

THE EFFECT OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR AND
TEAMWORK ON THE SUCCESS OF INFORMATION SYSTEMS PROJECTS

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DECLARATION OF ORIGINALITY

I, Sibel Bezirgan Alan, certify that

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ABSTRACT

The Effect of Organizational Citizenship Behavior and Teamwork on the Success of Information Systems Projects

Information systems project success topics have been extensively researched along with its indicators, success criteria and possible improvement areas in the academic literature. Beside this background, it is aimed to provide a framework which will emphasize the behavioral part of project management processes. Thus, this study investigates the impact of organizational citizenship behavior and teamwork on information systems project success.

Organizational citizenship behavior is analyzed along five dimensions, namely; altruism, courtesy, conscientiousness, civic virtue and sportsmanship. In addition, teamwork is analyzed along three dimensions as communication, collaboration and cohesiveness. Data was collected from information systems project managers through an online survey. In order to examine the effect of these dimensions on information systems project success, nonparametric statistical test techniques were used on a sample of 173 projects executed in several industries of Turkey. The findings of the study demonstrated that all OCB dimensions and the construct itself have positive relations with IS project success. In addition, teamwork construct and all of its dimensions are also found as positively related with IS project success. On the other hand, although project scale determinations are frequently used in project success evaluation reports, the results of statistical tests showed that there is no significant difference among different project sizes (small-medium and large) according to their project success or fail situations in information system projects.

ÖZET

Organizasyonel Vatandaşlık Davranışı ve Takım Çalışmasının

Bilgi Sistemleri Proje Başarısına Etkisi

Bilgi sistemleri projelerinde başarı konusu, akademik literatürde araştırmacılar tarafından başarı göstergeleri, başarı kriterleri ve başarı oranlarının artırılması ile ilgili iyileştirme alanları açılardan yoğun olarak çalışılmış. Literatürdeki çalışmaların yanı sıra bu çalışma, proje yönetimi süreçlerine davranışsal bir yaklaşım getirmeyi amaçlamaktadır. Bu amaçla, bu çalışmada organizasyonel vatandaşlık davranışları ile takım çalışmasının bilgi sistemleri projelerindeki başarıya etkisi araştırılmıştır.

Organizasyonel vatandaşlık davranışı kavramı; yardım etme davranışı, nezaket, doğruluk, erdem ve sportmenlik olmak üzere beş alt kavram ile analiz edilmiştir. Takım çalışması davranışı kavramı ise iletişim, iş birliği ve uyum alt kavramları ile analiz edilmiştir. Online bir anket aracı ile bilgi sistemleri alanında çalışan proje yöneticilerinden çalışma verisi toplanmıştır. Çalışma kapsamında yer alan tüm kavramların ve alt kavramların bilgi sistemleri projelerindeki başarıya olan etkisi parametrik olmayan istatistiksel testler kullanılarak Türkiye'de çeşitli endüstrilerde yapılan 173 proje verisi üzerinden incelenmiştir. Çalışma sonrasında elde edilen bulgular; organizasyonel vatandaşlık davranışı ile takım çalışması kavramları ve tüm alt kavramların bilgi sistemleri projeleri başarısı ile pozitif ilişkisi olduğu tespit edilmiştir. Öte yandan, bilgi sistemleri proje başarısı proje ölçeklerine göre incelenmiş ve aralarında istatistiksel olarak anlamlı bir fark tespit edilememiştir.

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CHAPTER 1

INTRODUCTION

Information systems (IS) and technologies have been widely accepted as a strategic resource for organizations to be able to have a competitive position in the market by enabling improvements in the overall performance (Bennington & Baccarini, 2004). Moreover, the success at the business or system levels is tightly interlinked with the project success (Howsawi, Eager, & Bagia, 2011). Therefore, organizations use project management frameworks to improve the effectiveness of human effort in their organizations while increasing the efficiency of their IS (Jugdev, Janice, & Connie, 2001). Along with the technological developments, organizations are facing with several IS projects of varying size and technical complexities. So that, project success is an important challenge and the main concern of IS project managers, considering the complexity of IS project success instruments (Pankratz & Basten, 2018). Moreover, in almost all papers which indicate success criteria of IS projects and analyze the rate of success in IS projects, it can clearly be seen that a small number of projects are really successful. For example, according to the Standish Group's CHAOS report, only 29% of the IS projects were successful in 2015 (Standish Group, 2015).

Researchers and organizations are looking for new frameworks and methodologies which will be used as the common way to the success for different types of IS projects. Thus, many studies like Reed and Angolia's (2018) study, have a focus on processes and systems. On the other hand, Ibbs and Kwak (2000) have found that communication areas are getting more priority among practitioners. Additionally, Cooke-Davies (2002) has also specified that issues related to human

resources should be considered as more critical factors compared to technical issues. However, studies have indicated that companies have significant problems in understanding the emotional situation of project individuals (Söderlund & Bredin, 2006).

Considering the behavioral part of organizations, earlier studies supported the notion that teamwork has a crucial importance in team performance. Besides, teams could be more productive if interaction, collaboration and cohesiveness are improved among team members (Jewell & Reitz, 1981). On the other hand, several studies of job performance have recommended models to distinguish extra role behaviors from in role behaviors (Brief & Motowidlo, 1986; Organ, 1988; Podsakoff, Ahearne, & MacKenzie, 1997). Borman and Motowidlo (1993) defined extra role behaviors with examples of daily behaviors like spending extra time and voluntarily completing task activities which are originally not part of their job description, helping other employees with their daily tasks and voluntarily acting on behalf of organization's objectives. Afterward, Organ (1997) constructed these extra role behaviors into five dimensions and named after it as organizational citizenship behavior (OCB). In the literature, the impact of OCB has been evaluated in both levels of individual and unit. Podsakoff, Whiting and Blume (2009) studied for analysis of OCB effect on individual level outputs such as job performance evaluations and reward recommendations. Ng and Van Dyne (2005) studied OCB with its effects on unit level outputs by measuring unit performances subjectively. In addition, the effect of OCB has been commonly studied in different environments such as customer service, manufacturing and health services (Kumar, 2014; Brown et al., 2002; Tehran et al., 2013). However, there are only a few studies in the IS environment about the impacts of these behaviors.

Based on the background above, the research questions of this thesis are “What will be the effect of teamwork on the success of IS projects?” and “What will be the effect of OCB on the success of IS projects?” Relatively, Chapter 2 presents the theoretical background of the study. Chapters 3 presents the studied model and related hypotheses. Chapter 4 describes the research context and research methodology. Chapters 5 presents data analysis and research findings. Last but not least, Chapters 6 summarizes the conclusion of the thesis.

CHAPTER 2

LITERATURE REVIEW

Projects become economically important for companies in the fields of implementing organizational strategies and realizing targeted values (Chih & Zwikael, 2015).

Moreover, project management has turned into a main business process for many organizations (Maylor, 2001). In these organizations, project management is also accepted as the main element in the success of IS (Stewart, 2008). Despite its critical role and the usage of structured methodologies, it is still a big concern to determine and to gain successful outcomes (Muller & Jugdev, 2012) and there is a big problem with the significant rate of failures those coming together with increasing information technologies (IT) expenses (Jeffery & Leliverd, 2004). Hidding and Nicholas (2009) discussed that taking the traditional approach to project management is the main reason of significant failure rates. On the other hand, many IS studies pointed out that failure is mostly due to social and organizational, rather than technical issues (Fitzgerald & Russo, 2005).

The literature on project management has also focused almost exclusively on the notion of success. Traditionally, successful accomplishment of time, budget and performance goals were considered as the project success. Although there is no commonly accepted structure for evaluating project success today, many researchers had agreed that it was more comprehensive than meeting the budget and the time (Shenhar, Dvir, Levy, & Maltz, 2001). Shenhar, Dvir, Levy and Maltz (2001) stated that, there must be a multidimensional framework showing different dimensions on the basis of different stakeholders and different projects at different time intervals. In logical framework method (LFM), it is shown that project management success and

product success are two distinct components of project success. Project management success deals with outputs and inputs. Considering project management processes, it concentrates on the accomplishment of cost, time and quality objectives upon the project process. Coupled with the definition of project management success, product success concentrates on the goal and the purpose. It comprises the effects of the project's final product (Baccarini, 1999). As summarized by Andersen et al. (2006) a project might in product success view be evaluated as success, but in project management success view be evaluated as failure, and also the opposite version may happen.

In the fields of success notion, many empirical studies also have been conducted both to determine project success criteria and to examine the effect of several success factors. Project success criteria encompass dependent variables which measure project success. It can contain different elements on different projects. For example, a couple of days delay might be acceptable in an IT project to serve better functionality, but it might be perceived and accepted as a clear failure in Olympic village building project on the other hand (Müller & Turner, 2007). Project success factors are the interdependent components of a project that are felt to be predictive of successful project management. That is to say, they are like communication, top management support, monitoring and feedback, etc. (Dwivedi, et al., 2015). In bridging the project success criteria and factors, a framework called 'The Project Excellence Model' is proposed by Westerveld (2003). The model, which is shown in Figure 1, comprises of six organizational areas related with critical success factors and six result areas related with project success criteria in the same frame.

