

TEAMWORK QUALITY AND TEAM PERFORMANCE
OF THE NATIONAL RAILWAYS TRANSPORT COMPANY (SNTF) IN ALGERIA



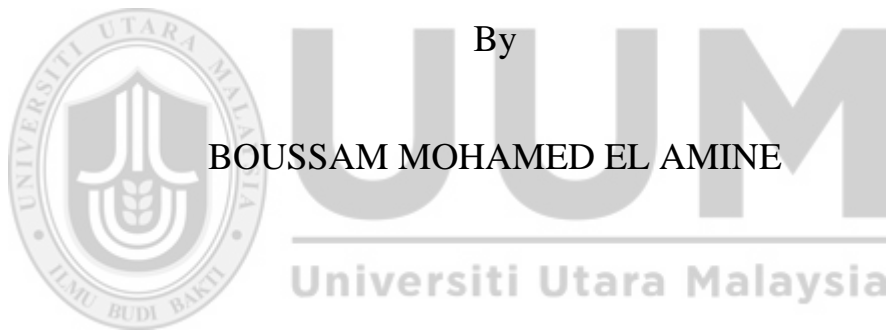
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TEAMWORK QUALITY AND TEAM PERFORMANCE
OF THE NATIONAL RAILWAYS TRANSPORT COMPANY (SNTF)
IN ALGERIA



Thesis submitted to
Othman Yeop Abdullah School of Business,
University Utara Malaysia,
In fulfilment of the Requirement for the Master of Science (Management)

DECLARATION

I declare that this thesis work described in this research paper is my own work (unless otherwise acknowledged in the text) and that there is no previous work which has been previously submitted for any academic Master's program. All sources quoted have been acknowledged by reference.



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ABSTRACT

The research filled a gap on the effect of teamwork quality on team performance in the Algerian national railways SNTF. Random sampling was used to select respondents for a survey from among members of SNTF teams in Algeria firms with total respondents 113 teams. Under many team PLS-SEM was used to analyse the relationships between teamwork quality, team performance while path coefficient and assessment of measurement and structural model used to test the research hypotheses. Findings indicate that two out of seven teamwork quality factors had significant effects namely the communication and cohesion on team performance but not the balance of member contribution, mutual support, effort and cohesion and improvisation. The findings suggest that managers are required to be concerned about how to improve team effectiveness in order to assess higher team performance. This should facilitate an environment conducive to teamwork to realize superior course of reflective activities. The study also provides a theoretical implication of the study are also highlighted.

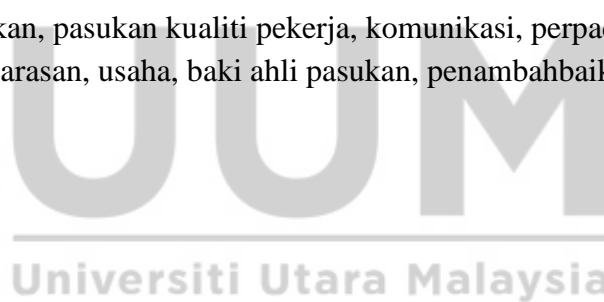
Key word: team performance, teamwork quality, communication, cohesion, mutual support, balance of team member contribution, effort, coordination, and improvisation.

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ABSTRAK

Kajian ini mengkaji jurang ilmu pengetahuan tentang pengaruh kualiti kerja berpasukan ke atas prestasi pasukan di Syarikat Nasional Rel SNTF Algeria. Sampel rawak telah digunakan untuk memilih responden di kalangan anggota pasukan SNTF, Algeria yang mempunyai jumlah responden 113 orang. PLS-SEM telah digunakan untuk menganalisis hubungan antara kualiti kerja berpasukan, prestasi pasukan manakala pekal jalan dan penilaian pengukuran dan model struktur yang digunakan untuk menguji kajian hipotesis. Dapatan kajian menunjukkan bahawa dua daripada tujuh faktor kualiti kerja berpasukan mempunyai pengaruh yang penting iaitu komunikasi dan perpaduan kepada prestasi pasukan tetapi tidak kepada lebih sumbangan ahli, sokongan bersama, usaha dan perpaduan dan penambahbaikan. Hasil kajian mencadangkan bahawa pengurus perlu mengambil berat tentang bagaimana untuk meningkatkan keberkesanan pasukan disamping untuk menilai prestasi pasukan yang lebih tinggi. Ini dapat memudahkan persekitaran yang kondusif untuk kerja berpasukan bagi merealisasikan kursus yang unggul untuk aktiviti reflektif. Kajian ini juga memberi implikasi teori dan menitikberatkan.

Kata kunci : prestasi pasukan, pasukan kualiti pekerja, komunikasi, perpaduan, sokongan bersama, penyelarasan, usaha, baki ahli pasukan, penambahbaikan.



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In the name of Allah, the most Forgiving, most Merciful

All praise and gratitude be given to Allah, Lord of the lords, for giving me such great strength, patient, courage, and ability, health and power to complete this study.

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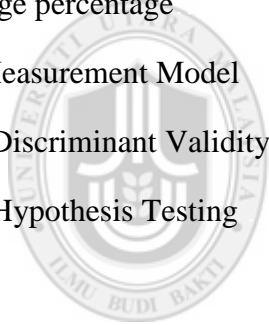
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List of abbreviations

Abbreviations	Meaning
SNTF	Société Nationale des Transports Ferroviaires (National Railways Transport Company)
COM	communication
COH	cohesion
COOR	coordination
IMPRO	improvisation
MS	mutual support
EFF	effort
BTM	balance of team member contribution



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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Globally, railways are considered “hot topic” from ancient Greece to the present day, and, particularly, in 1825, when the world’s first passenger service was initiated. In the previous decades, the railways’ revival, in the national transport system of a country, as the basic transport facility has always been an ongoing process. In the world’s history, the role of the railway is considered important. Literature has widely described their significant contribution (Berghaus, 1964; Nock, 1975; Ransom, 1981; Wolmar, 2007; Revill, 2012) and amongst others, the following are included; countries and continents, industrial development, transportation for passengers and goods and the formation of nations, and trade proliferation.

In most countries, national and international policy makers have deep concern over exemplary railways in Europe. Infrastructure is modernized after years of consolidation; new (high speed) railway lines are opened and new rolling stock investment is making their way through. Railways are considered more environmentally friendly if it is compared with other transport competitors and, thus, railways are flourishing specifically in densely urbanized areas. Historically, railways have been radically evolved and have accomplished various technological achievements. According to Dhillon (2007), in railways, passengers and goods of million dollars’ worth are transported. Railways today are considered powerful, efficient and faster than ever before. The effort of operational and regulatory entities and national

government is needed for the development of regulations, practices, and rules in order to make the performance more efficient, reliable, and safe and quality (Wilson et al., 2007).

With changes in the manufacturing process, for instance, it was realized that skilled workers working with teams could achieve the necessary quality and help in getting the efficiency of the company. The result is a shift in the strategies of the workforce which used for a successful manufacturing process. The strategies have made their focus on of the development of the workforce to make them capable of continuous change. Considering the National Quality Award criteria of Malcolm (Baldrige, 1995), this step is to make workers more flexible to respond to the changing environment in the market, increase performance and worker involvement and teamwork, training and education, continuous information sharing, and compensation system based on performance that needs to be highlighted in organizations. The system of railways is complex which includes several stakeholders. Rail traffic rules, organizational management and human factors, infrastructure and rolling stock reliability could determine the performance of the system (Dhillon, 2007).

