

The Effect of Soft Skills on Project Management Success in IT Industry

تأثير المهارات اللينة على نجاح إدارة المشروع في مجال تقنية المعلومات

By

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Chapter 1

Abstract

This study has two primary aims. The first is to study on hypothetical basis the effects of soft skills on project success in Dubai in the United Arab Emirates. The second is to show evidence of the existence of an alleged saturation point, which is basically defined as the best balance that can be reached between soft skills and hard skill that optimize project success.

A survey was designed to address several factors which are believed to have significant effects on the project's success. Soft skills factors and mediating variables are addressed in the survey to measure their effect on project success. Also, a theoretical model has been suggested to prove the validity of the alleged saturation point. Furthermore, a qualitative analysis has been conducted for two case studies to support the finding of the quantitative analysis. The study follows the inductive approach in its qualitative part to produce another model to support the presented theoretical model.

The research result showed, in a hypothetical situation, the effects of soft skills on project success. The model produced from qualitative analysis part found to support the presented theoretical model which in its turn is establishing and confirming the validity of the alleged saturation point.

Despite the fact that this study is limited to soft skills effects on project success, it does raise important questions about the means of positioning soft skills development in the knowledge of databases and educational settings.

This study shifts its understanding of soft skills development orientation from non-quantified measures into quantified ones. This new awareness creates and places the foundation of having

soft skills into a formal discipline. Soft skills development strategies can be formed to support current project management hard skills by addressing specific weaknesses.

The study reveals the value of soft skills in project management discipline. Also, it illuminates the path for project managers to consider the best mixture that can be applied in different projects. Furthermore, it produces valuable conclusions about how the investment in soft skills will support project success through the concept of saturation points.

Keywords Soft skills, Interpersonal skills, Perception, Communication, Leadership, Negotiation, Conflict management, Project success, Project attributes, Project structure, Project stakeholders.

Paper type: Dissertation.

لهذه الدراسة هدفان عامان أساسيان. الهدف الأول هو دراسة تأثير المهارات اللينة على نجاح المشروع في مدينة دبي في دولة الإمارات العربية المتحدة وذلك على أسس افتراضية. الهدف الثاني هو إثبات وجود دليل على وجود نقطة تشبع والتي تعرف بأنها أفضل نقطة توازن يمكن الوصول إليه بين المهارات اللينة والمهارات الصلبة والتي من شأنها أن تزيد نسبة نجاح المشروع إلى أقصى حد ممكن.

لقد تم تصميم الإستبيان ليتعامل مع عدة عوامل والتي يعتقد أن لها تأثير كبير على نجاح المشروع. وتم التعامل مع عوامل المهارات اللينة وكذلك المتغيرات الوسطية وذلك من أجل قياس تأثيرها على نجاح المشروع. وكذلك تم إقتراح نموذج نظري وذلك من أجل إثبات مشروعية وجود نقطة التشبع المزعومة. وعلاوة على ذلك فإنه تم عمل تحليلا نوعيا لحالتين دراسيتين وذلك من أجل دعم الاستنتاج الناتج من التحليل الكمي. كما أن الدراسة تتبع المنهج الاستقرائي في جزء التحليل النوعي والذي نتج عنه نموذجا نظريا آخر يدعم النموذج المقترح.

أظهرت نتائج الدراسة، وذلك على اسس افتراضية، تأثير المهارات اللينة على نجاح المشروع. كما أن النموذج النظري الذي نتج من التحليل النوعي وجد انه يدعم النموذج المقترح الذي بدوره يكون ويؤكد مشروعية وجود نقطة التشبع المزعومة.

بغض النظر أن الدراسة محدودة بدراسة تأثير المهارات اللينة على نجاح المشروع فهي تظهر للعيان أسئلة في غاية الأهمية عن معنى تموضع المهارات اللينة وتطويرها بين مجاميع المعرفة والمسار التعليمي.

إن هذه الدراسة تنقل مفهوم تطوير المهارات اللينة من قياسات لا كمية إلى قياسات كمية حيث المفهوم الجديد يخلق ويضع أسس تطوير المهارات اللينة في المسار الرسمي. وإنه من الممكن تطوير إستراتيجيات مهارات لينة لدعم نقاط ضعف متواجدة المهارات الصلبة والمستخدمة حاليا في إدارة المشاريع.

والدراسة تكشف قيمة المهارات اللينة في منهاج إدارة المشاريع، كما انها تضيئ المسار لمديري المشاريع لياخذوا بعين الإعتبار افضل مزيج من المهارات اللينة والصلبة الذي يمكن تطبيقه على مختلف المشاريع. وعلاوة على ذلك فإن الدراسة تكشف عن استنتاجات قيمة لكيفية الإستثمار في المهارات اللينة والتي من شأنها أن تدعم نجاح المشاريع من خلال مفهوم نقاط التشبع.

الكلمات الرئيسية: المهارات اللينة، مهارات التعامل مع الآخرين، الإدراك، التواصل، القيادة، التفاوض، إدارة الصراع، نجاح المشروع، سمات المشروع، بناء المشروع، أصحاب المصلحة في المشروع.

Introduction

As project managers encourage all the possibilities to increase chances of success in their projects, they need to focus on improving technical skills while maintaining the importance of soft skills which are often overlooked by many organizations (Petter & Randolph, 2009, p. 45). On the other hand, while research places minimum attention on the topic of soft skills in comparison to hard skills, this study attempts to fill in the gap as seen in published literature on this topic. In order to accomplish this, this paper discusses soft skills as it pertains to project management discipline by incorporating soft skills into the fundamental concept of the project cycle.

Despite the belief that soft skills are identified as an art (Belzer, 2004), and critical for a project's success, projects continue to have a significant failure rate, especially in the IT industry. It has been reported that there have been several failure rates in IT projects in the USA between the years 1994 – 2002 (Sukhoo et al, 2005). Maximum failure rates from this same study recorded in 1996 were 40% and decreased to 15% in 2002. Sukhoo et al also noted that this same trend might not be applicable when considering developing countries. However, as this study proposes, the data taken from Dubai, one emirate in UAE, and in considering it as a developing country, the results found in this study, as it pertains to the effects of soft skills on projects success/failure in general in IT industry, can be used as general findings when considering any developing/ed country worldwide.

The ultimate aim of this study is to introduce a different point of view of how to integrate soft skills into the project management discipline. The study approaches this goal by presenting a two-tier success model. The inner tier is based on project's life cycle and outer tier is based on soft skills perception. Also, the outer tier relies on a creative concept introduced to the project management discipline - the existence of saturation points to set the link between soft skills and hard skills in this discipline.

Belzer (2004) identified the missing link between soft skills and project life cycle as; not many project fail because of hard skills such as Gantt charts/PERT/CPM as they are not adequate but because of managers inability to practice the appropriate soft skills such as effective communication, work within organizations' culture, team motivation, stakeholders management and understanding business objectives. This would make soft skills crucial for successful project management in IT industry. Also, Sukhoo et al (2005) realized as IT projects have a high failure rate, it is imperative to integrate soft and hard skills in order to improve project management disciplines through its methodologies. Furthermore, activation of certain soft skills must happen at the right time. For example, communication skills are extremely important at executing, controlling, and closing phases while they are less important in the initiating and planning phases. Another example is how flexibility and creativity skills are important at initiating, planning, and execution phases while they are less important at controlling and closing phases. Sukhoo et al (2005) were able to map ten main soft skills factors over a project's life cycle.

Improving soft skills attributes for project managers might appear as a necessity to improve methodologies of project management in order to increase the success of projects, but this is beyond the scope of this study. In addition, it is not within the goals of this study to encompass all possible soft skills factors that might have an effect on project success. However, factors considered in this study set up a frame of reference and conduct an analysis necessary to validate the presented model, as well as, the concept of the existence of the saturation points. Primary evidence has been derived from the quantitative analysis; also, it has been supported by qualitative analysis through two case studies, from which emerged another supportive model for the main model.

Research questions

The following set of questions is what this study set out to answer:

1. Is there a relationship between soft skills and project success?
2. If such a relationship exists, does it depend on the set of soft skills factors used?

3. Furthermore, is there a point in practicing soft skills where efforts at that point would make up the best balance between hard and soft skills?
4. If such a point exists, what is the effect of practicing soft skills beyond this point?
5. Is there a way to find that point?
6. Moreover, is there a way to measure the effect of soft skills before and after that point?
7. What are the units of measurement of soft skills and project success?
8. Do these units belong to different dimensions?
9. If they do, is there a way to transform them to a unified dimension in order to anticipate the effect on project success through the amount of soft skills exercised in the project?

Aims and objectives

In order to increase chances of a project's success, there is a need for further research on soft skills and to measure its effect on projects. This study aim is to setup the basis of reasons as to why soft skills should be brought into the formal project management discipline. Having completed this aim, it would open up an opportunity for soft skills to be shifted into quantified measures. Accordingly, project managers would have the tool to employ their soft skills and interpersonal skills to increase the chances of a project's success. This study approaches this aim through the following objectives:

1. Providing evidence that there is relationship between soft skills and project success.
2. Providing evidence of the existence of the alleged saturation point.
3. Providing evidence that the saturation point depends on a selected soft skills set used in projects.
4. Illustrating there is a chance of finding a way to shift soft skills from unquantified to quantified measures.

By achieving these objectives, sufficient evidence will support the suggested model presented in this study.

Scope of work

The scope of this study is limited to its aim and objectives. It has no intention to show, nor does it suggest, how to acquire soft and/or interpersonal skills. This study examines soft skills and project success on a theoretical basis. The hard skills section shown in Figure 7 (Soft Skills and Hard Skills saturation points success model) is presumed, for the sake of this study, to be satisfactory; for example, there exists a best mixture of hard skills that can be formed in order to achieve the best effect on projects.

The soft skills factors used in this study can be considered as a subset of soft skills in general. The selection of these factors comes from the researcher's belief that they are sufficient to bring the evidence for the aims and objectives in this study. Moreover, interpersonal skills which are basically related to the person are not investigated. Some examples of such interpersonal skills are creative thinking, integrity, and sense of humor.

It is not meant to be a comprehensive literature review of soft skills and project success factors. But instead, it is meant to illustrate the existence of a different point of view for each factor. Accordingly, some points of view might be intentionally/unintentionally rolled out.

Chapter 2

Literature review

Despite the fact that soft skills are important for project, there is little effort made in literature to deal with it in a systematic arrangement. Most project management educational material deals with this subject briefly. Also, the majority of the studies tend to be in the hard skills handling. However, studies in topics with a relation to soft skills are there. An example of this can be found in leadership, culture, communication, and negotiation. This gap in the literature might suggest the topic of soft skills has not yet been conceptualized. No consensus exists on its definition or its meaning. However some researchers have used alternative terms in an attempt try to fill this gap. Joseph et al (2010) used the term “practical Intelligence” as a primary concept in trying to provide a better understanding to soft skills in the IT industry. The term “practical intelligence” is a common phrase in the psychology discipline. Along with it, there are considerations of understanding the nature of intelligence theories (Sternberg et al, 2000).

Scholars look at soft skills from different perspectives. In psychology, they researched human behavior (behaviorism) and from there moved to cognitive psychology to address the subjects in a more informed and scientific way. For example, psychologists Muzio et al (2007, p. 31) agreed that soft skills can compensate cognitive intelligence, while in the study of sociology these scientists address individual and group topics. Sociologists branched into different fields such as cultural, industrial, political, work settings, and many more. All of these diverged studies are built around the human as being the hub; the basic element that forms the groups’ dynamics. Not far from this, organizations are interested in how to improve their behavior through understanding their basic building blocks in order to achieve their strategic goals. Accordingly, human resources entities in organizations play a vital role in shaping these basic building blocks (individuals) by adapting methods and theories to bring positive effects on board. For instance, El-Sabaa (2001, p. 4) ranked human skills as the most important while technical skills ranked as the least relevant to a project’s success. In other organization entities their concern is to adapt

practical means to complete their missions. No matter what perspective the researchers come from, they cannot avoid individuals' concerns. This is because all issues involve directly or indirectly individuals as a basic element. The previous argument looks to hold true unless an imaginary setting of robots can be established where each and every action is preprogrammed. This might be beneficial in automation industries such as production lines and computer automated services. However, our frame of reference is about bringing the positive effects of individuals' skills into applied methods set by organizations in order to be successful. More precisely, it is about bringing in the positive effects of soft skills to a project's success.

Starting with definitions, the term "soft skills" could not be found in dictionaries such as Merriam Webster and the Cambridge Advanced Learners Dictionaries. Some people differentiate between soft skills and interpersonal skills; interpersonal skills deal with the concern of oneself.

From her book, Verma (2009) defines soft skills as:

"Soft skills are people skills backed by our emotional intelligence that help us behave in a socially acceptable manner and adapt ourselves in a social environment so that others are comfortable in our company and vice versa." Moreover, she continues her argument concluding with the following equation:

$$\text{IQ (Intelligence Quotient) + EQ (Emotional Quotient) = Soft Skills}$$

While the above equation might carry some truth, it is not difficult to argue against it. As IQ is a quantified number EQ is not, the summation in between is questionable. Moreover, if a hard equation is set, it is better to consider the unit of measurement. But, at the same time it is an interesting equation for researchers to consider quantifying EQ and soft skills.

PMBok Guide (2004) identifies soft skills as interpersonal skills. It lists interpersonal skills as Effective Communication, Influencing the Organization, Leadership, Motivation, Negotiation & Conflict Management, and Problem Solving.

One benefit conceived from a variant definition for “soft skills” is to acquire the unexpressed understanding of it. This would be important features for non-scholars to form an acceptable understanding as perceived by them, while for scholars, they may adapt or set their definition for this loosely defined term.

Herewith we look at our literature review where only a subset of traits is dealt with, being those inborn or those affected by what surrounds us; namely communication, leadership, negotiation, and conflict management traits are considered. While there are many more traits that can be added to our set of soft skills traits, we found the above named traits are commonly accepted as having the most effect in projects success.

Communication

Communication is widely perceived as a form of exchanging information/data and thoughts through mediums such as, verbal, written, visual, or a type of behavior. Figure 1 is a model of a communication process adopted from PMBoK Guide (2004). It has the following components:

Sender: the party who encoded the message.

Receiver: the party who decodes and perceives the message.

Medium: indicates the means of conveying the message.

Feedback-Message: indicates feedback from the receiver to the sender and is about the original message. Also, it might hold new information making the receiver become a sender, not necessarily following the same medium of the original message. This cycle continues till the “Noise” is eliminated or minimized.

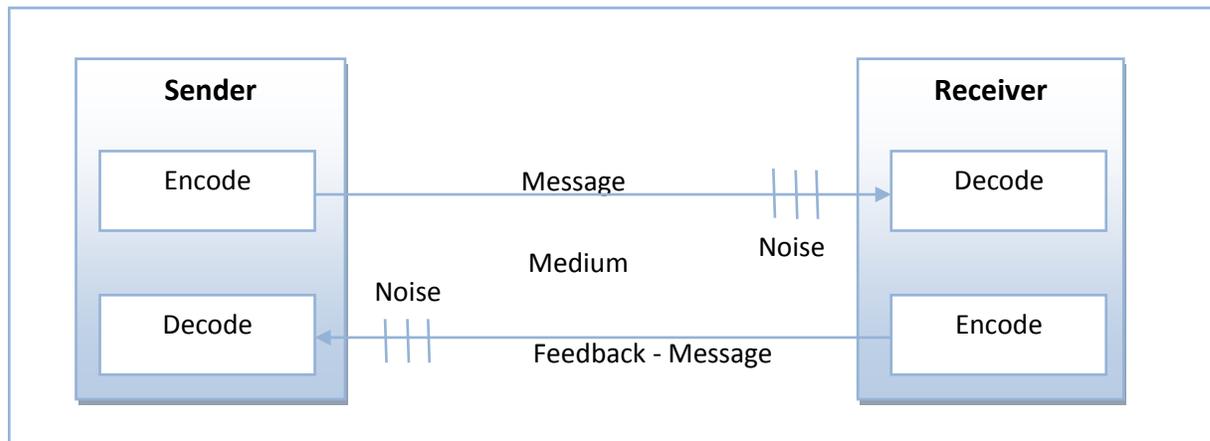


Figure 1: Communication – Basic Mode. (PMBok Guide, 2004, p. 224).

While this model appears simple, it is not so when misunderstanding occurs. Problems happen when misunderstandings in a communication process happen within an organization. DuBrin (1990) views communication as a transaction occurring between a sender and receiver, with his model indicating something about both communicating parties at the time of communication. This is known as transactional analysis (TA) which was originally used in the field psychology and psychotherapy. In this model the communicating parties take on one of the three ego-states; these are Parent, Child, and Adult. In the parent state, the person displays behaviors such as righteousness, protectiveness, or any other parental behavior he/she was influenced in their childhood. In the child state, the person displays behaviors characterized by him/her at the time of childhood. Examples of this are reliance, silliness, irrationality, or even creativity. Finally, in the adult state the person takes the rational approach and uses analytical thinking skills. Figure 2 shows examples adapted from McKenna (2006) of communication stands between a boss and subordinate. When the sender's message and its response follow the same route, it is called complementary, otherwise is called crossed.

In complementary transactions, it is expected that homogenous communication will occur, not necessary without conflict, but that the communicating parties implicitly agree to a setup where they are both willing to work through the communication process. In contrast, the crossed transaction pattern starts with no such agreement to agree to communicate between

communicating parties, or at least that one of them does not agree. Accordingly, if the crossed pattern is active at all times in a conversation then it is likely an undesired transpire. One might be able to argue that an adult-to-adult transaction is most likely the best scenario in its ability to produce productive results in dialogues. Hence, this type of adult-to-adult transaction should be applied when resolving conflicts. In total, there are eight possible combinations in the Transactional Analysis model. All of them need to be studied with evidence of their intuitive appeal being considered; however, there is a lack in evidence to show their validity (McKenna, 2006). Transactional Analysis is worth mentioning as it is relevant to soft skills communication.