PROJECT EXCELLENCE MODEL

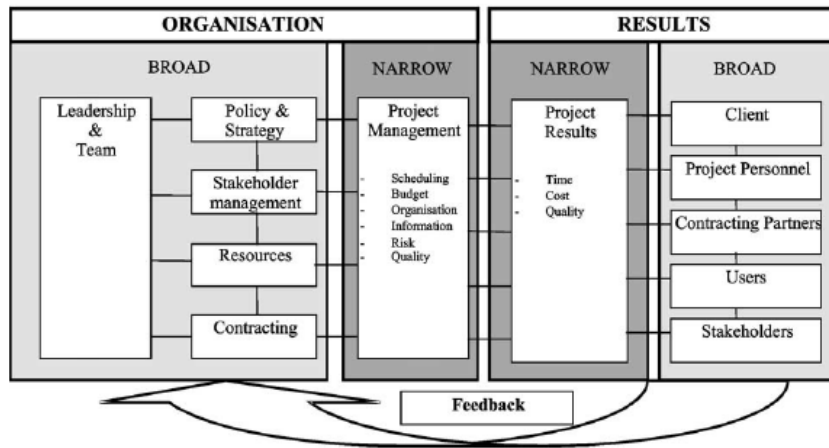


Figure 1. The project excellence model (Westerveld, 2003).

Andersen et al. (2006) extended prior works by studying the relationship among project success factors, project success criteria and actual project success. They motivated by two research questions: “(1) Which success factors within the control or direct influence of project management contribute to the wider measures of success? (2) How do these success factors contribute to the success of the project?” (p. 130). They found that success in project management depends on hard features like project planning and cost management, but it is still needed that soft skills like team communication and knowledge sharing as initial requirement for project management to reach higher project success. On the soft skills perspective Cooke-Davies (2002) also argue that even none of the accepted critical success factors are related with human factors directly, it is underlined that “it is people who deliver projects, not processes and systems” (p. 189).

Projects are managed by project managers mostly in stressful conditions. Considering this, it is expected that numerous project management specific methodologies to Human Resource Management (HRM) would have been established. By contrast, Pollack (2007) in his literature review study exposed that

the practices of HRM methodologies in project management is in elementary level. In addition, the situation is also the same for project oriented companies in the HRM context. Various features of project oriented companies cause specific challenges which are rarely known in organizations (Huemann, Keegan, & Turner, 2007). The lack of frameworks and incentives for human resource development causes several problems for the long term effectiveness in these project oriented organizations (Hobday, 2000). However, there were some examples of researchers working for improvements in HRM practices. For example, Bredin and Söderlund (2011) emphasize the significance of studying the roles, responsibilities and interactions of the HR members. They provide a framework which highlights “the interplay between HR specialists, line managers, project managers, and project workers in the implementation of HR practices” (p. 2202). Besides, Turner et. al. (2008) highlights the issue of employee well-being in project oriented organizations which their environments contain additional stressful conditions due to continuously changing dynamic workloads and multiple role assignments with ambiguous requirements. They find that a large amount of project oriented organizations are giving more priority to profit and customer demands comparing their care on employee well-being.

The literature on the human part of project management includes a variety of approaches. This issue is proposed by researchers through project managers’ perspective, stakeholders’ perspective and overall communication & team management perspective.

2.1 Project managers' perspective

In the field of technical project management, there is an increase in the attention of leadership among all technical and non-technical aspects. Current leadership literature ignores the dynamically changing workplace environment. Outsourcing is one of these dynamic changes in the IT project environment. An important portion of project tasks is allocated to outsource IT people who are lack of having organizational loyalty. On the other hand, virtual team is an issue which team members belong to different cultures of different countries in the world. The work is trying to be done and issues are to be discussed through virtual face-to-face interactions with video conferencing tools across the world. So there is a need for transformation in the current literature in the technical leadership perspective (Thite, 1999). One of the most interesting approaches to this transformation issue has been proposed by Barber and Warn (2005). They defined the current leadership style with firefighter analogy which means crisis management driven reactive leadership. On top of that, they introduced required firelighter leadership style which is proactive and focus on wider outputs. Since this style is undoubtedly more complicated than the firefighter style, they emphasized that it is required to study deeply on the effect of different firelighter leadership behaviors on the project outputs. In addition to leadership style discussions, the first step to be able to manage positive and negative outputs is to understand how project managers deal with stressful situations (Aitken & Crawford, 2007).

“Several studies have highlighted the essential leadership qualities and skills required by IT project managers to ensure success, such as the ability to manage people, stress, emotions, bureaucracy, and communication” (Wang, Chou, & Jiang, 2005, p. 174). It has demonstrated that a successful project manager must have

flexibility and capability in both hard factors like cost, time and functionality and soft skills related with relationship management in all situations (Bourne & Walker, 2004; Lee-Kelley, Crossman, & Cannings, 2004). Kelley et al. (2004) also stressed the importance of these soft and hard factors for virtual teams. Figure 2 shows competing soft and hard factors for virtual teams.

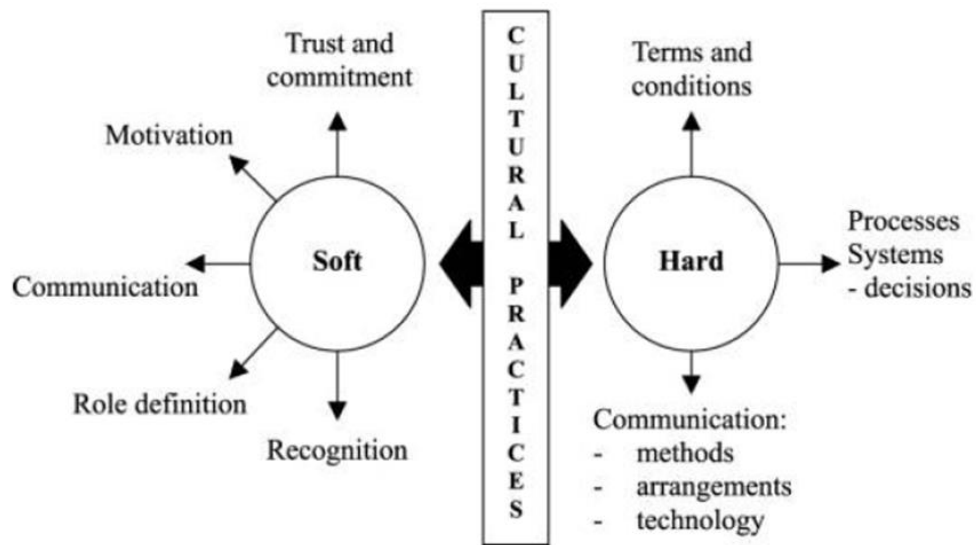


Figure 2. Competing factors for virtual teams (Lee-Kelley, Crossman, & Cannings, 2004)

To the way of gaining these expected skills; “a clearly defined, interesting task, working with a supportive and goal oriented team, getting the necessary information and financial and personnel resources, and having the possibility to influence important decisions have been identified as the most important motivators for project managers” (Seiler, Lent, Pinkowska, & Pinazza, 2012, p. 60).

2.2 Stakeholders' perspective

Traditional project management view, improvement of methodologies and developing related tools and technics to improve the efficiency of stakeholder management process have been a blind point of the subject comparing to the main focus of the iron triangle containing cost, time and quality. In fact, the capability to understand the unseen dynamics and impact of various stakeholders is really an important competency for every successful project managers. Stakeholders might be considered as an important asset and main component in the shape of project by contributing experience and transferring know-how (Bourne & Walker, 2005). Besides its importance, stakeholder management is extremely problematic. Project manager and project team members must set continuous relationships with a varied set of teams and individuals who can affect the project outputs in many manners. A project will possibly not be regarded as successful even if it realizes budget, time and scope targets, without doing this and focusing on the needs and anticipations of a various range of stakeholders (Bourne & Walker, 2006).

Bourne and Walker (2008) also aimed to demonstrate “how to improve project success through developing a stakeholder engagement process through the development of a stakeholder influence visualization tool together with a set of strategies that could follow identifying key stakeholders and the nature of their influence” (p. 129) in their recent study.

Considering the stakeholder management process has critical importance on project success, Yang, Shen and Ho (2009) made a research to determine the weaknesses of prior studies on project stakeholder management. They concentrated on three main problems and share future research opportunities on, namely: “(1) very few methods and tools are available to identify stakeholders and their interests; (2)

limited studies can address changes in project stakeholders' influence and relationship; and (3) few studies are capable of reflecting the influence of the entire relationship network in practice" (p. 171).

2.3 Project team and teamwork perspective

Team climate is a significant factor for increasing team effectiveness, but there is limited attention to this notion in the project management literature. In projects, teams are essential to deal with complex work requirements, to stimulate creativity and innovation, to empower workers, etc. (Loo, 2003). Skills such as problem solving, social and interpersonal skills, collaboration, communication and time management are critically required for employability in team environments. As far as most businesses rely on teamwork, all skills that are shown in Figure 3 are important, especially collaboration is crucial for successful teamwork and successful project (Tarricone & Luca, 2002). Additionally, as Anantatmula (2010) suggested that project managers should spend their effort to build organizational and inter-organizational trust, based on which it becomes possible for project members and partners to work collaboratively with each other.

