hazir and Shtub, (2011) analyzed the association between project control and information presentation and they create simulation software to deal with uncertain environments. Using Monte Carlo simulation, the cost related statistical distribution functions

and the time duration of project required for completion can be determined. Hence, it can be known within a specific assurance level, at the closure of the project, either or not the project is under control by evaluating if the project is completed within the expected variability or not. And thus consequently, buffers can be computed for the projects under control at the completion of the project. But the project managers are not willing to hold up till the completion of the project to evaluate either or not the project to be carried out is under control, rather they want to know it while the project is in its execution phase, so that they can go for right decisions and corrective measurements, whenever project warns them with over time and over budget conditions.

To make the previously stated questions answered, Pajares and López-Paredes, (2011) recommended dividing the buffer of completed project into sub-buffers for every time period, such that the time interval for every buffer is in proportional relation to the risk reduced for the respective time interval. To second this, the risk baseline concept is defined by them as the progression of 'project risk value' during the execution phase of project. To determine the risk in project at any instant, it is assumed that till that instance of time the project is executed as per plan and that the risk of project at that particular instance is evaluated as the risk of the tasks of the project which are still to be executed. Here it is important to note that statistical variance can be used as a mean for the measurement of risk regarding cost as well as duration. Moreover, the value of risk reduced in any specific period can be determined as the difference calculated among the values of the risk baseline with in that respective interval.

Referring to the new approach, Acebes et al., (2014) suggested the basics for project simulation using Monte Carlo methodology. Simulation is basically done to get aware of the probable realizations regarding projects, and information is grouped in form of percentage of project completion. By them, risk develop as a result of uncertainty, risk actually is the uncertainty that

matters, it is therefore essential to examine that rather the project performance is accordant with the project random nature or if opposite, divergences can be described by the instability of the planned stages of the project and the appearance of unpredicted and unexpected situations. Referring to these assumptions, the methodology serves us to estimate distribution of the project in terms of cost and time duration, and this facet thus forms the basic understanding for the control approach. If a project is under control and meeting the defined constraints, it is assumed that variations can be explained by use of normal stochastic variability, however if a project is not satisfying the constraints, it then calls for project manager attention to consider what is going out of the plan. Implementations of corrective actions are dependent on the particular project context, like sharp deadlines may require small buffers of control.

H3: There is a positive association between project control and project success.

H4: Project control plays a mediating role between project uncertainty and project success.

2.5: Moderating role of uncertainty avoidance between project uncertainty and project control

Much priority has been given to organizational culture by professionals and researchers since the end of twentieth century. This eventually resulted in a number of studies being conducted in this respect. (e.g., Schein, 2004; Cameron and Quinn, 1999). As elucidated by Schein (2004), the culture of a group is "a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems." Organizational culture was rendered as the major discerning characteristic of accredited companies by (Cameron and Quinn, 2011).

The considerable effect of organizational culture on durable efficiency of organizations is a fact common to professionals and researchers. Nevertheless, there is still requirement of parameters, structures, or wherewithal for the establishment and implementation of organizational culture as essential, thereby boosting up the performance of organization (Cameron and Quinn, 2011). Various studies proclaim theoretical models and assessment tools for organizational culture, for instance, Askansasy et al., (2000) Organizational Profile Questionnaire (OPQ), Glover et al. (1994) Cultural Assets Profiles (CAPS), O'Reilly et al., (1991) Organizational Culture Profile (OCP); Maull et al.'s (2001) Personal, Customer Orientation and Cultural Issues (PCOC); Cooke and Lafferty, (1983) Organizational Culture Inventory (OCI); and Cameron and Quinn's, (1999) Organizational Culture Assessment Instrument (OCAI).

Analysis of concerned literature shows that the project can be effected in more than one ways by culture. Initially, starting from the basic level, culture differences can contribute to elevation in team heterogeneity. This can cause subtle changes. Under proper management, these heterogeneous teams (e.g. by culture, gender, ethnicity) can significantly outperform homogenous teams (Miller et al., 2000). For them, the probability of finding ingenious and novel remedies in unmanageable situations is considerably higher as compared with homogenous groups. On the other hand; there is better communication in case of homogenous groups especially of the non-verbal kind. Thus, poor communication will be observed as an outcome of incompetent management (Loosemore and Lee, 2002). Secondly, given the one-off, unique nature of projects success to a large extent is based on the effective learning and development of the project team members. Data from pedagogical studies unveils an apparent difference in the preferred learning style of population of different culture (Ramburuth and Mccormick, 2001). As a result, there could be discrepancy among the members of a culturally diverse team in terms of

learning, scanning their conditions and environment and identifying risks. It is even claimed, by some authors, that a cross-cultural training falls short in highlighting the elements of organization and environment that greatly affect the overall effectiveness of international projects (Kealey et al., 2005).

The short time span of which a project is comprised and its non-permanent nature may contribute to the failure of developing an existing culture at the collective project level and makes it impossible for project-team members and stakeholders, from diverse organizations, to form a culture. Henceforth, the likelihood of prevalence of differences based on culture is for the time-span of project and its effect on the project participants' performance will be higher as compared to the whole organization where the present organizational culture could be more prominent. That being so, we hold that more in-depth insights can be provided by our research question exceeding the present research on the apparent role of culture on organizational conduct and operation management, such as, presented by (Prajogo and Mcdermott, 2011).

At the outset, Hofstede (1980; 1983b) postulated that a 'national culture' is present and four dimensions were set as parameter for measurement of this culture: power distance, individualism/collectivism, masculinity/femininity and uncertainty avoidance/preference. Subsequently, a fifth dimension termed as long-term/short-term was added by Hofstede and Bond (1988).Hofstede's model is however criticized. Particularly, harshly criticizing, McSweeney, (2002) questioned Hofstede's framework of culture as 'national', the assumptions of methodology that support the system and findings. Winch et al., (1997) investigated and declined Hofstede, (1980) hypothesis targeting the differences observed in the organizational structure of French and British by the impact of cultural facets and dimensions. However, because it is economical and clear, Hofstede's framing and structure remains persuasive:

Numerous studies figured out Hofstede described dimensions to impact different outcomes as basic effects, moderators and mediators; also at varied levels (Kirkman et al., 2006).Hofstede's dimensions serves as basis for cultural exploration and evaluation (Newman and Nollen, 1996, Pagell et al., 2005), part-basis for a new framework (House et al. 2004) or comparators for alternative dimensions (Schwartz, 1994b). Although Hofstede's framework is accompanied a lot of short comes, yet it is taken in to determine what impact cultural values make success or failure factors of the project. Fifth dimension is excluded from the study because it is less accepted and applied comparative to the four original dimensions (Fang, 2003) and not tested much.

H5: Uncertainty avoidance moderates the relationship between project uncertainty and project control.

2.6: Research Model:

The complete model tested in this study is shown in Figure 1:

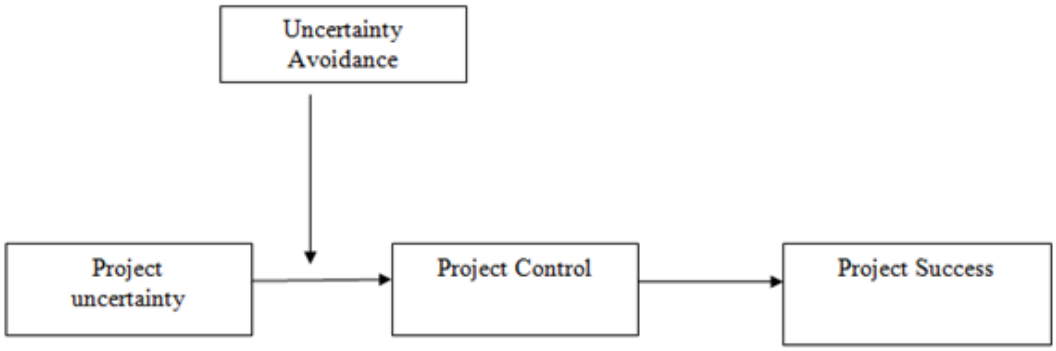


Figure 1: Research Model

Chapter 3

Methodology

3.1: Introduction

In this chapter, the methodology is described which is used to find out relationship of uncertainty and project success, with the mediating role of project control and moderating role of uncertainty avoidance. The methodology chapter deals with research design, covers all data collection techniques (population and sample), and also highlights measurement and instrument reliability analysis

3.2. Research design

Research design is a framework of research plan of action. Zikmund (2003) defines research design as a plan of the researcher that defines the procedure and method for collecting and analyzing the necessary information. Research design includes time horizon, types of setting and unit of analysis which are discussed below.

3.2.1. Types of study

This is a causal study where the impact of a project uncertainty on project success with the mediating role of protects control and moderating role of uncertainty avoidance was measured on basis of self- reported perception.

3.2.2. Study setting

The participant for study from the field because the supervisor and their subordinate contacted in project base public and private organization was contacted to fill the questionnaire in their natural work environment.

3.2.3. Time Horizon

The data were collected in one month for this study, the data in nature cross sectional and collected at one time. .

3.2.4. Unit of Analysis

Unit of analysis can be an object or individual whose character and features is to be analyzed. Unit of analysis can be either dyad, individual, group, industry, organization, country or cultural from the where data are collected. For this study unit of analysis was individual public and private project base organizations employees from Islamabad, Rawalpindi, Gilgit Baltistan.

3.2.5. Population

Population is a set of peoples, events, things connected with interest that the researcher wants to investigate (Sekaran, 2001). The current study population is employees of the project base organization from Islamabad, Rawalpindi and Gilglit Baltistan.

3.2.6. Sample

The data collection was done from development sector of twin cities and Gilgit Baltistan of Pakistan. It is somehow hard to identify the total number of employees working in this sector but this sector has shown significant growth in the past 5 years. This sector has contributed significantly in different parts of Pakistan as well. Due to the large number of population of this sector, it is not possible to cover all employees due to different constraints such as time scarcity,

resource scarcity and cost. Hence a sample was selected to collect data from this industry. The sample size selected for this study was 300. The total numbers of 360 questionnaires were distributed in twin cities in different NGO's. Some of the NGO's included Hashoo Foundation, Aga Khan Rural Support Program, Aurat Foundation, Lead, Positive Pakistan, Islamic Relief and Al-Khidmat Foundation etc. For this research 360 questionnaires were distributed and 315 questionnaires were received back for data analysis, 15 of them were incomplete and discarded. The respondent response rate was 86.9% out of 100% which is highly positive response. Thus data analysis used the final sample size of 300.