For performance improvement and assessment, the most important thing is to understand the modern railways system, their interactions, and dependencies. There are different types of railways operations which are metros, main line etc. In order to make the effective system of railway, it is important to understand it for different types of railways. Safety is of utmost importance of performance measure for operators and to the public. Accidents and incidents in the railways system are considered inevitable because of its complexity.

Recently, steady improvement is seen in the railway safety. According to statistics, the number of accidents and fatalities is reduced worldwide. Yet, in the train accidents, there was a major loss of lives in the derailment of a passenger train, which occurred Wednesday, 5 November 2014 in Algiers; one person was killed and injured 65 others, including at least five

of them seriously wounded. These were according to revised figures provided by Emergency Preparedness fire-fighters. In Algeria, the number of train accidents was four according to national society of rail transport that is a delegate management central railways safety 2015. This signifies that though the incidents have not given major impact to the society, but the organization should concern on the safety and procedures of the operation.

The statistics of national society of rail transport a delegate management central railways safety (April 2015) have shown the comparative statement of Incidents and Accidents by describing the cause of railways accident humanly, which is the “deviation from the performance of a specified or prescribes a sequence of action” (Leveson, 2004). Third parties like operational personnel or trespassers are involved in such errors and this is also perhaps due to the inconsistency of the teamwork among employees that could harm the firm performance. In determining the quality of team work towards team performance, this study aimed to investigate the National Railways Transport Company (SNTF) in Algeria.

In Algiers, since 1991, a metro line of 26.5km was under construction and its opening was scheduled in the beginning of 2008. On the other hand, this tram system which commenced service on May 8, 2011, was to be fully completed line in the Algerian capital. By June 2012, the opened sections had a length of 16.2 kilometres (10.1 mi) and 28 stops and were operated by ETUSA, the public transport operator for the Algiers metropolitan area, using Alstom Citadis trams. An extension, to take the tramway to a total length of 23.2 kilometers (14.4 mi), is currently (2013) under construction.

The organization has granted a fund to develop new modernized trains with the stipulated time duration. However, based on the researcher’s interview from top manager of SNTF, the development of the construction is not as planned as it has many obstacles of controlled and uncontrolled factors. One of the factors that the management needs to think is to strengthen the workforce quality in which it can collate with teamwork quality among

employees. The management believed that with the strong workforce and team effort, it can enable SNTF to be the outstanding organization in the eye of Algerian society.

1.2 PROBLEM STATEMENT

People are considered the valuable resources in an organization as they possess potential to make a contribution in the performance of an organization. Collectively, every individual makes an organization and every individual bring uniqueness like beliefs and values, talents, personality and styles which influence on routine work process and interaction. The complex and unique qualities of individuals in the workplace make them important to the organization. However, the uniqueness of individuals can sometimes be problematic for individuals. There is a need to have individuals that have qualities such as coordination, action efficiency, communication, attitudes, motivation and emotions. Every individual in an organization has the contribution to the achievement of organizational goals, therefore, the organization must be careful on acquiring and treating employees. According to Bersimon (1992), in teamwork, there might be various interactions, sentiments, and behavioral activities that have significant influence on team performance; for example, problem-solving, coordination, action efficiency, communication, attitudes, motivation and emotions (Hoegl&Gemuenden, 2001; Senior &Swailles, 2007).

There are various challenges and complexities for organizations; therefore, it is of utmost importance to develop a reliable team that is helpful in responding and resolving complex problems. The organization must strategize well on recruiting the individual who can be a good team player, demonstrates outstanding performance, and has the efficacy to deal with complexities (Sofa, 2002). Moreover, organizations must bring awareness and some intangible aspects of employee that will influence on team performance and interactions. Skills, abilities, knowledge, personality, social and emotional capabilities are considered intangible aspects or

intellectual resources of team members which must be considered in the process of selecting candidates by organizations (Sofa, 2002).

In an organization, the importance of an individual role in the workplace is known because the features of an individual are considered significant in the enhancement of teamwork and team performance. However, there is a lack in trained and educated workers. Thus, for being competitive and sustainability of competition, trained and educated workers are frequently acknowledged of utmost importance (Sofa, 1999). There is a need to communication and cohesion coordination regarding the strategic planning. According to Edison (2007), human resource plan such as communication and cohesion coordination must be included in the strategic planning of a company in order to make sure if the practices of human resource are aligned with the strategic goals of the company. Employees need new skills and more adaptable skills in building organizational competency.

Kozlowski and Chao (2012) pointed out that among team members developing and maintaining positive interpersonal relations can be a formidable challenge. As for team members, there is a need to communicate well, coordinate their activities, anticipate and meet the needs of other team members. There is also a need to adapt behaviour in order to improve team performance. It has been found that theories of team development proposed that cohesion relatively and quickly forms and enables members to focus on developing other capabilities; i.e., collective efficacy, coordination, and adaptation (Kozlowski et al., 1999). There are suggestive data to support this supposition; there is however a lack indirect evidence. The way how the team cohesion and other team processes emerges and the forms that they may assume and its stability or variability over time are relative unknowns.

Stewart (2006), however, proposed that increased coordination within teams is not probable to be as beneficial for teams performing routine work. Within these teams, task specialization of on-going work is allowed by moderate levels of coordination. This increases

efficiency as long as task demands and environmental conditions remain stable. Therefore, there is a need to assess the overall effect of intra-team coordination on teams. It needs to assess the question whether high coordination is indeed more beneficial for teams' quality as well.

At the team level, there is a need to find a suitable climate that provides a shared representation of the work team that enables team members to assign shared meaning to events important for the team. It also determines the actions in which they will lead to desired outcomes (Peiró, González-Romá & Fortes-Ferreira, 2009). This provides a strong indication that these ideas have led researcher to posit that team quality is related to team performance.

1.3 Research question

This study attempts to answer the following questions:

Do teamwork quality affects the team performance?

1.4 RESEARCH OBJECTIVES

This study mainly seeks to achieve the following objectives:

To examine the link between teamwork quality and team performance.

1.5 SIGNIFICANCE OF THE STUDY:

The primary goal of the present study is to examine the effect of teamwork quality on team performance, its effect among the SNTF employee in Algeria. This study has investigated the effect quality of teamwork on team performance. The study is expected to have contribution to a better infrastructure of Algerian country.

Based on the research questions, academicians and students alike will obtain understanding on the direct effect of teamwork quality (mutual support, cohesion, communication, effort, balance of member contribution and coordination, improvisation) on

team performance. Additionally, the need to this relation for the teams, organization, and researchers should be highlighted.

This study helps organization diagnose the degree and existence of focus concerning these factors. Particularly, it helps managers identify potential drawbacks of teamwork quality which may be the reason of rigidity in the performance of a firm and thus influence the quality of teamwork. Furthermore, this study provides significant insight to the practitioners and companies in general and particularly the companies in Algeria to understand the influential factors which help in the enhancement of team performance which in turn increases the performance of companies by securing a better decision or plan.

1.6 SCOPE AND LIMITATION OF THE STUDY

To answer the research question and meet the research objectives, a survey was conducted among teams in SNTF Company, the company which is specialized in railways. It was chosen because it has begun to renew the infrastructure and try to make it more professional.

1.7 Key terms

The followings are the key words and their definition using in the present study.

1.7.1 Team performance

Team performance can be defined as the extent to which a team is able to meet established quality and cost and time objectives (Hoegl&Gemuenden, 2001). The key success relies on the evaluation of multiple Views Company, team and customer. After setting a clear main goal precise performance, it will help to give rating on the team performance adopted.