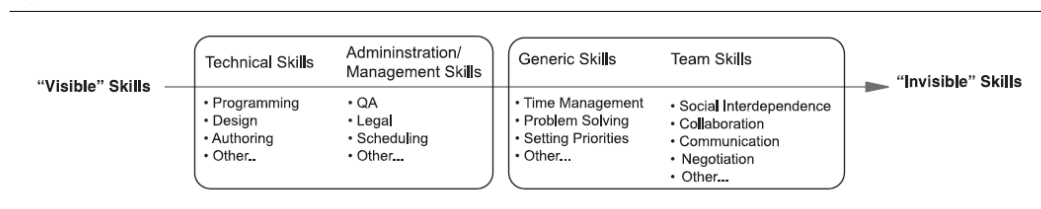


Figure 3. A spectrum of skills needed for teamwork

Considering all literature studies summarized until now, as defined by Johns (1995, p. 37), "The project-management method is a system for managing behaviors

needed by people who work together in teams to satisfy the needs of their customers”. There is a strong acceptance that behavior seriously effects performance. For instance, a project manager's attitudes may be effected by his beliefs about the motivations of project’s decision makers and they may also take a decision based on his/her biased understanding of the issues and activities (Bendoly & Swink, 2007).

As it is emphasized several times that there has been a transformation from technical task issues to more soft issues such as communication and requirements engineering etc. in project management research, but the importance and the definition of soft skills in IS projects have not yet been clarified (Marnewick, 2012). When the concept of people behavior is specialized as workplace behavior, it seems that extra-role behaviors or voluntary behaviors had discoursed in the important part of researches in the field of organizational behavior. Though there are research studies that explain extra role behaviors and its effects on individual and organizational performance, they have used different terms and constructs like contextual performance (Borman & Motowidlo, 1993), civic organizational behavior (Graham, 1991), prosocial organizational behavior (Brief & Motowidlo, 1986), principled organizational dissent (Graham, 1986) and OCB (Organ, 1988). As Yoon (2009) highlighted in his study, OCB is the most popular term among all these concepts.

2.4 Organizational citizenship behavior

Organ (1988) defined OCB as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (p. 4). Since this working definition of OCB had generated plenty of criticism, Organ (1997) reviewed a

significant amount of research studies and worked for redetermination and expression of OCB construct by keeping the changes in the organizational environments in mind at the same time. He eliminated his prior references about the job description and organizational rewards, redefined OCB as “performance that supports the social and psychological environment in which task performance takes place” (Organ, 1997, p. 95).

Researchers deconstructed OCB into several dimensions with their different perspectives. At first, Smith, Organ and Near (1983) depicted OCB as a composition of altruism and generalized compliance. They defined altruism as helping specific individuals in the workplace. They also explained generalized compliance as following organizational rules and doing things properly for the sake of organization or system rather than for the specific individual (Smith, Organ, & Near, 1983). Later, Organ (1988) suggested a five factor model by deconstructing dimensions of OCB as altruism, courtesy, conscientiousness, civic virtue and sportsmanship. He explained four new dimensions which are coming beside altruism as follows. Courtesy means that treating other employees with respect and not abusing rights of them. Conscientiousness implies that obeying organizational rules and regulations even when nobody is observing and carrying out in role behaviors more than the expected levels. Civic virtue indicates that participating meetings about the strategical life of the organization voluntarily and responsibly. Besides, sportsmanship advocates that concentrating on the positive part of matters rather than complaining about negatives (Organ, 1988). After that, Dyne et al. (1994) redefined the construct of OCB in terms of civic citizenship and they proposed a new measurement framework based on obedience, participation and loyalty dimensions. Although five factor model has been proven empirically as containing the most

robust and distinct dimensions of OCB, there are some other analyses in the literature which indicate some overlaps and correlations in these dimensions (Azmi, Desai, & Jayakrishnan, 2016). For example, Lepine, Erez and Johnson (2002) demonstrated that there were strong relationships among most of the dimensions using meta-analysis and Podsakoff and MacKenzie (1994) found that only helping behavior, sportsmanship and civic virtue have a direct relationship with organizational unit effectiveness. Besides these discussions, Williams and Anderson (1991) presented a different way of evaluating OCB construction based on the benefit. OCBI refers to employee's behaviors which benefit other organizational employees like altruism and courtesy and OCBO refers to employee's behaviors which benefit the organization itself like sportsmanship, civic virtue and conscientiousness dimensions (Williams & Anderson, 1991).

There are many different past researches on OCB have showed its positive effects in organizational effectiveness and performance (Organ, 1988; Schnake, 1991; Borman & Motowidlo, 1993), productivity and product quality (Podsakoff, Ahearne, & MacKenzie, 1997), sales performance and customer satisfaction (Koys, 2001) and individual performance (Werner, 2000; Sawitri, Suswati & Huda, 2016). In IS literature, several studies have also found a positive relationship between OCB and IS success. For example, Yen, Li and Niehoff (2008) conducted a study to understand whether OCB leads to IS success. They collected data from 254 system users who had worked in their organizations during a large-scale IS project implementation. They found that OCBs are important indicators of IS success through their direct building effect of an integration climate and effective project management. Yoon (2009) and Narimani et al. (2014) both focused on to discover the impact of OCB on enterprise resource planning system (ERP) success. Yoon

(2009) used altruism, courtesy, conscientiousness, civic virtue and sportsmanship dimensions of OCB in his research framework. His study showed that employees' OCB have significantly influenced ERP system success. He especially suggested managers to work on to increase employees' sportsmanship, conscientious and civic virtue behaviors for improving ERP system's information quality and employees' motivation for innovation which both will lead ERP system success indeed.

Narimani, Tabaeian, Khanjani and Soltani (2014) additionally worked for analyzing the mediator role of total quality management in the relation between OCB and ERP system success. Their study showed that incorporation and alignment of TQM and OCB concepts will guarantee the success of ERP systems. Moreover, Braun, Müller-Seitz and Sydow (2012) made a research study to conceptualize OCB as project citizenship behavior by analyzing the characteristics of project team's behaviors which are performed beyond contractual requirements in several project networks.

CHAPTER 3

THEORETICAL MODEL AND HYPOTHESIS DEVELOPMENT

The purpose of this thesis is to explore the effects of teamwork and team members' OCB on IS project success. For this purpose, commonly accepted constructs were investigated in the existing literature and findings were used as the measures of teamwork, OCB and IS project success.

The theoretical model of thesis and research hypotheses are presented in this chapter along with related other researches in the literature.

3.1 Theoretical model

The theoretical model for this thesis was structured on success and behavioral constructs in the project management field. In this context, behavioral constructs were analyzed by placing project team dynamics and team members in the center of the focus. In order to explore theoretical concepts of behavior in relation with project team members in practice, behavioral constructs were specified and selected as teamwork and OCB. Like many other researchers, Schwarz (1994) showed a correlation between teamwork and team performance. He decomposed it as team communication, collaboration and cohesiveness. Considering the same composition, teamwork is examined as the independent variable in the theoretical model. Furthermore, project team members' OCBs are also examined as the independent variable by taking Organ's (1988) five-factor model into consideration.

In the literature, project success and failure notions have been widely researched in past decades. However, success in IS projects remains vague (Nicholas & Hidding, 2010). Baccarini (1999) states that money, time and requirements are the

main predictors and subsets of project success. Building on this, IS project success is examined as the dependent variable in the theoretical model by adopting this traditional, commonly accepted success definition. This theoretical research model is shown in Figure 4.