In order to collect data from the selected sample, it was important to select a sampling strategy as well. The sampling strategy used in this study is non probability sampling i.e. convenient and judgmental sampling. The companies were first contacted with reference person and the respondents were requested to take part in a survey. Questionnaires were sent through emails and hard copy for their convenience.

3.2.6.1. Sample Characteristics:

In the early stage of data analysis, demographics and basic characteristics were drawn to have an idea about the frequency of demographics. Table 1 shows the characteristics of gender.

3.2.6.2: Gender

Table 1: Gender frequency and percentage

	Frequency	Valid Percent	Cumulative percent
Male	201	67.0	67.0
Female	99	33.0	100
Total	300	100	

First table represents the gender composition of the sample in which 67.0% were male and 33.0 % female. The male percentage is high.

3.2.6.3: Age

Table 2 represents the data characteristics for the age of respondents. The results show that that 40.3 % of the respondents were in the age group of 18-25, 37% respondents were in the age of 26-33, 13.7% employees were between 34-41, 7% respondents were in the age group of 42-49 and 2% were 50 or above.

Table 2: Frequency and percentage of age

	Frequency	Percent	Cumulative percent
18-25	121	40.3	40
26-33	111	37.0	77.3
34-41	41	13.7	91.0
42-49	21	7.0	98.0
50 above	6	2.0	100
Total	300	100	

Table 2 shows the composition of the sample with reference to age groups. 40.3% of respondents age were 18-25, 37.0% respondents age were 26-33 range, 13.7% respondents age were in 34-41 range, 7.0% respondents age were in 42-49 range and just 2.0% respondents were more than 50years. In that study, the percentage of 18-25 respondents is high.

3.2.6.4: Qualification

Table 3 explains the qualification of respondents.

Table 3: Respondents and their qualification

	Frequency	Valid Percent	Cumulative percent
Metric	7	2.3	2.3
Inter	45	15.0	17.3
Bachelor	91	30.3	47.7
Master	105	35.0	82.7
MS/MPhil	49	16.3	99.0
PhD	3	1.0	100.0
Total	300	100	

In the above table represent the respondents qualification, matric qualified was 2.3%, inter qualified was 15.0%, bachelor qualified was 30.3%, master qualified was 35.0%,MS/Mphil qualified was 16.3%, Phd qualified respondent was 1.0% and .in table 3 the master qualified percentage is high.

3.2.6.5: Work Experience

Table 4: Experience

	Frequency	Valid Percent	Cumulative percent
0-5	77	25.7	25.7
6-10	74	24.7	50.3
11-16	81	27.0	77.3
17-22	47	15.7	93.8
23-28	18	6.0	99.6
29 above	3	1.0	100

Total	300	100

Table 4 represent the respondent experience of the work, in which high percentage of respondents work experience is 25.7% in range (0-5), in range (6-10) the respondents experience were 24.7%, in category (11-16) the respondents experience were 27.0%, in category (17-22) the respondent experience were 15.7%, in category (23-28) the respondent experience were 6.0% and above 29 the experience of respondents were 1.0%.

3.3. Measurements

In this study close ended questionnaire was used to measure four variables, on five likert scale from "Strongly Disagree to Strongly Agree". Where 1= strongly disagree, 2=disagree, 3= neutral, 4= agree, 5= strongly agree. These variables were used for divers' source.

3.3.1. Project Uncertainty

Project Uncertainty was measured with the questions developed by Iacovou, Charalambos L., Ronald L. Thompson, and H. Jeff Smith (2009). The questions were designed on 5 point likert. The sample questions for this construct were: Requirements fluctuated quite a bit in earlier phases of a project; Requirements fluctuated quite a bit in later phases of a project. The Reliability was 0.707.

3.3.2 Project control

Project Control is variable was taken as a mediator in this study. The variable was measure by adapting the questionnaire developed by Iacovou, Charalambos L., Ronald L. Thompson, and H. Jeff Smith in 2009. Some sample questions of this variable were: Project team members actively participated in the definition of project goals and schedules, every effort was made to keep project team turnover at a minimum. The reliability of this measurement was 0.919.

3.3.3. Uncertainty Avoidance

Uncertainty Avoidance is important to note that this is one of the dimensions recommended by Hofstede in his study. Uncertainty avoidance was measure with the help of the questions developed by Rai, Arun, Likoebe M. Maruping, and ViswanathVenkatesh in 2009 which had four questions. Some sample questions related to this variable were: Competition between employees usually does more harm than good; one can be a good manager without having precise answers to most questions that subordinates may raise about their work. The reliability of this measurement was 0.651.

3.3.4. Project a success

Project success was a dependent variable in this study and is measured by using the questionnaire developed by Kuen, C. W., Zailani, S., & Fernando in 2009. The sample questions for this construct were: The project has completed on time, The Project was used by its intended clients and I am satisfied with the process by which the project was implemented. The reliability of this measurement was 0.785.

3.4. Pilot testing

Table 5 shows the reliability analysis of instruments. First, we collected 50 questionnaires from authentic respondents and 40 questionnaire considered for analysis. Nunnally and Bernstein (1994) explained the standard of Cronbach's Alpha is more or equal.70.

Table 5: Instrument Reliability

Variables	Items	Cronbach's alpha
Project uncertainty	6	.707
Project Control	4	.919
Uncertainty Avoidance	4	.785
Project Success	12	.651

Project uncertainty cronbach's alpha value is 0.707 in the current study, the cronbach's value of Project control in that study is 0.919, Uncertainty avoidancecronbach's value is in the current study is 0.785 and Project Success value of cronbach's is 0.651.

3.4.1. Means, Minimum, Maximum, Standard Deviations,

Some other important statistical information was also calculated. The Table 4 shows the minimum value of response, maximum value of Likert scale response, mean and standard deviations of the data collected. The results shows that total sample size was 300, Mean value for Project Uncertainty (PU) is 4.17, mean value for project control (PC) was 3.98, mean value for project success was 2.31 and Uncertainty avoidance was 4.13.

Table 6: Basic Calculations

Variables	N	Minimum	Maximum	Mean	Std. Deviation
PU	300	1.00	5.00	4.17	0.83
PC	300	1.00	5.00	3.98	1.00
PS	300	1.00	5.00	2.31	0.63
UA	300	1.00	5.00	4.13	0.95
Valid N (listwise)	300				

3.4.2. Factor Analysis

One of the popular methods to trim the data and enhance the results of the analysis is factor analysis. Factor analysis is used by researchers to identify the number of factors calculated by a questionnaire. The construct validity issue can be resolved with factor analysis. As specified by Kerlinger and Lee (2000), the test enhances the factors and the structures identified by it. It may

also represent the number of relationship identified by the items with each other and also inter construct relationship as well. Principal factor analysis was conducted. The items were deleted which were cross loaded and the pattern matrix.

Table 2: Factor Analysis of all items

Pattern Matrix[a]

	Factor			
	1	2	3	4
PC1	.960			
PC4	.911			
PC3	.900			
PC2	.691			
PU3		.795		
PU4		.794		
PU5		.674		
PU6		.635		
PU2		.389		
PS2			.772	
PS1			.768	
PS4			.622	
UA3				.712
UA4				.689
UA1				.505
UA2				.418

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

CHAPTER 4

4.1 Data Analysis and Results:

This chapter comprises of results of the present study. Descriptive statistics, correlations, alpha reliabilities, and results of linear mediated and moderated regression analysis are represented in both narrative form and tabular forms. Moreover, discussion of the study related findings, its theoretical and practical implications with strengths and limitations of the study, and directions for future research are also discussed.

4.1.1 Regression Analysis

The regression analysis was used to measure the effect and causal relationship between the independent and dependent variable. For the regression analysis, an ordinary least square method was used. For this method, the index for each variable was developed by summing up different questions for each variable. And then the average was calculated from the index. The values of the beta coefficient, R-squared, and change in R-squared are presented in Table 2.

4.2: Correlation Analysis:

Table 7 shows the correlation analysis for the variables. The correlation analysis is assumed as the important step towards before regression as it identifies the level of relationship existing within the variables. The results show that project uncertainty is negatively correlated to project control with significant value of -.458**, project uncertainty is negatively correlated to project success and the value is highly correlated with the value of -.776**. The correlation of project uncertainty and uncertainty avoidance was 0.60.

Table 7: Correlation Matrix

	1	2	3	4
1. Project Uncertainty	1			
2.Project Control	-.458**	1		
3.Project Success	-.776**	.566**	1	
4.Uncertainty Avoidance	.600**	-.439**	-.787**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

In addition to correlation analysis, regression analysis was also run between dependant and independent variables i.e. project uncertainty and project success. For this purpose the mean values for the variables selected. The results show that the r^2 was .56 which shows that the rate of change in the dependant value due to independent value is 56%. The r^2 change in the results show .320 which means that if the biases are excluded the effect decreases to .320. The results are given in Table 8.

Table 8: Regression analysis results

Predictors	**Project Success**			
	ß	t	R^2	ΔR^2
Step 1				
Control Variables			0.026	
Gender	-0.219			
Age	0.070			
Education	0.013			
Experience	-0.070			
Step 2				
Constant	1.649			
Gender	-0.200			
Age	-0.046			
Education	0.011			
Experience	-0.032			
Project Uncertainty	0.356	11.8	0.566	0.320
Table values are standardized beta weights.				

[a] n = 300

*** correlation is significant at the 0.000 level

4.3. Mediation with Bootstrapping

By using the Preacher and Hayes Analysis a multiple regression analysis was run with the bootstrap sample of 5000 as recommended by literature (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2004). The results are presented in Table 9.

Table 9: Mediation Analysis, Direct, Indirect and Total Effects

Meditation

Effects of Project Control as a mediator (M) between the Project Uncertainty (IV) and Project Success (DV)

IV	Effect of IV on M	Effect of M on DV	Direct Effect	Total Effect	Bootstrapping result for indirect effects	
					LL 95% CI	UL 95% CI
Project Uncertainty	-0.6009***	0.1678***	-0.5410	-0.6419***	-.1813	-.0536

IV= independent variable, M = mediator, DV= dependent variable, LL = lower limit, UL = upper limit, CI= confidence interval.