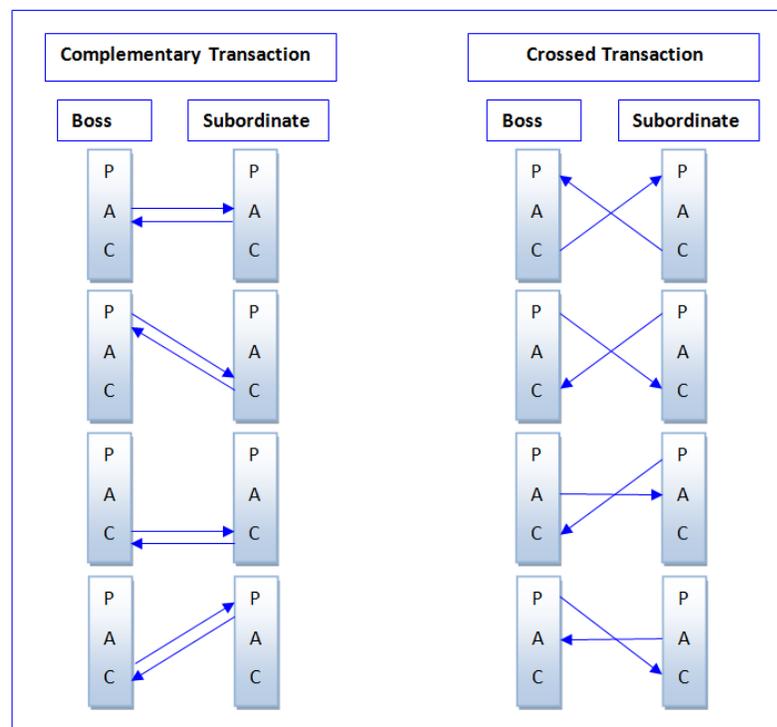


Figure 2: Examples of communication as a transaction. (McKenna, 2006, p, 177)

Barriers of communication

There are number of issues which may prohibit effective communication. Researcher Shrivastava (2012, p. 11) identified nine categories of communication barriers; namely physical, perceptual, emotional, cultural, technological, language, gender, interpersonal, and noise.

In referring back to the communications – basic model in Figure 1, Noise, Encoding, and Decoding events can cause a problem for communicating parties if these events are not at a level that does not cause interference when communication exists. Moreover, communication ineffectiveness might arise from sender, receiver, message, or with any medium which too will cause interference in communication between parties.

Noise: This can be a physical sound such as an excavation noise near a classroom. Sickness and extremes temperatures are also examples of physical noise. Noises based on sense, such as visual or hearing impairments can also affect communication. Moreover, noise can arise from within a person (Shrivastava, 2012, p. 12); examples of this are psychological noise, such as beliefs, a set of principles, favoritism, and the need of belonging to a society.

Encoding/Decoding: These events are highly dependent on the sender and receivers' capabilities and skills. Language, symbols, and words used might affect these events. When communicating parties belong to different cultures, difficulties in understanding the implicit or explicit meanings of the message can exist (Shrivastava, 2012, p. 13). Also, analytical thinking skills might lead to informed decision making arising out of the dialogue.

Message: Too many or too little information in the message might cause a problem in the communication cycle. Jargon words, special symbols, and the subject context could affect the intended meaning of the message especially if they are not appropriate.

Medium: The communication medium might be direct where communicating parties exchange verbal and nonverbal messages such as body language. Also, it can be electronic and in the form of emails, faxes, and texting where the network capability has a major effect. Furthermore, physical proximity matters (Berge, 2013).

Sender and Receiver: One's background, education, and analytical thinking skills can also determine the effectiveness of communication. For example, managers who can see the gray area might face a difficulty to convey the right message to their technical IT staff as the latter might only see in black and white. In addition, some people cannot put themselves in other people shoes and cannot determine from where they are coming in their argument.

Improving communication

Eliminating obstacles of communication will improve and make it easier to communicate. Yet, in adopting some best practices in a communication plan greater successes will ensue. For example, Shrivastava (2012) created a conceptual framework to comprehensively address communication barriers. However, it is not good enough to only create a communication plan; there is also a need to train others to meet its needs, especially the project team. An example of a direct improvement could happen with the development of positive communication skills being adopted. An indirect improvement would happen if this positive change resulted in better communication between divergent cultures. Working on improving communication at the organization level is done to a larger scale than working at the project level. However, because of the uniqueness of each project, it is possible to exploit it to improve communication. Considerations at the time of structuring a project, such as team selection and building, can be vital for effective communication. Also, enforcing best practices, such as active listening in afterward endeavors, could increase chances for effective communication.

Leadership

Some scholars differentiate between management and leadership and consider them two different topics while others use the terms interchangeably (McKenna, 2006). How someone argues this point depends on the definition of each term. However, because no consensus of definition exists for these terms then it makes it difficult to create a firm division between the terms. Also, it is easy to argue that at the start of a project, the project manager should decide if he/she is a project manager, project leader, or if he/she is a combination of both. This knowledge would depend on his/her perspective of these two terms. In order to view the value of leadership skills for project managers, it is necessary to explore relevant theories and models. Linking this to the project manager authority, power, and accountability will shed the light on the area of his/her soft-skilled role. Accordingly, if such a skill can be improved upon added value will occur.

Great Man Theory

This theory assumes that a leader is born, not made, arguing that leadership traits are a part of a leader's genetic makeup. When history demands a great leader, then a leader is produced. Organ (1996) defends this theory as he argues, "To suggest that leaders do not enter the world with an extraordinary endowment is to imply that people enter the world with equal abilities, with equal talent." This argument has some validity to it with its concept that some are born with an innate ability to be a great leader; but it does not imply that people have equal abilities and talent – this we know to not be true. For our scope of this work, we do not suggest project managers need to be leaders by their nature, but if they sense they have a gift of leadership then they should search for ways to utilize it. However, the question still remains if leaders are born or made.

Trait Theory

Trait Theory assumes that the traits of a leader are inherited. A collection of traits which are a good fit for leadership make a good leader. To some extent this theory overlaps the Great Man Theory as both relies on biological factors, genes, as determinants of greatness. Some researchers have tried to identify and categorize these traits. Schafer (2010) identified twelve personal traits and habits that are most effective in a leadership capacity, namely, and in descending order from most to least efficient as:

1. Honesty and integrity
2. Caring for needs of employees
3. Strong communication skills
4. Strong work ethic
5. Approachable and willing to listen
6. Taking responsibility
7. Making sound decisions
8. Fairness
9. Competence to perform duties

10. Flexibility and innovation
11. Knowledge of work environment
12. Ability to delegate

On the other hand, these same findings identified personal traits and habits that are inefficient for leadership as, namely, and in descending order from most to least inefficient as:

1. Ineffective communication
2. Neglects needs of workers
3. Questionable ethics and integrity
4. Poor work ethic
5. Inability to delegate
6. Failure to act
7. Unwillingness to change
8. Belief they know everything
9. Poor comprehension of job
10. Unwillingness to compromise
11. Inability to accept criticism
12. Lack of focus

As their research was limited to police settings the results might vary in non-police settings. Other researchers, Belasen & Frank (2008), linked leadership traits to the Competing Values Framework (CVF) which is basically a framework to identify an organization's effectiveness and how leadership traits affected these results.

This theory lacks proof and implies people's traits are engraved in their genes; this implies they have little choice to change their behavior. It is, however, not uncommon to see some people change parts of their behavior.

Behavioral & Role Theories

Behavioral theory assumes leaders are not born but can be made. Leadership behavior can be acquired through a learning process. Role theory is part of behavioral theory. This theory assumes that people define their behavior according to the role they play. This implies people define different behaviors according to their perspectives. Maybe this how the managerial grid, later named leadership grid, came about; as Derue et al (2011) predicted, the effectiveness of leadership criteria exists through the integration of popular traits and behavioral perspective. One useful application of role theory concept is found in a service encounter; here Solomon et al. (1985) realized the importance of role theory to develop general principles that can be applied in the service sector setting thereby eliminating the need of considering each service provider as a unique experience. Also, Broderick (1998) studied this theory in the context of improving the service provider role in market service sector.

Leadership Grid

A well-known theory developed in 1964 by Robert Blake and Jane Mouton, as per Pheng & Lee (1997), is the leadership grid. Blake and Mouton concluded this grid can be used by PMs to solve different issues which may occur during any project. Apparently, the grid suggests that leaders can move completely or partially from one cell in the grid to another. This happens according to their perspective of their role. Accordingly, it is not appropriate to judge which one is better. The appropriate style depends on other interrelated factors such as culture and industry. It is not uncommon for a PM to be responsible for/to managers, leaders, and stakeholders, making this leadership grid a valuable tool to shape needed soft skills versus certain styles.

Figure 3 shows cells where the leader can be:

First, a Country Club style leader who shows high concern about people and low concern about tasks;

Second, an Impoverished style leader who shows low concern about tasks and people;

Third, a Team style leader who shows high concern about tasks and people;

Fourth, an Authority style leader who shows low concern about people and high concern about tasks;

Finally, a Middle of the Road style leader who shows medium concern about tasks and people.

Concern of People	High	Country Club		Team
	Medium		Middle of the Road	
	Low	Impoverished		Authority
		Low	Medium	High
	Concern of Task			

Figure 3: Leadership grid. (Pheng & Lee, 1997, p. 386)

Negotiation

Negotiation is a topic business management uses in persuasive situations. Examples of such situations are requests for resources, negotiating prices with suppliers, distribution responsibilities, and making risky decisions. Sometimes PMs find themselves in need of following certain negotiation tactics in order to accomplish a project's tasks. Hollindale, Kent, and McNamara (2011) noted there are 28 negotiations tactics. Interestingly in their study the participants could only come up with few tactics from their experience even though the researchers identified 28 from this same study. These tactics should work but PMs should not limit themselves to the tactics they come to know from knowledgeable resources. Simply, they can use their own customized versions of any negotiation tactic. However, care should be taken when exercising certain tactics, especially those embedding deceiving-like performances. Stefanidis et al. (2013) studied cross-cultural factors in ethical negotiation, and while there is near consensus of accepting ethics as doing the right thing, Rivers and Lytle (2007) indicated that ambiguity in some situations exists and this depends on the cultural factor. An example of such a situation is gift giving; in some cultures it is not ethical while in others it is considered as an Ethically Ambiguous Negotiation Tactic (EANT). Accordingly, it would be more appropriate to

say that what is ethical here is decided upon by a certain frame of reference/situational variables. The researchers showed an interactional model containing four situational variables for a negotiator to consider when making an ethical decision. There are namely, organizational goals, organizational code of ethics, legal environment, and perception of the other party. As unethical behavior might create an adverse effect on negotiation results, those who choose to use EANT need to calculate the risk of such an effect. Volkema and Rivers (2012) researched risk based on a framework of understanding motives of ethical negotiations. This is because predicting these motives by means of individual attributes produced mixed results when using EANTs. Figure 4 shows four negative-risk quadrants relative to the view of long/short relationships and long/short goals. Firstly, when the concern is about short-term goals, the risk is failure to reach an agreement and consequently goals are not met. Secondly, when it is a planned short-term relationship, the individual's and organization's respect and reputation are compromised. Thirdly, if parties want to bond with long-term goals in sight, then this behavior might create a loss in future business due to legal situations. Finally, when a negotiation tends to consider long-term relationships, a limit in the growth of business network might be hampered.

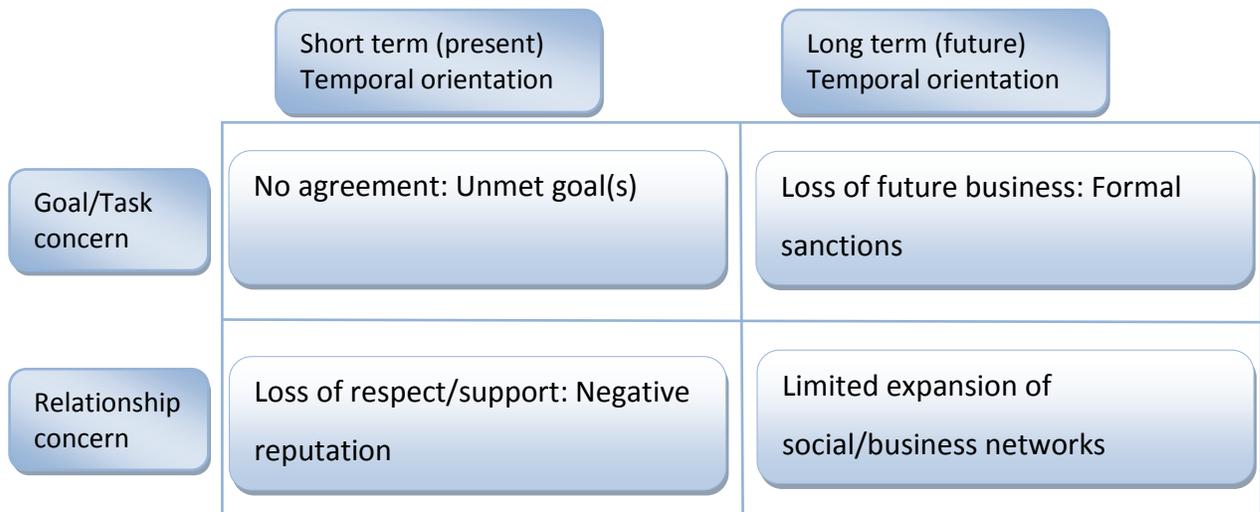


Figure 4: Perceived negative risks of unethical behavior in negotiation. (Volkema & Rivers, 2012, p. 387)

The grid tends to draw strategic approaches in negotiation. Moreover, many questions arise, such as what is the preferred order to optimize negotiation benefit? From a PM's perspective, negotiation can be viewed as a goal driven process which indeed by definition is a goal-driven

process which requires at least two parties (Volkema & Rivers, 2012 – citation by Thomson, 2009). So, why do PMs care so much about future risks, which are likely to occur after a project's closure? Maybe such questions bring up the idea of integrating soft skills with strategic objectives and hence augment a PM's responsibilities or alternatively, organizations can practice governance on the PM's negotiation orientation. In the absence of such options, the PM will embark on a tactic/process to achieve negotiation goals and try to mitigate risks involved.

It is not uncommon that negotiations sometimes reach undesired results and accordingly tasks completion become questionable. This might drive a negotiator to not want to negotiate but instead to start looking for alternatives, such as searching for sources of power/empowerment to practice situational power on other parties. Indeed in the absence of a realistic motive for negotiation, the process becomes fragile and the likelihood to fail increases. Greenhalgh, Neslin, and Gilkey (1985) stated "Social psychologists have recognized the importance of negotiator utilities. For instance, it is acknowledged that both tangible issues (e.g., money) and intangible issues (e.g., face-saving) may be at stake in a negotiation." Hence, it makes sense for PMs to revisit their abilities to negotiation, taking sources of power into consideration. Dobrijevic, Stanisic, and Masic (2011) list sixteen sources of power that can be used in negotiation. Part of this list can be used for internal negotiations, and usually encompasses negotiations with peers, subordinates, and superiors. An example of such a negotiation style is when a demand is made for resources. The other part that can be used for negotiations is with external parties. It seems being more/less powerful than the other side makes a difference as to which sources of power can be used. An example of this is through external negotiation for negotiating supplier related issues. Among the sixteen power resources, not to exhaust the whole list, mentioned are:

1. Need: The greater the need in wanting to negotiate, the more power you give to the other side.
2. Authority: Organizational power, the perception that the leader has the right to ask for it.
3. Credibility: Tangible proof of a former success record gives you more negotiation power.

4. Perception: You will obtain power if the other side thinks you have more power than what you really have.
5. Information/Knowledge: The more information you have about the other party, the more power you get.
6. Material resources: The form of control over resources, such as, budget, man work power, information processing and procedures.
7. Relationship: When negotiators preserve quality relationship with others they create relationship power.
8. Elegant solution: As it is one of the negotiation tactics, it gives the negotiator the power to influence the other party by providing an elegant solution to the problem or to the conflict in-between.

Their research results found that Need is the mostly used source of power in all work settings. Credibility and perception follow closely after. Also, the research found that Authority, Material Resources, and Need are primarily used as sources of power when negotiating subsidiaries. Moreover, Need, Knowledge/Information, and Credibility are primarily used when negotiating with superiors. In addition to that, peers seem to use Relationship and Need. Not trying to make generalizations, but negotiators should consider sources of power that would lead to a successful negotiation process.

An interesting source of power mentioned above is the elegant solution which assumes providing an acceptable solution to the problem or conflict on hand. While negotiation does not mean there is a problem, conflict does, which is our next topic in our literature review.

Conflict Management

Almost everyone has a certain perception, not necessarily identical, about conflict which usually involves words such as problem, disagreement, attitude, and resolution. As it is not uncommon to happen in our daily life, conflict is inevitable in any organization due to the inherent differences in the perception of each individual (Al-Tabtabai & Thomas, 2004). In the Collins dictionary conflict is defined as:

1. A serious disagreement and argument about something important. If two people or groups are in conflict, they have had a serious disagreement or argument and have not yet reached agreement.
2. A state of mind in which you find it impossible to make a decision.
3. A serious difference between two or more beliefs, ideas, or interests. If two beliefs, ideas or interests are in conflict, they are very different.

In the Merriam-Webster dictionary it is defined as:

1. A competitive opposing action of incompatibilities: antagonistic state of action (as of divergent ideas, interests, or persons).
2. A mental struggle resulting from incompatible or opposing needs drives wishes, or external or internal demands.

According to the BMBok (2004) it is described as Negotiation and Conflict Management at an interpersonal skill, "Conferring with others to come to terms with them or to reach an agreement." McKenna (2006) accepted the definition of conflict as "a process that materializes when an individual or group is frustrating or about to frustrate, the attempts of the former to attain a goal." Several researchers conducted their research about conflict with no concise definition, leaving them with the conclusion that the term has not clear meaning. Consequently, these researchers moved to study different aspects of it; these being conflict sources, its types, managing conflict, and designing system to resolve it. Indeed, designing a system with features to resolve conflict that will provide an outstanding outcome on basis of interest and rights is the most influential idea nowadays when it comes to the conflict management topic, (Roche & Teague, 2012). It seems many researchers agreed on the need of studying conflict because it is part of organizational life (Barki & Hartwick, 2001). Many different behaviors can be detected in an organization at the time of conflict with these different feelings like anger sometimes being expressed through shouting. Dispute resolution system (DSR) characteristics in organizations could have certain effects on individuals' behavior (Bendersky, 2007).

It is not necessarily the case that conflict results in only negative outcomes. Some argue that conflict can have a positive and negative impact on the workplace. It depends on how it is handled and the degree of satisfaction of the outcome (Verma, 1995). But to what extent conflict and individual/group behavior are affected by each other is a continued study. In the Information Systems Development (ISD) field, Barki & Hartwick (2001) believe that conflict has a positive effect on ISD while the negative effects of it on an interpersonal level are not considerably mitigated, i.e., the final outcome is perceived to be negative regardless of how it has been handled or resolved. Moreover, they specified four conflict dimensions; these are interdependence, disagreement, interference, and emotion. Parallel to these four dimensions, questions have been asked:

Firstly: About how to define interpersonal conflict and how it can be assessed.

Secondly: About the relationship between interpersonal conflict level and the different styles on conflict management.

Thirdly: About the effect of the interpersonal conflict level along with conflict management style on ISD projects outcome.

First Dimension - Interdependence: It exists when the objective of one party's attainment depends on some action of the other party. However, many interdependent relations exist between parties without conflict, which means interdependence is a necessary condition for conflict but not a sufficient one.

Second Dimension - Disagreement: Basically this dimension builds the perception about the conflict definition starting with the idea of how it can be assessed. They believed disagreement alone is not a necessary condition for conflict to occur; usually when disagreement points are inconsequential and having no dependency on them.

Third Dimension - Interference: It exists when one party tries to oppose the attainment of an interest or goals of the other party. It is inferred from this property that it works as an igniter of the conflict.