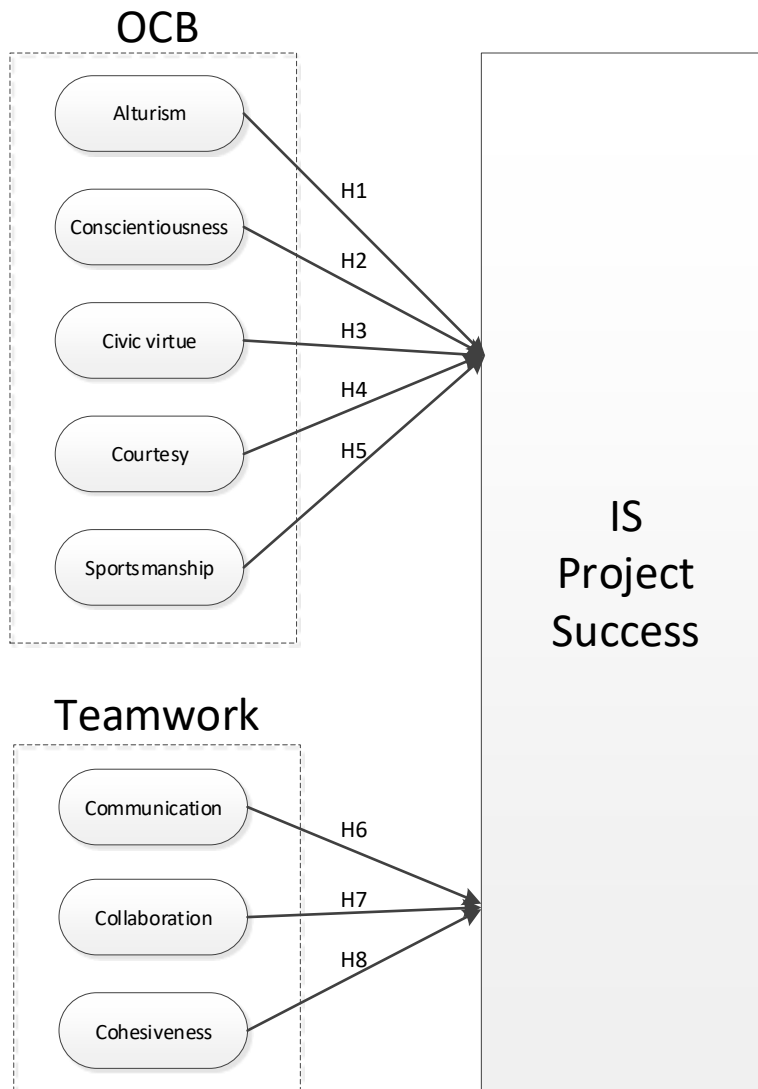


Figure 4. Theoretical research framework

3.2 Hypotheses development

OCB has been widely studied and assessed in business and management literature. Researchers especially have focused on OCB dimensions and their relations with organizational performance and organizational effectiveness. As it is mentioned in the theoretical model part, Organ's (1988) construct was utilized as the basis for this thesis and the research was conducted on OCB dimensions as altruism, conscientiousness, courtesy, civic virtue and sportsmanship.

Hypothesis 1. Altruism has a positive impact on the IS project success.

Organ (1988) explained altruism as employees' voluntary actions (e.g. supporting employees with a large workload, helping the orientation of new employees and employees who have been absent) that are aiming to help other employees who are dealing with a work related problem. He also stressed that employee with altruism behavior shows unselfish concern for the sake of his colleagues' well-being. Although it seems like there is not any direct relation between every occurrence of altruism and a specific advantage for the organization; Organ, Podsakoff and MacKenzie (2006) stated that, altruism behavior of employees will completely be a gain for the organization at the end of the day. In addition, Yen and Niehoff (2004) indicated that altruism facilitates knowledge sharing among employees and improves work system efficiency by making use of a worker's slack time for helping another on a certain task. Based on these researches, hypothesis 1 was established.

Hypothesis 2. Conscientiousness has a positive impact on the IS project success.

Conscientiousness presents behaviors that go beyond required levels of attendance, punctuality and resource conservation (Organ, 1988). These behaviors

point out that employees follow to the organizational rules, regulations and procedures of the workplace (Law, Wong, & Chen, 2005). Moreover, Organ (1988) discovered that conscientiousness is the most powerful indicator of employee's extra role performance. Considering highly conscientious employees cautiously adhere the organization rules and regulations and make sure that their responsibilities accomplished, they require minimum oversight (Morgeson, Reider, & Campion, 2005). Besides they require less managerial supervision, they also allow managers to delegate more responsibility to them (Podsakoff, Ahearne, & MacKenzie, 1997). In view of IS context, Caligiuri (2000) has also shown that IS employees with conscientiousness are greatly known by IS managers since they are working hard, accountable and dedicated to complete their tasks. Therefore conscientiousness is also expected to have a positive influence on the IS project success.

Hypothesis 3. Civic virtue has a positive impact on the IS project success.

Civic virtue means responsibly and constructively participating organization's political processes such as voluntarily participating in meetings and get along with organizational changes (Organ, 1988). It is characterized by behaviors which demonstrate the individual's deep concern and interest about the life of the organization (Law, Wong, & Chen, 2005). Graham (2000) revealed that institutions give importance to employees who engage in civic virtue behaviors by participating in extra meetings and voluntarily working for organizational improvements. They also give valuable suggestions and feedbacks for improving unit or team effectiveness (Podsakoff, Ahearne, & MacKenzie, 1997). Moreover, Walz and Niehoff (1996) have discovered that civic virtue also improves performance quality and reduces customer complaints. Thus it may also be understood that these positive behaviors also have a positive effect on the IS project success.

Hypothesis 4. Courtesy has a positive impact on the IS project success.

Courtesy has described by Organ (1988) as helping someone by focusing on the elimination of problems and taking actions in advance to mitigate the issues. In other words, employees displaying courtesy behaviors sincerely spend their time to prevent problems from occurring for their colleagues (Podsakoff, Ahearne, & MacKenzie, 1997). Courtesy also includes of being kind and caring of others behaviors like asking colleagues if they would like a drink while getting one for yourself and preparing additional copies of the meeting for other team members (Organ, 2006). Deng and Wang (2014) have shown that IS employees with courtesy behaviors have a positive impact on unit performance by sharing their IT know-know with their IS and business unit colleagues and eliminating the arising of possible problems which would require time and extra effort to solve. Furthermore, Podsakoff, MacKenzie, Paine and Bachrach (2000) have demonstrated that courtesy behaviors among individuals minimize intergroup conflicts which enable managers to become more efficient in their tasks. Therefore it is expected that courtesy has a positive impact on the IS project success.

Hypothesis 5. Sportsmanship has a positive impact on the IS project success.

Sportsmanship relates to employees bearing inescapable inconveniences and burdens of work without complaining (Organ, 1988). These employees are eager to skip their personal concern for the goodness of the team and do not take personally the rejections of their suggestions (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Podsakoff et. al (1997) have found that sportsmanship behaviors reduce employee turnover through developing a sense of loyalty to the organization among team members. They also conserve time and energy by eliminating the time that managers spend on dealing with complaints (Organ, Podsakoff, & MacKenzie,

2006). Therefore sportsmanship behaviors are also expected to have a positive influence on the IS project success.

Likewise OCB, teamwork is a concept which has also been widely studied by several researchers in the literature. It has commonly investigated with its effects on team performance. As it is shown in the theoretical model part, teamwork was used as the second construct with its three dimensions as communication, collaboration and cohesiveness.

Hypothesis 6. Communication has a positive impact on the IS project success.

Communication among members of a team is vital to team functioning (Keyton, Beck, & Asbury, 2010). Having effective communication skills is considered among the most important attributes that companies look for in today's workforce (Robles, 2012). Effective communication and knowledge sharing between team members increases team effectiveness and enables the team to produce better outputs (Chen, Hong, & Chen, 2014). Akgün, Keskin, Byrne and Gunsel (2010) stated that considering the project failures, communication is both a key element for the team and for the project manager in a software development process. Therefore hypothesis 6 was established.

Hypothesis 7. Collaboration has a positive impact on the IS project success.

Collaboration is explained by Orchard, King, Khalili and Bezzina (2012) as a combination of four key characteristics including coordination, cooperation, shared decision making and partnership. In addition, Matthews and Mclees (2015) that every member should to be able to collaboratively work towards a shared objective in a team in order not to be unsuccessful. Therefore collaboration is also expected to have a positive effect on the IS project success.

Hypothesis 8. Cohesiveness has a positive impact on the IS project success.

Cohesiveness refers to a communal liking or attraction to the group (Evans & Dion, 1980). Cohesiveness in a team working with a group of tasks also refers to the team's common commitment or dedication to the team tasks or the main goal (Hackman, 1976). It can be accepted as an individual's incentive to organize team efforts to enable to reach shared work related targets (MacCoun, 1996). Levine and Moreland (1990) found that cohesiveness is playing an important role in teams. Additionally, they indicated that teams can work more successfully by increasing their cohesion. Therefore it may also be reasoned that cohesiveness behaviors also have a positive impact on the IS project success.

CHAPTER 4

RESEARCH METHODOLOGY

Research design, data collection method and components of the questionnaire will be presented in this chapter.

4.1 Research design and data collection

Theoretical framework, constructs and questionnaire items were refined through pre-testing using a panel of experts. The panel of experts is conducted by the participation of two professors in the Department of Management Information Systems (MIS) at Boğaziçi University.

Afterward, pilot tests were conducted with 12 different IS project managers to adjust and refine items of the survey. Some modifications were done in the questionnaire based on respondents' comments. These modifications contains; converting dependent and independent variables' measurement scales from 7-point Likert-type agreement scale to 5-point Likert-type agreement scale, adding definition of project team to the beginning of the questionnaire, adding 'most recently completed project' determination to prevent on purpose positive sample selections and accepting project managers who are working as a consultant in a different company as out of scope to prevent inaccuracies in company related questions. With the help of modifications, pilot tests enabled to ensure that items of the questionnaire were understandable and wordings were valid. Necessary time for a questionnaire completion is also estimated as a consequence.

Lastly, a comprehensive online questionnaire was developed in Survey Monkey (<https://tr.surveymonkey.com/>) and used to test the research hypotheses.