1.7.2 Teamwork quality

(TWQ) refers to the degree and quality of team members' interaction which focuses on how teammates collaborate with each other in the pursuit of team goals; it includes neither task work behaviour nor human sentiments. It's well-recognized that the teamwork quality has illustrated in six dimensions. They involve Effort and Balance of member contribution, Coordination, Mutual support, Cohesion, Communication and improvisation (Hoegl & Gemuenden, 2001).

1.7.2.1 Communication: Communication refers to the exchange of information among team members, extensively and with quality in term of frequency in how team communicate, formalization in term of planning and timing before the information occur (e.g., scheduled meetings, written status reports), structure and openness of information exchange the quality of communication, and it provides channel through which information and knowledge can be evaluated and activities can be coordinated (Hoegl & Gemuenden, 2001).

1.7.2.2 Coordination: The understanding and the development and agreement of team member on coming task that is structured and well planned for the aims and goals after dividing the member tasks without any gaps or overlaps (Hoegl & Gemuenden, 2001).

1.7.2.3 Balance of member contribution: The abilities, capabilities and using the experience of one member to complete a task; the right person is in the right place (Hoegl & Gemuenden, 2001).

1.7.2.4 Mutual Support: The idea, management and dealing with the conflict that can be arise in teams in corporative way, it is based on the mutual support rather than the competition among team members (Hoegl & Gemuenden, 2001).

1.7.2.5 Effort: Shared expectation regarding the behaviour of team members, which mean the willingness of spending effort on the behalf of the team which results the compliment of the tasks (Hoegl & Gemuenden, 2001).

1.7.2.6 Cohesion: The togetherness and belonging to the team in order to be stick, apart from the team, and to remain in the team with a desire to remain as part of the team. Without a sense of belonging and a desire to stay in the team to keep it going, high quality teamwork seems improbable (Hoegl & Gemuenden, 2001).

1.7.2.7 Improvisation: Involves reworking pre-composed material and designs in relation to unanticipated ideas conceived, shaped and transformed under the special conditions of performance; thereby it adds unique features to every creation (Vera& al, 2014).



CHAPTER TWO

LITERATURE REVIEW

2.2 Introduction

The primary goal of the study is to investigate the impact of teamwork quality on team performance in SNTF Company in Algeria. To achieve the objectives of the study, this chapter reviews previous literature on the two main constructs of the study, namely, teamwork quality and team performance. The chapter concludes with the theoretical underpinnings upon which the study is grounded.

2.2 SNTF Company Algeria:

The Algerian history of railway was initiated with the country's colonization by France. A creation of 1,357km railway was ordered by decree on 8th April 1857. This railway line was started on 12th December 1859 which was initiated with a standard gauge line going from Algiers to Blida. Algerian Railway Company, a private company, started on 11th July 1860 and initiated work on this railway line with the help of French army.

The rail network of Algeria is 4,200 km and is managed by Algerian National Railways (Société Nationale des Transports Ferroviaires—SNTF). This Algerian rail network suffers from poor signalling equipment's and antiquated rolling stock. 15 new locomotives from General Motors purchased STNF in 2001. Almost 300km broad-gauge track was electrified which was used by cargo traffic between port of Annaba and iron-ore mines. The service of rail lines is to the border Tunisia, Algiers, and major cities at Mediterranean coast. During the

late 1990s, the decline in the number of carrying passengers, distance travelled by passengers, and the amount of carrying freight was because of terrorism against the rail.

This study was conducted amongst teams of SNTF Algerian railways in the west branch due to previous studies have been largely conducted in developed countries.in north Africa. No study has investigated the relationship of the TW and TP thus far specifically the case of SNTF in Algeria. The SNTF is a government corporation that is significant to be examined due to its service can promoting the tourism industry.

2.3 Team Performance

For this research the team performance is described in term of the effectiveness and efficiency. The term team effectiveness entails both meeting customer specifications and ability to work together effectively in the future (Hackman, 1987). When used effectively and provided with proper training, teams could lead to increased production, morale, creativity and innovation (Dionne, 2004). An effective performance regularly entails adherence to predefined qualitative properties of the product, service, or process to be developed. The team's efficiency is assessed in terms of adherence to schedules, e.g., starting the manufacturing and/or marketing on the target date, and budgets. Thus, effectiveness reflects a comparison of actual versus intended outcomes, whereas efficiency ratings are based on a comparison of actual versus intended inputs.

Team performance can be defined as the extent to which a team is able to meet established quality, cost and time objectives (Hoegl & Gemuenden, 2001). The key success relies on the evaluation of multiple Views Company, team, and customer. After setting a clear main goal precise performance, it will help to give rating on the team performance adopted.

On the other hand Glickman, Zimmer, Montero, Guerette, and Salas (1987) describe the team performance as a term that consists of two components; task work (concerning task requirements), and Teamwork (concerning co-ordination amongst members). The effective team member requires skills and knowledge in which skills need to be more than the one needed in the individual tasks. In their research, Glickman et al. (1987) found the positive relation of tiredness and the performance of the team. It is probable that a team can function well when its team Members are tired, but if that occurred, this continued performance is likely the result of some type of adaptation by the team members.

Performance of team is considered a complex and dynamic phenomenon. Theoretical and empirical evidence are resulted from the initiation of research (Salas et al., 2004) in which it has focused team performance. These evidences illuminate the teamwork, team's complexities, team performance and effectiveness, and finally the team development.

2.4 Teamwork Quality

Teamwork quality refers to the degree and quality of team members' interaction which focuses on how teammates collaborate with each other in the pursuit of team goals; it includes neither task work behaviour nor human sentiments (Hoegl & Gemuenden, 2001). For the explanation of teamwork dimensions, many variables are suggested (Brannick, Prince, Prince, & Salas, 1995; J Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995; Senior & Swailes, 2007). For example, according to Morgan, the team process has seven dimensions: team spirit, suggestion and acceptance, communication, coordination, cooperation and adaptability.

In air crews, Brannick et al. (1995) identified seven different dimensions of team process: decision making, leadership, assertiveness, communication, situation awareness and mission analysis.

Hoegl and Gemuenden (2001) introduced the concept of TWQ. This measure helps in the measurement of collaborative strength in some projects among members of the team. The focus of TWQ is on interaction quality among members of the team. Further, work success conducted in teams has a dependency on how well the interaction team members are in terms of achieving goals. TWQ is considered a comprehensive concept that captures the nature of team members. Variables and dimensions of TWQ combine the aspect of team knowledge, skills, and attitude competency. There are six facets of TWQ which include: mutual support, coordination, cohesion, communication, and balance of member's contribution. The internal interaction of team is measured by them in which it demonstrates the quality of collaboration among the members of team.

Moreover, the response of teams to the fast-changing environment is compared to the individual task. The team also enables learning, brings financial benefits and facilitates effective change. Teams are significantly important for complicated issues as well in fast changing environment which needs various talents and functional expertise of employees. Creativity and spontaneity improvisation element are crucial to the management success (vera & crossan, 2005).