Fourth Dimension - Negative Emotions: As a consequence of behaviors that produce conflict, negative emotions might emerge. These emotions in turn increase the intensity of the conflict, especially when parties take personal stands and lose rationale.

The negative emotion property looks like a consequence of conflict, though researchers considered it as part of a conflict's dimensions. By taking a closer look, one can argue, if negative emotions were existed at the beginning of the affair, it might work as a helping factor for conflict to emerge. It is possible for negative emotions to be carried from a previous experience onto the next. Knowing this, a PM should take care to eliminate any negative emotions inherited from previous projects, trying to pull strings of harmony together. If conflict has to occur, it should occur for the right reasons.

Returning to the definitions of conflict, researchers have combined the four properties in one statement, defining it as "a phenomenon that occurs between interdependent parties as they experience negative emotional reactions to perceived disagreements and interference with the attainment of their goals."

Project success

Projects by definition are unique (PMBok Guide, 2004). This implies that projects might generate different experiences for PMs and stakeholders. Consequently, different stakeholders see from different angles of interest which in its turn generate different points of view. What this results in is the findings by Aaron et al (2001) who developed a multidimensional framework for assessing success in projects; they showed how different dimensions mean different things to different stakeholders at different times and for different projects.

It is not uncommon to note that some practitioners in this discipline see success in projects limited to three or four well-known factors; namely time, cost, scope, and quality. There are many studies in research about project success which are focused on different perspectives. For example McLeod, Doolin, & MacDonell (2012) concluded from an analysis of a case study that different stakeholders build their evaluation of project success based on the expectation of

the project. Moreover, the context which is basically consists of time, place, and organizational role and requirements shape the stakeholders' expectations. Researchers in general tend to differentiate between project management success and project success. Sudhakar (2012) considered success in managing projects as one of the critical success factors for project success. Moreover, the researcher identified eighty success factors grouped into seven categories. As their study was specific to software development they emphasized that it can be customized to other industries. At the same time, the researcher pointed out there is no universal success factor that exists for all projects. Maybe this is how the proverb "Success is one of the names of God" came to be (Ika, 2009, p. 6). The mindset in literature shows that the project success topic is vast and varies between subjectivity and objectivity. Who is measuring success matters, as does considering the context, industry, and environmental variables that have been considered in evaluating the project's success. It is encouraging to assemble all of these evaluations under one generic approach. The following generic approach is borrowed the analogy of set theory in mathematics. If we hypothesize the universal set of success factors, call it U then, it has three subsets. Firstly are the critical success factors set. Secondly the non-critical success factors and thirdly the project management success as a standalone set. A project is considered a success in two ways:

- 1- If it satisfies the success of the universal set U.
- 2- If it satisfies a model X constructed on U or if it satisfies a subset of U accepted by the model.

U = {Critical success factors} UNION (Non-critical success factors) UNION {Project Management Success}.

Success in Project = success in U or success in a model constructed on U.

Near to this understanding a pictorial representation, Figure 5 by Sudhakar (2012, p.539) shows a general understanding of the meaning of project success. The researcher accepted that project success can be determined by involvement of two main components: project management success and product success.

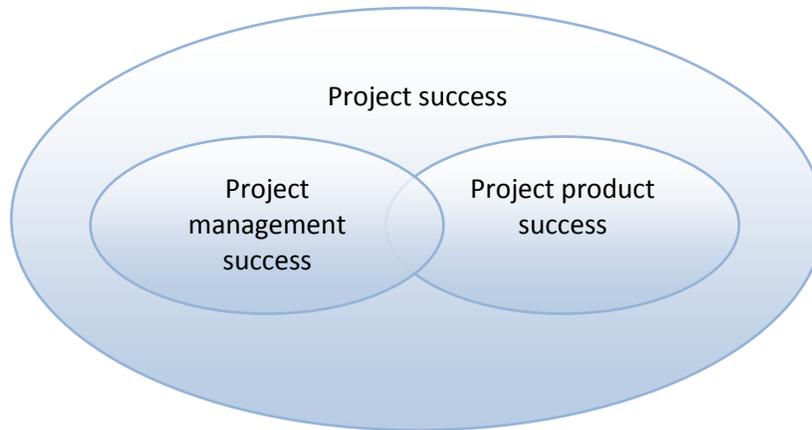


Figure 5: Meaning of project success. (Sudhakar, 2012, p. 539).

Relying on the above two arguments in understanding the meaning of success, it is not necessarily to achieve perfection in success because it involves a mixture of subjective and objective perceptions.

On the other hand, failure in projects has a stake in research. For example, Standing et al. (2006) studied causes of failure and found many reasons of why failure exists in IT projects. The top five sources are:

1. “Lack of user support and involvement”: Software Development Life Cycle (SDLC) has a user requirement section in which an analyst determines what is required to be developed or customized according to user needs. This is because users are the real workers on the produced system. A well-defined requirement document addressing users’ needs and expectations puts users in the comfort zone and this likelihood minimizes the possibility of doing major changes on the final product. On the contrary, the absence of such a document or a poorly defined one could lead to an undesired product. Also, it is not uncommon in SDLC to have the prototype of the product to assure users’ satisfaction. This type of effort requires as a part of its concept to open a communication channel with users.
2. “Lack of properly defined project scope”: a necessity in project management practice for which the major goals of the project are broadly stated and the non-goals of the project are put out of scope. Failure to do this might leave some stakeholders misinformed and put

them in a different expectation zone. When trying to deliver the project these stakeholders become disappointed and are consequently unsatisfied.

3. "Lack of executive management support and commitment": This is relevant to empowering project managers and providing them with adequate ambient to perform fairly well in terms of efficiency and effectiveness, as well as, to keep up project momentum. Failure in having this kind of support might lead to many undesired consequences. For example, it might cause project managers to suffer inertia, which basically has direct negative effect on the project's progress.
4. "Imprecise defined objectives and knowledge of the IT project": Apparently, imprecisely defined objectives can lead to confusion about what to deliver. If this impreciseness comes from a lack of knowledge of the IT project, then this is a gap that should be filled with proper expertise.
5. "Poor project management and leadership": This fits with Thamhain (2004) who concluded project success is not random; a good understanding of organizational dynamics would enable project managers to better integrate amongst the project team which in turn requires sophisticated skills in leadership, administration, organization, and technical expertise.

Other factors identified by Latendresse & Chen (2003), in no specific order are:

1. Project size and complexity: They reported that 50% of large projects fail and this is 75% higher than other projects. They endorsed that the curve of failure goes up as the project size increases because they become more complex and harder to control. They believed the larger the project the more important the business standard should be followed.
2. Communication: They shed light on understanding what happens between the IT business unit and other business units, as well as, how to speak different languages. Related to communication, the lack of user input might occur because business units are often not consulted. On the other hand, business units frequently change their requirements at a rate that affects resources of the IT.

3. Ineffective leadership and lack of a discipline: Without an organizations' leadership projects might easily be disrupted and hence lose their customer focus. Also, support must be strong to maintain the project. They must believe in the strategic value of the projects and pass it to the project team.

Usually projects' structures are derived from organizations' structure. Lechler and Dvir (2010) studied the effect of project structure on project success in two different cultures; namely, German and American cultures. The researchers argued that some organizational structures are more suitable for certain clusters. They categorized these structures into five clusters.

1. Project coordinator: The project manager performs as the coordinator for tasks within the organization. This way of job handling is applicable in any organization structure.
2. Supervised project coordinator: In addition to the coordination role of the project manager, he/she is administered or supervised by a helping feature, i.e., steering committee.
3. Autonomous project manager: In this type of structure, the project manager forms the project team as a separate entity from the organization. Moreover he/she has the authority to define and set goals of the project. Also, he/she has high authority to control and impellent the project. This structure is suitable for innovative product. An example of that is the Kittyhawk project by HP.
4. Supervised project manager: Instead of being a project coordinator, the project manager has the authority of implementing the project and at the same time he/she is administered or supervised by steering committee.
5. Autonomous functional project manager: Similar to autonomous project manager type, except that, the project manager does his/her role through the organization's functional managers.

Table 1 illustrates the relationship between project structure and project success in the German culture. Table 2 does the same but for the American culture. The researchers defined success in terms of efficiency, effectiveness, customer satisfaction, and business

results. Other than the project coordinator type, which scored the least success among all clusters, the clusters perform differently. Apparently, some structures show better performance than others in different cultures, which is basically the authors' conclusion.

	Means of Project Success Measures (German Sample)			
Cluster	Efficiency	Effectiveness	Customer Satisfaction	Business Results
Cluster 1	2.98	4.67	3.59	3.37
Cluster 2	4.54	5.53	5.35	5.09
Cluster 3	4.35	5.80	5.36	4.88
Cluster 4	4.11	5.47	5.01	4.75
Cluster 5	4.30	5.50	5.02	4.71

Table 1: COMPARISON OF SUCCESS MEANS ACROSS FIVE-CLUSTER SOLUTION for GERMAN SAMPLE. (Lechler & Dvir, 2010, p. 205).

	Means of Project Success Measures (U.S sample)			
Cluster	Efficiency	Effectiveness	Customer Satisfaction	Business Results
Cluster 1	3.1	4.3	3.9	3.7
Cluster 2	3.9	5.7	5.0	4.8
Cluster 3	5.1	5.9	5.3	5.4
Cluster 4	5.2	6.1	5.7	5.9
Cluster 5	4.5	5.4	5.1	5.1

Table 2: COMPARISON OF SUCCESS MEANS ACROSS FIVE-CLUSTER SOLUTION for U.S SAMPLE. (Lechler & Dvir, 2010, p. 205).

Figure 6, borrowed from PMBoK (2004), shows different organizational structures versus project characteristics. Apparently, the project manager should understand his/her organizational structure and link it to the possible project characteristics that can exist in such a structure. Consequently, he/she, in advance, should be aware of:

1. What level of authority he/she will get.
2. What to expect in terms of resource availability.
3. How the project budget is controlled and who controls it.
4. What role he/she should adopt.
5. What level of effort and time can be put by project management and administrative staff into the project.

All above the five points are a foundational start for the project manager. This then allows him/her a place to begin building their project's structure from.

Organization Structure Project Characteristics	Functional	Matrix			Projectized
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Who controls the project budget	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

Figure 6: Project characteristics versus organization structure. (PMBoK Guide 2004, p. 28)

Chapter 3

Methodology

This study uses quantitative and qualitative methods to illustrate the effects of soft skills on project success. For quantitative part of this study, the researcher relied on readings from 42 project managers working in Dubai in the United Arab Emirates. The researcher determined the factors of soft skills and project success along with mediating variables from the literature review. The breakdown below shows the factors of two main global variables: Soft Skills and Project Success. In addition, a Mediating Variable consisting of three factors has been selected as part of this study.

Variables

1. Soft Skills

Factors:

- a. Soft Skills Perception (setting frame of reference)
- b. Communication Skills
- c. Leadership Skills
- d. Negotiation Skills
- e. Conflict Management Skills

2. Project Success

Factors:

- a. Project Success Perception
 - i. Technical success
 1. Project manager (Iron quadrant; scope-time-budget-quality)
 - ii. Non-technical success
 1. Financial/Commercial
 2. Strategic
 3. Customer

3. Mediating Variable

Factors:

- a. Project Attributes
 - i. Project Size
 - ii. Industry
 - iii. Project nature
 - iv. Complexity
 - v. Stakeholders and their culture
- b. Project Structure
 - i. PM is a coordinator
 - ii. PM is supervised by steering committee
 - iii. PM has high authority (Autonomous structure)
- c. Project Stakeholders Mix
 - i. Stakeholders' behavior
 - ii. Stakeholders' attitude
 - iii. Stakeholders' position in organization

This literature review brought up these points directly or indirectly in order to show the different mindsets and perceptions about these factors and variables. This study follows the quantitative and qualitative methods in its approach to prove the conceptual model. In the quantitative section, a questionnaire of 40 items other than demographic items has been used to collect data about involved factors and variables. Also, the questionnaire provides an opportunity for to the participant to write comments after the set of questions have been answered. Some of this information can be used in a qualitative context. The questionnaire items were created by the researcher and reviewed in a brain storming sessions with two other work colleagues of the researcher. Likert's scale of five points has been used in this questionnaire; these being strongly agree, agree, neutral, disagree, and strongly disagree. There were eight items to determine demographic data and 40 items relevant to soft skills and project success factors, all of them about perception; for example, hypothetical questions used to ask

about hypothetical situations. This was done to allow participants a chance to add in their perceptions in the answers. It is important to understand that this study depends on perceptions in its quantitative sections while its qualitative sections depend on two case studies, non-perceptual.

The questionnaire was distributed and collected over the internet using Google Forms. It was distributed to more than 400 participants, their email addresses collected from a contact list of the researcher's; these basically being from business cards gathered throughout twelve years of working in his last place of employment. Only 45 participants completed the questionnaire, 10.5%. Three of them have been excluded because they selected one strait answer for all questions. The time cost to collect these 42 answers was about month and a half; from 27/5/2012 to 15/7/2012. Not all participants had a formal title such as Project Manager, but the researcher believes they still hold some accountability toward projects. Some of them were team leaders, IT managers, Developers and system analysts. However, it is believed their experience is relevant to the goals of this study. The researcher found no union or society for project managers in Dubai which made it difficult to collect readings other than the aforementioned way. The readings have been taken out from Google Forms and managed by SPSS software version 20.0.

On the other hand the qualitative part relied on two case studies originated from the researcher work setting in the XYZ stock exchange market. It is believed that these case studies have sufficient information to support the conceptual model intended to prove in the quantitative part. The researcher was directly involved in the projects mentioned in these case studies and he tried to eliminate emotions that could create bias.

In the qualitative part, the researcher followed the steps of grounded theory to analyze these two case studies. Inductive reasoning has been used to produce a model. This started with open coding then line by line coding, as well as the thematic approach, followed by axial coding. In axial coding seven corresponding categories found for each case study were followed by selective coding to reach some generic statements. Finally, a success model was built,

inductively, from what the researcher believed had enough support for the main ideas in this study.

Conceptual Framework

The framework introduced here depends on a sole idea which says every project has a saturation point that balances the efforts done by soft and hard skills and this saturation point optimizes the chances of project success. In other words, investing in soft skills efforts to increase project success chances after the saturation point is unjustified. Moreover, this saturation point is dynamic; it might vary according to the current phase of the project. One of the main goals in this study is to prove the existence of this alleged saturation point and consequently to illustrate its effect on project results in terms of success and failure.

Figure 7 shows an illustration of this concept. In the upper level it notes that the efforts paid in projects consists of two parts: hard skills and soft skills. Soft skills and hard skills, in their turn, consist of different skills. A selected mixture of each can be utilized to accomplish a certain activity. In the second level from the top, an effort from the project manager should be made to find the alleged saturation point all while taking into consideration his/her soft and hard skills that he/she is able to bring into play. Below the saturation points' level, the figure shows one type of project cycle. It is not the only type can be applied to this concept as the concept accepts different types of project cycles. This level can be viewed as each phase in a project being tied to, at least, one saturation point. In each phase the project manager should be able to estimate the position of the alleged saturation point relevant to the phase he/she is working in. As a matter of fact, the concept can be extended to consider the granularity of the project breakdown, sub-project, work package, and task level. However, the figure shows only project phases. Also, the figure shows that phases might overlap, but it does not address this here. Still, the concept accepts this overlapping between phases, although it might require certain skills to exist and be mastered by the project manager. For instance, project managers might find themselves having to do many things in a short time and not all of them are going to be able to switch their thoughts from one setting to another. Meeting with top management requires a

different mindset than meeting with technical engineers. In the bottom level of the figure, the model presents things as optimistic and therefore shows this phase result as success. Actually, success can be full or partial, depending on success criteria specified ahead of time by the project manager. If there are any other success criteria defined by another party, and not part of the project manager success criteria, this does not count in this model concept. What counts is the project manager's success criteria. Again, the conceptual success at this level might overlap as the project phases overlap. It is not meant to show it as one to one function, but it might occur this way. As a project progresses from one phase to another, success results reveal themselves, supporting each other in a sequential push until the project results are disclosed.

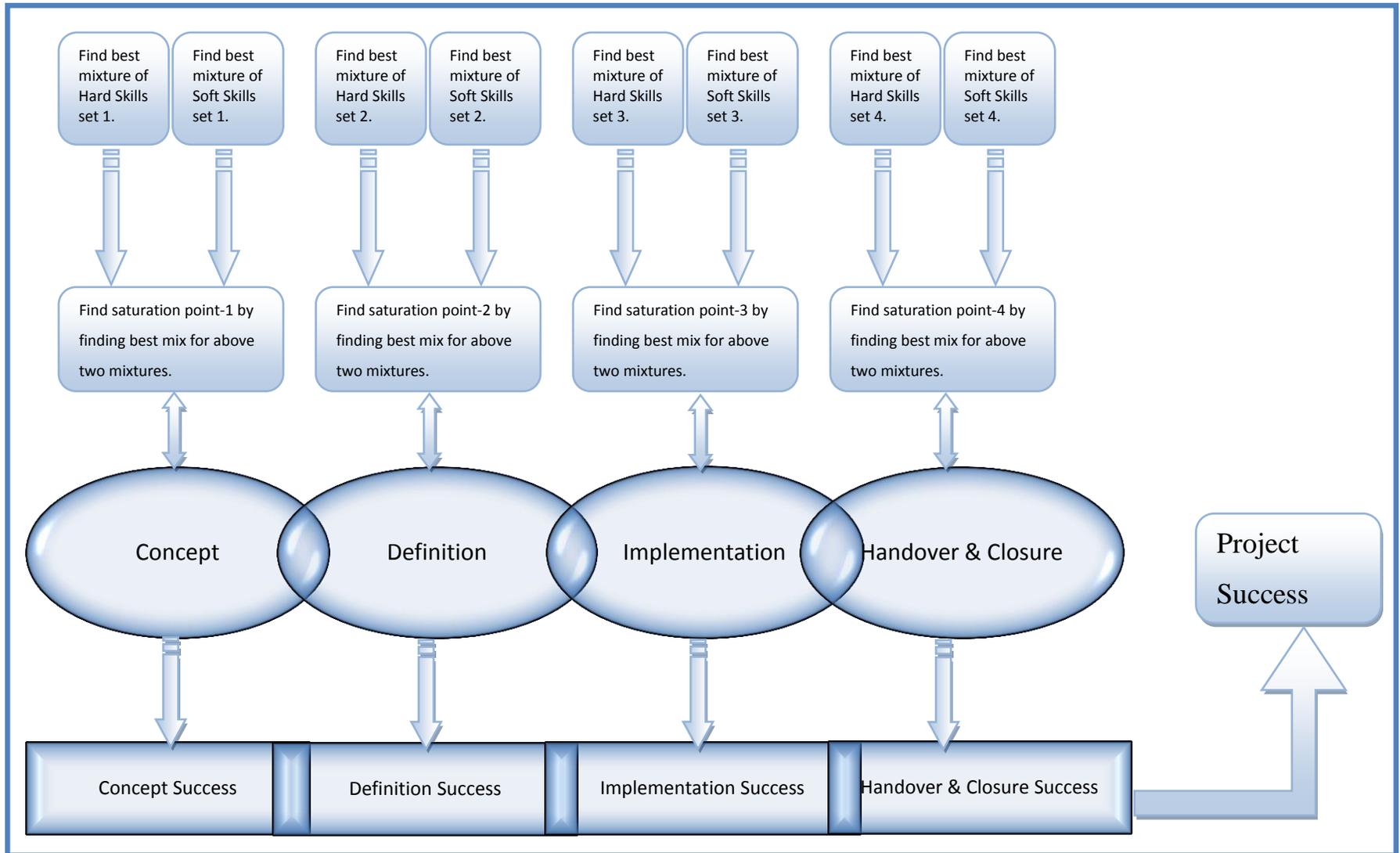


Figure 7: Soft Skills and Hard Skills saturation points success model.

