Attitudes and Personality towards Risk Management in the Construction Industry[1]

Zakari Tsiga, **Michael Emes**, **Alan Smith**
University College London, Mullard Space Science Laboratory,
Holmbury St. Mary, Dorking RH56NT, UK.

Abstract

This research paper looks at the attitudes and personality of people who deliver construction projects. The study was performed using an online questionnaire which encompassed aspects of risk decisions and personality questions. In total, 50 responses have been collected and analysed. The results of this study show that people who have experience in the delivery of projects in the construction industry are aware of the risk in projects and prefer not to take on the risk in most cases. In the aspect of personality, the results were compared to the Carl Jung personality theory and shows that the participants are extroverts, judging, more intuitive than sensing, and are equally thinkers and feelers.

Keywords: Construction Projects; Project Risk Management; Personality Profile; Risk Decisions.

JEL codes: D20, D81, L10, M19

1. Introduction

As one of the biggest sectors, the construction industry is one that entails all the activities from project initiation to the final demolition of developed infrastructure. Being a service industry, the construction sector is interlinked with other sectors. The industry is the largest employer as compared to others (World Market Intelligence, 2010). The report by the Global Construction Perspectives and Oxford Economics (2015) states that the cumulative volume of construction will reach US$ 212 trillion by 2030.

Project success is a topic of great focus and one that is currently being researched in project management (Alexandrova & Ivanova, 2012). The global construction industry is one of competition and constant innovation. Companies invest heavily in innovation to improve performance and capabilities. All projects are accompanied by a variety of risk. Previous research by Tsiga et. al (2016) has identified the critical success factors for the construction industry and their research also highlights the importance of risk management in the delivery of projects for the construction industry.

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There are currently gaps in research in the construction industry which has led to the implementation of generic project management techniques. Risk management in projects has been researched and improved in recent times, but still, project success rate failed to improve in a similar pattern (Mir & Pinnington, 2014). Studies by Johansen et. al. (2014) have suggested that project risk managers and their teams are poorly equipped to handle risk and uncertainties. Katz (1991) suggest the need for the development of human, conceptual and technical skills of project managers. This has led to researchers such as Montequina et. al. (2015), Fisher (2011) and Tsiga et. al (2016) to take the first steps in identifying the ideal skills for project managers. El-Sabaa (2001) also suggest a framework for the selection of perfect project managers.

This research study identifies the attitudes and personality of project participants towards risk management in the construction industry. The decision scenarios implemented in this study have been derived from well documented past projects (Tsiga, Emes, & Smith, 2016), some of the decisions have led to project success and others to failure. In the aspect of the personality section of this study, it was derived from Carl G. Jung's work on psychological theory (Jung, 1988). The theory looks at how people behave differently in different situations. The differences depict how individual use mental reasoning in justifying their individual reasoning. The Carl G. Jung's psychological preferences are shown in **Table 1**.

There are currently various psychometric questionnaires that have been derived from the Carl G. Jung's work, an example of such is the Temperament Sorter II (KTS II) (Keirsey & Bates, 1984) and Myers-Briggs Type Indicator (MBTI) (Briggs & Myers, 1977). Various studies have highlighted the importance and need of such tool (Clinebell & Stecher, 2003). The approach implemented in this research has been used to identify the attitudes of project participants for the Petroleum Industry (Tsiga, Emes, & Smith, 2016) and Space Industry (Tsiga, Emes, & Smith, 2016).

Table 1: Carl G. Jung's Preferences

Focus of attention	
Extraversion (E)	Those set of people who tend to focus their attention on the outer world of people and things.
Introversion (I)	Those who tend to focus their attention on the inner world of ideas and impressions.
Seeking of information	
Sensing (S)	People who prefer to take information through the five senses and focus on the here and now.
Intuition (N)	People who prefer to take information from patterns and the big picture and focus on future possibilities.
Decision making	
Thinking (T)	People who prefer to make decisions primarily based on logic and on objective analysis of cause and effect.
Feeling (F)	People who prefer to make decisions primarily based on values and on subjective evaluation of person centred concerns.