Teams typically provide superior customer services because it gives more expertise and knowledge to the customers if compared with individual (Gilley et al., 2010). The success of organisation is determined by the characteristics of team's effective collaboration and efficient work towards the solution of complex problems (De Church & Mesmer-Magnus, 2010). Series of flexible behaviours, attitudes and cognitions define teamwork that is related to internal and external environment's changes in which it is comprised of cooperative process that enables ordinary people for the achievement of extraordinary results (Scarnati, 2001) Thinking, feelings, and actions among team members are integrated by teamwork for the purpose of work accomplishment in achieving performance goals (Salas et al., 2007; Mathieu, Gilson, &

Ruddy, 2006). The significance of teamwork includes creativity and productivity (Kendall & Salas, 2004); facilitating cognitive complexity (Bensimon & Neumann, 1992). The workload is shared. This means the expertise is more intensified on subtasks (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). Teamwork is significant for making effective communication and collaboration teams. They are helpful in speeding action, raise the commitment level. Additionally, teamwork helps in increasing adaptability and flexibility of organizations (Drew & Thomas, 1997).

In organisations, teamwork is gaining more importance as synergy. Collaboration is created among team members who make the achievements of goals better. Furthermore, the teamwork at individual level is impacted by interdependence. Organizational and group levels are believed to have acceleration in processes, more innovation, increased quality; work capacity is increased and social personality and sensibility is developed (Marosi & Bencsik, 2009). Barrick et al (1998) made a suggestion regarding intra-group processes that it is an interaction that takes place among team members. Personal disclosure, efforts and conflicts towards leaderships, communication pattern and other form of influences are included in it. The teamwork will be successful if synergy is created among team members. The flexibility of team members is of utmost importance in adoption of work environment as well as in the promotion of efficient teamwork with the help of collaboration and social interdependence instead individualised competitive behaviour (Tarricone & Lucca, 2002).

According to Tarricone and Lucca (2002), the attributes of successful teamwork are:

- (a) Team's success and shared goal's commitment: Team members are motivated and committed to the success of the team. They work hard for the achievement at the highest level of performance.
- (b) Interdependence: The environment of teams is positively interdependent where they make more contribution if compared with individuals and the best is demonstrated in every individual for achievement of goals;
- (c) Interpersonal skills: The issues are open for

discussion to the member of the team. They are trustworthy, honest, and cooperative and commitment and respect are shown to both team and individuals in order to make a supportive work environment which will help in the enhancement of work environment. (d) Positive feedback and open communication: Team members must actively listen and must work for the need of members. There must be appraisal for the work contribution, supportive for team members for the purpose of creating an effective work environment. Team members provide authentic feedback on constructive criticism. (e) Appropriate composition of the team: The team role is known to every team member. They are aware of their own contribution and expected work; (f) Commitment to team processes, accountability and leadership: Team members know about team processes. Effective leadership is implemented through best practices and new ideas.

The working smart concept is introduced in recent studies in which workers have the right to express their feelings, are allowed to learn from solving the problem, and must use their expertise and talent in solving a problem. For example, problems related to production can only be solved, in traditional working systems, with the help of functional specialists, whereas problem solving is sooner in self-managing teams. Thus, it minimizes interruption in the process of production. Thus, the production process can be significantly improved. Employee considers the work more rewarding if people express their feeling in solving a problem (Delarue, Van Hootegem, Procter, & Burrige, 2008).

The failure of the team is often dependent on communication. Differences in personalities create poor communication which is the reason of misunderstanding and tension. The team's quality is discussed by Hoegl and Gemuenden (2001). According to them, the measurement of team quality is determined by formalisation, open information exchange, structure and frequency. Frequency explains the extent of communication among team members i.e. persistently sharing of messages and knowledge between team members.

Formalisation explains the spontaneous exchange of information between team members. In formal communication, planning and preparation are needed while, in spontaneous communication, the atmosphere developed is informal where different thoughts, opinions and ideas are quickly and efficiently shared, explained and examined with other members of the team (Pinto & Pinto, 1990). Communication structure depicts the direct communication of team member's. For example, any mediator-function is required for team members (e.g. team leader) for the purpose of communication within a team, or team members have any hindrance while communicating with members of the team. If the mediator is involved in the process of communication, it might then result in erroneous sending of information. Communication openness is the most important aspect in information exchange. The experience and knowledge integration of team members is hindered with a lack of openness, which is considered the most basic function of teamwork (Hoegl & Gemuenden, 2001).

The overlaps and gaps within team's task are reduced with the help of coordination. The contribution of every team member is synchronised and harmonised through coordination (Brannick et al., 1995). The agreement of members on designated task, schedule, deliverables, budgets and work structure is important in order to make the coordination more effective and efficient. Therefore, clear sub-goals are assigned to every team member. The quality of team work is determined with the level of understanding related to the contribution among the team members (Hoegl & Gemuenden, 2001).

Communication supports coordination because if communication is explicit, coordination will be promptly maintained in the activities of the team, like exchanging information related to the task and developing problem's solution (Kozlowski & Ilgen, 2006). If the contribution of team members is balanced, it will then makes the team members' experiences at their full potential. The process of decision making allows the team members to share their views, ideas and have a balanced contribution. The creation of such environment is

important where all members are allowed to discuss, In the process of decision making, their task-related experiences. According to research, the balance contribution of team members is related to the satisfaction of team members and task performance (Hoegl & Gemuenden, 2001). Mutual support means the cooperation with the team members instead of making individual competition in tasks. It is stated in research that if teams are highly cooperative, then the team will be more constructive in the discussion of opposing views and this behaviour brings innovation in team performance and team (Tjosvold, Andrews & Jones, 1983). If the behaviour of the team is cooperative, it will then help the team member in the recognition of goal's achievement and provides an understanding that they have common goals. It is believed that people together can gain success. Therefore, problems are openly identified, accurate information is shared, constructive discussion is made on opposing views, and the high quality alternative solution is developed which is to be implemented by all members of the team (Tjosvold, 2003). The team's reflection is obstructed with competitive behaviour i.e. reducing the constructive discussion of opposing views.

If the situation is competitive, the focus of an individual on the achievement of successful will make others effort reduced for the achievement of goals. There will be less success to individuals if others are more productive. There is a positive correlation between cooperative situation and achievement of goals of an individual while the correlation of competitive situation is negative with the achievement of individual's goal (D Tjosvold, Yu, & Hui, 2004). The ideas and contribution of other team members are developed with mutual respect of team members. This is important to the aspect of quality of teamwork collaboration (Hoegl & Gemuenden, 2001).

The team member's effort shows the way team members are sharing and prioritising the burden of team tasks. While working on a prioritised task, high supportive atmosphere determines high level effort from all members of team. Team members give priority to the

completion of tasks; which results in more effort of the team members to the project. They work together and help each other in order to eliminate the conflict in a more positive social interaction (Campion, Papper, & Medsker, 1996; Hoegl & Gemuenden, 2001).

Cohesiveness explains the attraction of team members to the group. Group spirit, affective bonds, commitment to the group, a sense of belonging, and sense of Wanes determine the concept of group cohesion (Soldan, 2010). Group cohesiveness helps in enhancing the strength, efficacy and feelings of team spirit, and commitment. Willingness of team member is also increased in order to make more effort for the team and provide motivation for the team's performance and for the better coordination of activities related to successful performance. Effectiveness, productivity and group performance are the outcome of group cohesiveness.

According to Stashevsky and Koslowsky (2006), if cohesiveness of team is high there will be better performance which is indicated coordination, communication and interaction. Often, non-cohesive groups are outperformed by cohesive groups which provide more personal and job-related satisfaction and, generally, the individual contribution to a group is positively influenced by group cohesion (Sánchez & Yunebaso, 2009). Various factors like level of interaction, the size of the team, nature of task and level of conflict are promoting cohesion as identified in the literature (Wright & Drewery, 2006). Hoegl and Gemuenden (2001) made a discussion on the high quality of teamwork for the clarification of TWQ effectiveness which is communication. There are sufficiently direct, informal, frequent and open communications among team members. Coordination is referred to the efforts of individuals in a team considered synchronised and well structured. Balance contribution of team members is referred to all team members who have the efficacy bringing their full extent of expertise. Mutual support is referred to supportive behaviour in carrying out the tasks of the team. Efforts are referred to all efforts of the team member that are made to the tasks of the team. Cohesion is

referred to team members remained motivated and their ability to strengthen the spirit of the team.