Dependent, Independent, and Mediating Variables Relationship

Below Figure 8 describes a relationship model between Soft Skills variables, Mediating Variables and Project Success factors used in this study. All variables and factors in the figure are subject to the frame of reference of soft skills perception. This is because soft skills perception might vary from one person to another. This variety of perception allows the researcher to add/remove factors to/from the used factors in the relationship model below. The collection selected for soft skills factors consists of four factors: Communication Skills, Leadership Skills, Negotiation Skills, and Conflict Management Skills. Project Success is taken as a single factor, itself. Finally, Mediating Variables consists of three factors related to the project: Project Attributes, Project Structure, and the Project Stakeholders Mix. The figure shows an assumed effect that branch from Mediating Variables to Soft Skills factors as well as to Project Success. This assumed effect might vary the behavior of project managers in a certain project. For example, in large projects, it is not uncommon to see a lesser amount of soft skills applied. Also, the figure shows a direct effect for Soft Skills on Project Success. The latter one is always set as a dependent variable while Soft Skills is independent when the relation is set to Project Success and dependent when it set to Mediating Variables. Moreover, Mediating variables are always set to be independent and have dual effect on Project Success as well as on Soft Skills.

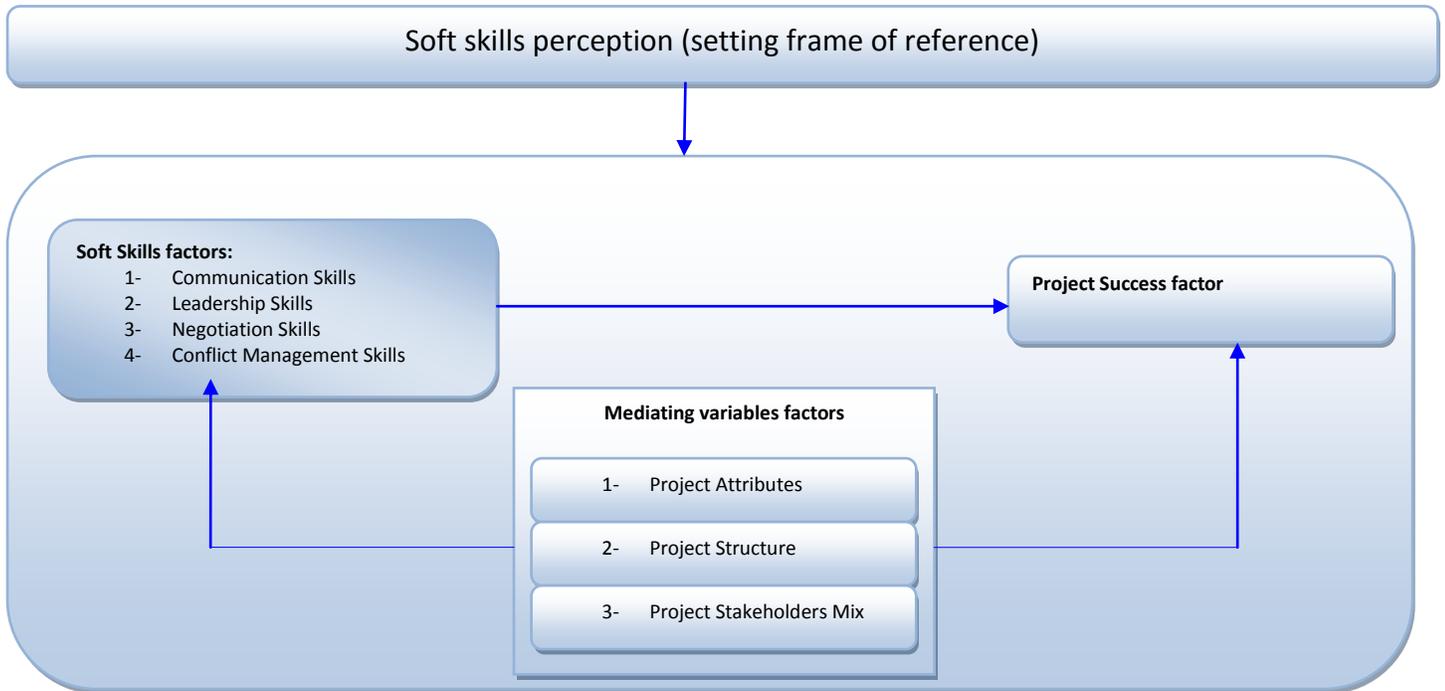


Figure 8: Relational model between factors

More on the concept

As seen in Figure 7: Soft Skills and Hard Skills saturation points success model., the project manager has applied the proper set of soft skills at each project stage in order to achieve success in that stage. This set of soft skills has dependency on project mediating variables. The accumulative success in each stage leads to project success on the project level which is met in the last stage: Handover & Closeout.

The illustrated success model has the following ideas in it.

1. Each project has the best mix of soft and hard skills, though only the soft skills influence is targeted.
2. The best mix between soft and hard skills can be achieved by identifying the saturation point between these two skills. The model is not built to find the claimed saturation point but to prove its existence.

3. Saturation point is affected by many variables, but in this study the following variables are considered:
 - a. Project size
 - b. Industry
 - c. Project nature
 - d. Complexity
 - e. Culture
 - f. Project structure
 - g. Stakeholders mix
4. Different saturation points can exist for different mixtures of soft skills.
5. Saturation points are not constant and they change as the project progresses. (Phases, work packages, tasks, and even milestones).
6. Understanding human behavior is a basic requirement for achieving the best balance between soft and hard skills, i.e., saturation point.

Chapter 4

Data

Demographic data

Table 3 below represents the general findings of the questionnaire. It is probable that the low response percentage of 10.5 could be due to the lack of motive and interest that came from the addressed group. On the other hand, it is also probable that those who responded did so in response to persuasion applied by the researcher. However, it is believed that 42 responses for such a study do not form enough readings and this is why the study uses the support of two case studies.

Organizations	Total count of distributed Questionnaires	Total count of collected questionnaires	Participants to distributed questionnaires%
Participants' Organization : Less than or equal to 42.	Distributed through soft copy to about 400 emails.	45; three discarded because they selected the same answers for all items.	Nearly 42/400 = 10.5%.

Table 3: Questionnaire distribution percentages

Frequencies

Table 4 below shows the demographic data frequencies collected for this study. Though the study focuses only on Dubai in the UAE, the majority of participants are NON-UAE, forming 81% of the total studied. The percentage of married participants is 73% and 69% of all participants are males. 59% of the participants are in middle management, 59% and fall in the age group of 25 to 35 years old. About 50% of all participants possess a Master's or higher level of education. Interestingly, it was found that participants' experience ranged from 2 to 7 years in their respective organization, with 43% of them having no formal certificate in the project management discipline.

Demographic Items	Mode	Mode Count	Mode%
Nationality	Not UAE National	34	81.00
Marital Status	Married	31	73.80
Sex	Male	29	69.00
Job-Level	Middle level	25	59.50
Age	25- 35	23	54.80
Education	Masters or above	21	50.00
Org-Tenure	2 – 7	20	47.60
Certificate in PM	No certification in PM	18	42.90

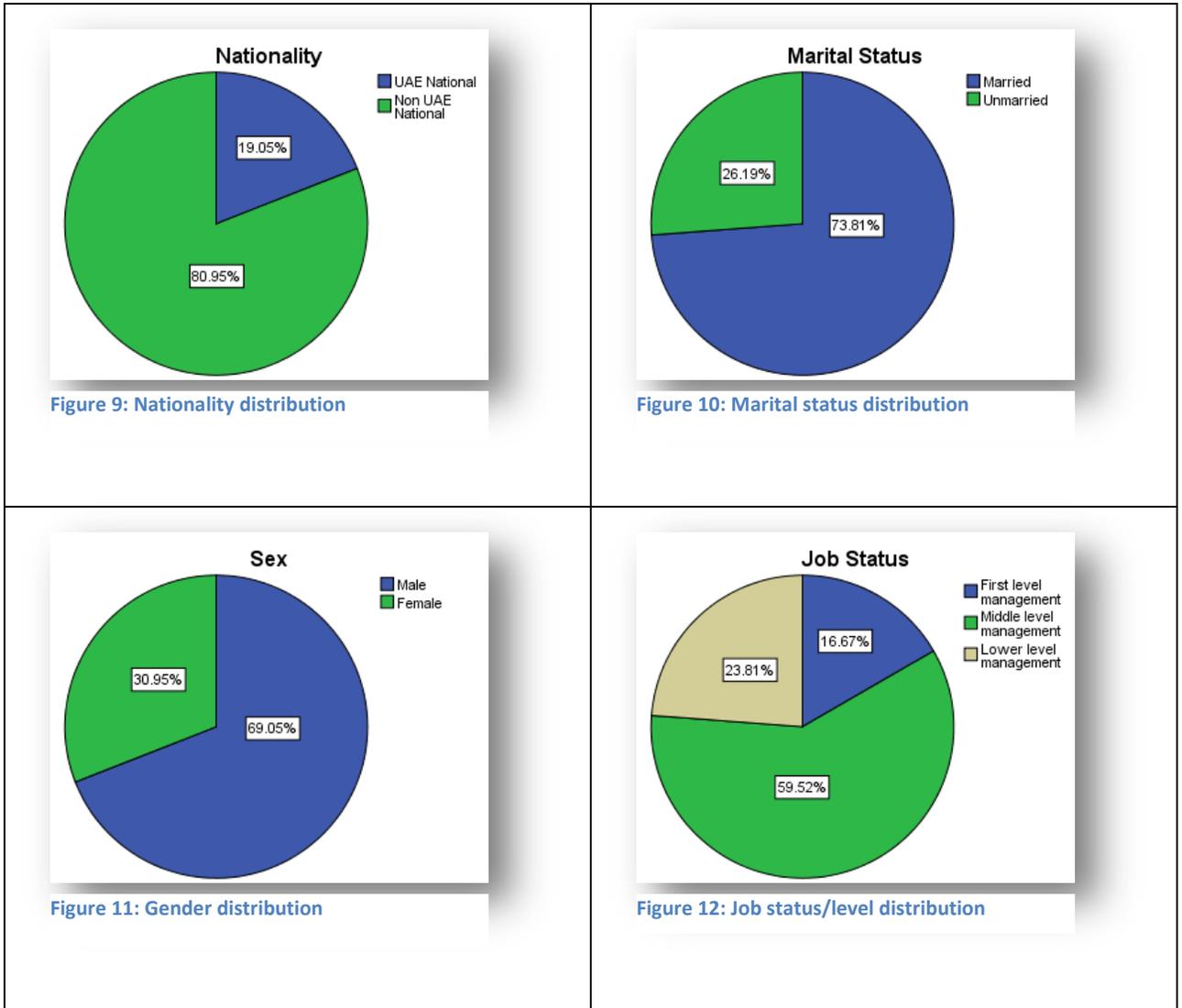
Table 4: Questionnaire demographic items distribution

More details can be seen in Table 5 below. This table shows the detailed results of the demographic distribution of the study sample. For example, those who are certified either by course certificate and/or PMI or another institute form 35.7%. This could make this study relevant to accidental project managers; however, if the demographic distribution remains this way for Dubai, then until further samples are collected the full value of these results will remain unknown.

Demographic Items	Sex		Marital Status		Education		Certificate in PM		Age		Org-Tenure		Job-Level		Nationality	
	N	N%	N	N%	N	N%	N	N%	N	N%	N	N%	N	N%	N	N%
Sum	42	100	42	100	42	100	42		42	100	42	100	42	100	42	100
Male	29	69.0														
Female	13	31.0														
Married			31	73.8												
Unmarried			11	26.2												
High School					1	2.4										
College Degree					1	2.4										
Graduate Degree					14	33.3										
High Diploma					5	11.9										
Masters or above					21	50.0										
University/Institution							9	21.4								
Certificate							4	9.5								
Course Certificate							11	26.2								
Certified by PMI or Others							18	42.9								
No certification in PM																
Less than 25							2	4.8								
25- 35							23	54.8								
36 – 46							14	33.3								
47 – 57							3	7.1								
One year or less									8	19.0						
2 – 7									20	47.6						
8- 13									12	28.6						
14- 19									1	2.4						
20 years or above									1	2.4						
First level											7	16.7				
Middle level											25	59.5				
Lower level											10	23.8				
UAE National														8	19.0	
Non UAE National														34	81.0	

Table 5: Demographic result for study sample of Soft Skills

Pie charts, from Figure 9 - Figure 16 show demographic distribution for each item. Nevertheless, the demographic tables are enough but these charts are included for easier referencing.



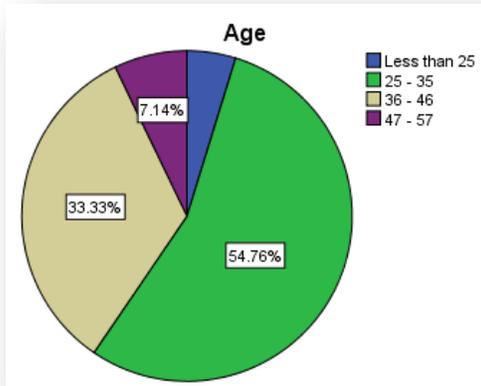


Figure 13: Age distribution

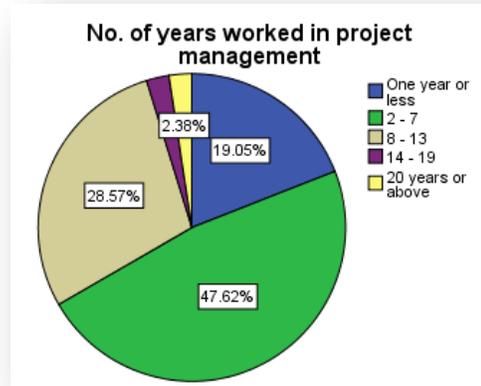


Figure 14: Organization tenure distribution

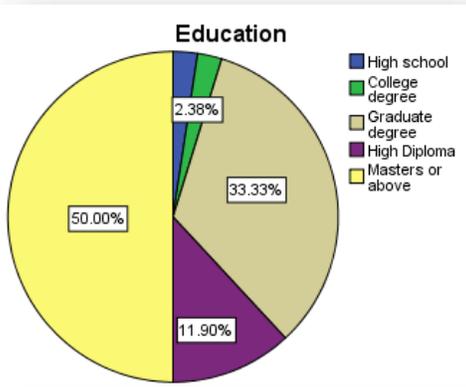


Figure 15: Education level distribution

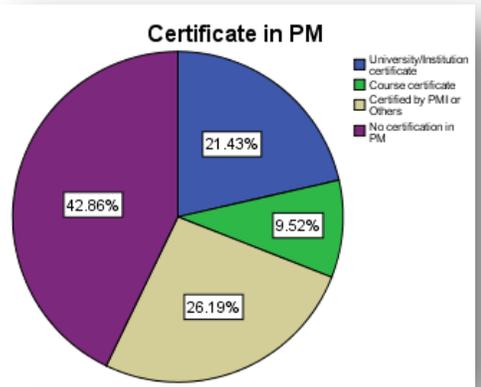


Figure 16: Certificate in PM distribution

Items

Setting frames of reference

Table 6 below summarizes the first seven items of the survey. These items do not form any factor or variable but form a frame of reference which is necessary to carry on measuring other items. These seven items set an accepted perception about soft skills came from respondents. The following is a listing of these seven items with a brief interpretation.

Statistics

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7
N Valid	42	42	42	42	42	42	42
Missing	0	0	0	0	0	0	0
Mean	4.50	4.45	3.45	3.48	4.29	3.12	4.26
Mode	5	5	3	4	4 ^a	3	4

a. Multiple modes exist. The smallest value is shown

Table 6: Items distribution for soft skills perception showing Mean and Mode

Item 1: I have certain understanding of soft skills and these skills have significant effect on projects success.

For this item almost all respondents strongly agree to it. It has the mode of 5 and mean of 4.5 which is strong evidence that respondents perceive the meaning of soft skills if only in with their own interpretation of such. The response to this item suggests that consideration must be given to the other items discussed.

Item 2: Maintaining and improving soft skills of project manager is important for projects activities.

This item occupied the mode of Strongly Agree, while the mean scored up to 4.45, very close to the mode. This item shows the high rate of importance placed on the positive effect soft skills have on project activities.

Item 3: Soft skills are considered more important than hard skills in managing projects.

This item mode rated Neutral, but the mean was almost half a point to the agreement value of 3.45. This means most respondents cannot decide how to weigh soft skills in comparison to hard skills when considering the management of projects. These results have led to a higher degree of focus being placed on this item throughout the completion of this study.

Item 4: It is easier to develop hard skills than soft skills.

The mode for this item increases to the agreement value, but the mean is still half point at 3.48. This means respondents are split between being Neutral or in agreement in their stance. However, it does mean that some project managers realize that working on their soft skills is not an easy task.

Item 5: Project manager should keep a good balance between hard skills and soft skills throughout the projects.

In this item there are multiple modes. The lowest one is 4, while the highest is 5 which means they are in strong agreement with this item. The Mean scored 4.29 exceeding the agreement value of 4. One of the objectives of this study is to provide evidence of these findings.

Item 6: Soft skills are needed more than hard skills at the execution phase of the project.

The Mode is Neutral and located close to the Mean. This means that respondents cannot decide which skill is needed more in the execution phase. In addition, this item also suggests that it is hard to decide which of the two skills, Hard or Soft, is more important than the other when considering the life cycle of a project.

Item 7: Project managers should utilize their soft skills to maintain activities and keep them going.

The Mode is the agreement value of 4 while the Mean exceeds it. This means there is a strong indication of the effects of soft skills on project activities.

The above seven items show the respondents' perception of soft skills in this survey. Three items have a complete agreement Mode of 5; namely, items 1, 2, and 5. Two items have the agreement Mode of 4; namely, items 4 and 7. And finally, two items are near the Neutral Mode and yet they show a small incline toward agreement with an average Means of 3.94. This is slightly little less than the agreement.

Communication perception

There are only three items used to set the perceptions for the Communication factors in this survey.