Relationship with the world	
Judging (J)	People who prefer to like planned and organized approach to life and prefer to have things settled.
Perceiving (P)	People who prefer to like a flexible and spontaneous approach to life and prefer to keep their options open.

Source: (Tsiga, Emes, & Smith, 2016)

2. Methodology

In this research, the use of a questionnaire was implemented. This questionnaire consists of four sections. Each section collects a different set of data from the respondents. The first sections collect basic background information such as respondent location, educational qualification, project experience, project management experience, the number of projects participated, the percentage of successful projects, number and percentage of successful projects managed.

The second section of the study explored decisions scenarios derived designed to measure the if the respondents agree or disagree with the stated risk statement. **Table 2** lists the questions asked in this section. The third section was designed and implemented based on Carl G Jung's work on behavioural preferences. **Table 3** shows the statements implemented and its relation to the Jungian preferences is also shown.

Table 2: Decision Scenarios

Number	Statements
1	It is common for there to be tension between the need to get something right and the need to make progress. I would prefer to accept an imperfect solution and make progress, than to wait to improve the solution.
2	I find face-to-face meetings a more effective way of communicating than email.
3	Projects often start without an adequate amount of time spent on planning.
4	My customer introduces challenging new requirements after the project has kicked off and offers to pay for any costs incurred. In this situation I would happily accept the new requirements.
5	Often customers don't really know what they want, so rather than going to the expense of making models such as prototypes and asking them, I usually find the project team is better off making assumptions by itself.
6	In a very risky project, I expect to spend more of the risk budget in the latter part of the project.
7	For project managers, specialist domain knowledge is more important than understanding generic project management good practice.
8	My 2-year project is running 3 months late with a year to go. I have discovered that by overlapping two tasks I should save 4 months, but there is a 10% chance of rework being needed, which would delay the project by 12 months. I would consider this a risk worth taking, and would therefore overlap the two tasks.
9	All stakeholders should be able to see a project risk register.
10	There should be two versions of a risk register – one for internal use and one for external stakeholders.
11	Very little effort should be spent on a project until there is a contract in place.
12	I would rather develop a close relationship with a single preferred supplier for each element of a system, than have multiple suppliers competing for business.

13	As a proportion of the total project budget, how much would you be willing to pay to guarantee on time and good quality delivery?

Source: (Tsiga, Emes, & Smith, 2016)

In the decisions scenarios, the respondents expressed to what extent they agreed with certain statements. The personality aspect was also implemented in a similar manner, but here individual preferences are judged based on their experience. These are the two main sections of the survey, and they were implemented with the aid of a 5-point Likert scale except for Question 13 in **Table 2**, this is because the manner of that specific question necessitated the need for an open-ended question. The question aims to determine the percentage of total budget they would be willing to invest in the project to ensure on-time delivery and project quality.

Table 3: Personality Questions

Number	Statement	Carl Jung's Preference
14	I have a low level view more than a high level view	Seeking information
15	I prefer to make decisions based on logical rather than emotional arguments	Decision making
16	I am more sociable than reserved	Focus of attention
17	I prefer a structured organization rather than a flexible organization	Relationship with the world
18	I am more of a pleasing than firm person	Decision making
19	I have a long-term view rather than short-term view	Seeking information
20	I prefer having control rather than flexibility	Relationship with the world
21	I am pragmatic more than creative	Seeking information
22	I prefer to make a consensus team decision more than objective decisions	Decision making
23	I prefer to freeze the scope rather than leave it open for additional requirements	Relationship with the world
24	I prefer to respect deadlines more that adapt them to new circumstances	Relationship with the world
25	I prefer to show fairness to empathy	Decision making
26	I am more of an introvert than extrovert	Focus of attention

Source: (Tsiga, Emes, & Smith, 2016)

The final section of the study is comprised of two questions, aimed at gathering the contact information of the respondents who are willing to be contacted for further studies in this area and also notify them of the results once they have been published. The survey was conducted over a period of a 6-month period from the 1st of February 2016 and came to an end on the 30th of July 2016.