The questionnaire conducted during a 4-months period from December 2018 to the end of March 2019. The URL of the questionnaire was sent to participants and they were requested to answer the questionnaire considering their most recently completed IS project which is developed in their company in the last three years. In addition, they were also requested to share the link with their colleagues who are also working as an IS project manager. Finally, a total of 204 participants were reached.

4.2 Components of the questionnaire and measures

The questionnaire consisted of 21 questions and began with questions of project characteristics. Eleven questions to assess project characteristics and to determine the project scale were presented in the following way:

- Project start date
- Project end date
- Project industry
- Company size
- Project team size
- Number of departments involved in the project
- Total work effort
- Project cost
- Project integration requirement
- Former knowledge of technology and business process
- Organizational coverage and priority

Afterward, for OCB measurements, 16 items were derived from Bell and Menguc's (2002) study and adapted to project team and were measured by 5-point Likert-type agreement scale ranging from "1 = Strongly Disagree" to "5 = Strongly

Agree”. There were 4 items from altruism scale, 3 items from conscientiousness scale, 3 items form courtesy scale, 3 items from civic virtue scale and 3 items from sportsmanship scale.

Moreover, for teamwork measurements, a total of 21 items were adopted from a study which is done by Lindsjørn, Sjøberg, Dingsøy, Bergersen and Dybå, (2016) and measured with 5-point Likert-type agreement scale ranging from “1 = Strongly Disagree” to “5 = Strongly Agree”. There were 10 items from communication scale, 7 items from collaboration scale and 4 items from cohesiveness scale.

Later on, one question group were designed to assess IS project success. All of the items belong to these question were measured by using 5-point Likert-type agreement scale. There were 4 items about project time, budget, scope and quality. Furthermore, one more question was designed to assess the perceived project success.

Finally, the last six questions were probed to obtain general information about respondents’ demographic profile. The entire questionnaire is presented in the Appendix.

CHAPTER 5

ANALYSIS AND FINDINGS

Characteristics of the research sample, descriptive statistics, reliability measures, data analysis and hypothesis testing results will be presented in this chapter along with theoretical research framework.

5.1 Characteristics of the sample

A total of 204 responses were gathered and 173 were usable for the research analysis. The response rate approximately equals to 14%. After deleting unusable responses, final response rate decreased to approximately 11%. The respondents mostly represent 9 different industries. Amongst the industries, the highest percentage of respondents comes from Service Industry (34.1%). The majority of respondents (46.2%) also indicated that they are working in large companies which have more than ten thousand employees. Table 1 shows the rest part of percentages and also respondents' demographic descriptives including age, gender and education level.

Regarding the characteristics of projects surveyed, project sizes were calculated according to total duration, total work effort, total cost, team size, technology level, integration level, organizational coverage and number of departments involved. Considering project duration, there is a widespread distribution starting from 1 month up to 392 months and with the average of 15.9 months. And for total work effort, the majority of projects comprise more than 1000 hours (63.6%). Meanwhile, 58.4% of the projects have more than 9 team members and 43.9% include more than 5 departments' involvement.

Table 1. Demographic Descriptives

Variable	Category	N	%
Project industry	Manufacturing	15	8.7
	Utility	5	2.9
	Construction	4	2.3
	Telecommunication	17	9.8
	Finance	36	20.8
	Service	59	34.1
	Government	4	2.3
	Education	2	1.2
	Entertainment and Sport	1	0.6
	Other	30	17.3
Company size (employees)	Less than 100	14	8.1
	100 - 500	28	16.2
	501 - 1000	22	12.7
	1001 - 2500	12	6.9
	2501 - 5000	12	6.9
	5001 - 10000	5	2.9
	10001 and above	80	46.2
Gender	Female	70	40.5
	Male	103	59.5
Age	20 - 25	3	1.7
	26 - 30	48	27.7
	31 - 35	65	37.6
	36 - 40	35	20.2
	41 - 45	14	8.1
	46 - 50	6	3.5
	51 - 55	1	0.5
	> 55	1	0.5
Education level	High school graduate	3	1.7
	Bachelor's degree	99	57.2
	Master's degree	66	38.2
	PhD degree	5	2.9

All of descriptive statics relating to the projects' characteristics are presented in the Table 2.

Table 2. Projects' Characteristics Descriptives

Variable	Category	N	%
Total work effort	Less than 80 hours	5	2.9
	81-1000 hours	58	33.5
	More than 1000 hours	110	63.6
Total cost	Less than \$500,000	86	49.7
	\$500,000 - \$1,000,000	38	22
	More than \$1,000,000	49	28.3
Team size	Less than 5 people	20	11.6
	5 – 9 people	52	30.1
	More than 9 people	101	58.4
Technology level	Expert	56	32.4
	Familiar	67	38.7
	New to company	50	28.9
Integration requirement	Standalone system	11	6.4
	Some integration with other system(s)	94	54.3
	Full integration with other system(s)	68	39.3
Organizational coverage	One division area	25	14.5
	Spans multiple departments	79	45.7
	Company wide	69	39.9
Number of departments involved	1 - 2	25	14.5
	3 - 5	72	41.6
	More than 5	76	43.9

As shown in Table 2; according to the technology level and the familiarity of business processes, projects sample has a balanced distribution with 32.4% of expert level, 38.7% of familiar level and 28.9% of new to company level. In addition, just

14.5% of projects have a priority and organizational coverage of only one division area; others span multiple departments (45.7%) and all departments of the company (39.9%). Last but not least, almost half of projects (49.7%) have completed with budget less than \$500,000.

5.2 Descriptives and measures of dependent and independent variables

To be able to assess the reliability of the measures, Cronbach's alpha is used as a measure of reliability. Considering the Cronbach's alpha of a construct is more than 0.7, it is accepted as reliable. The summary of reliability values and descriptive statistics of variables are presented in titles below.

5.2.1 Organizational citizenship behavior scale

OCB Scale consisted of 5 dimensions and 16 items. Respectively, these 16 items were divided as 4 items from altruism scale, 3 items from conscientiousness scale, 3 items from courtesy scale, 3 items from civic virtue scale and 3 items from sportsmanship scale. Item statistics for all dimensions were presented in the tables (Tables 3, 4, 5, 6, 7) below. As it was analyzed with reliability tests, Cronbach's alpha values for altruism, civic virtue and sportsmanship are respectively equal to 0.714, 0.709 and 0.772. Since they are all more than 0.7, they all can be accepted as reliable. However, the minimum reliability value of this construct, with Cronbach's alpha, is 0.658 which belongs to conscientiousness dimension. In addition, courtesy has a reliability value which equals to 0.68. For these two dimensions, each item was checked to understand whether its deletion increases the value or not. But none of them improved the empirical value of the scale.

In this situation; according to Nunnally's (1978) statement since Cronbach's alpha of these two constructs are more than 0.6 (courtesy has a value which is so close to 0.7 and conscientiousness has a value which is more than 0.65), they also were accepted as valid and reliable for use.

Table 3. Altruism Item Statistics

Item	Mean	Std. Deviation	N
Team members helped each other to get acquainted with the new system during the project.	4.10	.644	173
Some team members gave their time to help other members with project related problems.	4.08	.702	173
The team took time out of their day to help train new team members.	3.60	.805	173
The team performed project-related work of absent members if they could.	3.69	.858	173

Table 4. Conscientiousness Item Statistics

Item	Mean	Std. Deviation	N
The team obeyed company rules, regulations and procedures while they were working in the project.	3.98	.825	173
The team carried out project-related work in a timely manner	3.78	.841	173
The team completed project-related work even though after business hours.	3.83	.971	173

Table 5. Courtesy Item Statistics

Item	Mean	Std. Deviation	N
The team was cautious to avoid problems with members and stakeholders in the project.	3.76	.826	173
The team did not abuse the rights of others.	4.05	.820	173
The team did not interfere with stakeholders while working in the project.	3.52	.980	173

Table 6. Civic Virtue Item Statistics

Item	Mean	Std. Deviation	N
The team was willing to follow the organizational change.	3.66	.781	173
The team kept up with the policy and business strategy of the organization.	3.92	.750	173
The team positively participated in efforts for process improvement.	3.86	.854	173

Table 7. Sportsmanship Item Statistics

Item	Mean	Std Deviation	N
The team kept minor complaints about the project to their selves.	3.29	1.033	173
The team did not complain about their project-related work even if the work seems excessive.	3.12	1.058	173
The team did not complain about business procedures that seem difficult to them.	3.01	1.067	173

In addition, OCB was also assessed according to the Cronbach's alpha reliability of the measures as an overall construct. It was found that the overall OCB construct was also reliable for use with its value equal to 0.78.

5.2.2 Teamwork scale

Teamwork scale consisted of 3 dimensions and 21 items. Respectively, these 21 items were divided as 10 items from communication scale, 7 items from collaboration scale and 4 items from cohesiveness scale. Item statistics for all dimensions were presented in tables (Tables 8, 9, 10) below.