2.5 The link between Teamwork Quality and Team Performance

Hoegl and Gemuenden (2001) defined a team as a social system of more than two people. From the organizational perspective, members themselves and by other people are perceived as a team who collectively work on a joint chore (usually termed as team work).

However, there is theoretical contribution of research conducted by Robert, Easley, Sary and Michael (2003). Robert et al. (2003) stated that specific pattern of characteristics leads to helpful behaviours and processes which become the source of success in any task.

Talking about the performance of the team on supported tasks and that usage is a function of teamwork quality TWQ and Performance associating with organizational commitment. One more factor that is important is the quality interaction with management and external parties are also important regarding teamwork performance. The dimension of teamwork encompasses performance related actions inside the team. Therefore, the main point here is the quality of teamwork in collaboration rather than content of the tasks given. Hence, the evaluation of teamwork process is neither the subject matter of the study nor the construct as proposed in the study.

Moreover, the process of leadership includes activities but they are not limited to the setting of a goal, planning of tasks, acquisition and distribution of resources, controlling of tasks, performance appraisal and feedback. Therefore, organization commitment is not included in the scope of the concept of teamwork quality. These are the factors that state the content of task activities rather than interaction quality in team members. In this situation, we may assume that there exists a link between task content that is team- based and organization

commitment activities like high teamwork quality. It may enhance effectiveness and efficiency of implementation of above-stated activities in teamwork.

However, teamwork is an agility and the function of a number of people reliant on each other to complete a task. It is a set of interrelated components of performance that are needed to efficiently and successfully facilitate coordinated and adaptive performance (Parumasur&Sanjana, 2013). Therefore, different levels of teamwork quality can have several ways to affect the project performance and thus the commitment of the organization (Hoegl & Gemuenden, 2001).

Furthermore, we specify six facets of the collaborative team process that integrate to the concept of TWQ. Hoegl and Gemuenden (2001) argued that the overall construct of teamwork quality is described in six dimensions. The conceptualization of teamwork quality as a six-dimensional construct is consistent with previous research that tends to cluster teamwork into two categories: tasks and interpersonal processes task processes include three dimensions: effort, the balance of member contribution and coordination interpersonal processes. The latter include three other dimensions: mutual support, cohesion, and communication.

However, Hoegl and Gemuenden's (2001) the teamwork quality (TWQ) model was chosen as a basis for this project because it is one of the prominent models in teamwork and is regularly applied to explain the phenomenon.

Salas, Cooke and Rosen (2008) defined teams as composed of social members with great interdependency tasked, shared and valued common goals which commonly organized as hierarchically or sometimes dispersed geographically. They must share information and coordinate and corporate, integrate as task demand throughout a performance episode to fulfil their obligation and accomplish their mission. During this process, team member engaged in individual task work defined as the components of a team member's performance that does not

require interdependent interaction with other team members. In contrast, teamwork is defined as the interdependent components of performance required to effectively coordinate the performance of multiple individuals. Team performances conceptualized as a multilevel process (and not a product) arising as team members engage in managing their individual and team-level task work and teamwork processes. Conceptually, teamwork is nested within team performance and is a set of interrelated cognitions, attitudes, and behaviours contributing to the dynamic processes of performance. The definitions of performance and effectiveness are similar to the individual level. That is, performance is the activities engaged in while completing a task, and effectiveness involves an appraisal of the outcomes of that activity (Fitts& Posner, 1967; Motowildo, 2003). With this groundwork in place, we turn to a survey of the crowning achievements of the past decades of team research.

In addition to practice and expertise, Vera and Crossan (2005) have been doing their research on the relationship between the improvisation and innovation performance in teams. They mentioned that the rule of collaboration among players is frequently taken for granted when describing collective improvisation. Team improvisation and its interdependencies must be managed effectively. Theatre is as an example the actors must not be left stranded. On the stage, every member of the team is responsible for the other; actors look after one another and take the pressure off for each other rather than increasing the pressure. We can say that the performance depends on healthy team relationships and dynamics because scenes evolve from the interdependent work of the improvisers. We can summarize that phenomena occurs when a team pays more intention to each other hearing and remembering everything, accept and show respect to all what they have heard because the goal of this improvisation is to connect the information created out of group ideas where it can be brilliance.

As team members develop the ability to work together smoothly, they have the ability for less planning and more understanding and great cooperation and no confusing. Effective improvisation builds on affective factors such as trust, respect, and mutual support. On the other hand, team can take risks and get their teammate support if there is an absence of trust and respect. Given the unpredictable nature of improvisation, trust among team members reinforces the belief that the collective improvisational process will achieve its objective. The principle of collaboration has important implications for cooperation, teamwork quality, and balance in member contributions in work teams and the effectiveness of collective improvisation.

However, Kim and McNair (2011) have studied the relationship of the balance of team member on teamwork performance. Showing the impact of balanced discipline strategies on team effectiveness; their research was a comparative study of interdisciplinary product design teams from two consecutive years under non-balanced and balanced disciplinary conditions. The main difference between the two conditions was the hands-on exercise modules focusing on each discipline (e.g., electronic prototyping exercise) used for the balanced condition. The finding showed that there is correlation relationship between the balance of team member and the team performance; however, the teams under the non-balanced condition did not show this level of integration. On the contrary, they took a divide-and-conquer approach towards the end.

Beal and Al's (2003) finding on the cohesion and performance, they found a positive correlation between cohesion and contextual performance because contextual performance usually occurs at the individual level. However, most of the studies examining this relation did not meet our inclusion criterion of group-level effects. Nevertheless, we feel it worthwhile to mention our cursory examination as an encouragement to other researchers pursuing this topic. The results provide compelling evidence for expected differential relations between group

cohesion and different types of criteria. Similarly, their sample of studies found that groups who take the most advantage of cohesion typically engage in intensive patterns of workflow.

Moreover, Greer (2012) stated that cohesion is moderately positive correlated for group performance. While the relative strengths of effects may vary based on context and task, in general, cohesion is a remarkably robust process in teams in which researchers have been able to apply across a variety of contexts and disciplines

2.6 Summary

The chapter reviews the literature on the different variables of the study, namely, teamwork quality and team performance. Next will discuss the research hypotheses and methodology of the study.