3. Results

The respondents of this study are geographically located in United States, United Kingdom and Nigeria. The participants work in various construction companies in the private sector. All the respondents are in full-time employment in the construction industry. **Figure 1** depicts the geographical location of the respondents. At the end of the study, a total of 50 responses have been collected, and their background information has been analysed in **Table 4**.

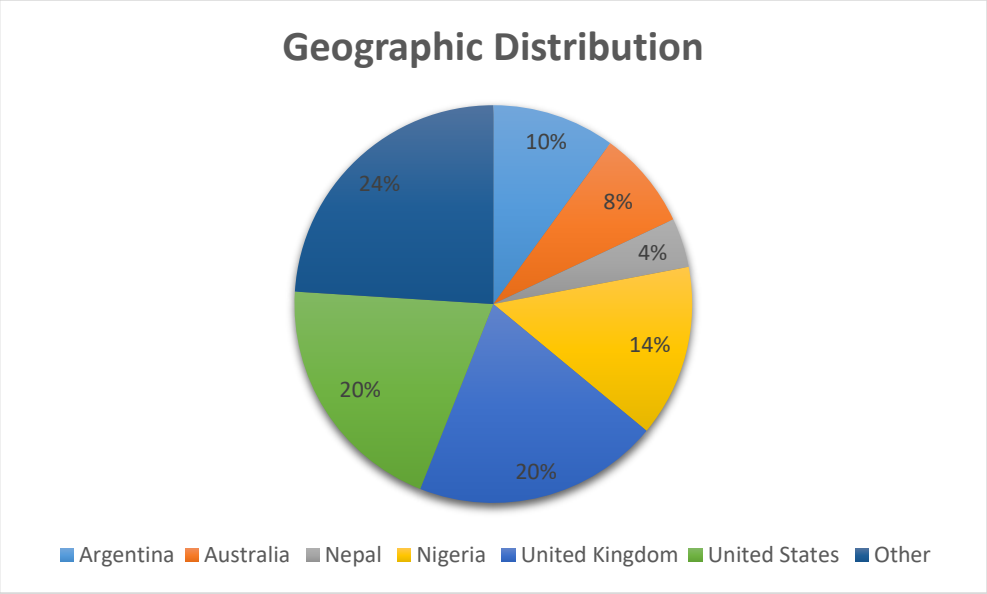

Figure 1: Geographical location of respondents.

Table 4: Characteristics of Respondents

Characteristics of Respondents			
Background Question	**Characteristics**	**Petroleum Sector**	
		Number	**Percentage**
Education	Bachelor's	18	36
	Master's	17	34
	Doctorate	8	16
	Other	7	14
Project Experience	0 to 2 years	0	0
	2 to 5 years	8	16
	5 to 10 years	10	20
	10 to 15 years	7	14
	More than 15 years	25	50
Project management experience	None	4	8
	Less than 2 years	7	14
	2 to 5 years	9	18
	5 to 10 years	7	14
	10 to 15 years	6	12
	More than 15 years	17	34
No of projects participated	Fewer than 5 projects	6	12
	5 to 10 projects	6	12
	10 to 15 projects	8	16
	More than 15 projects	30	60
% of successful project	0 to 20	1	2
	20 to 40	3	6
	40 to 60	7	14
	60 to 80	24	48
	80 to 100	15	30
Projects Managed	None	5	10
	Fewer than 5 projects	15	30

	5 to 10 projects	8	16
	10 to 15 projects	6	12
	More than 15 projects	16	32
% of managed successful projects	0 to 20	3	6
	20 to 40	2	4
	40 to 60	6	12
	60 to 80	23	46
	80 to 100	16	32

From the background information in **Table 4**, the data shows that 70% have either a bachelor or master level education. 84% have over five years of project experience, and 60% have more than five years of project management experience. The data also shows that 88% have participated in more than five projects. 60% have managed more than five projects of which 78% were delivered successfully based on starting estimates.