[a] n = 300;

* $p < .05$; ** $p < .01$; *** $p < .001$;

In the present dissertation, Project Uncertainty is a variable X that assumed to Project Success so it is denoted by Y. The variable X (PU) is called the casual variable and variable Y (Y) is called outcome.

In pictorial form unmediated model is

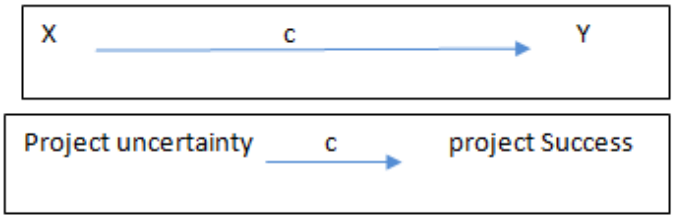


Figure 2: Unmediated Model

The path c in above model is called total effect. The effect of high-performance work practices on project success may be mediated by Islamic work ethics. The mediating variable has been denoted by M. The mediating model is

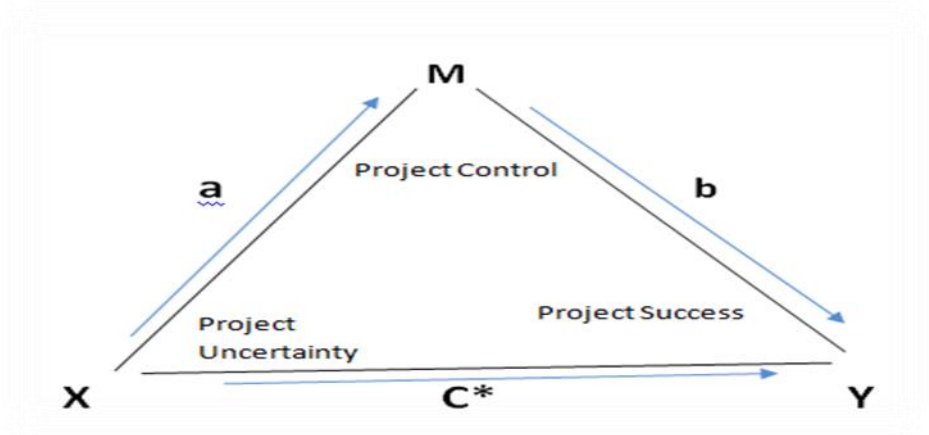
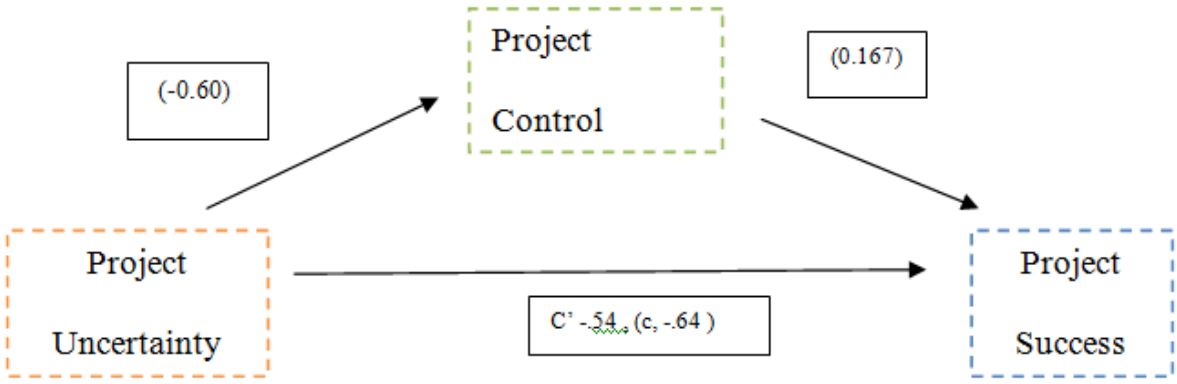


Figure 3: Mediated Model

The following figure showed the indirect effects of high-performance work practices on project success.The coefficients of the path a, b, and c* are showed in the figure.



Note: *p<.05, **p <.01, ***p <.001

Figure 4: Coefficients of mediated model

4.4. Moderation Analysis

The moderation was used to determine that whether the relationship between high-performance work practices and project success depends on Islamic work ethics. The moderation analysis is basically multiple regression equations with an interaction term.

Table10 : Results for moderation analysis

Moderation analysis results

Predictors	**Project Control**		
	ß	**R^2**	**ΔR^2**
Step 1			
		0.252	
Project Uncertainty	-.398***		
Uncertainty avoidance	-.338***		
Step 2			
Project Uncertainty	.346***		
Uncertainty avoidance	-.280		
Interaction Term (MPU*MUA)	-.107***	0.266	.014**

Table values are standardized beta weights.

*** correlation is significant at the 0.000 level

[a] n = 300;

* p< .05; ** p< .01; *** p< .001;

4.4.1: Interaction Moderated Graph

Figure 4. Interactive effects of Project uncertainty and uncertainty avoidance on Project control.

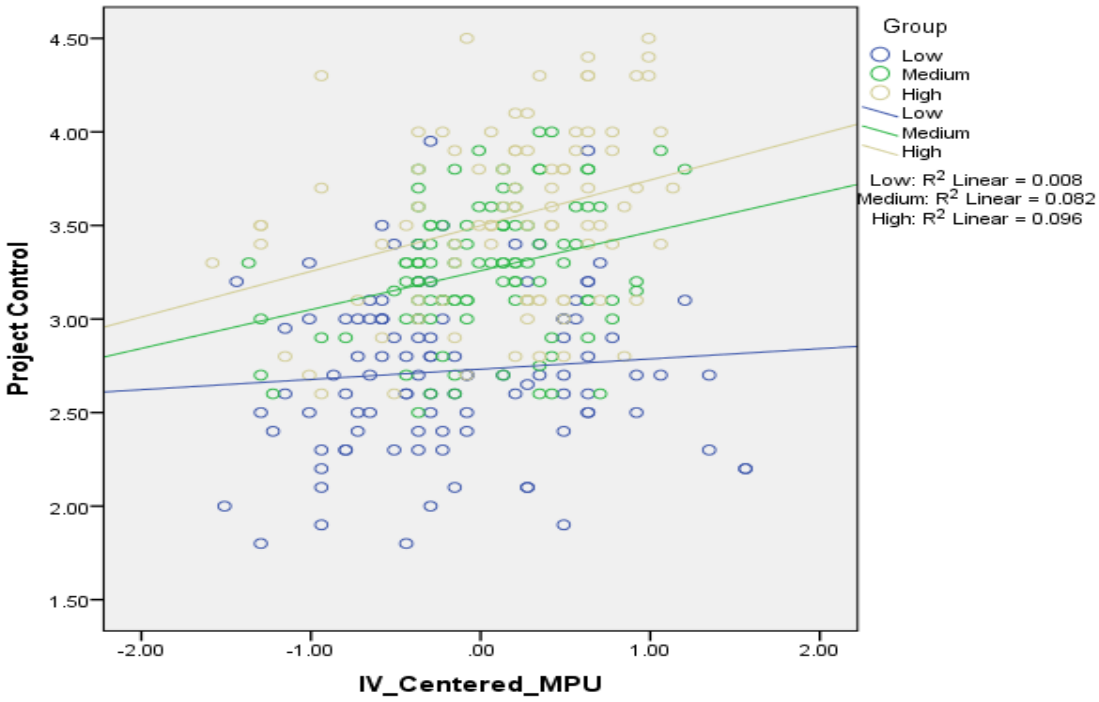


Figure 5: Mod Graph

4.5: Results:

Table: 9 the model summary for the regression analysis is given in table -----. The results show that the correlation between Project Uncertainty and success is .566 and the R square value was .32. It means that one unit change in project uncertainty effects 32% in project success. The F value is also significant.

The coefficient table shows the beta value for the regression analysis. The hypothesis 1 assumed that there is a negative relationship between project uncertainty and success. The hypothesis was accepted with the P value of .000 and beta of .356. Hence

Table 10 shows the mediation analysis was conducted by using the bootstrapping method presented by Preacher and Hayes (2008). Bootstrapping is a nonparametric method that generates an estimate of the indirect effect including 95% confidence interval. When zero is not in the confidence interval it means that indirect effect is significantly different from zero at $p<0.05$ (two-tailed). The bootstrapping method allows the researcher to avoid shortcomings of the earlier stepwise approach for testing mediation (Hayes, 2008). Furthermore, a better estimate can be drawn with the bootstrapping method because of its resampling with replacement approach.

The results show the coefficient values for all independent, dependent and mediating variables. The independent variable was project uncertainty, dependent variable was project success and mediating variable was project control. The results show that there is a significant relationship between the IV and Mediator with a P value of .000 (path a). The direct effect of the mediator

with dependant variable was also significant with coefficient value of .1678 and P value of 0.000 (P <.005). Path C which is the direct relationship of independent variable and dependent variable is -.641 (p=.000). At last the c' value for the above model was -.541 (p=.000). The results show that the model is fit with the significant P value and r2 of .65. The change in coefficient value of c and c' shows that there is a partial value change in c and c' path. It can be claimed that uncertainty avoidance partially mediates the relationship between project uncertainty and project success.

Table 11 represents the test for the interaction effects of uncertainty avoidance on project uncertainty and project control, moderated multiple regression analysis was used, as suggested by Cohen, Cohen, West, and Aiken (2003). The variables were transformed as centred variables by subtracting the aggregate with the mean values. In addition the interactional variables were also created to examine the moderating effect. A hierarchical regression was run by entering the data in two steps. In step 1 the independent and moderating variables were regressed with dependant variable and the results show significant values. In step number 2 the transformed interactional value was regressed with the dependant variable. The results show a significant moderation effect. ($\beta = 0.107 p < 0.000$). Hence the hypothesis of moderation of uncertainty avoidance is accepted.

By using the SPSS software, the moderation graph was also constructed to show the high, low and medium effects of moderation. the indepedant variable was plotted on x-axis and dependant variable was ploted on y-axis. The moderation graph depicts three different levels of moderation. the moderation variable was grouped intro three cataogies and the R sqaure value of high moderation is 0.096, the R square value of low moderation is 0.008 and R square of medium

moderation was 0.082. The R square value shows that the moderation is significant at high and medium level.