Statistics

		Item 8	Item 9	Item 10
N	Valid	42	42	42
	Missing	0	0	0
Mean		4.36	4.40	4.17
Mode		5	5	4

Table 7: Items distribution for Communication perception showing Mean and Mode

Item 8: Communication skill is the most important skill in all phases of the project.

This item is to test the acceptance of having communication skills at the top of the list, i.e., most important. The Mode is Strongly Agreed and the Mean not far from that. This means there is a strong belief that communication skills are extremely important.

Item 9: Communication skill helps project managers to achieve certain activities that cannot be achieved by hard skills alone.

This item explores if communication skills can be sufficient for some activities. The Mode came in as completely accepted and the Mean was near to that. This means there is a belief that communication skills alone are sufficient for some activities, although it must be noted that this item does not say anything about the nature of these activities.

Item 10: Communication skill supports project managers in certain activities when he/she has minimal hard skills for that activity.

This item tests if communication skills support hard skills and if so, does it play a part of this role. The Mode agrees to this test and Mean is slightly above that. This means there is a belief that soft skills can support hard skills but not necessarily substitute them. The item does not show how this can be achieved.

Leadership Skills perception

Leadership perception has six items exploring different ideas.

Statistics

		Item 11	Item 12	Item 13	Item 14	Item 15	Item 16
N	Valid	42	42	42	42	42	42
	Missing	0	0	0	0	0	0
Mean		4.17	4.36	4.43	4.07	3.90	3.26
Mode		4	5	4 ^a	4	4	4

a. Multiple modes exist. The smallest value is shown

Table 8: Items distribution for Leadership skills perception showing Mean and Mode

Item 11: When leading a team, project managers should act as a team leader instead of delegator.

This item measures the general perception of leadership as a role of the project manager by contrasting it with non-leadership roles; e.g., delegation roles. The Mode agrees to this leadership perception while the Mean is slightly above it.

Item 12: Project managers should make sure that all members in the project can see the big picture and where they are heading.

This is about seeing the big picture at all stages of the project regardless the distortion that comes from the details. The Mode scored 5, Strong Agreement, while the Mean is slightly above agreement.

Item 13: Project managers should form harmony among team members.

This item is about team leading. It measures the positive effects that come from team coherence. Two Modes exist, agreement and strong agreement, while the Mean is between these values. This means that there is a substantial belief that coherence is strongly desired and project managers can play a vital role in creating this coherence.

Item 14: Project managers should let team members do their activity willingly rather than by force.

This item is related to the XY theory of leadership, where X represent leaders whose mindset is pessimistic. These types of leaders tend to consider employees lazy and that they need to be under system of control in order to be able to motivate them. The Y theory is its opposite, suggesting that employees can be motivated to work hard and maintain self-control, all while finding their work enjoyable (Kopelman et al, 2010). The Mode scores the agreement level and the Mean is near to it at 4.07.

Item 15: Project managers should give room for team members to decide the best method to carry out their activities.

This item is related to item 14 above; giving chances to employees to exercise self-control (Y theory). The Mode scored the agreement 4 and the Mean slightly less with 3.9.

Item 16: Project managers should push team members to follow the procedures of the organization even if these procedures reduce team members' efficiency.

This item tests a project manager's point of view between effectiveness and efficiency. Also, it might hold evaluation properties for governance. The Mode scores the agreement and the Mean falls to a little above the Neutral level.

Negotiation Skills perception

Only three items has been tested under the category of negotiation skills perception.

Statistics

	Item 17	Item 18	Item 19
N	Valid	42	42
	Missing	0	0
Mean	4.02	4.02	3.93
Mode	4 ^a	4	4

a. Multiple modes exist. The lowest value is shown.

Table 9: Items distribution for Negotiation skills perception showing Mean and Mode

Item 17: Negotiation skill is one of the most important skills in all phases of the project.

This item tested the value placed on Negotiation skills, i.e., most important. The Mode has two values, 4 and 5, while the Mean has the value 4.02. This means there is a substantial belief that Negotiation skills are significantly important.

Item 18: Negotiation skill is a must for project success.

This item explores the necessity of a project manager to have negotiation skills and the weight of these skills on project success. The Mode is the agreement and the Mean 4.02.

Item 19: Project managers should always try to avoid using their position power during negotiation and should try to be persuasive instead.

This item explores how sources of power can be used in negotiation. Respondents agreed to use the power style position. It is unknown if respondents are aware of other sources of power in negotiation settings. The Mode is the agreement and the Mean is less at 3.93.

Conflict Management

Four items explore the project manager's style and perception of dealing with conflicts.

Statistics

	Item 20	Item 21	Item 22	Item 23
N	Valid	42	42	42
	Missing	0	0	0
Mean	3.98	4.21	4.31	3.86
Mode	4	5	4	4

Table 10: Items distribution for Conflict Management skills perception showing Mean and Mode

Item 20: Project managers should try to avoid conflict as it has negative effect on their projects.

This item explores project managers' preset perceptions about conflict. The Mode was the agreement while the Mean is just below this at 3.98.

Item 21: If conflict happened during a project, project managers should try to compromise for win-win situation.

This item tests the publicity of win-win situation between respondents. The Mode strongly agrees and the Mean is slightly more than agreement.

Item 22: Project managers should encourage team members to look at the positive side of the conflict so they will be able to get benefit of it.

This item explores the positive and negative effects of conflict on team members and explores if project managers should aim for the benefits of a conflict. The Mode was the agreement and the Mean scored 4.31.

Item 23: Conflict with people who has high power and high interest in the project is the most dangerous and should always be avoided.

This item explores a project manager’s style on how to handle stakeholders versus possible conflicts that can occur with them. The Mode agrees that project managers should avoid conflict with such stakeholders while the Mean came in a little less than agreement.

Project Success perception

Five items were selected to explore and test five different ideas related to project success.

Statistics

		Item 24	Item 25	Item 26	Item 27	Item 28
N	Valid	42	42	42	42	42
	Missing	0	0	0	0	0
Mean		4.55	4.57	4.05	4.29	4.33
Mode		5	5	4	5	4

Table 11: Items distribution for Project Success perception showing Mean and Mode

Item 24: For projects executed successfully, project managers have always been clear about their projects’ aims and objectives.

This item sets one vital concept necessary, but not sufficient, for a project’s success. Its agreement Mode is 5, complete acceptance, while the Mean is more than half a point to the complete agreement, 4.55.

Item 25: Project managers should always keep an eye on those factors that might cause project failure and try managing them.

This item had the complete agreement Mode, while the Mean is a little more than the half a point to the complete agreement, 4.57. As an outcome the item is almost has complete acceptance.

Item 26: Project is a complete success if it has technical, financial, business and strategic success.

The agreement Mode scored 4. Close to it, the Mean scored 4.04. As a result, the item is accepted by respondents.

Item 27: If a certain project does not serve the organizational strategic goals then the project manager should inform executives such as project director, sponsor and portfolio manager about his/her concerns.

This item scored a complete acceptance Mode, while the Mean received the value 4.29, a little less than half point of complete acceptance.

Item 28: End users are the actual users of project’s product or service and their input and feedback are considered vital indicator of project success.

This item has similar status to item 27. Respondents believe in its acceptableness.

The five items above form the respondents’ perception about success as it pertains to projects. Three items show complete agreement mode, 5, namely items 24, 25, and 27. Two items show agreement mode, 4, namely 26 and 28. Consequently, the results indicate a high consensus about project success perception.

Project Attributes versus Soft Skills Perception

Six items were selected to explore project attributes versus soft skills perception.

Statistics

		Item 29	Item 30	Item 31	Item 32	Item 33	Item 34
N	Valid	42	42	42	42	42	42
	Missing	0	0	0	0	0	0
Mean		2.83	3.12	3.14	3.88	3.98	3.98
Mode		2	3	3	4	4	4

Table 12: Items distribution for Project Attributes versus Soft Skills perception showing Mean and Mode

Item 29: Soft skills vary according to project size and project managers should tend to use more soft skills for small sized project, less for medium sized project and least for big sized projects.

Respondents disagree to the statement above. The Mode disagrees and the Mean remains near the neutral level.

Item 30: IT projects need soft skills more than any other industry.

Respondents are neutral to this item. Maybe this focus of this item needs to be refined. Maybe respondents are not aware about the levels of effort needed to put soft skills into industries other than IT.

Item 31: I believe that in IT projects soft skills more important than hard skills.

Obviously, respondents are neutral about the above statement.

Item 32: I believe that nature of IT project, for example ERP Software development, network infrastructure upgrade or adopting standards or best practices such as ITIL/COBIT/CMMI etc, causes a project manager to vary the mixture of his/her usage to soft skills.

There is an agreement between respondents that the nature of the project is relevant to a soft skills mixture used throughout the project. The Mode is 4 and the Mean is 3.88.

Item 33: As project complexity increases project managers tend to use more soft skills as much as possible.

Most respondents agreed that project complexity is proportional to soft skills efforts. The Mode is 4 and the Mean is close to this.

Item 34: The behavior of project managers towards stakeholders is highly dependent on stakeholders' culture.

The majority of respondents see a culture can determine a project manager's behavior. The Mode scored 4 and the Mean near that.

Project Structure Perception

Three items were selected to explore project structure perception and how it relevant to soft skills.

Statistics

		Item 35	Item 36	Item 37
N	Valid	42	42	42
	Missing	0	0	0
Mean		3.57	3.05	2.90
Mode		4	3	2

Table 13: Items distribution for Project Structure perception showing Mean and Mode

Item 35: If a certain project is structured in a way that the project manager’s role is defined as project coordinator only, then he/she should utilize his/her soft skills to its maximum.

This item explores the coordination role of the project manager with soft skills. Respondents agreed to the statement above and the Mean is half a point to the agreement.

Item 36: If a certain project is structured in a way that the project manager’s role is supervised by a steering committee, then he/she should put more efforts on hard skills than on soft skills.

Respondents are neutral to this item. It remains unknown as when a project is structured to be supervised by steering committee, whether it is important to have soft skill efforts or not.

Item 37: Project managers should minimize soft skill usage when they have high authority on controlling and implementing the project.

Respondents disagree to the statement above. The Mode scored 2 while the Mean is less than neutral.

Project Stakeholders Perception

Three items were selected to explore three different ideas in dealing with stakeholders.

		Statistics		
		Item 38	Item 39	Item 40
N	Valid	42	42	42
	Missing	0	0	0
Mean		3.93	4.12	3.95
Mode		4	4	4

Table 14: Items distribution for Project Stakeholders perception showing Mean and Mode

Item 38: A project manager may vary the combination of used hard and soft skills based on stakeholders' behavior.

Respondents agree that a soft skills and hard skills mixture used to manage the project and this depends on the stakeholders involved in the project. The Mode is 4, while the Mean is slightly more than that.

Item 39: A project manager should try to influence stakeholder's attitudes through his/her soft skills.

The respondents agree that a project manager can affect a stakeholder's attitude toward projects. The Mode is 4 and Mean is 4.12.

Item 40: A project manager should vary the extent of using soft skills in dealing with the project stakeholders according to their position in the organization.

Respondents agree to the above statement and project manager should deal with different stakeholders according to their position in the organization. The Mode is 4 and the Mean is close at 3.95.

First Case Study: Development of Dividends Distribution Software

In the XYZ stock market, top management tends to make new services to its customers because this creates a mutual benefit between customers and the organization. In 2010, the organization decided to introduce new services to customers through its listed companies. This decision was taken a few months before the Assembly General Meetings in which the dividends distribution was a primary resolution in which the investors were interested in. Dividends distribution resolution determined the amount of profit each investor would receive. The general observations held in throughout the series of meetings show that the investors started to make frequent enquires on when they would get their money. These frequent enquires brought in a sense of urgency in speeding up the process of distribution.

New process versus Old process

The old process of dividends distribution service was that the listed company registrar requested XYZ to provide the shareholders' share book, which contained their identification numbers, names, mailing addresses, and owned quantities of shares in the closing date. When the registrar got the share books, they printed a cheque for each investor and distributed them through registered mail. Now in the new process, XYZ takes care of this activity and distributes dividends in three different ways:

1. Through printed cheques distributed by registered mail.
2. Through a letter of transfer. Direct wire transfers to the investors' bank account.
3. Through debit visa card which is a product of XYZ from the previous project. This card, which called iVESTOR, is a product of another project. It works exactly the same as a VISA card with added benefits. One of these benefits is to accept dividends distribution.

The top management initiated this project and executed part of it by creating formal contracts with some of listed companies. It approached a few listed companies and agreed with them to distribute their dividends for breakeven money as a proof that XYZ has the most effective way for such a process. As other listed companies see the efficiency of this process they will feel

motivated to delegate this process to XYZ. Accordingly, a financial benefit will be made and a new service for investors will be achieved.

Set backs

About one month before the first dividends distribution, the top management realized they did not communicate XYZ engineers how to carry out this activity. Moreover, the detailed process was still not set. Operation departments' personnel who were to be a part of this activity were not aware of such a thing. This exposed the whole project to failure and the project manager was facing a serious problem. How was he going to make software available in one month's time when in any normal situation it would take at least three months to succeed.

The solution

The project manager called a meeting which included the XYZ general manager, project team, representatives of operations departments, and the head of the development section. Many points were discussed at that meeting. The readiness of the dividends distribution software was of the least interest to the GM who expressed that the problem was that of the operation staff and therefore they had to take care of it. Nevertheless, nothing practical came out of the meeting as it pertained to the software except it brought to light the serious nature of the situation to the operations staff and development head along with the feeling of responsibility they were now in to get things done.

Later the project manager called for several meetings with the operations representatives and development head as he tried to find a way out of the problem. The options were obvious and limited. To buy readymade software was out of question because no software exists which meets the existing state of affairs without customization. Not to mention, the likelihood of finding such software might take more time than building it. Another option was outsourcing; building the software by a third party. But again, by the time XYZ made a contract with another software company to analyze the desired system, gather the requirements, and set up the process, it would be too late. The third option was to design and build the software in-house. The project manager believed that the last option was his best shot. He smoothly negotiated the

development head and expressed that the in-house development would solve the problem. For the development head the offer was not acceptable. It would mean an increased workload would be put on development team members who were already fully loaded with other activities. Besides, the development team was consisting of two employees; one of them was the development head who works in development only when it is necessary. Finally, the development head accepted to take the work under three conditions. Firstly, the software would have limited functionality. Secondly, the development head would impose the process on operations when he needed their help. In addition, no requirement gathering would be made or user acceptance test (UAT). Thirdly, he would personally supervise the operations as there was not enough time to do appropriate training. However, the time left to do the work was very limited and it is impossible to complete the work without working extra hours. The development head decided to do the work himself. This would save the time of debating the software functionality. On the other hand, the company policy does not allow paying for overtime for middle management grades and above, where the development head is positioned. This meant two things. Firstly, he would work many extra hours with no pay. Secondly, he was taking on the sole risk of not delivering the software on time. No clear motive could be detected as to why the development head committed himself to do the work, other than the commitment itself.

Second Case Study: Buying Business Intelligence Software

In XYZ stock market, the software development team was well utilized in supporting most of the organization. The team was designed to do rapid development but sometimes the work become overwhelmed them. As a result, some department managers felt that investing in one or two more developers would be the appropriate decision. On the other hand, and for unknown reasons, the IT management always maneuvered to settle on such a decision. In order to cope with scarce resources, the software development team tried to find the most suitable way to serve all entities in the organization. Basically, their tactic was to provide the minimum required service to keep all projects moving forward. This way of distributing services was heavily criticized by a project manager who was responsible for delivering some projects involved the development team. Around that time a new IT manager was assigned to take care of the IT

department. The project manager convinced this IT manager that by buying business intelligence software he would be able to boost development team services. No business proposal was given to the IT manager or the software development head to evaluate it along with the validity of this suggestion. However, the process of buying business intelligence software went ahead.

Project objectives

One supplier has been spotted by the project manager and he wanted to buy their business intelligence software. At the same time, the project manager requested to the IT manager that the development head needed for technical support. Essentially, the project manager asked the development head to help the supplier to conduct a proof of concept (POC). This was from the belief that by knowing the project objectives this would position the development head to provide better support; the development head asked several time to know what the project objectives were. With each request he received a different answer which gave him the impression that there are no clear objectives for this project; only vague, contradictory, and general objectives such as:

- We want to decrease the dependency on the software development team.
- The software will be used for producing statistical information.
- The software can be used by non-IT employees and they will be able to satisfy different queries coming from outside customers such as brokers and financial entities.

Project manager and IT manager software development background

The XYZ project manager had a weak technical background, so in this situation, he had difficulty in understanding the complications of such technical decisions. On the other hand, the IT manager from technical background, who rarely worked in software development, was left with two problems. Firstly, he could not argue or question the project manager's decision to buy business intelligence software. Secondly, as he wanted this software to be under the accountability of the development team as he could not convince the IT department as knowing what the right thing to do was. The IT manager discussed this decision many times with the

development head in two modes. In one instance he tried to be smooth in the hopes that the development head would buy it. In the other instance he tried to be hard by using his organizational power. In both instances, he found rejection to his decision. After one hour of debate between the development head and IT manager the latter could not point out clear objectives of the project and said, "You can consider this software as something you buy and you do not use it until you need it, exactly like a screwdriver." This declaration made things worse. The IT manager was determined to get development team involved in the project while the development head took a decision not to be part of the project at all.

Usage of business intelligence software

It is not uncommon for some companies to introduce business intelligence software into their business. Usually this type of software has usage outlines such as Data consolidation from multiple resources, help making informed and timely decision through online queries, visualization of data in terms of graphs, search through data, and the capture of data from mobile devices. Maybe it is possible to find out more places to use such business intelligence software, but definitely this will not include building a complete information system like programming languages.

The dispute and project failure

The project manager and the IT manager tended to agree on everything related to this project and decided to take a final important step. Taking the green light from the top management and buying the software would impose a de facto. They were able to proceed with this after a presentation done by the supplier in which they showed the capabilities of the software. The green light has been given by top management to proceed. The deal for buying the business intelligence software was done. Yet, at this time the IT manager tried to exert more organization power on the development head to take the bought software and implement it. This time though he came through with clearer objectives to the purpose of the task.

The new objectives

The IT manager created the following new objectives:

1. The development team should design a new database called the corporate database.
2. The corporate database will be fed from the main database of investor and trading.
3. Certain users will use this database to do selected queries.
4. Improvement on the corporate database will be the responsibility of the development team and depend on users' requests.

The IT management faced a clear rejection from the development head due to the following reasons:

First: Any designed database should be built to serve certain objectives. These objectives were not available.

Second: Point number 2 above cannot be achieved because it depends on the first objective.

Third: The users who were nominated were not sufficient as they could not express exactly what they wanted from such a system.

Fourth: Database improvement is a continuous process; it has no time limit.

Finally: Access of main database, which forms the source database, did not allow access to be granted to nominated users except in certain fields. This denial came from the owners of the database. In this case it was the Clearing and Settlement manager.