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

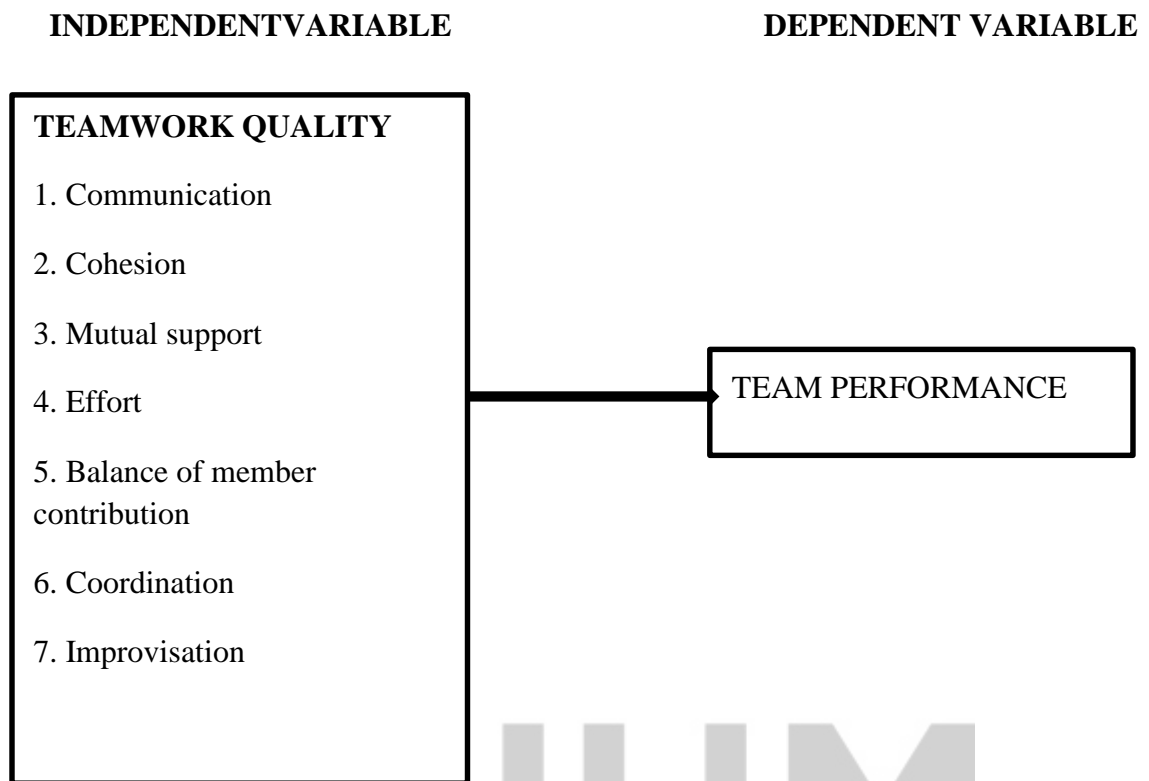
This chapter describes the research design and method that used in this study .The chapter explains the details on the research design, population and sample, operational definition, as well as a detailed discussion on the measurement and instrument used, the procedure used in data collection, data analysis, the reliability analysis of the dimension and the result of pilot testing conducting for the research.

3.2 RESEARCH FRAMEWORK

The following research framework is developed based on the literature review with the aim of answering the research question and meeting the research objectives .Teamwork quality is the independent variable with seven dimensions which are communication, coordination, balance of member contributions, mutual support, effort, cohesion and improvisation. Six dimensions were adopted from Hoegl and Gemuenden (2001). Improvisation is added in this study as teamwork quality dimension where it can determine the team's creativity and spontaneity. This dimension is significant in order to correspond to the highly unpredictable, fast-moving and complex business environment (Ilgen et al., 2005; vera & crossan 2005).

The independent variable in this team performance is presented. The main objective of this study is to examine the overall effect of teamwork quality on team performance.

Figure 3.1: RESEARCH FRAMEWORK



3.3 HYPOTHESIS

Based on previous studies on teamwork quality and team performance, the researcher found that there is significant relationship between teamwork quality and team performance. Seven hypotheses are developed in this study. The hypotheses are proposed below:

H1: The communication affects the team performance.

H2: The cohesion affects the team performance.

H3: The mutual support affects the team performance.

H4: Effort affects the team performance.

H5: Balance of member contribution affects the team performance.

H6: Coordination affects the team performance.

H7: Improvisation affects the team performance.

3.4 RESEARCH DESIGN

A research design is defined as a set of decision for develop a master plan procedures and stage for the purpose of data collection and analysis (Burns & Bush, 2002). The strategy or design is selected based on the research question in specific field (Yin, 1994).

However, this study aim to investigate the relation between teamwork quality and team performance. The research was designed in accordance with cross-sectional field survey, where the questionnaire was used for data collection basically for due to the time limitation and budget constrain. Above all, handling of questionnaires is relatively easy while at the same time provides the breadth and speed in terms of its coverage. From the above, Allen and Meyer's (1990) measuring instrument can be seen to have both acceptable reliability and validity and therefore no pilot study was performed for this section of the questionnaire.

Marvels is divided or delimited into diverse quantifiable or normal classes by quantitative specialists that are material to all subjects that have comparable circumstances (Winter, 2000). The utilization of institutionalized measures is included in the systems for scientists so that the general population's differing encounters and point of view can be proper for pre-decided reaction classifications of set number which are appointed with numbers (Patton, 2001). For example, a list of behaviour might be prepared by researcher and this list is to be checked and rated by an observer with the help of schedules or numbers (scales) as an instrument which is pre-determined in the study's method. Therefore, the instrument constructed by quantitative researchers must be administered in standardised way with respect to pre-determined procedures. The purpose of the study must be considered in the choice of research method. The quantitative approach is chosen for gaining the better understanding of the study's purpose that helps in enabling researchers to get more in-depth information.

Teddlie and Yu (2007) pointed out that purposive sampling techniques have been referred to as nonprobability sampling, purposeful sampling or qualitative sampling. It has been

noted that purposive sampling techniques involve selecting certain units or cases “based on a specific purpose rather than randomly”. This study uses the purposive sampling since it aims to special sampling or unique cases-employed when the individual case itself is a major focus of the investigation.

3.5 POPULATION AND SAMPLING

Mahbood (2004) stated that a sample is a group of people or events drawn from a population. The research is carried out concerning a sample of a population. To find out the true feeling of the sample that chosen from the population, this is considered a step towards to the final aim. To gain the real result, the research needs to have a sample in which it can represent the population. According to Cooper and Schindler (2008), sampling is the process in which some elements from the population are chosen to represent the whole population. Furthermore, Sekaran (2003) pointed out that a sample is subset of a population. It consists of a selection of members of the particular population when there is too big and scattered population. It has been found that it is practical to sample in order that one can save money, time and effort. It also leads to minimize the errors. Cooper and Schindler (2008) defined population as those people, record or event that contain the desired information that leads to answer the measurement question. Thus, this study aims to study the relationship of teamwork quality process, the involvement in enhancing the team performance, and the expertise in the national transport railways in Algeria. The population of this study is there for concerned with all teams and group of workers under national transport railways in Algeria. Furthermore, the population is concerned with all the officers and group of engineers working in the west of Algeria, particularly the regional administration in the west of the country located in Oran.

3.6 MEASUREMENT OF VARIABLES

A questionnaire survey will be distributed to the respondent which consist three section A and B and C, Section A is the profile of respondent. Section B and C is based on Likert Scale of 1 to 7, is 1=strongly disagree, 2= Moderately Disagree, 3=slightly disagree, 4= undecided, 5= slightlyagree.6= moderately agree and 7= strongly agree, or ranging from '1' "Strongly disagree" to '7'"Strongly agree."

For section B and C, they consist of the team performance and teamwork quality for measuring the teamwork quality the measurement scale developed by Hoegl and Gemunden (2001), where it was reported to have a high validity and reliability scores from past research, (cronbach's alpha coefficient=0.91). This instrument was widely used in many types of industry. Where 15 items constitute the measurement of team performance, and 10 items constitute the measurement scale for communication, 4 items for coordination, 3 items for balance of member contribution, 6 items for mutual support, 4 items for effort and finally 10 items for cohesion . A complete scale of items used to assess teamwork quality is presented in Table 3.2. The improvisation questionnaire was adapted from Vera and Crossan (2005). It consists of seven questions with the same scale with alpha = 0.91.