The data collected from the respondents for the second and third section have been analysed for frequencies using the IBM SPSS Statistics version 23 software. The total number of answers given to the Likert scale questions have been converted into a 3-point scale by grouping the "Strongly agree" and "agree" together and also for the "Strongly disagree" and "disagree". The results of the decision scenarios and personality section are shown in **Table 5** and **Table 6** respectively. In the aspect of the personality section, the results have been linked directly to Jung's work.

Table 5: Decision Scenario Results

No	Question	Disagree	Neutral	Agree	Preferred
1	It is common for there to be tension between the need to get something right and the need to make progress. I would prefer to accept an imperfect solution and make progress, than to wait to improve the solution.	24	12	14	Wait for an Improved solution
2	I find face-to-face meetings a more effective way of communicating than email.	3	6	41	Face to Face meetings
3	Projects often start without an adequate amount of time spent on planning.	5	15	30	Plan more
4	My customer introduces challenging new requirements after the project has kicked off and offers to pay for any costs incurred. In this situation I would happily accept the new requirements.	4	14	32	Accept new requirements with conditions
5	Often customers don't really know what they want, so rather than going to the expense of making models such as prototypes and asking them, I usually find the project team is better off making assumptions by itself.	18	16	16	Don't make assumptions
6	In a very risky project, I expect to spend more of the risk budget in the latter part of the project.	10	15	25	Spend more later
7	For project managers, specialist domain knowledge is more important than	16	20	14	Neutral

	understanding generic project management good practice.				
8	My 2-year project is running 3 months late with a year to go. I have discovered that by overlapping two tasks I should save 4 months, but there is a 10% chance of rework being needed, which would delay the project by 12 months. I would consider this a risk worth taking, and would therefore overlap the two tasks.	18	11	21	Proceed to save time in late project
9	All stakeholders should be able to see a project risk register.	2	9	39	All see risk register
10	There should be two versions of a risk register – one for internal use and one for external stakeholders.	18	9	23	Two versions
11	Very little effort should be spent on a project until there is a contract in place.	17	19	14	Neutral
12	I would rather develop a close relationship with a single preferred supplier for each element of a system, than have multiple suppliers competing for business.	13	14	23	Single supplier

Table 6: Personality Section Results

No	Question	Disagree	Neutral	Agree	Preference	Jung's Type
14	I have a low level view more than a high level view?	24	20	6	High Level View	Intuitive
15	I prefer to make decisions based on logical rather than emotional arguments?	4	0	46	Logical decisions	Thinkers
16	I am more sociable than reserved?	7	11	32	Sociable	Extrovert
17	I prefer a structured organization rather than a flexible organization?	25	2	23	Flexible Organization	Perceiving
18	I am more of a pleasing than firm person?	13	14	23	Pleasing	Feeling
19	I have a long-term view rather than short-term view?	0	9	41	Long term view	Intuitive
20	I prefer having control rather than flexibility?	15	17	18	Control preferred	Judging
21	I am pragmatic more than creative?	18	13	19	Pragmatic	Sensing
22	I prefer to make a consensus team decision more than objective decisions?	15	7	28	Team decision	Feeling
23	I prefer to freeze the scope rather than leave it open for additional requirements?	11	20	19	Neutral	Neutral
24	I prefer to respect deadlines more than adapt them to new circumstances?	18	9	23	Respect deadlines	Judging
25	I prefer to show fairness to empathy?	2	9	39	Fairness	Thinkers
26	I am more of an introvert than	20	11	19	Extrovert	Extrovert

extrovert?

4. Conclusion

Once you look at the results of the decisions scenarios as shown in **Table 5**, one can conclude that the respondents prefer to have an improved solution before proceeding, prefer face to face meeting, prefer more planning before a project kick off, prefer to accept new requirements during a project with conditions, don't make assumptions and discuss with stakeholders on requirements, they believe more of the risk budget is spent later on the project, take risk to save time on a delayed project. The respondents also believe that all stakeholders should be able to see the risk register and they should be multiple versions of it. They also prefer to have a single supplier during in a project and the results respondents are neutral in the aspect of having a generic or specialist project management knowledge. The respondents are also neutral as to whether more effort should be put into a project on or before a contract is in place.