Table 3: Summary of hypothesis testing

No.	Hypothesis Statement	Results
H_1	There is a negative association between project uncertainty and project success.	**Accepted**
H_2	There is a negative association between abusive project uncertainty and project control.	**Accepted**
H_3	There is a positive association between project control and project success.	**Accepted**
H_4	Project control plays a mediating role between project uncertainty and project success.	**Accepted**
H_5	Uncertainty avoidance moderates the relationship between project uncertainty and project control.	**Accepted**

5. Discussion

This section relates to the detailed discussion of the hypothesis generated with literature support and explanation of the results in light of the theory and empirical evidence. The chapter is divided into three major parts where part 1 discusses the hypothesis results, second portion discusses the implications to the theory and practitioners and last portion discusses the limitations and future research.

The aim of this research was to investigate the direct and indirect relationships of project uncertainty on project success. In addition to the direct effects, the study also investigated the mediating effect of project control on project uncertainty and success. The study in the conceptual model explored the moderating effect uncertainty avoidance on project uncertainty and project control in nongovernmental organizations working in twin cities. The results revealed a significant relationship between dependent and independent variables. The study serves evidence from the development sector of Pakistan and the findings can be used by the policy makers and managers for effectiveness in the project fields. The study developed 5 hypothesis and all hypothesis were supported by data findings and theory as well.

Project uncertainty has attracted attention from different researchers over the past decade as one of the critical factors in project success. Project uncertainty is a result of unclear goals and objectives defined by the clients. (Lenfle, 2011. A study by Perminova et al (2008) suggested a new approach to risk management and believed that risk is one of the fears in project implementation. Uncertainty refers to the variation in the defined objectives (Chapman et al., 2006; Ward & Chapman, 2003). The hypothesis developed in this study assumed that project

uncertainty has a negative relationship with project success. The findings of current study are in line with the previous studies (Williams et al., 2012). Authors such as Wallace et al *2004) and Han Huang (2007) concluded that risk factors are negatively correlated to project success. This study only proves the negative relationship between uncertainty and success but does not identify what kind of uncertainties can be found in literature. Hence this can be a limitation of the study and future authors can address it to identify what major factors can lead to high uncertainty.

The results of this study in regard to the investigation of project uncertainity on project success provide an extension to the debates in the literature about approaches and causal effects of uncertainity on project success. The support for the direct relationship of uncertainity and success is found with the studies conducted by (Raz et al., 2002; Zwikael&Ahn, 2011). The results also synchronize the assumptions provided by complexity theory and suggest that projects must be explored for different kinds of uncertainties.

Hypothesis related to mediation in this study assumed that project control mediates the relationship between project uncertainty and success. The hypothesis was accepted with partial mediation where the c path and c' path observed slight changes in the coefficient values. The study extends the findings by MahmoudRajablu et al (2015), where the authors tested the mediating role of risk control and recommended that project overall control should also be investigated.

As it has been described in PMI (2013) that the strong control in the process leads to the better and desired results. Along with this line Yazici (2009), demonstrated that in the project success the culture, values that representants the importance of the shared goals, cohesion and commitment of the human resource, play a vital role. This supports the stewardship theory, which advocates that the behavior of the individual is aligned with the organizational goal and supportive of achieving the collectivistic goals. The individual do not support the individualistic goals and the self-serving goals. As project managers are agents and their task is to complete the

complex projects its deliverables, therefore the practices which help to achieve such goals are required by the principle (Turner & Muller, 2004).

5.1: Limitations and future directions

Even though this study has provided empirical evidence in regard to the relationship between the chosen variables but limitations in a study cannot be avoided. First the scope of the study is quiet limited and more dimensions to the culture (uncertainty avoidance, long term orientations vs. short term orientation, feminity vs masculinity, power distance) cannot be studied at once. Future researcher can look into this limitation by examining different dimensions of culture and its moderating role in Pakistani setting. The study was limited only to the nongovernmental sector in Pakistan, but more industries could not be selected due to the time and cost constraint. In future studies must try to explore cross industry and inter industry comparison of project uncertainty and other connected variables. This study only investigates the causal effect of uncertainty with success Lastly the sample size is small, the sample size has huge effects on analysis properties and results, in addition to it the sample size is also affected due to non accessibility of resources in other cities. The future studies should select healthier sample size and test the model in order to have better generalizability.

5.2: Conclusion

In a developing country like Pakistan, project management practices are not as mature as found in developed country and weak empirical evidence is found in the area of project management especially non government organizations. It is pertinent to mention that project management is growing its roots in Pakistan as huge amount of projects are observed in the past decade. This study focused on the non government organizations (NGO's) working in twin cities and has tried to find empirical evidence for the negative relationship of project uncertainty on success. The

project managers in this industry are responsible to deliver the promised results in time but this evidence will help the managers to better control the outcomes and forecast different kinds of risks in their respective projects. By identifying the relationship, it is also important to explore the kinds of uncertainties on specific projects in this industry which the future researchers should take into consideration. The study also concludes that culture and values play an important role in such relationship which must be taken in consideration by project managers. Pakistani culture is more collectivist and managers tend to avoid uncertainty and risk taking attiude is found less. Hence it can be said that due to such cultural difficulties and political dominance, managers may not have high controls on project outcomes.

6. References

Aaltonen, K., (2011). Project stakeholder analysis as an environmental interpretation process. Int. J. Proj. Manag. 29, 165–183.

Abudayyeh, O., Temel, B., Al-Tabtabai, H., Hurley, B.,(2001). An Intranetbased cost control system. Adv. Eng. Softw. 32 (2), 87–94.

Acebes, F., Pajares, J., Galán, J.M., López-Paredes, A., (2014). A new approach for project control under uncertainty. Going back to the basics. Int. J. Proj. Manag. 32 (3), 423–434..

Akintoye, A., Fitzgerald, E., (2000). A survey of current cost estimating practices in the UK. Constr. Manag. Econ. 18 (2), 161–172.

Allison, P. D. (2010). *Survival Analysis Using SAS: A Practical Guide* (2nd ed.). NC, USA: SAS Institute.

Aloini, D., Dulmin, R., Mininno, V., (2007). Risk management in ERP project introduction: review of the literature. Inf. Manag. 44 (6), 547–567.

Alshawi, M., Hassan, Z., (1999). Integrated models for construction planning: object flow and relationship. Eng. Constr. Archit. Manag. 6 (2), 197–212.

Alvanchi, A., Azimi, R., Lee, S., AbouRizk, S.M., (2011). A framework for an automated and integrated project monitoring and control system for steel fabrication projects. Autom. Constr. 20, 88–97.

Anthony, R., (1952). Management controls in industrial research organizations. Division of Research, Graduate School of Business Administration, Harvard Univ, Boston.

Askansasy, N.M., Broadfoot, L.E., Falcus, S., (2000). Questionnaire measures of organizational culture. Handbook of Organizational Culture and Climate. Sage.

Association of Project Management, (2006). APM Body of Knowledge. fifth ed. Association of Project Management, High Wycombe, UK.

Association of Project Management, 2006. APM Body of Knowledge. fifth ed. Association of Project Management, High Wycombe, UK.

Atkinson, R., Crawford, L., Ward, S., (2006). Fundamental uncertainties in projects and the scope of project management. Int. J. Proj. Manag. 24, 687–698.

Attewell, R.G., (2009). Statistics: An Essential Tool for Model Citizens. In: Bammer, G., Smithson, M. (Eds.), Uncertainty and Risk: Multidisciplinary Perspectives. Earthscan, London, UK, pp. 81–91.

Bammer, G., Smithson, M., (2009). Uncertainty and Risk: Multidisciplinary Perspectives. Earthscan, London, UK.

Barraza, G., Bueno, R., (2007). Probabilistic control of project performance using control limit curves. J. Constr. Eng. Manag. 133 (12), 957–965.

Belout, A., Gauvreau, C., (2004). Factors influencing project success: the impact of human resource management. Int. J. Proj. Manag. 22 (1), 1–11.

Benjaoran, V., (2009). A cost control system development: a collaborative approach for small and medium-sized contractors. Int. J. Proj. Manag. 27 (3), 270–277.

Bisbe, J., Otley, D., (2004). The effects of the interactive use of management control systems on product innovation. Acc. Organ. Soc. 29 (8), 709–737.

Böhle, F., (2011). Management der Ungewissheit—ein blinder Fleck beider Förderung von Innovationen. In: Jeschke, S., Isenhardt, I., Hees, F.,

Böhle, F., Rose, H., (1992). Technik und Erfahrung. Campus, Frankfurt, New York. Innovation durch Management des Informellen. In: Böhle, F., Bürgermeister, M., Porschen, S. (Eds.), Künstlerisch, erfahrungsgeleitet, spielerisch. Springer Gabler, Berlin, Heidelberg.

Browning, T.R., (2014). A quantitative framework for managing project value, risk and opportunity. IEEE Trans. Eng. Manag. 61 (4), 583–598.

Cameron, K.S., Quinn, R.E., (1999). Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework. Addison-Wesley, New York, NY, USA.

Cameron, K.S., Quinn, R.E., (2011). Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework. John Wiley and Sons, San Francisco, CA, USA

Cardinal, Laura B., (2001). Technological innovation in the pharmaceutical industry: the use of organizational control in managing research and development. Organ. Sci. 12 (1), 19–36

Cardinal, Laura B., Sitkin, S.B., Long, Chris P., (2004). Balancing and rebalancing in the creation and evolution of organizational control. Organ. Sci. 15 (4), 411–431.

Chapman, C. (2006). Key points of contention in framing assumptions for risk and uncertainty management. International Journal of Project Management, 24(4), 303-313.

Chapman, C.B., Ward, S., (2011). How to Manage Project Opportunity and Risk. John Wiley and Sons, Chichester,UK.

Cho, K., Hong, T., Hyun, C., (2010). Integrated schedule and cost model for repetitive construction process. J. Manag. Eng. 26 (2), 78–88.

Chong, V.K., (1996). Management accounting systems, task uncertainty and managerial performance: a research note. Acc. Organ. Soc. 21 (5), 415–421.

Choudhury, V., Sabherwal, R., (2003). Portfolios of control in outsourced software development projects. Inf. Syst. Res. 14 (3), 291–314.

Cleden, D., (2009). Managing Project Uncertainty. Gower, Farnham (UK). Collyer, S., Warren, C.M.J., (2009). Project management approaches for dynamic environments. International Journal of Project Management 27, 355–364.