The IT manager turned to another resource to implement his objectives - the web development team. He exerted organizational power over them and they did what he wanted. The web development team designed a database with few fields due to limited access to the database. They built some programs working overnight to copy a few fields from the main database to the

designed database. However it turned to be unusable to undetermined needs. The screwdriver tactic failed to reach any objective.

Reliability

The intervals shown in Figure 17 represent the categories of acceptance in Cronbach's reliability test. These intervals vary from unacceptable; below 0.5 till perfectly acceptable; greater or equal to 0.9.

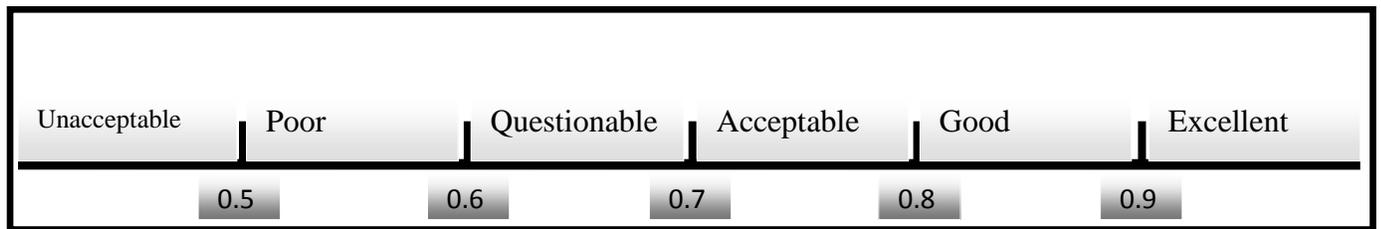


Figure 17: Cronbach's Alpha consistency intervals

By producing Cronbach's Alpha for used factors (Table 33) the resulting statistics are found to be between 0.646 and 0.824. All factors are within Acceptable and Good intervals except Leadership Skills Perception came in the Questionable interval. Results have shown that according to Cronbach's Alpha for all factors there are statistically sufficient findings to proceed.

Cronbach's Alpha for Soft Skills Perception items

Cronbach's Alpha	N of Items
.546	7

Table 15: Cronbach's Alpha for all soft skills perception items

Soft Skills Perception	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. I have certain understanding of soft skills and these skills have significant effect on projects success.	23.05	6.193	.320	.499
2. Maintaining and improving soft skills of project manager is important for projects activities.	23.10	6.088	.320	.496
3. Soft skills are considered more important than hard skills in managing projects.	24.10	5.113	.366	.465
4. It is easier to develop hard skills than soft skills.	24.07	5.190	.322	.487
5. Project manager should keep a good balance between hard skills and soft skills throughout the projects.	23.26	6.100	.221	.527
6. Soft skills are needed more than hard skills at the execution phase of the project.	24.43	5.812	.180	.553
7. Project managers should utilize their soft skills to maintain activities and keep them going.	23.29	6.307	.246	.519

Table 16: Cronbach's Alpha if item deleted - soft skills perception

Cronbach's Alpha for Communication Skills items

Cronbach's Alpha	N of Items
.576	3

Table 17: Cronbach's Alpha for all Communication Skills items

Communication Skills	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
8. Communication skill is the most important skill in all phases of the project.	8.57	1.666	.246	.713
9. Communication skill helps project managers to achieve certain activities that cannot be achieved by hard skills alone.	8.52	1.621	.550	.271
10. Communication skill supports project managers in certain activities when he/she has minimal hard skills for that activity.	8.76	1.552	.411	.436

Table 18: Cronbach's Alpha if item deleted - Communication Skills

Cronbach's Alpha for Leadership Skills items

Cronbach's Alpha	N of Items
.282	6

Table 19: Cronbach's Alpha for all leadership Skills items

Leadership Skills	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
11. When leading a team, project managers should act as a team leader instead of delegator.	20.02	4.121	.270	.137
12. Project managers should make sure that all members in the project can see the big picture and where they are heading.	19.83	5.118	-.046	.365
13. Project managers should form harmony among team members.	19.76	4.820	.175	.225
14. Project managers should let team members do their activity willingly rather than by force.	20.12	4.449	.196	.198
15. Project managers should give room for team members to decide the best method to carry out their activities.	20.29	4.209	.198	.188
16. Project managers should push team members to follow the procedures of the organization even if these procedures reduce team members' efficiency.	20.93	4.068	.039	.349

Table 20: Cronbach's Alpha if item deleted - leadership Skills

Cronbach's Alpha for Negotiation Skills items

Cronbach's Alpha	N of Items
.616	3

Table 21: Cronbach's Alpha for all Negotiation Skills items

Negotiation Skills	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
17. Negotiation skill is one of the most important skills in all phases of the project.	7.95	1.705	.355	.634
18. Negotiation skill is a must for project success.	7.95	1.851	.555	.373
19. Project managers should always try to avoid using their position power during negotiation and should try to be persuasive instead.	8.05	1.754	.399	.555

Table 22: Cronbach's Alpha if item deleted - Negotiation Skills

Cronbach's Alpha for Conflict Management Skills items

Cronbach's Alpha	N of Items
.566	4

Table 23: Cronbach's Alpha for all Conflict Management Skills items

Conflict Management Skills	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
20. Project managers should try to avoid conflict as it has negative effect on their projects.	12.38	2.876	.509	.340
21. If conflict happened during a project, project managers should try to compromise for win-win situation.	12.14	3.199	.468	.389
22. Project managers should encourage team members to look at the positive side of the conflict so they will be able to get benefit of it.	12.05	4.583	.252	.564
23. Conflict with people who has high power and high interest in the project is the most dangerous and should always be avoided.	12.50	3.768	.213	.616

Table 24: Cronbach's Alpha if item deleted - Conflict Management Skills

Cronbach's Alpha for Project Success items

Cronbach's Alpha	N of Items
.708	5

Table 25: Cronbach's Alpha for all project success items

Project Success	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
24. For projects executed successfully, project managers have always been clear about their projects' aims and objectives.	17.24	4.430	.355	.701
25. Project managers should always keep an eye on those factors that might cause project failure and try managing them.	17.21	4.563	.435	.676
26. Project is a complete success if it has technical, financial, business and strategic success.	17.74	3.320	.554	.622
27. If a certain project does not serve the organizational strategic goals then the project manager should inform executives such as project director, sponsor and portfolio manager about his/her concerns.	17.50	3.524	.604	.596
28. End users are the actual users of project's product or service and their input and feedback are considered vital indicator of project success.	17.45	4.351	.408	.682

Table 26: Cronbach's Alpha if item deleted - project success

Cronbach's Alpha for Project attributes versus soft skills items

Cronbach's Alpha	N of Items
.661	6

Table 27: Cronbach's Alpha for all Project Attributes versus Soft Skills items

Projects Attributes versus Soft Skills	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
29. Soft skills vary according to project size and project managers should tend to use more soft skills for small sized project, less for medium sized project and least for big sized projects.	18.10	7.210	.419	.616
30. IT projects need soft skills more than any other industry.	17.81	7.036	.639	.516
31. I believe that in IT projects soft skills more important than hard skills.	17.79	8.660	.458	.600
32. I believe that nature of IT project, for example ERP Software development, network infrastructure upgrade or adopting standards or best practices such as ITIL/COBIT/CMMI etc, causes a project manager to vary the mixture of his/her usage to soft skills.	17.05	8.876	.446	.607
33. As project complexity increases project managers tend to use more soft skills as much as possible.	16.95	8.729	.444	.605
34. The behavior of project managers towards stakeholders is highly dependent on stakeholders' culture.	16.95	10.144	.056	.731

Table 28: Cronbach's Alpha if item deleted - Project Attributes versus Soft Skills

Cronbach's Alpha for Project structure items

Cronbach's Alpha	N of Items
.438	3

Table 29: Cronbach's Alpha for all Project Structure items

Project Structure	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
35. If a certain project is structured in a way that the project manager's role is defined as project coordinator only, then he/she should utilize his/her soft skills to its maximum.	5.95	2.778	.214	.428
36. If a certain project is structured in a way that the project manager's role is supervised by a steering committee, then he/she should put more efforts on hard skills than on soft skills.	6.48	2.695	.271	.336
37. Project managers should minimize soft skill usage when they have high authority on controlling and implementing the project.	6.62	2.046	.320	.232

Table 30: Cronbach's Alpha if item deleted -Project Structure

Cronbach's Alpha for Project Stakeholder items

Cronbach's Alpha	N of Items
.709	3

Table 31: Cronbach's Alpha for all project stakeholders items

Project Stakeholders Mix	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
38. A project manager may vary the combination of used hard and soft skills based on stakeholders' behavior.	8.07	1.726	.519	.635
39. A project manager should try to influence stakeholder's attitudes through his/her soft skills.	7.88	2.205	.456	.702
40. A project manager should vary the extent of using soft skills in dealing with the project stakeholders according to their position in the organization.	8.05	1.656	.622	.492

Table 32: Cronbach's Alpha if item deleted - project stakeholder

Reliability Statistics

Serial	Variable	Factor	Cronbach's Alpha	Number of Items	Comment
1	SS_PRCP_ITEMS	Soft Skills Perception	.553	6	Item number 6 in questionnaire deleted.
2	C_S_ITEMS	Communication Skills	.713	2	Item number 8 in questionnaire deleted.
3	L_S_ITEMS	Leadership Skills	.282	6	No internal consistency between all items. All items should be excluded.
4	N_S_ITEMS	Negotiation Skills	.634	2	Item number 17 in questionnaire deleted.
5	C_M_ITEMS	Conflict Management	.616	3	Item number 23 in questionnaire deleted.
6	PS_ITEMS	Project Success	.708	5	
7	PA_V_SS_ITEMS	Project Attributes versus Soft Skills	.731	5	Item number 34 in questionnaire deleted
8	P_STRCT_ITEMS	Project Structure	.438	3	No internal consistency between all items. All items should be excluded.
9	P_STKH_ITEMS	Project Stakeholders Mix	.709	3	

Table 33: Summary of Cronbach's alpha for Soft Skills, Project Success, and Mediating Variables factors

Cronbach's Alpha for Soft Skills Perception was found to be 0.553. This means that the items designed to measure respondents soft skills perception has poor internal consistency. However, the Soft Skills Perceptions items are not a real factor of Soft Skills. Based on these reasons, this study accepts the relativity of items 1, 2, 3, 4, 5, and 7 toward Soft Skills Perception, with item number 6 being excluded. Consequently, this sets our frame of reference of soft skills. In other words, Soft Skills factors such as Communication, Leadership, Negotiation, and Conflict Management are relative to this frame of reference.

Furthermore, Table 34 summarizes Cronbach's Alpha for three groups of items. All of these groups of items fell into the acceptable and questionable categories.

The first group, Soft Skills items, is formed from items of factors, and includes:

1. Communications Skills (2 items)
2. Negotiations Skills (2 items)
3. Conflict Management (3 items)

In total this group forms 7 items altogether.

Second group, Project Success items, consists of 5 items belong to Project Success factor.

Third group, Mediating Variables items, total number of items is 8 and consists of:

- 1- Project Attributes versus Soft Skills (5 items)
- 2- Project Stakeholder Mix (3 items)

Serial	Group of Items	Cronbach's Alpha	Number of Items	Comment
1	Total Soft Skills items = Communication Skills + Negotiation Skills + Conflict Management	0.605	7	Items 8, 17, and 23 in are excluded.
2	Total Project Success = Project Success items	0.708	5	
3	Project Attributes versus Soft Skills	0.731	5	Item 34 is excluded.
4	Project Stakeholders	0.709	3	
	Total Items		20	

Table 34: Totals summary of Cronbach's alpha for Soft Skills, Project Success and Mediating Variables.

Hypotheses

The absence of hard skills presumes that these are related to project success. In other words, there is a relationship between hard skills and project success. However, In order to bring in evidence that the saturation point exists we need to hypothesize that a relationship does exist between soft skills and project success. In addition, the mediating variables relationship between project success and soft skills needs to be considered.

- **H0:** There is no relationship of statistical evidence between Total Soft Skills and Total Project Success.
- **H1:** There is a relationship of statistical evidence between Total Soft Skills and Total Project Success.
- **H2:** There is a relationship of statistical evidence between Total Soft Skills and Total Mediating Variables.
- **H3:** There is a relationship of statistical evidence between Communication Skills and Project Success.
- **H4:** There is a relationship of statistical evidence between Negotiation Skills and Project Success.
- **H5:** There is a relationship of statistical evidence between Conflict Management and Project Success.
- **H6:** There is a relationship of statistical evidence between Projects Attributes and Project Success.
- **H7:** There is a relationship of statistical evidence between Project Stakeholders Mix and Project Success.

Correlation Analysis

Table 35 shows the Pearson correlation values between Project Success factors, Soft Skills factors, and Mediating Variables factors as being 2-tailed. Values denoted by double stars indicate the correlation is significant at 0.01 levels and single star means the correlation is significant at 0.05 levels. For ease of reading, the correlations denoted by a single or double star are in bold font. For example, the significant relationship between Project Success and Communication Skills equals to 36.8%. Another example shows the correlation value between Communication Skills and Negotiation Skills as 34.6%. In total there are eight significant relationships between factors in the table. Note though, not all of them are of interest in this study. Also, Table 36 shows the Pearson correlation values between Total Project Success, Total Soft Skills factors, and Total Mediating Variables as 2-tailed. Interestingly, the table shows a relationship between Total Soft Skills and Total Mediating Variables while there is no relationship between Total Project Success and Total Mediating Variables.

Correlations

		Soft Skills- Perception	Communication Skills	Leadership Skills	Negotiation Skills	Conflict Management Skills	Projects success- Perception	Projects attributes versus Soft Skills	Projects Structure	Projects Stakeholders Mix.
Soft Skills-Perception	Pearson Correlation	1								
	Sig. (2-tailed)									
Communication Skills	Pearson Correlation	.341*	1							
	Sig. (2-tailed)	.027								
Leadership Skills	Pearson Correlation	-.047	.437**	1						
	Sig. (2-tailed)	.768	.004							
Negotiation Skills	Pearson Correlation	.248	.346*	.277	1					
	Sig. (2-tailed)	.113	.025	.076						
Conflict Management Skills	Pearson Correlation	.178	.298	.301	.363*	1				
	Sig. (2-tailed)	.261	.055	.053	.018					
Projects success-Perception	Pearson Correlation	.055	.368*	.372*	.257	.290	1			
	Sig. (2-tailed)	.728	.016	.015	.100	.063				
Projects attributes versus Soft Skills	Pearson Correlation	-.028	.225	.288	.237	.098	.049	1		
	Sig. (2-tailed)	.862	.153	.064	.131	.537	.759			
Projects Structure	Pearson Correlation	-.103	-.003	.038	.245	.143	-.102	.426**	1	
	Sig. (2-tailed)	.517	.986	.810	.118	.366	.520	.005		
Projects Stakeholders Mix.	Pearson Correlation	.113	.243	-.070	.426**	.447**	.310*	.310*	.304	1
	Sig. (2-tailed)	.477	.121	.660	.005	.003	.046	.046	.050	

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

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

Table 35: Correlation between Soft Skill perception, Soft Skills factors, Project Success factors, and Mediating Variables factors.

	TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict Management	Total Project Success = Project success items	Projects attributes versus Soft Skills	Projects Stakeholders Mix.
TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict Management	Pearson Correlation Sig. (2-tailed)	1		
Total Project Success = Project Success items	Pearson Correlation Sig. (2-tailed)	.404** .008	1	
Projects attributes versus Soft Skills	Pearson Correlation Sig. (2-tailed)	.237 .130	.049 .759	1
Projects Stakeholders Mix.	Pearson Correlation Sig. (2-tailed)	.508** .001	.310* .046	1

Table 36: Correlation between Total Soft Skills, Total Project Success, and Mediating Variables

Regression

Table 37 represents the linear regression summary made between dependent factors, Project Success, and independent factors related to Soft Skills and Mediating Variables. Dependent factors are denoted by symbol Y while independent factors are denoted by symbol X.

The R square column represents the percentage of variation in dependent factors as explained through independent factors. For example, 13.6% of Project Success variations can be explained through Communication Skills factors. In other words, the Communication Skills effect on Project Success does not vary more than 13.6% which is the maximum limit for Communication Skills to affect Project Success. Also, the column in the table's far right represents the linear equation $Y = a + bX$ where Y is Project Success and X is the independent factor. For instance, the table shows in its first sequence the regression between Project Success and Communication Skills factor is $\text{Project Success} = 15.115 + .516 (\text{Communication Skills})$.

Note that the slope of the linear line for sequence number one is .516. This encourages the argument that it is important to have controlled change for Communication Skills in order to change Project Success.

Table 38 shows linear regression between Total Soft Skills, Total Project Success, and Total Mediating Variables. In this table, Total Project Success can be expressed in terms of Total Soft Skills. This provides enough proof that H1 hypothesis holds and H0 must be rejected. I.e. there is a relationship of statistical evidence between Total Soft Skills and Total Project Success. Furthermore, sequences 2 in Table 38 provide enough evidence that hypothesis H2 can be accepted. In addition, and according to Table 37, hypotheses H3 and H7 are also acceptable. In summary, hypotheses H1, H2, H3, H7 are accepted and H0, H4, H5, H6 are rejected.

Seq	Independent variable (X)	Project Success Factor (Y)	R square	a Constant	b Constant	Linear Equation is $Y = a + bX$ or
1	Communication Skills	Project Success	.136	15.115	.516	15.115 + .516 (Communication Skills)
2	Project Stakeholders Mix	Project Success	.096	17.066	.393	17.066 + .393 (Project Stakeholders Mix)

Table 37: linear regression summary between Project Success, Soft Skills and Mediating Variables factors

Seq	Independent variable (X)	Project Success Factor (Y)	R square	a Constant	b Constant	Linear Equation is $Y = a + bX$ or
1	Total Soft Skills	Project Success	.163	12.679	.221	12.679 + .221 (Total Soft Skills)
2	Project Stakeholders Mix	Project Success	.096	17.066	.393	17.066 + .393 (Project Stakeholders Mix)
3	Total Soft Skills	Projects Stakeholders' Mix	.258	2.963	.219	2.963+ .219 (Total Soft Skills)
4	Projects attributes versus Soft Skills	Projects Stakeholders' Mix	.096	8.323	.176	8.323 + .176 (Projects attributes versus Soft Skills)

Table 38: linear regression summary between Total Soft Skills, Total Project Success and Mediating Variables

Evidence of saturation point existence

As per Table 39, the results show only 16.3% of variation in Project Success can be explained through Total Soft Skills perception. Recalling that the relation in between is significant with

value of 0.404. This provides enough evidence to say that the effect on Total Project Success by Total Soft Skills is limited to a certain value. In other words, R-square implies that no use of getting variation in Total Project Success more than 16.3% through Total Soft Skills. This goes with the definition of saturation point, project success cannot be improved after saturation point by applying more soft skills efforts.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.404 ^a	.163	.142	2.246

a. Predictors: (Constant), TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict

Management

Table 39: Model summary for Total Soft Skills and Project Success

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.679	3.278		3.868	.000
	TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict Management	.221	.079	.404	2.794	.008

a. Dependent Variable: Total Project Success = Project Success items

Table 40: Coefficients for Total Soft Skills and Project Success

The regression analysis conducted here is based on a linear model and is for single variable. It shows only two factors affecting Project Success, namely, Communication Skills and Project Stakeholders Mix.