Table 8. Communication Item Statistics

Item	Mean	Std. Deviation	N
There was frequent communication within the team.	4.17	.763	173
The team members communicated often in spontaneous meetings, phone conversations, etc.	4.05	.823	173
The team members communicated mostly directly and personally with each other.	4.06	.713	173
Relevant ideas and information related to the teamwork were shared openly by all team members.	3.98	.758	173
The team members were happy with the timeliness in which they receive information from other team members.	3.57	.910	173
The team members were happy with the precision of the information they receive from other team members.	3.68	.834	173
The team members were happy with the usefulness of the information they receive from other team members.	3.74	.804	173
Most of the communication was conducted through mediators*.	3.69	.780	173
Some members kept information from other team members in certain situations*.	3.69	.886	173
In the team, there were conflicts regarding the openness of the information flow*.	3.57	.929	173

Table 9. Collaboration Item Statistics

Item	Mean	Std. Deviation	N
The work done on project tasks within the team was closely harmonized.	3.83	.800	173
There were clear and fully comprehended goals for tasks within the team.	3.91	.827	173
The goals for project tasks were accepted by all team members.	3.86	.881	173
The team members helped and supported each other as best as they could.	3.94	.756	173
There were conflicting interests in the team regarding project tasks/goals*.	3.57	.977	173

Table 10. Cohesiveness Item Statistics

Item	Mean	Std. Deviation	N
It was important to the members of the team to be part of this project	4.08	.814	173
The team members were strongly devoted to the project.	3.84	.826	173
The members felt proud to be part of the team.	3.96	.852	173
Every team member felt responsible for maintaining and protecting the team.	3.77	.838	173

As it was analyzed with reliability tests, Cronbach's alpha values for communication, collaboration and cohesiveness are respectively equal to 0.770, 0.795 and 0.851. Since they are all more than 0.7, this shows that the construct is valid and reliable for use.

In addition, teamwork was also assessed according to the Cronbach's alpha reliability of the measures as an overall construct. It was found that the overall teamwork construct was also reliable for use with its value equal to 0.853.

5.2.3 IS project success scale

IS project success scale was developed based on the literature review by adopting traditional project success approach and consisted of 4 items. Respondents were asked to indicate the degrees of their agreement with the items of teamwork measured by 5-point Likert type agreement scale.

Reliability value of IS project success which is 0.791 and descriptives for its items were presented in Table 11 below.

Table 11. IS Project Success Item Statistics

Item	Mean	Std. Deviation	N
Project was completed within budget.	3.78	1.072	173
Project was completed within time.	3.53	1.223	173
Project was completed within scope.	3.79	1.101	173
Project was completed with expected quality.	3.95	.888	173

5.3 Data analysis and hypothesis testing

In this study, all variables' data distributions were tested first in order to determine applicable statistical tests. To be able to control whether the data was normally distributed, visual analysis of the histogram and probability plot (P-P plot) graphs were checked. It is found that all variables are negatively skewed and they almost all have significant deviations from a normal distribution. Results of Shapiro-Wilk's W

test and Kolmogorov-Smirnov test are also important indicators, so they were checked as well.

Table 12 shows the result of Shapiro-Wilk's and Kolmogorov-Smirnov tests for all OCB, teamwork dimensions and for all independent and dependent variables. As it is indicated in results, almost all dimensions' and variables' p values are smaller than the accepted level of significance which is 0.05. Only communication dimension and teamwork variable distributions have required significance values which are equal to 0.200 according to Kolmogorov-Smirnov test. This means normality can be assumed for only communication dimension and teamwork variable data sets.

Table 12. Normality Test Results

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Average Altruism Score	.138	173	.000	.945	173	.000
Average Conscientiousness Score	.180	173	.000	.946	173	.000
Average Courtesy Score	.148	173	.000	.953	173	.000
Average Civic Virtue Score	.189	173	.000	.929	173	.000
Average Sportsmanship Score	.131	173	.000	.956	173	.000
Average Communication Score	.061	173	.200*	.989	173	.191
Average Collaboration Score	.104	173	.000	.967	173	.000
Average Cohesiveness Score	.135	173	.000	.957	173	.000
Average Success Score	.118	173	.000	.953	173	.000
Average OCB Score	.072	173	.028	.979	173	.011
Average Teamwork Score	.055	173	.200*	.985	173	.061

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

In order to correct the detected non-normality situation; log transformation, square root transformation and reverse score transformation methods were used. Since most of variables, especially the dependent variable which is IS project success, are significantly different from the normal distribution and none of transformation methods could not help to cure normality, non-parametric tests are used to analyze the research framework.

In the analysis of data and hypothesis testing, ANOVA, correlation tests and Wilcoxon Signed-Rank tests are applied. Since the data are not normally distributed; Spearman's correlation, Kruskal-Wallis Anova and Wilcoxon Signed-Rank tests are conducted.

5.3.1 Correlation analysis

Correlation analysis is used to understand the strength and the direction of the relations between OCB dimensions and IS project success and also in between teamwork dimensions and IS project success. All constructs in the research framework are used in correlation analysis since all of them had Cronbach alpha values which were valid and reliable to use.

The results of Spearman's correlation test showed a significant positive relationship between each of OCB dimensions and IS project success. Table 13 displays the whole correlation matrix with correlation coefficients, p values and sample sizes for all OCB dimensions and IS project success. Among all OCB dimensions, conscientiousness has the highest correlation coefficient with IS project success ($r = .43$ and $p < .00$). In other words, IS projects which have project teams showing more conscientious attitudes tend to reach significantly higher levels of success than other projects whose members have lower conscientiousness behavior.

Table 13. OCB Dimensions Correlation Test Results

			(Alt)	(Con)	(Cou)	(Civ)	(Spo)	(Suc)
Spearman's rho	Altruism	Correlation	1.000	.470**	.397**	.407**	.352**	.388**
	(Alt)	Coefficient						
		Sig. (1-tailed)	.	.000	.000	.000	.000	.000
		N	173	173	173	173	173	173
Conscientiousness	Conscientiousness	Correlation	.470**	1.000	.425**	.470**	.296**	.432**
	(Con)	Coefficient						
		Sig. (1-tailed)	.000	.	.000	.000	.000	.000
		N	173	173	173	173	173	173
Courtesy	Courtesy	Correlation	.397**	.425**	1.000	.402**	.383**	.410**
	(Cou)	Coefficient						
		Sig. (1-tailed)	.000	.000	.	.000	.000	.000
		N	173	173	173	173	173	173
Civic Virtue	Civic Virtue	Correlation	.407**	.470**	.402**	1.000	.510**	.362**
	(Civ)	Coefficient						
		Sig. (1-tailed)	.000	.000	.000	.	.000	.000
		N	173	173	173	173	173	173
Sportsmanship	Sportsmanship	Correlation	.352**	.296**	.383**	.510**	1.000	.409**
	(Spo)	Coefficient						
		Sig. (1-tailed)	.000	.000	.000	.000	.	.000
		N	173	173	173	173	173	173
IS Project Success	IS Project Success	Correlation	.388**	.432**	.410**	.362**	.409**	1.000
	(Suc)	Coefficient						
		Sig. (1-tailed)	.000	.000	.000	.000	.000	.
		N	173	173	173	173	173	173

** . Correlation is significant at the 0.01 level (1-tailed).

Following conscientiousness, courtesy and sportsmanship are the next dimensions which have statistically significant positive relations with IS project success by having the next highest correlation coefficients ($r = .41$ and $p < .00$). While civic virtue and altruism showing very similar levels of correlation, civic

virtue displays the weakest correlation with the dependent IS project success variable. However, its p value ($p < .00$) and correlation coefficient ($r = .36$) are also showing a statistically significant positive relationship with IS project success. Based on the results explained above, all OCB dimensions have a positive relation with IS project success. Therefore, it can be said that Hypotheses 1, 2, 3, 4 and 5 are supported by statistical analysis and accepted. In other words, the success rate in IS projects increases as team members' each OCB increases.

Hypothesis 1. Altruism has a positive impact on the IS project success

Hypothesis 2. Conscientiousness has a positive impact on the IS project success.

Hypothesis 3. Civic virtue has a positive impact on the IS project success.

Hypothesis 4. Courtesy has a positive impact on the IS project success.

Hypothesis 5. Sportsmanship has a positive impact on the IS project success.

In addition to the positive correlation between independent variables related to OCB dimensions and the dependent variable, correlation analysis showed that there are positive correlations among OCB dimensions as well. For example, the correlation between civic virtue and sportsmanship has the highest coefficient value with .51 in the whole matrix. These kinds of correlations between independent variables may create a multicollinearity situation but since they all have coefficient values lower than .7 this is not the case for this study.

According to the correlation between teamwork dimensions and IS project success analysis results, each dimension has a significant positive relationship with project success. Among all dimensions, collaboration has the highest correlation coefficient with IS project success ($r = .52$ and $p < .00$). Meaning that projects which have project teams showing more collaborative attitudes tend to reach significantly

higher levels of success than other projects whose members have lower collaboration behavior. Considering all teamwork dimensions, cohesiveness displays the weakest correlation with the dependent variable. However, its p value ($p < .00$) and correlation coefficient ($r = .42$) are so close to the communication's and it is also showing a statistically significant positive relationship with IS project success. Table 14 displays the whole correlation matrix for teamwork dimensions and IS project success.