Cohen, J., Cohen, P., & Stephen, G. (2003). West, and Leona S. Aiken (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*, *3*.

Colarelli O'Connor, G., Rice, M.P., (2013). A comprehensive model of uncertainty associated with radical innovation. J. Prod. Innov. Manag. 30 (S1), 2–18.

Cooke, R.A., Lafferty, J.C., (1983). Level V: Organizational Culture Inventory. Human Synergistics, Plymouth, MI.

Cornick, T., Osbon, K., 1994. A study of the contractor's quantity surveying practice during the construction process. Constr. Manag. Econ. 12 (2), 107–111.

Crawford L, Pollack J, England D. Uncovering the trends in project management: journal emphases over the last 10 years. Int J Project Manag 2006;24:175–84.

Danilovic, M., Browning, T., (2007). Managing complex product development projects with design structure matrices and domain mapping matrices. International Journal of Project Management 25, 300–314.

De Meyer, A., Loch, C.H., Pich, M.T., (2002). Managing project uncertainty: from variation to chaos. MIT Sloan Management Review 43, 59–67.

Deal, T.E., Kennedy, A.A., (1982). Corporate Cultures: The Rites and Rituals of Corporate Life. Addison-Wesley Pub. Co., Reading, Mass.

Dunkel, W., Weihrich, M. (Eds.), (2012). InteraktiveArbeit. Springer VS, Wiesbaden.

Egbu, C., Young, B., Torrance, V., (1998). Planning and control processes and techniques for refurbishment management. Constr. Manag. Econ. 16 (3), 315–325.

Eisenhardt, K.M., (1985). Control: organizational and economic approaches. Manag. Sci. 31 (2), 134–149.

Fiona C. Saunders , Andrew W. Gale , Andrew H. Sherry, (2016). Mapping the multi-faceted: Determinants of uncertainty in safety-critical projects. International Journal of Project Management 34 (2016) 1057–1070

Fleming, Q., Koppelman, J., (2005). Earned Value Project Management. 3rd edition. Project Management Institute, Newton Square, Pennsylvania (URL:http://books.google.be/books?id=ZMRVngEACAAJ).

Glover, J., Shames, G., Friedman, H., (1994). Developing Cultural Assets. Cultural Assets Management Inc.

Gorog, M., 2009. A comprehensive model for planning and controlling contractor cash-flow. Int. J. Proj. Manag. 27 (5), 481–492.

Grote, G., (2015). Promoting safety by increasing uncertainty—implications for risk management. Saf. Sci. 71, 71–79.

Han, W.-M., Huang, S.-J., (2007). An empirical analysis of risk components and performance on software projects. The Journal of Systems and Software 80, 42–50.

Haponava, T., Al-jibouri, S.,(2010). Influence of process performance during the construction stage on achieving end-project goals. Constr. Manag. Econ. 28 (8), 853–869.

Harris, E., Woolley, E., 2009. Facilitating innovation through cognitive mapping of uncertainty. Int. Stud. Manag. Organ. 39 (1), 70–100.

Harrison, E.F., (1992). Perspectives on uncertainty in successful strategic choice at the CEO level. OMEGA Int. J. Manag. Sci. ,20, 1, 105-116.

Harrison, E.F., (1992). Perspectives on uncertainty in successful strategic choice at the CEO level. OMEGA Int. J. Manag. Sci. ,20, 1, 105-116.

Hartmann, S., Briskorn, D., (2010). A survey of variants and extensions of the resource-constrained project scheduling problem. Eur. J. Oper. Res. 207 (1), 1–14.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millenium. Communication Monographs, 76(4), 408-420.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/ public/process2012.pdf

Hazir, Ö.,Shtub, A., (2011). Effects of the information presentation format on project control. J. Oper. Res. Soc. 62 (12), 2157–2161.

Heidling, E., (2011). StrategischeNetzwerke. In: Weyer, J. (Ed.), SozialeNetzwerke. Oldenbourg, München, pp. 135–165.

Henderson, J.C., Lee, S., (1992). Managing I/S design teams: a control theories perspective. Manag. Sci. 38 (6), 757–777.

Henry, R.M., McCray, G.E., Purvis, R.L., Roberts, T.L., (2007). Exploiting organizational knowledge in developing IS project cost and schedule estimates: an empirical study. Inf. Manag. 44 (6), 598–612.

Herroelen, W., De Reyck, B., Demeulemeester, E., (1998). Resource-constrained project scheduling: a survey of recent developments. Comput. Oper. Res. 25 (4), 279–302.

Herroelen, W., Leus, R., (2004). Robust and reactive project scheduling: a review and classification of procedures. Int. J. Prod. Res. 42 (8), 1599–1620.

Herroelen, W., Leus, R., (2005). Project scheduling under uncertainty: survey and research potentials. Eur. J. Oper. Res. 165 (2), 289–306.

Hillson, D., & Murray-Webster, R. (2005). Understanding and Managing Risk Attitude. Aldershot, UK: Gower.

Hillson, D., (2002). Extending the risk process to manage opportunities. Int. J. Proj. Manag. 20, 235–240.

Hillson, D., 2002. What is risk? Towards a common definition, InfoRM. J. UK Inst. Risk Manage. April, 11–12.

Hofstede, G. (1980), Culture's Consequences: International Differences in Work Related Values, Sage, Beverly Hills, CA.

Hofstede, G. (1983a), "Cultural dimensions for project management", International Journal of Project Management, Vol. 1 No. 1, pp. 4-48.

Hofstede, G. and Bond, M.H. (1984), "Hofstede's culture dimensions: an independent validation using Rokeach's value survey", Journal of Cross-Cultural Psychology, Vol. 15 No. 4, pp. 417-433.

Hofstede, G. and Bond, M.H. (1988), "The Confucius connection: from cultural roots to economic growth", Organizational Dynamics, Vol. 16 No. 4, pp. 5-21.

Hong, P., Nahm, A.Y., Doll, W.J., (2004). The role of project target clarity in an uncertain project environment. Int. J. Oper. Prod. Manag. 24 (12), 1269–1291.

House, R.J., Hanges, P.J., Javidan,M., Dorfman, P.W. and Gupta, V. (Eds) (2004), Culture, Leadership and Organizations: The GLOBE Study of 62 Societies, Sage, Thousand Oaks, CA.

Howes, R., (2000). Improving the performance of earned value analysis as construction project management tool. Eng. Constr. Archit. Manag. 7 (4), 399–4111.

Hubbard, D. (2007). How to measure anything: Finding the value of intangibles in business. Hoboken, NJ: Wiley

Hubbard, D.W., 2009. The Failure of Risk Management. Wiley, New York, NY.

Huemann, M., Keegan, A., Turner, J.R., (2007). Human resource management in the project-oriented company: a review. Int. J. Proj. Manag. 25 (3), 315–323.

Ika, L.A., (2009). Project success as a topic in project management journals. Proj. Manag. J. 40 (4), 6–19.

Jacob, D., (2006). Is "earned schedule" an unreliable indicator? The Measurable News 15–21 Fall.

Jacob, D., Kane, M., (2004). Forecasting schedule completion using earned value metrics? Revisited. The Measurable News 1, 11–17 Summer.

Jaworski, B.J., Stathakopoulos, V., Krishnan, H.S., (1993). Control combinations in marketing: conceptual framework and empirical evidence. J. Mark. 57 (1), 57–69.

Jiang, J.J., Klein, G., Ellis, T.S., (2002). A measure of software development risk. Project Management Journal 33 (3), 30–41.

Jugdev, K., Müller, R., (2005). A retrospective look at our evolving understanding of project success. Proj. Manag. J. 36 (4), 19–31.

Jung, Y., Kang, S., (2007). Knowledge-based standard progress measurement for integrated cost and schedule performance control. J. Constr. Eng. Manag. 133 (1), 10–21.

Kahneman, D., Tversky, A., (1982). Variants of Uncertainty. In: Kahneman, D., Slovic, P., Tversky, A. (Eds.), Judgement under uncertainty: Heuristics and Biases. Cambridge University Press, Cambridge, pp. 509–520

Kaka, A., (1999). The development of a benchmark model that uses historical data for monitoring the progress of current construction projects. Eng. Constr. Archit. Manag. 6 (3), 256–266.

Kealey, D.J., Protheroe, D.R., Macdonald, D. and Vulpe, T. (2005), "Re-examining the role of training in contributing to international project success: a literature review and an outline of a new model training program", International Journal of Intercultural Relations, Vol. 29, pp. 289-316.

Kerzner, H., (2006). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. ninth ed. John Wiley & Sons, Hoboken, New Jersey.

Kerzner, H.R., (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. 11th ed. John Wiley & Sons.

Khamooshi, H., Golafshani, H., (2014). EDM: earned duration management, a new approach to schedule performance management and measurement. Int. J. Proj. Manag. 32, 1019–1041.

Kim, S., Liu, L., (2007). Cost information models for managing multiple projects.

Kirkman, B.L., Lowe, K.B. and Gibson, C.B. (2006), "A quarter century of culture's consequences: a review of empirical research incorporating Hofstede's cultural values framework", Journal of International Business Studies, Vol. 37 No. 3, pp. 285-320

Kirsch, L.J., Cummings, L.L., (1996). Contextual influences on self-control of is professionals engaged in systems development. Account. Manag. Inf. Technol. 6 (3), 191–219.

Kloppenborg, T.J., Opfer, W.A., (2002). The current state of project management research: trends, interpretations, and predictions. Proj. Manag. J. 33 (2), 5–18

Kolisch, R., (1996). Serial and parallel resource-constrained project scheduling methods revisited: theory and computation. Eur. J. Oper. Res. 90 (2), 320–333.

Kolisch, R., Padman, R., (2001). An integrated survey of deterministic project scheduling. Omega 29 (3), 249–272.

Koufteros, X.A., Vonderembse, M.A., Doll, W.J., (2002). Integrated product development practices and competitive capabilities: the effects of uncertainty, equivocality, and platform strategy. J. Oper. Manag. 20, 331–355.

Krisch, L.J., Sambamurthy, V., Ko, D., Purvis, R.L., (2002). Controlling information systems development projects: the view from the client. Manag. Sci. 48 (4), 484–498.

Lechler, T.G., Gao, T., Edington, B., (2014). The Silver Lining of Project Uncertainties. PMI Publication, Newton Square, PA.