Table 3.1 team performance measurement scale

variables	measure	no of item	source
team performance	<ol style="list-style-type: none"> 1. This project/program can be regarded as successful. 2. All demands of the customers have been satisfied. 3. From the company's perspective, all project/program goals were achieved. 4. The performance of our team advanced our image to the customer. 5. The project/program result was of high quality. In my quest of getting reward, I have to behave well. 6. The customer was satisfied with the quality of the project/program result. 7. The team was satisfied with the project/program result. 8. The product/program required little rework. 9. The product/service proved to be stable in operation. 10 The product/service proved to be robust in operation. 11. From the company's perspective one could be satisfied with how the project/program progressed. 12 Overall, the project/program was done in a cost-efficient way 13. Overall, the project/program was done in a time-efficient way. 14. The project/program was within schedule. 15. The project/program was within budget. 	15	Hoegl and Gemunden (2001)

Table 3.2 Teamwork quality measurement scale

variables	measure	no of item	source
Communication	<p>There is frequent communication within the team.</p> <p>Team members communicate often in spontaneous meetings or phone conversations.</p> <p>Team members communicate mostly directly and personally with each other.</p> <p>There are mediators through whom much communication among team members is conducted.</p> <p>Project-relevant information is shared openly by all team members.</p> <p>Important information is kept away from some team members in certain situations.</p> <p>In our team there are conflicts regarding the openness of the information flow.</p> <p>Team members are happy with the timeliness in which they receive information from other members.</p> <p>Team members are happy with the precision of the information received from other team members.</p> <p>Team members are happy with the usefulness of the information received from other team members.</p>	10	Hoegl and Gemunden (2001)
coordination	<p>The work within the project is closely harmonized.</p> <p>There are clear and fully comprehended goals for subtasks within our team.</p> <p>The goals for subtasks are accepted by all team members.</p> <p>There are conflicting goals in our team regarding subtasks.</p>	4	Hoegl and Gemunden (2001)
Balance of Member Contribution	<p>Our team recognizes the specific potentials (strengths and weakness) of individual members.</p> <p>Team members contribute to the achievement of the team's goals in accordance with their specific potentials.</p> <p>Imbalance of member contributions causes conflicts in our team.</p>	3	Hoegl and Gemunden (2001)

Mutual Support	<ol style="list-style-type: none"> 1. Team members help and support each other as best as they can. 2. If conflicts come up, they are easily and quickly resolved. 3. Discussions and controversies are conducted constructively. 4. Suggestions and contributions of team members are respected. 5. Suggestions and contributions of team members are discussed and further developed. 6. Our team is able to reach consensus regarding important issues. 	6	Hoegl and Gemunden (2001)
Effort	<ol style="list-style-type: none"> 1. Every team member fully pushes the projects. 2. Every team member makes the projects their highest priority. 3. Our team put much effort into the projects. 	3	Hoegl and Gemunden (2001)
Cohesion	<ol style="list-style-type: none"> 1. It is important for the members of our team to be part of these projects. 2. Our team does not see anything special about these projects. 3. Team members are strongly attached to these projects. 4. These projects are important to our team. 5. All members are fully integrated in our team. 6. There are many personal conflicts in our team. 7. There is personal attraction between members of our team. 8. Our team is sticking together. 9. Members of our team feel proud to be part of the team. 10. Every team member feel responsible for maintain the success of the team 	10	Hoegl and Gemunden (2001)
Improvisation	<ol style="list-style-type: none"> 1. We deal with unanticipated event on the spot. 2. We decide in team when carrying out actions 3. We respond in the moment to unexpected problems 4. We try new approach to problems 5. We identify opportunities for news work process 6. We take risk in terms of producing new idea in doing the jobs 7. We demonstrate originality in work 	7	Vera and Crossan2005

3.7 DATA COLLECTION

The data for this study was collected using a structured questionnaire, which consists of 58 items. The advantage of the questionnaire is low cost and furthermore it is an encouragement

for the respondent to be more open and truthful in their answer based on their beliefs or opinions.

In organization or any industry, the teamwork quality is not only restricted in team but in all the dimensions of teamwork. These include Effort and Balance of member contribution, Coordination, Mutual support, Cohesion, Communication and improvisation. Each one of this dimension needs to be highlighted how it involves in team performance and how it enhance it. As result from what was mentioned above, the target population of this study is not limited to (SNTF) company in Algeria but extended to all staff working group or in every branch of (SNTF).

Moreover the questionnaire was distributed with two main language according to the Algerian culture using French language and Arabica language, to fulfil the research farm. A professional translator was used to translate the questionnaire from the origin language which is English to the French and Arabic language.

3.8 DATA ANALYSIS

This section details the statistical analyses used to analyze the data to test the hypothesis. PLS path modeling was chosen for the data analysis. Compared with other covariance based structural equation modeling (SEM) approaches, PLS is a variance-based SEM technique, suitable for reflective and formative measurement models and complex models with many latent variables (Hair, Sarstedt, Ringle, & Mena, 2011b; Henseler, Ringle, & Sinkovics, 2009). PLS is not only a prediction-oriented multivariate approach, but is also suitable for testing exploratory theories (Henseler et al., 2009). Furthermore, PLS has less stringent assumptions than covariance-based SEM. This is because PLS does not require a normal distribution of observations or a large-sized sample (Fornell&Bookstein, 1982). Thus, Hair, Ringle, and Sarstedt (2011a, p.144) recommended the use of PLS path modeling by stating that "if the goal

is predicting key target constructs or identifying key “driver” constructs, select PLS-SEM... if the research is exploratory or an extension of an existing structural theory, select PLS-SEM". As a key analytical method in such areas, academics in business and management have indeed recently adopted PLS path modeling.

On the other hand, before PLS path modelling was performed, initial data screening was run to ensure that only valid cases were used. At this stage, it is concerned with checking for missing values, outliers. Then, Partial Least Square (PLS) included a two-step approach to data analysis. First, using the measurement model to evaluate and develop the reliability and validity of the research instrument should be conducted. In particular, researchers (e.g. Barclay, Higgins, & Thompson, 1995; Chin, 1998a) suggested that the measurement model was evaluated by examining:

A- Convergent validity; when all the measures of a certain construct correlate and ‘stick’ together in terms of the concept they reflect, Convergent validity is then exhibited (Hair et al., 2006). As for this research, three evaluation criteria used to assess convergent validity by examining:

- 1) The reliabilities of items scale
- 2) The composite reliability (CR) of each construct
- 3) The average variance extracted (AVE)

B- Discriminant validity; Duarte and Raposo (2010) stated that Discriminant validity is interested in the discrimination or differentiation among measures of different constructs. Hence, in this research, discriminant validity was assessed by examining two evaluation criteria as below:

- 1) Item cross-loadings on various constructs

2) Interrelations between first order constructs and square roots of AVEs.

Second, in the conceptual model, the structural model was evaluated to assess the hypothesized relationships among constructs after the adjustment of items and acceptance of the measurement model. More specifically, analyzing the correlations between the different constructs evaluated the structural model based on the significance of their path loadings. Thus, this two-step process helped in a way that ensures that the scale items are statistically consistent. It also ensures that the constructs measure what they intended to measure before taking any attempts when drawing conclusions concerning the structural model.