Table 14. Teamwork Dimensions Correlation Test Results

			(Com)	(Col)	(Coh)	(Suc)
Spearman's rho	Communication (Com)	Correlation	1.000	.669**	.649**	.444**
		Coefficient				
		Sig. (1-tailed)	.	.000	.000	.000
		N	173	173	173	173
	Collaboration (Col)	Correlation	.669**	1.000	.650**	.522**
		Coefficient				
		Sig. (1-tailed)	.000	.	.000	.000
		N	173	173	173	173
	Cohesiveness (Coh)	Correlation	.649**	.650**	1.000	.423**
		Coefficient				
		Sig. (1-tailed)	.000	.000	.	.000
		N	173	173	173	173
IS Project Success (Suc)	Correlation	.444**	.522**	.423**	1.000	
	Coefficient					
	Sig. (1-tailed)	.000	.000	.000	.	
	N	173	173	173	173	

** . Correlation is significant at the 0.01 level (1-tailed).

Based on the second results explained above, all teamwork dimensions have a positive relation with IS project success. Therefore, it can be said that Hypotheses 6,

7 and 8 are supported by statistical analysis and accepted. In other words, the success rate in IS projects increases as team members' each teamwork behavior increases.

Hypothesis 6. Communication has a positive impact on the IS project success.

Hypothesis 7. Collaboration has a positive impact on the IS project success.

Hypothesis 8. Cohesiveness has a positive impact on the IS project success.

With a high level perspective; in order to check the relations in between IS project success and OCB and teamwork, one more Spearman's correlation test is applied. As seen in Table 15, results supported both that there is a statistically significant relationship between OCB and IS success ($r = .55$ and $p < .00$) and there is also a statistically significant relationship between teamwork and IS success ($r = .53$ and $p < .00$).

Table 15. OCB, Teamwork and IS Project Success Correlation Test Results

			OCB	Teamwork	(Suc)
Spearman's rho	OCB	Correlation Coefficient	1.000	.737**	.551**
		Sig. (1-tailed)	.	.000	.000
		N	173	173	173
	Teamwork	Correlation Coefficient	.737**	1.000	.529**
		Sig. (1-tailed)	.000	.	.000
		N	173	173	173
	IS Project Success (Suc)	Correlation Coefficient	.551**	.529**	1.000
		Sig. (1-tailed)	.000	.000	.
		N	173	173	173

** . Correlation is significant at the 0.01 level (1-tailed).

Projects of which team members have a greater level of OCB and teamwork attitudes, tend to be finalized with significantly higher levels of success than those of which members have a lower level of these attitudes. Besides the two variables have

a statistically significant relationship, this relationship may only be considered as average. Likewise OCB, the relationship between teamwork and project success has the average strength. Figure 5 and Figure 6 displays scatterplots illustrating these relationships. Plots show positive and average linear relationships between variables; greater teamwork and greater OCB behaviors are associated with higher success.

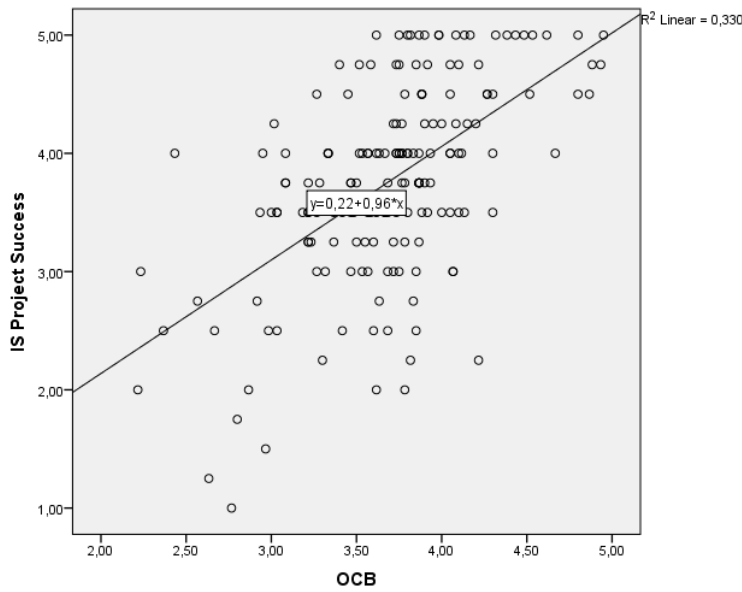


Figure 5. IS project success and OCB relationship diagram

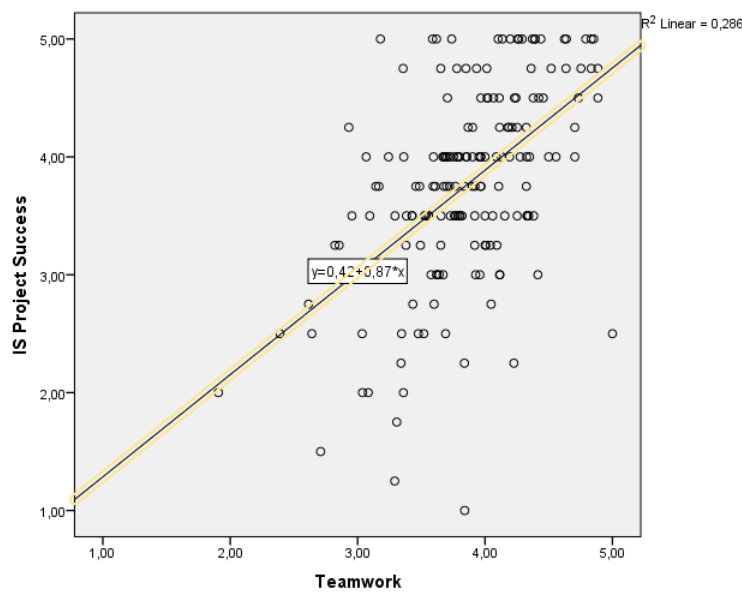


Figure 6. IS project success and teamwork relationship diagram

5.3.2 Project scale and success variance analysis

Projects were grouped according to their characteristics and risk levels into scales as small, medium and large. Calculation formulas created based on the study of the University of Iowa Healthcare IS Project Classification and Sizing Tool (Iowa, 2017). Kruskal-Wallis Anova analysis is applied to explore whether there was a significant difference among project sizes with respect to their success. Table 16 demonstrates sample sizes and mean ranks. According to the results, the sample estimates of the mean ranks for the three groups are 71.06, 90.94 and 81.77.

Table 16. IS Project Scales Sample Sizes and Success Mean Ranks

Variable	Project Scale	N	Mean Rank
IS Project Success	Small	8	71.06
	Medium	98	90.94
	Large	66	81.77

Since there are only 8 small projects in the sample, small and medium projects combined in one group to improve the health of the analysis results. Table 17 demonstrates new sample sizes and mean ranks. According to the results, the sample estimates of the mean ranks for the two groups are 89.44 and 81.77. Table 18 demonstrates chi-square test results. According to the results, no significant differences (Chi-square = .978, $p = .32$, $df = 1$) were found among two scales of projects according to their success levels.

Table 17. IS Project Scales New Sample Sizes and Success Mean Ranks

Variable	Project Size	N	Mean Rank
Average Success Score	Small-Medium	106	89.44
	Large	66	81.77

Table 18. IS Project Success Variance Test Results

Average Success Score	
Test Statistics ^{a,b}	
Chi-Square	.978
df	1
Asymp. Sig.	.323

a. Kruskal Wallis Test

b. Grouping Variable: Project Size

5.3.3 Project success and perceived success comparison analysis

Wilcoxon Signed-Rank test was conducted to compare perceived project success with calculated project success. Calculated project success corresponds to the dependent variable (IS project success) of the research framework. Perceived project success corresponds to project managers' ratings about their projects' overall success.

In the questionnaire, ratings retrieved from respondents on a scale of 1 to 10. After that, these values recoded into new scores within the scale of 1 to 5 for the comparison purposes. Table 19 shows the original and corresponding transformed values.

Table 19. Transformation of Perceived Project Success Values

Original Value	Recoded Value
1	1
2	1
3	2
4	2
5	3
6	3
7	4
8	4
9	5
10	5

In the Wilcoxon Signed-Rank test analysis, it has found that there was a significant difference ($Z = -7.478$, $p < 0.001$) in the scores for calculated project success and perceived project success. Table 20 shows related test statistics and Table 21 shows ranks. These results demonstrate that among project managers, there is a tendency to remember and rate projects' success more positively than they actually were.

Table 20. Wilcoxon Signed Ranks Test Statistics

	Perceived Success - Calculated Success
Z	-7.478 ^a
Asymp. Sig. (2-tailed)	.000

a. Based on negative ranks.