Multiple-regression

The general multiple linear regression equation form is known as:

$$Y = b_0 + b_1X_1 + B_2X_2 + \dots + B_nX_n$$

Where Y is the predicted variable and B_1 to B_n are the regression coefficients. B_0 represents the Y intercept when the values of predictor variables are X_1, X_2, \dots, X_n . The regression coefficients are equivalent to the slope or tangent of simple linear regression. In the current case, two models will be taken, whereas Project Success is the independent variable and the Y variable in the multiple-regression linear equation.

First Model

Referring to the regression equations in Table 37, which is basically a summary for linear regression between Project Success, Soft Skills, and Mediating variable, the following model takes the same variables but moves them into a multiple regression analysis.

Y: Project Success or Total Project Success; these are the same.

X_1 : Communication Skills; this variable belongs to Soft Skills factors.

X_2 : Project Stakeholders Mix; this variable belongs to Mediating Variables.

Three tables are presented for this model in an attempt to interpret the results. In Table 41, the R-square value shows that 18.7% of the Y (Project Success) variation can be explained by the two selected independent variables of X_1 Communication Skills and X_2 Project Stakeholders Mix. In Table 42, the analysis of variance table shows that the regression model is a good fit, where $F = 4.4907$ and $p = 0.017 < 0.050$. In Table 43, the coefficient summary, the Unstandardized Coefficient shows how much the dependent variable varies when other independent variables are kept constant. The intercept value = 12.579, Communication Skills coefficient = 0.436, and Project Stakeholders Mix coefficient = 0.297. However, the significance

column shows that the independent variable Project Stakeholders Mix has significance value= 0.123 which is not less than 0.05.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.433 ^a	.187	.146	2.241

a. Predictors: (Constant), Communication Skills, Projects Stakeholders Mix.

Table 41: Model summary for first model

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.175	2	22.587	4.497	.017 ^b
	Residual	195.897	39	5.023		
	Total	241.071	41			

a. Dependent Variable: Total Project Success = Project Success items

b. Predictors: (Constant), Communication Skills, Projects Stakeholders Mix.

Table 42: ANOVA table for first model

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
		1	(Constant)	12.579	3.089		4.072	.000
	Projects Stakeholders Mix	.297	.189	.235	1.576	.123	-.084	.679
	Communication Skills	.436	.209	.311	2.091	.043	.014	.858

a. Dependent Variable: Total Project Success = Project Success items

Table 43: Coefficients summary for first model

Second Model

Referring to the regression equations in Table 38, a table which is basically a linear regression summary between Total Soft Skills, Total Project Success, and Mediating Variables, the

following model takes the same variables but instead puts the findings into a multiple regression analysis.

Y: Total Project Success or Project Success; these are the same.

X₁: Total Soft Skills. This variable = Communication Skills + Negotiation Skills + Conflict Management.

X₂: Project Stakeholders Mix. This variable belongs to the mediating variables.

Three tables have been presented for this model in an attempt to interpret the results. In Table 44, the R-square value shows that 17.8% of Y (Total Project Success) variation can be explained by the two selected independent variables X₁ (Total Soft Skills) and X₂ (Project Stakeholders Mix). In Table 45, the analysis of variance table shows that the regression model is a good fit where $F = 4.226$ and $p = 0.022 < 0.050$. In Table 46, (Coefficient Summary) the unstandardized coefficient shows how much the dependent variable varies when other independent variables kept constant. The intercept value = 12.148, Total Soft Skills coefficient = 0.181, and Project Stakeholders Mix coefficient = 0.179. However, the significance column shows that the both independent variable Total Soft Skills and Project Stakeholders Mix has significance values 0.056 and 0.407 respectively. None of the values are less than 0.05.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422 ^a	.178	.136	2.254

a. Predictors: (Constant), TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict Management, Projects Stakeholders Mix.

Table 44: Model summary for first model

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	42.937	2	21.469	4.226	.022 ^b
Residual	198.134	39	5.080		
Total	241.071	41			

a. Dependent Variable: Total Project Success = Project Success items

b. Predictors: (Constant), TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict

Management, Projects Stakeholders Mix.

Table 45: ANOVA table for second model

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	12.148	3.350				3.626
1 Projects Stakeholders Mix.	.179	.214	.141	.839	.407	-.253	.611
TOTAL SOFT SKILLS = Communication Skills + Negotiation Skills + Conflict Management	.181	.092	.332	1.971	.056	-.005	.368

a. Dependent Variable: Total Project Success = Project Success items

Table 46: Coefficients summary for second model

Both models fail to hold because of significance values are not less than 0.05 except for Communication Skills in the first mode, 0.043. Accordingly, Multiple Regression analysis cannot be used due to the above findings.

Chapter 5

Analysis and discussion

Quantitative

The above findings show a significant relationship between Project Success as a dependent variable and Total Soft Skills. Moreover, the variable of the Project Stakeholder Mix, which belongs to the Mediating Variables, has dual relationship with Project Success and Total Soft Skills. Figure 18 clarifies the relation found between factors in both the correlation and regression parts. It is clear from this figure that Project Success is affected directly by Communication Skills, Project Stakeholders Mix, and Total Soft Skills. At the same time, Total Soft Skills consist of three factors which mean that two factors fail to produce a direct effect on Project Success. These are Negotiation Skills and Conflict Management Skills. This finding suggests appears to oppose what has been found in published materials on this topic, but this is not true. To be concise, both factors, Negotiation Skills and Conflict Management Skills, have a significant correlation with the Project Stakeholders Mix as shown in Table 35; this result then has a direct effect on Project Success. Likewise, some factors belonging to the Mediation Variable, such as Project Attributes, has no significant relation with Project Success. Obviously, all factors belonging to soft skills have either a direct or indirect effect on Project Success, except for the Leadership factor which failed to hold as a factor in this study because of Cronbach's Alpha. Likewise, the same can be said about Mediating Variables. All factors belonging to it have either a direct or indirect effect on Project Success and Total Soft Skills, except Project Structure which failed to stay as a factor in this study because of Cronbach's Alpha.

Modified dependent, independent and mediating variables relationship

Figure 18 is a modified model for the relationship between factors. An earlier model has been described in Figure 8. In this modified model (Figure 18) the outline relationships between the three components still hold. Just like the earlier model, all components placed under soft skills perception establish a frame of reference. Among Total Soft Skills, only Communication Skills factor has having a direct and significant effect on Project Success. Moreover, the three factors of Communication Skills, Negotiation Skills, and Conflict Management Skills, as a combined unit, have a direct and significant effect on Project Success. Also, among Mediating Variables, only the Project Stakeholder Mix has a direct and significant effect on Soft Skills and Project Success. Mediating Variables, as a combined component, are not tested because they represent different factors. An interesting relationship arose among two factors in the mediating variables factors namely project attributes and project stakeholder mix. No dependent or independent reference has been made to these two because a relation does not make any sense relative to this study, although the researcher decided to show it in this modified model. However, the dependency relationships between the three components remain unchanged.

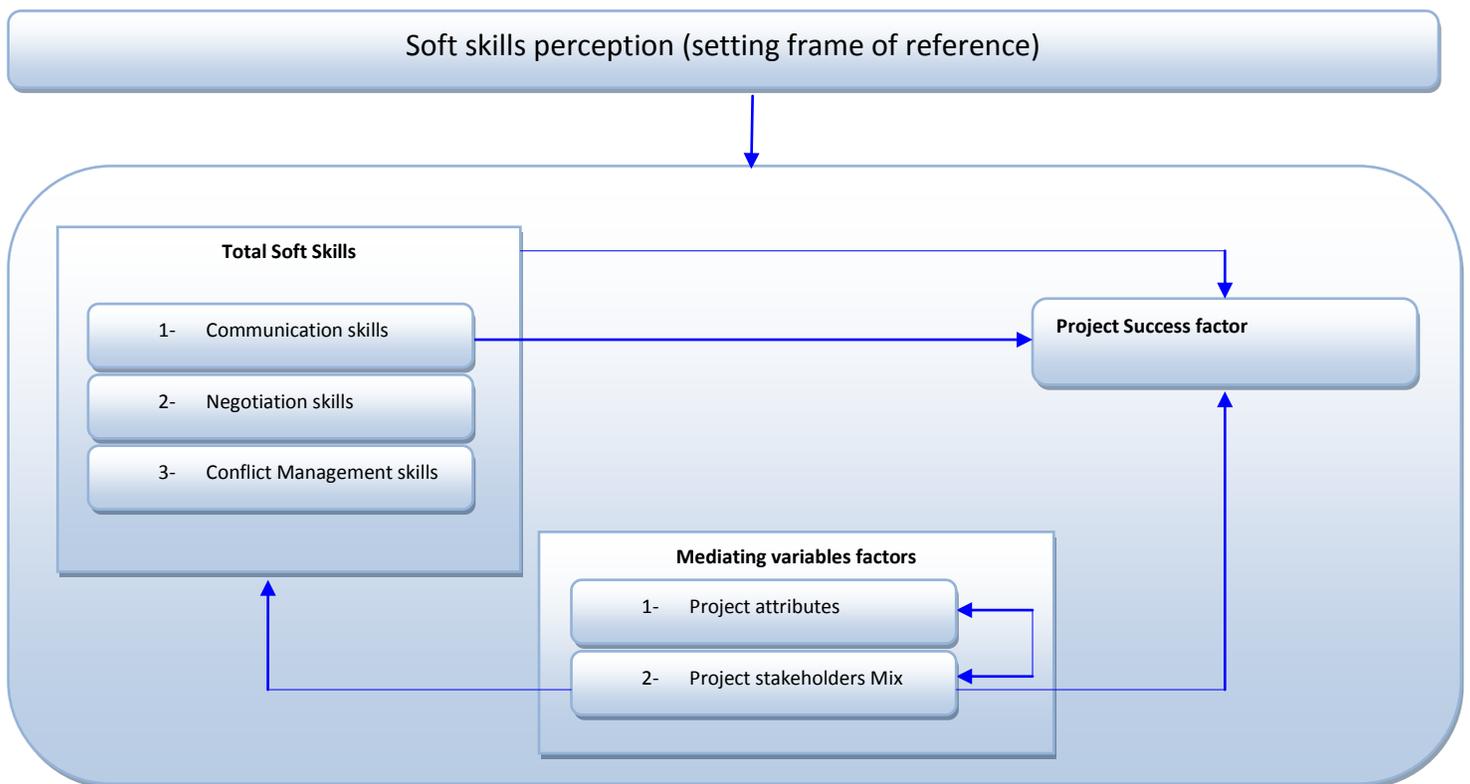


Figure 18: Modified relationship model between factors

Addendum clues for saturation point existence – Theoretical

At the top of the sufficient evidence presented using the R square in the regression passage, the following is an addendum support, theoretical, for the existence of a saturation point.

Sequence number 1 in the regression table, Table 38, says that some of Project Success can be explained by Total Soft Skills as in the following equation:

Project Success = 12.679 + .221 (Total Soft Skills), providing that R-square equals to 0.163.

Setting Project Success as Y and Total Soft Skills perception as X in the equation can be seen as a linear function:

$Y = 12.679 + .221 X$ and R-square = 16.1%.

It is known that such equation represents the prediction of Y through X. Both variables are intangible and their units of measure are not defined. Theoretically speaking, if these units of measures could be transformed into defined units belonging to the same dimension of measurement, then it will make sense to look at the equation as a cost and gain equation, where Total Soft Skills X represents the cost and Project Success Y represents the gain. The difference, Gain – Cost, would represent the profit. Consequently, and similar to the Rate of Investment (ROI), the Rate of Gain (ROG) could be defined as Profit/Cost.

Alternatively, $ROG = (Gain - Cost)/Cost$

Replacing Gain by Output and Cost by Input would lead to $ROG = (Output - Input)/Output$.

Recalling that Output is Y and Input is X, ROG becomes equal to $(Y-X)/X$.

Putting all in terms of X, Total Soft Skills, this would lead to the following function:

$$ROG = (bX + a - X)/X$$

$$= bX/X + a/X - X/X$$

$$= b + a/X - 1$$

Recall the regression function, $Y = 12.679 + .221 X$. $a = 12.679$ and $b = 0.221$

$$ROG = 0.221 + 12.679/x - 1$$

$$= 12.679/x - 0.779$$

Seq.	X	Y = 12.679 + 0.221X	ROG = 12.679/X - 0.779	Profit = Y - X	Investment Justification
1	1.000	12.900	11.900	11.900	ROG>0: Justified investment in Y
2	2.000	13.121	5.561	11.121	ROG>0: Justified investment in Y
3	3.000	13.342	3.447	10.342	ROG>0: Justified investment in Y
4	4.000	13.563	2.391	9.563	ROG>0: Justified investment in Y
5	5.000	13.784	1.757	8.784	ROG>0: Justified investment in Y
6	6.000	14.005	1.334	8.005	ROG>0: Justified investment in Y
7	7.000	14.226	1.032	7.226	ROG>0: Justified investment in Y
8	8.000	14.447	0.806	6.447	ROG>0: Justified investment in Y
9	9.000	14.668	0.630	5.668	ROG>0: Justified investment in Y
10	10.000	14.889	0.489	4.889	ROG>0: Justified investment in Y
11	11.000	15.110	0.374	4.110	ROG>0: Justified investment in Y
12	12.000	15.331	0.278	3.331	ROG>0: Justified investment in Y
13	13.000	15.552	0.196	2.552	ROG>0: Justified investment in Y
14	14.000	15.773	0.127	1.773	ROG>0: Justified investment in Y
15	15.000	15.994	0.066	0.994	ROG>0: Justified investment in Y
16	16.000	16.215	0.013	0.215	ROG>0: Justified investment in Y
17	16.275	16.276	0.000	0.001	ROG=0: Saturation point of investment in Y
18	17.000	16.436	-0.033	-0.564	ROG<0: Unjustified investment in Y
19	18.000	16.657	-0.075	-1.343	ROG<0: Unjustified investment in Y
20	19.000	16.878	-0.112	-2.122	ROG<0: Unjustified investment in Y
21	20.000	17.099	-0.145	-2.901	ROG<0: Unjustified investment in Y
22	21.000	17.320	-0.175	-3.680	ROG<0: Unjustified investment in Y
23	22.000	17.541	-0.203	-4.459	ROG<0: Unjustified investment in Y
24	23.000	17.762	-0.228	-5.238	ROG<0: Unjustified investment in Y

Table 47: Investment justification for Total Soft Skills in Project Success

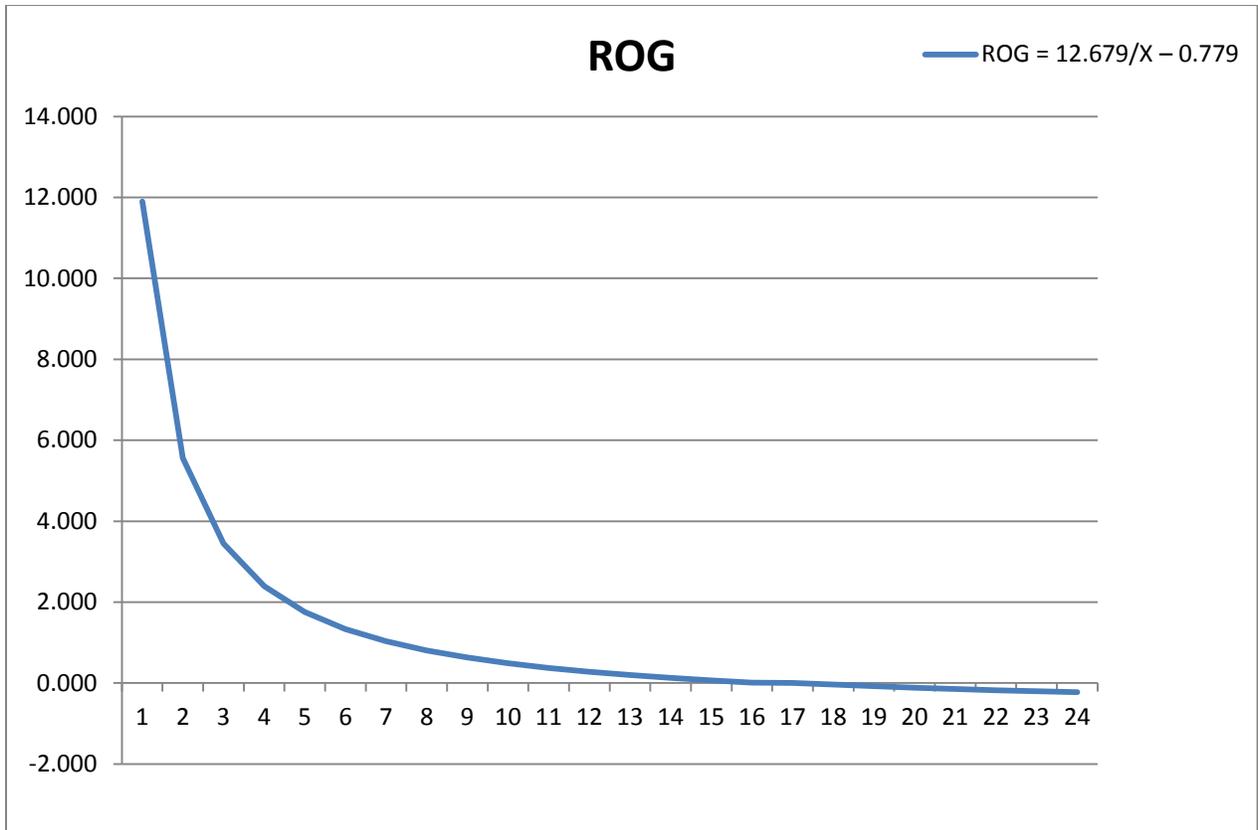


Figure 19: Rate of Gain for the Effect of Total Soft Skills Sets on Project Success

Figure 19 is a graph for the ROG function ($ROG = 12.679/x - 0.779$). Note what the maximum return is when $X = 1$. Also, it can be seen that when X starts to increase, the return starts to decrease. When the x is exactly $= 16.275$, the return will be zero. Interestingly, when $X > 16.275$, it has a negative effect on Y , and ROG is negative; this is a loss. Consequently, investments in X beyond 16.275 become unjustified. It is better to invest in activities that are directly related to Project Success. This provides a clue that there is a saturation point which belongs to this mixture of soft skills where investment beyond that point is unjustified; this is basically our definition of saturation point.

Table 47 illustrates some miscellaneous values for X , Y , ROG, Profit/Loss, and Investment Justification results for the first regression equation mentioned in Table 38.

Investment in this mixture of soft skills is justified when $X < 16.275$.

Investment in this mixture of soft skills is unjustified when $X > 16.275$.