Leifer, R., McDermott, C.M., O'Connor, G.C., Peters, L.S., Rice, M.P., Veryzer, R.W., (2000). Radical Innovation: How Mature Companies Can Outsmart Upstarts. Harvard Business School Press, Boston.

Lenfle, S. (2011). The strategy of parallel approaches in projects with unforeseeable uncertainty : The Manhattan case in retrospect. International Journal of Project Management, 29(4), 359-373.

Lipke, W., Zwikael, O., Henderson, K., Anbari, F., (2009). Prediction of project outcome: the application of statistical methods to earned value management and earned schedule performance indexes. International Journal of Project Management 27, 400–407.

Littau, P., Jujagiri, N.J., Adlbrecht, G., (2010). 25 years of stakeholder theory in project management literature (1984–2009). Proj. Manag. J. 41 (4), 17–29.

Liu, L., Yetton, P., Sauer, C., (2010). A Normative Theory of Organizational Control: Main and Interaction Effects of Control Modes on Performance. ECIS 2010 Proceedings.

Loch, C. H., DeMeyer, A., & Pitch, M. T. (2006). Managing the unknown: A new approach to managing high uncertainty and risk in projects. Hoboken, NJ: Wiley.

Loch, C.H., DeMeyer, A., Pich, M.T., (2006). Managing The Unknown: A New Approach To Managing High Uncertainty And Risk In Projects. John Wiley and Sons, Hoboken, New Jersey

Long, C.P., Burton, R.M., Cardinal, L.B., (2002). Three controls are better than one: a simulation model of complex control systems. Comput. Math. Organ. Theory 8, 197–220.

Loosemore, M. and Lee, P. (2002), "Communication problems with ethnic minorities in the construction industry", International Journal of Project Management, Vol. 20, pp. 517-524.

Madsen, S., Pries-Heje, J., (2009). Taking a closer look at uncertainty in IS projects. AMCIS 2009 Proceedings (http://aisel.aisnet.org/amcis2009/119. Accessed on 25th January 2016).

March JG, Simon HA. Organizations. New York: Wiley; (1958).

Marco, A., Briccallero, D., Rafele, C., (2009). Cost and schedule monitoring of industrial building projects: case study. J. Constr. Eng. Manag. 135 (9), 853–862.

Martinsuo, M., Korhonen, T., Laine, T., (2014). Identifying, framing and managing uncertainties in project portfolio. Int. J. Proj. Manag. 32 (5), 732–746

Martinsuo, M., Korhonen, T., Laine, T., 2014. Identifying, framing and managing uncertainties in project portfolio. Int. J. Proj. Manag. 32 (5), 732–746.

Maull, R., Brown, P., Cliffe, R., (2001). Organisational culture and quality improvement. Int. J. Oper. Prod. Manag. 21 (3):302–326. http://dx.doi.org/ 10.1108/01443570110364614

Maxwell, C., Udechukwu, O., Paul, G., Terry, W., Caroline, M., Stuart, M., Yongyi, S., Teta, S., Alasdair, M., (2014). Exploring the impact of cultural values on project

Mckim, R., Hegazy, T., (2000). Project performance control in reconstruction projects. J. Constr. Eng. Manag. 126 (2), 137–141.

McSweeney, B. (2002), "Hofstede's model of national cultural differences and their consequences: a triumph of faith – a failure of analysis", Human Relations, Vol. 55 No. 1, pp. 89-118.

Mehta, N., Hall, D., Byrd, T., (2014). Information technology and knowledge in software development teams: the role of project uncertainty. Inf. Manag. 51, 417–429

Meredith, J.R., Mantel, S.J., 2010. Project Management: A Managerial Approach, seventh ed. John Wiley and Sons, Hoboken, New Jersey.

Miller, D.M., Fields, R., Kumar, A. and Ortiz, R. (2000), "Leadership and organizational vision in managing a multiethnic and multicultural project team", Journal of Management in Engineering, Vol. 16 No. 6, pp. 18-22.

Moselhi, O., Li, J., Alkass, S., (2004). Web-based integrated project control system. Constr. Manag. Econ. 22, 35–46.

MoslemiNaeni, L., Salehipour, A., (2011). Evaluating fuzzy earned value indices and estimates by applying alpha cuts. Expert Syst. Appl. 38, 8193–8198.

Müller, R., Jugdev, K., (2012). Critical success factors in projects: Pinto, Slevin, and Prescott—the elucidation of project success. Int. J. Manag. Proj. Bus. 5 (4), 757–775.

Newman, K.L. and Nollen, S.D. (1996), "Culture and congruence: the fit between management practices and national culture", Journal of International Business Studies, Vol. 27 No. 4, pp. 753-779.

Nidumolu, S.R., (1995). The effect of coordination and uncertainty on software project performance: residual performance risk as an intervening variable. Information Systems Research 6 (3), 191–219.

Olsson, R. (2007). In search of opportunity : Is the risk management process enough? International Journal of Project Management, 25(8), 745-752.

O'Reilly, C.A., Chatman, J., Caldwell, D.F., (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. Acad. Manag. J. 34 (3):487–516. http://dx.doi.org/10.1080/0144619042000326710.

Osman, M., (2010). Controlling Uncertainty: Decision Making and Learning in Complex Worlds. Wiley Blackwell, Chichester, UK.

Ouchi, W.G., (1977). The relationship between organizational structure and organizational control. Adm. Sci. Q. 22 (1), 95–113.

Padalkar, M., Gopinath, S., (2015). Delays in projects: a game-theoretic study. In: Warkentin, M. (Ed.), Trends and Research in the Decision Sciences: Best Papers from the 2014 Annual Conference. Pearson Education, Upper Saddle River, NJ, pp. 191–212.

Pagell, M., Katz, J.P. and Sheu, C. (2005), "The importance of national culture in operations management research", International Journal of Operations & Production Management, Vol. 25 No. 4, pp. 371-394.

Pajares, J., López-Paredes, A., (2011). An extension of the EVM analysis for project monitoring: the cost control index and the schedule control index. Int. J. Proj. Manag. 29 (5), 615–621.performance", International Journal of Operations & Production Management, Vol. 34 Iss 3 pp. 364 - 389

Perminova, O., Gustafsson, M., &Wikstroem, K. (2008). Defining uncertainty in projects - a new perspective. International Journal of Project Management, 26(1), 73-79.

Perminova, O., Gustafsson, M., Wikström, K., (2007). Managing uncertainty in projects: merging theory and practice. Project Perspectives 29, 65–67.

Perminova, O., Gustafsson, M., Wikstrom, K., 2008. Defining uncertainty in projects: a new perspective. Int. J. Proj. Manag. 26, 73–79.

Perminova, O., Gustafsson, M., Wikstrom, K., 2008. Defining uncertainty in projects: a new perspective. Int. J. Proj. Manag. 26, 73–79.

Pfeiffer, S., (2007). Montage und Erfahrung. Hampp, München/Mering.

PMI, 2013. A Guide to the Project Management Body of Knowledge, 5th ed. Project Management Institute, Newtown Square, PA.

Prajogo, D.I. and Mcdermott, C.M. (2011), "The relationship between multidimensional organizational culture and performance", International Journal of Operations & Production Management, Vol. 31 Nos 7/8, pp. 712-735.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. Behavior Research Methods, 36(4), 717-731.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40, 879-891.

Rai, A. and AL-Hindi, H. (2000), "The effect of development process modeling and task uncertainty on development quality performance", information and management, Vol. 37 No. 6, pp.335-46,

Ramasesh, R.V., Browning, T.R., 2014. A conceptual framework for tackling knowable unknown unknowns in project management. J. Oper. Manag. 32, 190–204.

Ramburuth, P. and Mccormick, J. (2001), "Learning diversity in higher education: a comparative study of Asian international and Australian students", Higher Education, Vol. 42 No. 3, pp. 333-350.

Raz, T., Shenhar, A. J., &Dvir, D. (2002). Risk management, project success and technological uncertainty. R&D Management, 32(2), 101-109.

Robson, C. (2002). Real World Research (2nd ed.).Oxford: Blackwell.

Rozenes, S., Vitner, G., Spraggett, S., (2006). Project control: literature review. Project Management Institute.

Rustagi, S., King, W.R., Kirsch, L.J., (2008). Predictors of formal control usage in IT outsourcing partnerships. Inf. Syst. Res. 19 (2), 126–143.

Sakka, O., Barki, H., Côté, L., (2013). Interactive and diagnostic uses of management control systems in IS projects: antecedents and their impact on performance. Inf. Manag. 50 (6), 265–274.

Sanderson, J., (2012). Risk, uncertainty and governance in mega projects. Int. J. Proj. Manag. 30, 432–443

Sanderson, J., 2012. Risk, uncertainty and governance in mega projects. Int. J.Proj. Manag. 30, 432–443.

Sauer, C., Gemino, A., Reich, B.H., (2007). The impact of size and volatility on IT project performance: studying the factors influencing project risk. Communications of the ACM 50 (11), 79–84.

Saunders, F.C., Gale, A.W., Sherry, A.H., (2015). Conceptualising uncertainty in safety-critical projects: a practitioner perspective. Int. J. Proj. Manag. 33 (2), 467–478

Saunders, F.C., Gale, A.W., Sherry, A.H., 2015. Conceptualising uncertainty in safety-critical projects: a practitioner perspective. Int. J. Proj. Manag. 33 (2), 467–478.

Saunders, M., Lewis, P., & Thornhill, A. (2007). Research Methods for Business Students, (6th ed.) London: Pearson

Schein, E.H., (2004). Organizational Culture and Leadership. John Wiley & Sons, San Francisco; CA; USA.

Schultz, R. and Slevin, D.P. (1975), "implementation and organizational validity: an empirical investigation", in Schultz, R.andSlevin, D.P. (Eds), implementing Operations Research and Management Science, Elsevier, New York, NY, pp. 153-82

Siebert, A. (2005). The resiliency advantage. San Francisco, CA: Berrett- Koelher

Slevin, D.P. and Pinto, J.K. (1986) "The project implementation Profile; new tool for project manager",project management journal, Vol. 17 No.4, pp.57-70

Snell, S.A., (1992). Control theory in strategic human resource management: the mediating effect of administrative information. Acad. Manag. J. 35 (2), 292–327

Sussman, S.W. and Guinan, P.J. (1999) Antidotes for high complexity and ambiguity in software development", Information and management, Vol.36No. 1, pp.23-35.