Table 21. Perceived Success and Calculated Success Ranks

		N	Mean Rank	Sum of Ranks
Perceived Success - Calculated Success	Negative Ranks	22 ^a	60.41	1329.00
	Positive Ranks	117 ^b	71.80	8401.00
	Ties	34 ^c		

a. Perceived Success < Calculated Success

b. Perceived Success > Calculated Success

c. Perceived Success = Calculated Success

CHAPTER 6

CONCLUSION

Research discussion, managerial implications, limitations and recommendations for future studies are presented in this chapter.

6.1 Conclusion and discussion

This study aimed to investigate the effect of OCB and teamwork on the success of IS projects. In order to examine the relationship, an online survey using a questionnaire was conducted. Past studies have drawn attention to behaviors mostly in the context of organizational effectiveness. In addition, considering the behavioral part of project management context prior studies have commonly concentrated on project managers and their leadership behaviors. When it comes to project team members' behaviors, only a few studies can be found which might be seen as they are partially indicating teamwork behaviors like communication, collaboration, etc. There are lots of studies which focused on project failures and applicant frameworks for improvements in success rates. In parallel with that, there are plenty of discussions on the notion of project success term and main success factors and criteria. Thus, IS project success was identified as the dependent variable of the study because it is the main goal of project management activities in the IS environment.

In order to analyze the data, frequency, correlation, ANOVA and Wilcoxon Signed-Rank analyses were utilized. The results of correlation analysis revealed that all OCB dimensions (altruism, conscientiousness, courtesy, civic virtue and sportsmanship) and all teamwork dimensions (communication, collaboration and

cohesiveness) are positively and significantly related with the success level of IS projects. Moreover, the results of Anova showed that there is no significant difference between different project sizes (small-medium and large) according to their project success or failure situations. In addition, Wilcoxon Signed-Rank test results showed that project managers tend to perceive their projects' success scores higher than their actual scores which are calculated based on time, budget, schedule and quality measures.

6.2 Managerial implications for the sector

This study showed two main implications. First, extra role behaviors of the project team has a very significant effect on IS success. As team members voluntarily work beyond their formal job descriptions, projects can be finalized more successfully. Second, when the communication and cooperation is occurred in the project team, it also improves the possibility of success. Thus, all managers should inevitably understand how they can effect employee behavior. Project managers specifically may work on to be able to have an impact on teamwork and OCB through their daily interactions with team members. Establishing a communication environment which enables efficient and open information sharing among team members, increasing recognition of team members which are performing voluntarily beyond their assignments and acting as a leader in the participation of organizational strategy meetings will become important steps in developing a culture of OCB and teamwork among members.

6.3 Limitations and recommendations for future studies

Various limitations exist in this thesis. First of all, the study was conducted in a single country. Since the behavior is strongly related to cultures of countries this limits the generalizability of findings. It does not offer an opportunity to make a comparison across different cultures. Future studies focusing on a number of countries and project management areas may test the findings of this study and identify the impact of culture. Moreover, future studies may compare these impacts in different functional domains of project management like construction and organizational development projects. In addition, this study focuses on the context of OCB as a whole context. As there may be differences between individual level citizenship behaviors (OCB-I) and organizational level citizenship behaviors (OCB-O), similar studies can be conducted for the analyze of difference in future studies.

The second limitation of the study is the bias in the success response of project managers. What they value for their projects' success questions may be different from, expected as more negative, their real life realizations.

Finally, OCB's five dimensions were used in this study. Since it is found that they also have correlations between each other, future studies may discover different dimensions which may not be interrelated.

APPENDIX

QUESTIONNAIRE

Introduction

The questionnaire is conducted in the context of a master thesis about 'Understanding the Effect of Organizational Citizenship Behavior (OCB) and Teamwork on the Success of IS Projects' by Sibel BEZIRGAN ALAN and advised by Prof. Dr. Meltem ÖZTURAN in Bogazici University. The data collected through this questionnaire will be used for academic purposes only. All responses from the questionnaire will be anonymous and kept strictly confidential. No personally identifying data will be collected.

Your responses are important to obtain as full understanding as possible about the research. The questionnaire should only take 10-15 minutes to complete. Please respond to each question.

Who is Eligible?

It is required that you have managed and completed an IS/IT Project as a project manager in your company in the last 3 years to complete this survey.

- * Your participation will not be suitable; if you have managed your project in a different company as a consultant, considering the master thesis's framework restrictions.
- * You can only take the questionnaire once, but you can edit your responses until the questionnaire is closed on March 30, 2019.

Please answer all questions in the questionnaire considering your most recently completed IT project.

- * Questionnaire includes questions about the team which refers to project team who are working for analyzing, developing, installing and implementing computer systems and applications in an organization.

If you have any questions or would like to get further information please do not hesitate to email me at sibelbezirgan@gmail.com.

Thank you for your cooperation.

Questionnaire

1. Project start date
(Please select any date in the estimated month if you don't remember the exact starting date)

2. Project end date
(Please select any date in the estimated month if you don't remember the exact starting date)

3. Project industry
 - Manufacturing
 - Utility
 - Construction
 - Telecommunication
 - Finance
 - Service
 - Government
 - Education
 - Entertainment and Sports
 - Other (Please specify.....)

4. Company size (number of employees)
 - Less than 100
 - 100-500
 - 501-1000
 - 1001-2500
 - 2501-5000
 - 5001-10000
 - 10001 and above

5. Project team size
 - Less than 5 people
 - 5 – 9 people
 - More than 9 people

6. Number of departments involved in the project
 - 1-2
 - 3-5
 - More than 5

7. Total work effort
 - Less than 80 hours
 - 81-1000 hours
 - More than 1000 hours

8. Project cost
 - Less than \$500,000
 - \$500,000 - \$1,000,000
 - More than \$1,000,000

9. Which of the following best describes the information system's integration requirement in the project?
 - Standalone system
 - Some integration with other system(s)
 - Full integration with other system(s)

10. Considering prior experience in the projects, which of the following best describes the level of technology/business process used in the project?
 - Expert
 - Familiar
 - New to company

11. Which of the following best describes the organizational coverage/priority of the project?
 - One division area
 - Spans multiple departments
 - Company wide

12. Please indicate your agreement level with the following statements for the project.

	Strongly Disagree	Disagree	Indecisive	Agree	Strongly Agree
Team members helped each other to get acquainted with the new system during the project.					
Some team members gave their time to help other members with project related problems.					
The team took time out of their day to help train new team members.					
The team performed project-related work of absent members if they could.					
The team obeyed company rules, regulations and procedures while they were working in the project.					
The team carried out project-related work in a timely manner					

	Strongly Disagree	Disagree	Indecisive	Agree	Strongly Agree
The team completed project-related work even though after business hours.					
The team were cautious to avoid problems with members and stakeholders in the project.					
The team did not abuse rights of others.					
The team did not interfere with stakeholders while working in the project.					
The team were willing to follow organizational change.					
The team kept up with the policy and business strategy of the organization.					
The team positively participated in efforts for process improvement.					
The team kept minor complaints about project to their selves.					
The team did not complain about their project-related work even if the work seems excessive.					
The team did not complain about business procedures that seem difficult to them.					

13. Please indicate your agreement level with the following statements for the project.

	Strongly Disagree	Disagree	Indecisive	Agree	Strongly Agree
There was frequent communication within the team.					
The team members communicated often in spontaneous meetings, phone conversations, etc.					
The team members communicated mostly directly and personally with each other.					
Most of the communication was conducted through mediators.					
Relevant ideas and information related to the teamwork were shared openly by all team members.					
Some members kept information from other team members in certain situations.					
In the team there were conflicts regarding the openness of the information flow.					
The team members were happy with the timeliness in which they receive information from other team members.					
The team members were happy with the precision of the information they receive from other team members.					
The team members were happy with the usefulness of the information they receive from other team members.					

	Strongly Disagree	Disagree	Indecisive	Agree	Strongly Agree
The work done on project tasks within the team was closely harmonized.					
There were clear and fully comprehended goals for tasks within the team.					
The goals for project tasks were accepted by all team members.					
There were conflicting interests in the team regarding project tasks/goals.					
The team members helped and supported each other as best as they could.					
The team cooperated well.					
Discussions and controversies were conducted constructively.					
It was important to the members of the team to be part of this project					
The team members were strongly devoted to the project.					
The members felt proud to be part of the team.					
Every team member felt responsible for maintaining and protecting the team.					

14. Please indicate your agreement level with the following statements for the project.

	Strongly Disagree	Disagree	Indecisive	Agree	Strongly Agree
Project was completed within budget.					
Project was completed within time.					
Project was completed within scope.					
Project was completed with expected quality.					

15. On a scale of 1 – 10, please rate the overall success of your project?

16. What is your gender?

- Female
- Male

17. What is your age?

- 20-25
- 26-30
- 31-35
- 36-40
- 41-45

- 46-50
- 51-55
- > 55

18. What is the highest level of education you have completed?

- High school graduate
- Bachelor's degree
- Master's degree
- Ph.D. degree

19. Please specify your education fields which you have completed.

Bachelor's Degree:

Master's Degree:

Ph.D. Degree:

20. How long have you been working as a professional?

21. How long have you been working as a project manager?

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