Likewise, we can conduct similar analyses for other accepted regression equations to give clues that saturation points exist where soft skills factors make a minimal effect beyond these points. It is needless to assure that this clue existing on a theoretical basis and therefore the evidence needs to be upgraded. It has potential for further research.

Qualitative

Two case studies are represented in this paper to support the findings and the analysis done in the quantitative section. The following points can be inferred from the first case study, dividends distribution. Relying on the grounded theory analysis approach, axial coding has been followed after open coding of the case study. Seven categories are inferred from open coding in the case study.

Axial Coding

1. Category #1: Project definition

- a. Project objectives were clearly defined. They were specific.
- b. Project had a fixed timeline.

2. Category #2: Boosting communication and negotiation

- a. Big picture of the project was communicated to the proper personnel.
- b. The project strategic goals were clear for all stakeholders.
- c. Project manager was able to communicate and negotiate efficiently and effectively with his team members.

3. Category #3: Caution point to prevent failure

- a. Project manager got the appropriate support from top management.
- b. The project manager maintained the clarity of the big picture.
- c. A project manager could influence stakeholder's attitudes through his communication and negotiation skills.

4. Category #4: Project structure and defining roles.

- a. The project manager played the role of coordinator only. He made the appropriate follow up and communication to make sure the development is fair enough to implement the service.

5. Category #5: Assigning accountability to the appropriate resources.

- a. Project resources for development were scarce. However, the project manager was able to find his way out to manage development task through development head.
- b. Project manager gave the development head the freedom to decide the most practical method to develop the system.

6. Category #6: Concession and avoiding conflict.

- a. Project manager accepted the development head to skip the formal testing of the system. Accordingly, organization's rules for releasing the system were not followed.
- b. Project manager avoided conflict with the development head.
- c. Project manager avoided to exert organizational power on the development head and created the situation for the development head to do his task willingly.

7. Category #7: Degree of success and failure.

- a. Project achieved partial technical success because the developed system had limited functionality features.
- b. The top management was content of project results because service was launched successfully. This gives a clear indication that the project worked as a building block to the strategic goals.

Equivalently, the following points can be inferred from the second case study, business intelligence software.

1. Category #1: Project definition

- a. Project objectives were not clearly defined. They were not specific but unclear instead.
- b. Project had no fixed timeline; was ongoing development.

2. Category #2: Boosting communication and negotiation

- a. Big picture of the project was fuzzy and was not communicated appropriately.
- b. The project's strategic goals were not clear for any stakeholder.
- c. The IT manager and the project manager were persuasive in communication and negotiation with development head but they were not convincing.

3. Category #3: Caution point to prevent failure

- a. Project manager did not get the appropriate support from top management. Instead the IT manager and project manager misinformed top management to buy business intelligence software.
- b. The project manager did not maintain the clarity of the big picture.
- c. The IT manager and the project manager could not influence development head attitude through their communication and negotiation skills.

4. Category #4: Project structure and defining roles.

- a. The project manager played the role of coordinator only but he made that role through the IT manager who was in his turn persuasive but not convincing to assign the accountability to the development head.

5. Category #5: Assigning accountability to the appropriate resources.

- a. IT manager could not assign accountability to the proper resources.
- b. Project manager and IT manager deprived development head from deciding the most practical method to boost development services.

6. Category #6: Concession and avoiding conflict.

- a. Development head accepted to support vendor for POC, but there was no formal document or procedure to support project manager of POC result.
- b. The IT manager and the project manager could not avoid conflict with the development head.

- c. The IT manager tried to exert organizational power on development head and created the situation for development head to do his task by force. However, the latter was reluctant to do so.
- 7. Category #7: Degree of success and failure.**
- a. Project did not achieve any degree of technical success because the bought system was not utilized.
 - b. The top management did not express any opinion about project results and at the same time no clear service implemented. This gives a clear indication that strategic goals of the project were not met.

Selective Coding

The above seven categories comprise sixteen points for each case study in contrasting each other. This comparison is amount to a qualitative comparative analysis for both case studies. All categories can be classified under some factor discussed in this study. The following thematic analysis shows generic ideas can be inferred from above comparative analysis.

1. Category #1: Project definition

- a. Success in first cycle, project definition and setting objective, is necessary for success in the next cycle.

2. Category #2: Boosting communication and negotiation

- a. Communication has a meaning to be boosted only if it has a chance to achieve its goals.

3. Category #3: Caution points to prevent failure.

- a. Several actions can be applied to increase chances of success of a project.

4. Category #4: Project structure and defining roles.

- a. Project structure could influence type and intensity of communication.

5. Category #5: Assigning accountability to the appropriate resources.

- a. Difficulty of assigning accountability cannot always be resolved by negotiation skills.

- b. Soft Skills have no influence, no matter what efforts are taken, to help the first cycle to succeed if this cycle lacks project definition and objectives

6. Category #6: Concession to reach agreement.

- a. Organizations can accept overriding its procedures to build agreements between conflicting parties for strategic projects.
- b. Excreting organizational power to resolve conflict might create a converse result.

7. Category #7: Degree of success and failure.

- a. Success is relevant to the criteria set by the individual who is measuring the success.

Building model from case studies

Relying on the above analysis of axial and selective coding, the next argument can be deduced. Basically, it is a mental interpretation of what has already been done in order to set the pattern that is possibly grounded in the data.

We already found that it is necessary to set clear definitions and objectives in order to achieve success in the first cycle in the project. Also, success in following cycles is highly dependent on the success of the first cycle. In converse, if first cycle is a failure then the interpersonal skills of project manager have no effect on project success no matter the amount of effort made. We also, found that by communicating the big picture of the project, along with its strategic goals, can make communication and negotiation more persuasive and convincing in order to attain the accountability assigned to appropriate people who asked to do certain activities. However, the intensity and types of communicated messages might be affected by project structure.

Usually a project manager tends to search for ideas and actions that make their project succeed. Several actions can be adopted to address such a goal. Most of these actions require interpersonal skills to exist in a project manager's personality - soft skills. Some of these actions require organizations to be flexible toward compliance to its procedures. However, soft skills are not always the answer for all difficulties faced in a project.

Finally, projects are seen as a success if it satisfies the criteria set by the person who judge it a success.

Figure 20 represent a success model which could be derived from the previous argument. Basically, it shows the project definition along with its defined roles in a certain project structure. Also, the model addresses caution points that could push communication and negotiation settings to produce agreements on assigning accountability to the appropriate project members. This in turn would help increase chances of project success.

The linked three components: Project definition, Project structure & Defining goals, and Caution points to prevent failure, work together as an accumulative driving force in boosting communication and negotiation. For example, without one of these components it makes no sense to communicate or negotiate with other. In another example, negotiating with a software supplier about the price of certain software has no real sense if the organization using it does not have any clear understanding of their objectives to do so.

If the component of boosting communication and negotiation is steered well then most likely it will lead to the next component - concession to reach agreement. For example, we saw from the second case study that in buying business intelligence software, the boosting of communication lead to no agreement between the IT manager and development head because there was no clear definition of the project's aims and objectives. However, in the other case study, the opposite has happened. The project's definition and objectives were clear, so accordingly, the project manager was able to reach an agreement with the development head after some persuasive negotiation. Concessions to reach an agreement are the normal result of healthy communication and negotiation process. Only, after this stage, the project manager can assign accountability to the appropriate resources as a preparation to start executing activities in the project, which is basically a necessary action for a project manager to generate project results - degree of success and failure.

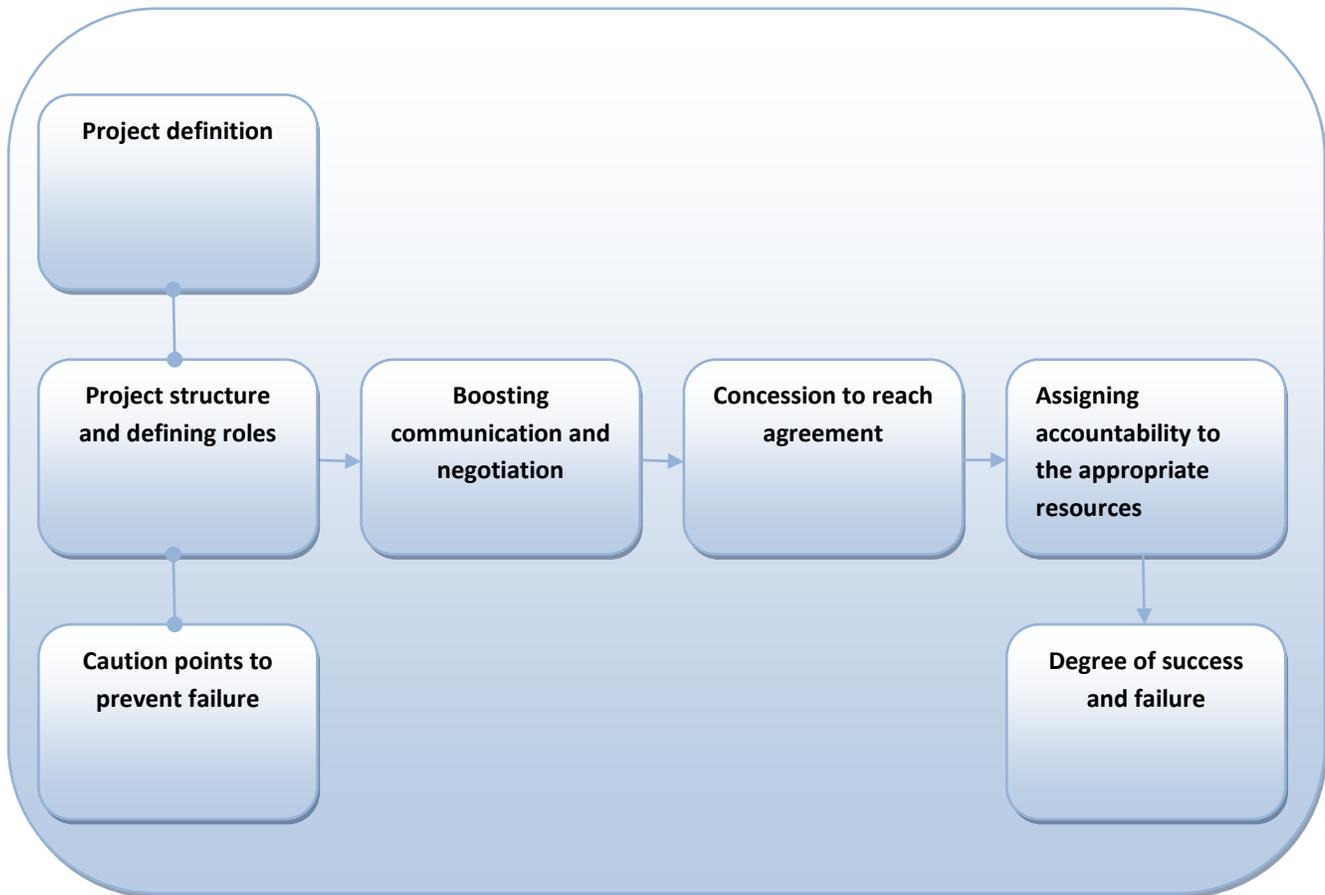


Figure 20: Success model inferred from two case studies

Quantitative and qualitative discussion

The overall objective of this study is to prove the existence of saturation point as it is seen as a concept that can be introduced to the project management discipline in order to fill a gap in addressing soft skills topics. In the path of the quantitative analysis and discussion, the study was able to provide sufficient evidence through statistical data analysis and interpretation using R square concept. This has been followed by an addendum to bring about more clues as it pertains to saturation point existence.

Some surprising results came up in this study, such as the invalidity of having some factors like leadership, which is widely accepted as a valid topic relevant to soft skills. This kind of results could be subject to the sample selected as 42 is a low number of research subjects, or it could

be due to the items in the questionnaire which are not tested on a pilot sample and hence not refined. Based on this the qualitative part was necessary to support the findings. Two case studies have been made from the practical experience of the researcher to find a model that has partial support to the overall objective of this study. The model deduced works as a partial support for the saturation point idea; boosting communication and negotiation skills has a prerequisite, mainly some activities in the first cycle in project management. Inversely, boosting communication and negotiation is not justified if the project is not clear about such activities. Obviously, the model does not show a situation where excess in soft skills is unjustified. This keeps the door widely open for more research on saturation point. However, the model still brings up evidence of a significant relationship between soft skills and project success.

The following table, Table 48, provided the research questions answered quantitatively, as well as, qualitatively:

Seq.	Question	Quantitative answer	Qualitative answer
1	Is there a relationship between soft skills and project success?	Yes, evidence provided statistically through regression.	Yes, evidence provided through a model originated using grounded theory.
2	If such a relationship exists, does it depend on the set of soft skills factors used?	The relation does exist and it is relevant to the set of soft skills applied in the project. Regression analysis and frame of reference bring sufficient evidence.	The relation does exist but the model deduced does not clearly address the set of soft skills used, except for communication and negotiation.
3	Is there a point in practicing soft skills when efforts at that point create the best balance between hard skills and soft skills efforts?	Yes, this point does exist. R square concept was used to find this evidence. However, the idea of the saturation point still open for more research.	No clear answer provided, except soft skills have a prerequisite of application in projects.
4	If such a point exists, what is	It makes no sense to apply soft	No clear feature in the model

	the effect of practicing soft skills beyond this point?	skills beyond the saturation point. Evidence provided through R square and clues from addendum discussion.	addresses this question.
5	Is there a way to find that point?	No clear yes to answer this question, but the addendum provided clues that it is possible to find ways to locate the saturation point.	No answer.
6	Is there a way to measure the effect of soft skills before and after that point?	Saturation point is the point suggested to project managers to leave soft skills applications in certain stages of the project. Regression equations can help in anticipating this effect before and after the saturation point.	Effect is left to the project manager's judgment. The model shows that boosting communication and negotiation would result in reaching an agreement and consequently assign accountability as a preparation point in order to execute activities. To what extent the project manager desires to boost soft skills is up to him.
7	What are the units of measurement for soft skills and project success?	The units of measurement for soft skills and project success are intangible.	No answer.
8	Do these units belong to different dimensions; if they do, is there a way to transform them into a unified dimension in order to anticipate effects on project success through the amount of soft skills exercised in the project?	Soft skills and project success represent two different things. The likelihood is their units belong to different dimensions. Clues in the addendum show there is a possibility to transform their units to a unified one. The mechanism of making such transformation needs further research.	No answer.

Table 48: Quantitative and qualitative answers for research questions

Chapter 6

Conclusions

The above analysis looked at evidence that saturation points do exist and that they are dynamic, i.e., their effect on project success might vary according to the set of soft skills applied at certain stages. Also, a saturation point represents the point at which investment in soft skills is not justified beyond that, while previous to that it is considered worthy and justified. In addition, this paper gave evidence that investment in factors other than soft skills, after the saturation point, make sense and might positively affect a project's success. Moreover, the evidence provided clearly shows the positive effects of soft skills on a project's success, but having said that there remains a problem in quantifying those units of measurement. However, the study did shed light on the possibility of shifting soft skills from unquantified to quantified measures. By answering the four main objectives stated in this study the suggested model presented holds a valid. The following is a review of these objectives.

1. Providing evidence that there is relationship between soft skills and project success.
This objective has been achieved quantitatively and qualitatively.
2. Providing evidence of the existence of the alleged saturation point.
This objective was achieved quantitatively.
3. Providing evidence that the saturation point depends on a selected soft skills set used in projects.
This objective was achieved only quantitatively.
4. Illustrating there is a chance of finding a way to shift soft skills from unquantified to quantified measures.
This objective was achieved quantitatively.

As it has been found the model presented in this study is valid, and from this formulation we can conclude there is enough reason to introduce it to the project management area of education. Basically, having soft skills shifted from self-development to the project management discipline can be considered as the first step toward filling such a gap.

Recommendations

1. The existence of saturation points suggests that the PM should not exaggerate in the usage of soft skills because they start to lose their effect after the saturation point.
2. Only a small amount of project success could be explained by soft skills. This percentage would suggest that other factors have a major effect on project success; such as, hard skills, methodology, good planning, and project control. It is recommended that project managers continue to improve their hard skills.
3. PMs should analyze project attributes such as size, complexity, and industry type in order to determine the most suitable mixture of soft skills that can be exploited through the project.
4. PMs should try to determine the best mixture of soft skills for each stage of the project. Furthermore, this idea can be extended to other breakdowns of the project; such as, tasks, working packages, and milestones.
5. PMs should revisit the innate interpersonal skills and attributes that he/she thinks exist in his/her personality in order to optimize them.
6. PMs should consider developing new soft skills and tactics that can be exploited for project success.
7. PMs should consider communicating effectively any idea that possibly affects project success, such as strategic goals and the big picture.
8. Maybe it is true that soft skills are difficult to learn in the classical way, but it is worthy to recommend that project management institutes should consider adding a chapter for soft skills in their knowledge database in order to establish a program of developing soft skills that can affect project success.

Further research recommendation

9. Factors considered in this study, either soft skills factors or mediating variables do not cover all possible factors. Therefore further studies should occur in considering the levels of project success based on soft skills influences.
10. Since this study is about perceptions, it is recommended that further studies consider non-hypothetical situations in order to compare their results with this study results. This would shed a light on how theory and practice interact.
11. This study was limited to Dubai, and in its application did not cover all of Dubai; therefore, it is recommended further study occur covering all of the areas of Dubai not observed and to also include a more detailed study of the other six emirates in order to identify possible differences if they exist.
12. Moreover, this study is inclined to accidental project managers; it would produce more informed findings if it were to come from formal project managers.

Limitations

This study is relevant to the IT industry and cannot be generalized to other industries. The questionnaire readings came from respondents working in Dubai in United Arab Emirates. Accordingly, the results are relevant to this emirate only. Moreover, some can argue that the selection of the respondents sample is not random, because it came, mainly, from the contact list of the researcher in twelve years. Also, it is known that Dubai forms a multinational fabric in terms of social formation and working forces. In this study, 81% of the respondents are from a Non-UAE nationality. This might make this study more relevant to a Non-UAE national. Another fact about this study is 42.9% of the respondents are accidental project managers. This might bring up the question of what possible effects this group has made on the study results.

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Appendix – A

The questionnaire used to collect quantitative data through google forms is printed in the next eight pages.

11/13/13 Effect of soft skills on project management success in IT industry - questionnaire - Google Drive

13. Conflict Management Skills-Perception *

Please select the most appropriate option.

Mark only one oval per row.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
20. Project managers should try to avoid conflict as it has negative effect on their projects.	<input type="radio"/>				
21. If conflict happened during a project, project managers should try to compromise for win-win situation.	<input type="radio"/>				
22. Project managers should encourage team members to look at the positive side of the conflict so they will be able to get benefit of it.	<input type="radio"/>				
23. Conflict with people who has high power and high interest in the project is the most dangerous and should always be avoided.	<input type="radio"/>				

https://docs.google.com/forms/d/1BYWYjNtGwD1KfV3uCuRt07_9VWt1N-CWLU0GGQ/edit

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