Sutcliffe, K.M., Zaheer, A., (1998). Uncertainty in the transaction environment: an empirical test. Strateg. Manag. J. 19, 1–23.

Tabachnick, B., &Fidell, L. (2007). Using multivariate statistics. NJ: Pearson.

Tesch, D., Kloppenborg, T.J., Stemmer, J.K., 2003. Project management learning: what the literature has to say. Proj. Manag. J. 34 (4), 33–39

Tiwana, A., (2010). Systems development ambidexterity: explaining the complementary and substitutive roles of formal and informal controls. J. Manag. Inf. Syst. 27 (2), 87–126.

Tiwana, A., Keil, M., (2007). Does peripheral knowledge complement control? An empirical test in technology outsourcing alliances. Strateg. Manag. J. 28, 623–634.

Trice, H.M., Beyer, J.M., (1993). The cultures of work organizations. Prentice- Hall; Englewood Cliffs, NJ; USA.

Turner, J.R., Müller, R., (2005). The project manager's leadership style as a success factor on projects: a literature review. Proj. Manag. J. 36 (1), 49–61.

Turner, K.L., Makhija, M.V., (2006). The role of organizational controls in managing knowledge. Acad. Manag. Rev. 31 (1), 197–217.

Vanhoucke, M., (2010a). Measuring time — improving project performance using earned value management. : International Series in Operations Research and Management Science, vol. 136. Springer.

Vanhoucke, M., (2010a). Using activity sensitivity and network topology information to monitor project time performance. OMEGA Int. J. Manag. Sci. 38, 359–370.

Vanhoucke, M., (2011). On the dynamic use of project performance and schedule risk information during project tracking. Omega The International Journal of Management Science 39, 416–426.

Vanhoucke, M., (2012). Measuring the efficiency of project control using fictitious and empirical project data. International Journal of Project Management 30 (2012) 252–263

Vidal, R., (2015). Managing uncertainty: the engineer the craftsman and the gardener. J. Conting. Crisis Manag. 23 (2), 106–116.

Vidal, R., 2015. Managing uncertainty: the engineer the craftsman and the gardener. J. Conting. Crisis Manag. 23 (2), 106–116.

Wallace, L., Keil, M., Rai, A., (2004b). How software project risk affects project performance. an investigation of the dimensions of risk and an exploratory model. Decision Sciences 35 (2), 289–321.

Ward, S., & Chapman, C. (2003). Transforming project risk management into project uncertainty management. International Journal of Project Management, 21, 97-105.

Weick, K.E., (1995). Sensemaking in Organizations. Sage Publications Inc., Thousand Oaks, CA..

Weyer, J., Grote, G., (2012). GrenzentechnischerSicherheit—Governance durchTechnik, Organisation und Mensch. In: Böhle, F., Busch, S. (Eds.), Management von Ungewissheit. Bielefeld, Transcript, pp. 189–212.

Widener, S.K., (2007). An empirical analysis of the levers of control framework. Acc. Organ. Soc. 32, 757–788.

William, G. Z. (2003). Business research methods. *Thomson South-Western publications. BIBLIOGRAPHY*.

Williams, T. M., Klakegg, O. J., Walker, D. H. T., Aderson, B., & Magnussen, O. M. (2012). Identifying and acting on early warning signs in complex projects. Project Management Journal, 43(2), 37-53.

Winch, G., Millar, C. and Clifton, N. (1997), "Culture and organization: the case of Transmanche-Link", British Journal of Management, Vol. 8 No. 3, pp. 237-249.

Winch, G.M., (2010). Managing Construction Projects: An Information Processing Approach. second ed. Wiley-Blackwell, Chichester, UK..

YakubuOlawale, Ming Sun, (2015), Construction project control in the UK: Current practice, existing

Yazici, H.J., (2009). The role of project management maturity and organizational culture in perceived performance. Proj. Manag. J. 40 (3), 14–33.

Zwikael, O., &Ahn, M. (2011). The effectiveness of risk management : An analysis of project risk management planning accross industries and countries. Risk Analysis, 31(1), 25-37.

Appendices:

Appendix A:

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Project team members actively participated in the definition of project goals and schedules.	300	100.0%	0	0.0%	300	100.0%
Every effort was made to keep project team turnover at a minimum.	300	100.0%	0	0.0%	300	100.0%
The project team met frequently.	300	100.0%	0	0.0%	300	100.0%

Project team members were kept informed about major decisions concerning the project.	300	100.0%	0	0.0%	300	100.0%
Requirements fluctuated quite a bit in earlier phases of the project.	300	100.0%	0	0.0%	300	100.0%
Requirements fluctuated quite a bit in later phases of the project.	300	100.0%	0	0.0%	300	100.0%
Requirements identified at the beginning of the project were quite often different from those existing at the end.	300	100.0%	0	0.0%	300	100.0%
Users of the system differed a great deal among themselves in the requirements to be met by it.	300	100.0%	0	0.0%	300	100.0%
A lot of effort had to be spent in reconciling the requirements of various users of this system.	300	100.0%	0	0.0%	300	100.0%

It was difficult to customize the system to one set of users without reducing support to other users.	300	100.0%	0	0.0%	300	100.0%
How often do you feel nervous at work	300	100.0%	0	0.0%	300	100.0%
One can be a good manager without having precise answers to most question that subordinates may raise about their work	300	100.0%	0	0.0%	300	100.0%
Competition between employees usually does more harm than good.	300	100.0%	0	0.0%	300	100.0%
A company's or organizations rules should not be broken-not even when the employee thinks it is in company's best interest.	300	100.0%	0	0.0%	300	100.0%
The project has completed on time	300	100.0%	0	0.0%	300	100.0%
The project has completed according to the budget allocated	300	100.0%	0	0.0%	300	100.0%

The project that has been developed works	300	100.0%	0	0.0%	300	100.0%
The Project was used by its intended clients	300	100.0%	0	0.0%	300	100.0%
The project has directly benefited the intended users either through increasing efficiency or employee effectiveness	300	100.0%	0	0.0%	300	100.0%
Given the problem for which it was developed, the project seems to do the best job of solving that problem.	300	100.0%	0	0.0%	300	100.0%
Important clients, directly affected by the project was implemented	300	100.0%	0	0.0%	300	100.0%
I am satisfied with the process by which the project was implemented	300	100.0%	0	0.0%	300	100.0%
The project has no or minimal technical start-up problems because it was readily accepted by its intended users	300	100.0%	0	0.0%	300	100.0%

The project has directly lead to improve or more effective decision making or performance for the clients	300	100.0%	0	0.0%	300	100.0%
The project has made a positive impact on those who make use of it	300	100.0%	0	0.0%	300	100.0%
The result of the project represent a definite improvement in performance over the way clients used to perform these activities	300	100.0%	0	0.0%	300	100.0%

Appendix B:

Descriptives

			Statistic	Std. Error
Project team members actively participated in the definition of project goals and schedules.	Mean		4.1833	.04918
	95% Confidence Interval for Mean	Lower Bound	4.0866	
		Upper Bound	4.2801	
	5% Trimmed Mean		4.2741	
	Median		4.0000	
	Variance		.725	
	Std. Deviation		.85175	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.439	.141
	Kurtosis		3.068	.281
Every effort was made to keep project team turnover at a minimum.	Mean		4.2500	.04407
	95% Confidence Interval for Mean	Lower Bound	4.1633	
		Upper Bound	4.3367	
	5% Trimmed Mean		4.3333	
	Median		4.0000	
	Variance		.583	
	Std. Deviation		.76340	

	Minimum		2.00	
	Maximum		5.00	
	Range		3.00	
	Interquartile Range		1.00	
	Skewness		-1.229	.141
	Kurtosis		1.921	.281
	Mean		4.3600	.04735
	95% Confidence Interval for Mean	Lower Bound	4.2668	
		Upper Bound	4.4532	
	5% Trimmed Mean		4.4778	
	Median		4.0000	
	Variance		.673	
The project team met frequently.	Std. Deviation		.82015	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-2.034	.141
	Kurtosis		5.616	.281
	Mean		4.4933	.03549
	95% Confidence Interval for Mean	Lower Bound	4.4235	
Project team members were kept informed about major decisions concerning the project.		Upper Bound	4.5632	
	5% Trimmed Mean		4.5444	
	Median		5.0000	
	Variance		.378	
	Std. Deviation		.61472	