The results of the open-ended Question 13 in the decision scenario revealed that 50% of the respondents gave a figure below 20% of total project budget, 29.2% gave a figure above 20% and below 50% of total project budget. The remaining 21% gave a figure above 50%. As the question was designed to measure the percentage of total project budget, they are willing to spend to ensure delivery on time and budget. From the results of the question suggest that the respondents who gave a give above 50% did not fully understand the question or they are used to working in high cost.

In the results of the personality section as shown in **Table 6**, the generic personality of the respondents are people with high level and long term view, are fair and logical decision takers, are sociable and extroverts, they prefer to have control and respect deadlines, they are pleasing and prefer to make team decisions and finally they are pragmatic and prefer to work in flexible organizations.

A personality profile of the respondents can be derived once you correlate the results of the interviewees and Jung's work psychological types. The results show that the respondents are extroverts, judging (focus on attention), more intuitive than sensing (Seeking of information), and are equally thinkers and feelers (decision makers). In some quadrants of Jung's work e.g. decision makers, there is a balance of traits.

The results of this study can be seen to have both practical and theoretical implications. In the aspect of theoretical implications, the research helps in the understanding of risk management attitudes and personality of people in the construction industry hence this research could be the basis for further studies in risk appetite. In the aspect of practical implications, the research provides steps towards the development of frameworks for the improvement of risk management behaviour of project participants.

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About the Authors

Zakari Danlami Tsiga

London, United Kingdom

Zakari Danlami Tsiga, MSc is a PhD student working at the University College London. Prior to beginning the PhD program, Zakari undertook a masters' program at the same university, this gave him the opportunity to work on the delivery of various projects for different clients such as Microsoft and the London Clearing House. From his work he developed an interest in Technology management and the importance of successful project delivery

Michael Emes, PhD

London, United Kingdom

Michael Emes, MEng, PhD, MIET, MAPM, MINCOSE is Deputy Director of UCL Centre for Systems Engineering and Head of the Technology Management Group at UCL's Mullard Space Science Laboratory (MSSL). He completed his first degree in Engineering, Economics and Management at St John's College, Oxford, and a PhD at MSSL in developing cooling technologies for spacecraft. He worked as a strategy consultant for Mercer Management Consulting (now Oliver Wyman) on projects in retail, energy and transport, including a project advising the Department for Transport on how to address the problems of the rail sector in the last days of Railtrack plc. Michael now conducts teaching and research at UCL in the areas of systems engineering and technology management in domains including transport, health, defence and aerospace. He is a member of APM, INCOSE and the IET. He is Programme Manager and a lead trainer for the European Space Agency's Project Manager Training Course and is Programme Director for UCL's MSc in the Management of Complex Projects.

Prof. Alan Smith, PhD

London, United Kingdom

Alan Smith was awarded a PhD at Leicester University in 1978 based on his X-ray study of supernova remnants. His work involved the payload development and flight of a Skylark sounding rocket from Woomera, South Australia. Between 1984-1990 he worked for the European Space Agency at its technology centre in the Netherlands as both an astrophysicist and as an instrument developer. His early career involved a combination of technology development (space flight hardware on European, and Russian satellites), project management and astrophysics. In 1990 he joined University College London's Mullard Space Science Laboratory, initially as Head of Detector Physics eventually becoming Director and Head of Department (2005). In 1998 he was made a Professor of Detector Physics. While at UCL he has been Director of UCL's Centre for Advanced Instrumentation Systems (1995-2005), a Co-Director of the Smart Optics Faraday Partnership (2002-2005) and is presently founding Director of the Centre for Systems Engineering (1998-present). Alan was appointed Vice-Dean for Enterprise for the faculty of Mathematical and Physical Sciences in 2007, helped set up UCL's Centre for Space Medicine in 2011 and is a member of UCL's Institute for Risk and Disaster Reduction board. He is a Fellow of the Royal Astronomical Society and of the Association of Project Management.