	Minimum		2.00	
	Maximum		5.00	
	Range		3.00	
	Interquartile Range		1.00	
	Skewness		-1.236	.141
	Kurtosis		2.500	.281
	Mean		3.8833	.06237
	95% Confidence Interval for Mean	Lower Bound	3.7606	
		Upper Bound	4.0061	
	5% Trimmed Mean		3.9778	
	Median		4.0000	
Requirements fluctuated quite a bit in earlier phases of the project.	Variance		1.167	
	Std. Deviation		1.08025	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.128	.141
	Kurtosis		.687	.281
	Mean		3.9633	.06108
	95% Confidence Interval for Mean	Lower Bound	3.8431	
Requirements fluctuated quite a bit in later phases of the project.		Upper Bound	4.0835	
	5% Trimmed Mean		4.0370	
	Median		4.0000	
	Variance		1.119	
	Std. Deviation		1.05785	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		2.00	
	Skewness		-.882	.141
	Kurtosis		-.025	.281
	Mean		3.8200	.05881
	95% Confidence Interval for Mean	Lower Bound	3.7043	
		Upper Bound	3.9357	
	5% Trimmed Mean		3.9074	
Requirements identified at the beginning of the project were quite often different from those existing at the end.	Median		4.0000	
	Variance		1.038	
	Std. Deviation		1.01869	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.028	.141
	Kurtosis		.896	.281
	Mean		4.0067	.05627
Users of the system differed a great deal among themselves in the requirements to be met by it.	95% Confidence Interval for Mean	Lower Bound	3.8959	
		Upper Bound	4.1174	
	5% Trimmed Mean		4.1185	
	Median		4.0000	
	Variance		.950	
	Std. Deviation		.97457	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.454	.141
	Kurtosis		2.532	.281
	Mean		4.1033	.05361
	95% Confidence Interval for Mean	Lower Bound	3.9978	
		Upper Bound	4.2088	
	5% Trimmed Mean		4.2000	
	Median		4.0000	
A lot of effort had to be spent in reconciling the requirements of various users of this system.	Variance		.862	
	Std. Deviation		.92855	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.418	.141
	Kurtosis		2.257	.281
	Mean		4.1333	.05751
	95% Confidence Interval for Mean	Lower Bound	4.0202	
		Upper Bound	4.2465	
It was difficult to customize the system to one set of users without reducing support to other users.	5% Trimmed Mean		4.2333	
	Median		4.0000	
	Variance		.992	
	Std. Deviation		.99609	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.272	.141
	Kurtosis		1.300	.281
	Mean		4.1533	.06652
	95% Confidence Interval for Mean	Lower Bound	4.0224	
		Upper Bound	4.2842	
	5% Trimmed Mean		4.2815	
	Median		4.0000	
	Variance		1.328	
How often do you feel nervous at work	Std. Deviation		1.15221	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.584	.141
	Kurtosis		1.727	.281
	Mean		4.2333	.04002
One can be a good manager	95% Confidence Interval for Mean	Lower Bound	4.1546	
without having precise		Upper Bound	4.3121	
answers to most question	5% Trimmed Mean		4.2741	
that subordinates may raise	Median		4.0000	
about their work	Variance		.480	
	Std. Deviation		.69317	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-.711	.141
	Kurtosis		1.017	.281
	Mean		3.9800	.05953
	95% Confidence Interval for Mean	Lower Bound	3.8628	
		Upper Bound	4.0972	
	5% Trimmed Mean		4.0778	
	Median		4.0000	
Competition between employees usually does more harm than good.	Variance		1.063	
	Std. Deviation		1.03109	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.139	.141
	Kurtosis		1.026	.281
A company's or organizations rules should not be broken-not even when the employee thinks it is in company's best interest.	Mean		3.9333	.06733
	95% Confidence Interval for Mean	Lower Bound	3.8008	
		Upper Bound	4.0658	
	5% Trimmed Mean		4.0370	
	Median		4.0000	
	Variance		1.360	
	Std. Deviation		1.16623	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.258	.141
	Kurtosis		.842	.281
	Mean		4.2767	.04908
	95% Confidence Interval for Mean	Lower Bound	4.1801	
		Upper Bound	4.3732	
	5% Trimmed Mean		4.3889	
	Median		4.0000	
	Variance		.723	
The project has completed on time	Std. Deviation		.85002	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.813	.141
	Kurtosis		4.499	.281
	Mean		4.3300	.04606
	95% Confidence Interval for Mean	Lower Bound	4.2394	
The project has completed according to the budget allocated		Upper Bound	4.4206	
	5% Trimmed Mean		4.4333	
	Median		4.0000	
	Variance		.637	
	Std. Deviation		.79784	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.858	.141
	Kurtosis		5.129	.281
	Mean		4.5200	.03671
	95% Confidence Interval for Mean	Lower Bound	4.4478	
		Upper Bound	4.5922	
	5% Trimmed Mean		4.5704	
	Median		5.0000	
	Variance		.404	
The project that has been developed works	Std. Deviation		.63583	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-2.001	.141
	Kurtosis		8.028	.281
	Mean		4.3400	.03738
	95% Confidence Interval for Mean	Lower Bound	4.2664	
		Upper Bound	4.4136	
	5% Trimmed Mean		4.3704	
The Project was used by its intended clients	Median		4.0000	
	Variance		.419	
	Std. Deviation		.64740	

	Minimum		1.00	
	Maximum		6.00	
	Range		5.00	
	Interquartile Range		1.00	
	Skewness		-1.509	.141
	Kurtosis		7.584	.281
	Mean		4.4067	.03031
	95% Confidence Interval for Mean	Lower Bound	4.3470	
		Upper Bound	4.4663	
	5% Trimmed Mean		4.4148	
The project has directly benefited the intended users either through increasing efficiency or employee effectiveness	Median		4.0000	
	Variance		.276	
	Std. Deviation		.52492	
	Minimum		3.00	
	Maximum		5.00	
	Range		2.00	
	Interquartile Range		1.00	
	Skewness		.031	.141
	Kurtosis		-1.237	.281
	Mean		4.3733	.03441
Given the problem for which it was developed, the project seems to do the best job of solving that problem.	95% Confidence Interval for Mean	Lower Bound	4.3056	
		Upper Bound	4.4410	
	5% Trimmed Mean		4.4185	
	Median		4.0000	
	Variance		.355	
	Std. Deviation		.59594	

	Minimum		2.00	
	Maximum		5.00	
	Range		3.00	
	Interquartile Range		1.00	
	Skewness		-.454	.141
	Kurtosis		-.109	.281
	Mean		4.3867	.03188
	95% Confidence Interval for Mean	Lower Bound	4.3239	
		Upper Bound	4.4494	
	5% Trimmed Mean		4.4111	
	Median		4.0000	
Important clients, directly affected by the project was implemented	Variance		.305	
	Std. Deviation		.55212	
	Minimum		3.00	
	Maximum		5.00	
	Range		2.00	
	Interquartile Range		1.00	
	Skewness		-.142	.141
	Kurtosis		-.883	.281
	Mean		4.4067	.03540
	95% Confidence Interval for Mean	Lower Bound	4.3370	
		Upper Bound	4.4763	
I am satisfied with the process by which the project was implemented	5% Trimmed Mean		4.4481	
	Median		4.0000	
	Variance		.376	
	Std. Deviation		.61309	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.129	.141
	Kurtosis		3.636	.281
	Mean		4.2433	.04495
	95% Confidence Interval for Mean	Lower Bound	4.1549	
		Upper Bound	4.3318	
	5% Trimmed Mean		4.3296	
The project has no or minimal technical start-up problems because it was readily accepted by its intended users	Median		4.0000	
	Variance		.606	
	Std. Deviation		.77855	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.396	.141
	Kurtosis		3.099	.281
	Mean		4.4567	.04255
	95% Confidence Interval for Mean	Lower Bound	4.3729	
		Upper Bound	4.5404	
	5% Trimmed Mean		4.5519	
The project has directly lead to improve or more effective decision making or performance for the clients	Median		5.0000	
	Variance		.543	
	Std. Deviation		.73707	

	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-2.019	.141
	Kurtosis		6.165	.281
	Mean		4.4900	.03388
	95% Confidence Interval for Mean	Lower Bound	4.4233	
		Upper Bound	4.5567	
	5% Trimmed Mean		4.5259	
	Median		5.0000	
The project has made a positive impact on those who make use of it	Variance		.344	
	Std. Deviation		.58684	
	Minimum		1.00	
	Maximum		5.00	
	Range		4.00	
	Interquartile Range		1.00	
	Skewness		-1.161	.141
	Kurtosis		3.584	.281
The result of the project represent a definite improvement in performance over the way clients used to perform these activities	Mean		4.5033	.03879
	95% Confidence Interval for Mean	Lower Bound	4.4270	
		Upper Bound	4.5797	
	5% Trimmed Mean		4.5704	
	Median		5.0000	
	Variance		.451	

Std. Deviation	.67193	
Minimum	1.00	
Maximum	5.00	
Range	4.00	
Interquartile Range	1.00	
Skewness	-2.010	.141
Kurtosis	7.066	.281

Appendix C:Questionnaire

Dear Participant,

I am students of MS Project Management at Capital University Science and Technology Islamabad. I am conducting a research on impact of **Impact of Project Uncertainty on Project Success with Mediation Role Project Control and Moderation Role of Uncertainty Avoidance.**. You can help me by completing the attached questionnaire; you will find it quite interesting. I appreciate your participation in my study and I assure that ***your responses will be held confidential*** and will only be used for education purposes.

Sincerely,

ShoaibAyub

***Note: How much do you disagree or agree with each of the following statements about your most recently completed project? The 5 likert scale will be used to answer these questions i.e.**

1.	2.	3.	4.	5.
Strongly Disagree	**Disagree**	**Natural**	**Agree**	**Strongly Agree**

PERSONAL INFORMATION

This part is related to you. So you just tick the relevant box.

1) **Age**

Less than 30 years ☐

30 to 40 years ☐

4) **Gender**

Male ☐

Female ☐

41 to 50 years ☐

More than 50 years ☐

3) **Experience**

Less than 3 years ☐

3 to 5 years ☐

6 to 10 years ☐

11 to 15 years ☐

5) **Education Level**

Doctor ☐

Master ☐

Bachelor ☐

Others, please specify ☐

MS/M.Phill ☐

PROJECT CONTROL						
PC1	Project team members actively participated in the definition of project goals and schedules.	1.	2.	3.	4.	5.
PC2	Every effort was made to keep project team turnover at a minimum.					
PC3	The project team met frequently.					

PC4	Project team members were kept informed about major decisions concerning the project.					
PROJECT UNCERTAINTY						
PU1	Requirements fluctuated quite a bit in earlier phases of the project.					
PU2	Requirements fluctuated quite a bit in later phases of the project.					
PU3	Requirements identified at the beginning of the project were quite often different from those existing at the end.					
PU4	Users of the system differed a great deal among themselves in the requirements to be met by it.					
PU5	A lot of effort had to be spent in reconciling the requirements of various users of this system.					
PU6	It was difficult to customize the system to one set of users without reducing support to other users.					

UNCERTAINTY AVOIDANCE						
UA1	How often do you feel nervous at work?					
UA2	One can be a good manager without having precise answers to					

	most questions that subordinates may raise about their work.					
UA3	Competition between employees usually does more harm than good					
UA4	A company's or organization's rules should not be broken—not even when the employee thinks it is in the company's best interest.					
PROJECT SUCCESS						
PS1	The project has completed on time					
PS2	The project has completed according to the budget allocated					
PS3	The project that has been developed works					
PS4	The Project was used by its intended clients					
PS5	The project has directly benefited the intended users either through increasing efficiency or employee effectiveness					
PS6	Given the problem for which it was developed, the project seems to do the best job of solving that problem.					
PS7	Important clients, directly affected by the project was implemented					
PS8	I am satisfied with the process by which the project was implemented					
PS9	The project has no or minimal technical start-up problems					

	because it was readily accepted by its intended users					
PS10	The project has directly lead to improve or more effective decision making or performance for the clients					
PS11	The project has made a positive impact on those who make use of it					
PS12	The result of the project represent a definite improvement in performance over the way clients used to perform these activities					