3.9 Summary

To summarize, the whole details in this chapter are about research methodology from the item of teamwork quality and also team performance. This includes the research framework, hypothesis for this research, research design, and measurement of each instrument, data collection procedures, and data analysis.

Chapter 4

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the data analysis and decision of the study that was gathered based upon the objectives of the study. Statistical Package for the Social Sciences (SPSS) version 21.0 for Windows was used to describe the profile of respondent and to check the normality and the reliability of the data. In addition, the Partial, Least Squares Structural Equation Modelling (PLS-SEM) was used to assess the hypothesis of the study.

4.2.1 Demographic profile of the participant

This section is concerned with demographic profile of the participants. The demographic characteristics examined in this study include the nationality, gender, age, income, experience, educational level. Table 4.4 shows that all the participants are Algerians. In term of gender, Table 4.5 shows that 78.8% of the participants were males, and 21.2% were females. The other variable which is the income have significant percentage with the 67.3% their salary is less than 300 euro and 29.2% is more than 300 euro, and 3.5% is more than 500 euro. The experience is shown in table 4.7; it is differentiated from one employee to another. According to the table, where the high percentage with 14.2% has 4 years' experience and 11.5% has 5 years' experience, 3.5% has 10 years' experience, and 44.4% has an experience more than 10 years. Table 4.8 describes the age range from 22 to more than 50 years old.

Table 4.1 Nationality percentage

nationality	Frequency	Percent	Valid Percent	Cumulative Percent
Algerian	113	100.0	100.0	100.0

Table 4.2 Gender percentage

gender	Frequency	Percent	Valid Percent	Cumulative Percent
male	89	78.8	78.8	78.8
female	24	21.2	21.2	100.0
Total	113	100.0	100.0	

Table 4.3 Income percentage

Income	Frequency	Percent	Valid Percent	Cumulative Percent
less than 300	76	67.3	67.3	67.3
more than 300	33	29.2	29.2	96.5
more than 500	4	3.5	3.5	100.0
Total	113	100.0	100.0	

Table 4.4 Experience percentage

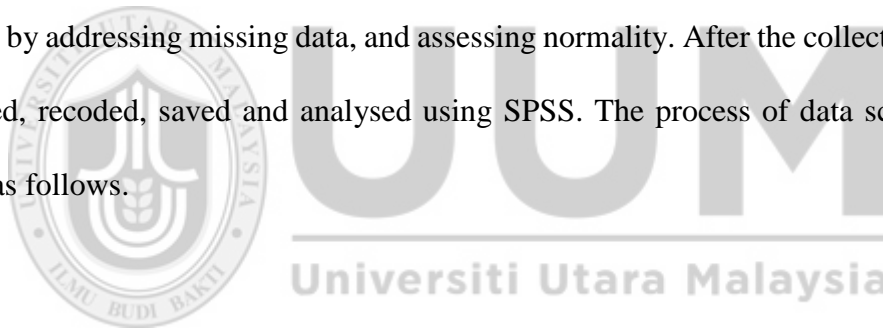
Experience	Frequency	Percent	Valid Percent	Cumulative Percent
1 TO 5	41	36.3	36.3	36.3
5 TO 10	22	19.5	19.5	55.8
10 TO 15	21	18.6	18.6	74.3
15 TO 20	10	8.8	8.8	83.2
MORE THAN 20	19	16.8	16.8	100.0

Table 4.5 Age percentage

Age		Frequency	Percent	Valid Percent	Cumulative Percent
range	20t to 30	34	30.1	30.1	30.1
	30 TO 40	53	46.9	46.9	77
	40 TO 50	18	15.9	15.9	92.9
	MORE THAN 50	8	7.1	7.1	100

4.2.2 Case analysis

The data of the current study were screened for any errors in coding, to facilitate the statistical methods of data analysis. Hence, all data in this study were subjected to the accuracy of the entered data by addressing missing data, and assessing normality. After the collected data were edited, coded, recoded, saved and analysed using SPSS. The process of data screening was carried out as follows.



4.2.1 Variable screening:

Table 4.6 Normality

Dimensions	N	Minimum	Maximum	Mean	Std Dev
TPERF	113	1.47	6.73	4.0950	1.43228
COMUNI	113	2.20	6.40	4.5487	.69103
COORDINATION	113	1.00	7.00	5.2448	1.50133
BALANCOTMEMBER	113	1.00	7.00	5.6283	1.14716
EFFORT	113	1.00	7.00	5.4646	1.31223
MUTUALSUPPORT	113	1.00	7.00	5.5295	1.11141
COHESION	113	2.70	6.90	4.9434	.64695
IMPROVISATION	113	1.00	7.00	5.5689	1.04613
Valid N (listwise)	113				

	N		Variance	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
TPERF	113	.13474	2.051	-.167	.227	-1.301	.451
COMUNI	113	.06501	.478	-1.171	.227	2.648	.451
COORD	113	.14123	2.254	-1.496	.227	1.679	.451
BOT	113	.10792	1.316	-1.735	.227	4.573	.451
EFFORT	113	.12344	1.722	-1.530	.227	2.759	.451
MS	113	.10455	1.235	-1.897	.227	4.207	.451
COH	113	.06086	.419	-.790	.227	2.653	.451
IMPR	113	.09841	1.094	-2.099	.227	5.190	.451

Sekaran and Bougie (2013) pointed out that normality test will determine if the population of the study is normally distributed in a symmetrical, bell-shaped with most scores in the middle and only a few scores in towards the extremes curve (Pallant,2013). This explained the finding of Sekaran and Bougie (2013). This means that none of the population is overrepresented or underrepresented. Based on skewness and kurtosis, the normality was examined for each item (Pallant, 2013). Pallant (2013) explained this by stating that skewness

indicates the symmetry of the distribution. However, kurtosis indicates the ‘peakedness’ of the distribution. A perfectly normal distribution of population, according to Pallant (2013), would have a skewness and kurtosis value of 0. Positive skew values would mean that the distribution would be more on the left (low values side). Negative skew values would mean that the distribution would be more on the right (high values side). Positive kurtosis values would mean that the distribution is peaked (high in the middle) with long thin tails. In contrast, a negative kurtosis values would indicate a relatively flat distribution (too many cases in the extremes).

It should be noted that values of skewness and kurtosis must be not greater than 3 and 10. Based on this result, all of the items showed an acceptable level of normality which were less than 3 for skewness and less than 10 for kurtosis. (See the excel sheet)

4.2.3 Frequency Mean Analysis

The descriptive statistics was used to examine Research Objectives. Table 4.2 below shows the result of the descriptive analysis of all the variables in this study. The descriptive analyses done are the mean, standard deviation as well as the minimum and the maximum value. In overall, all of the variables have a good spread with a moderate level of mean and standard deviation.

Table 4.7 Descriptive statistics

variables	N	Range	Minimum	Maximum	Mean	Std. Deviation
TEAM PERFORMANCE	113	5.27	1.47	6.73	4.0950	1.43228
COMMUNICATION	113	4.20	2.20	6.40	4.5487	.69103
COORDINATION	113	6.00	1.00	7.00	5.2448	1.50133
BALANCEOF TEAM MEMBER	113	6.00	1.00	7.00	5.6283	1.14716
EFFORT	113	6.00	1.00	7.00	5.4646	1.31223
MUTUALSUPPORT	113	6.00	1.00	7.00	5.5295	1.11141
COHESION	113	4.20	2.70	6.90	4.9434	.64695
IMPROVISATION	113	6.00	1.00	7.00	5.5689	1.04613

4.3 Assessment of the multicollinearity

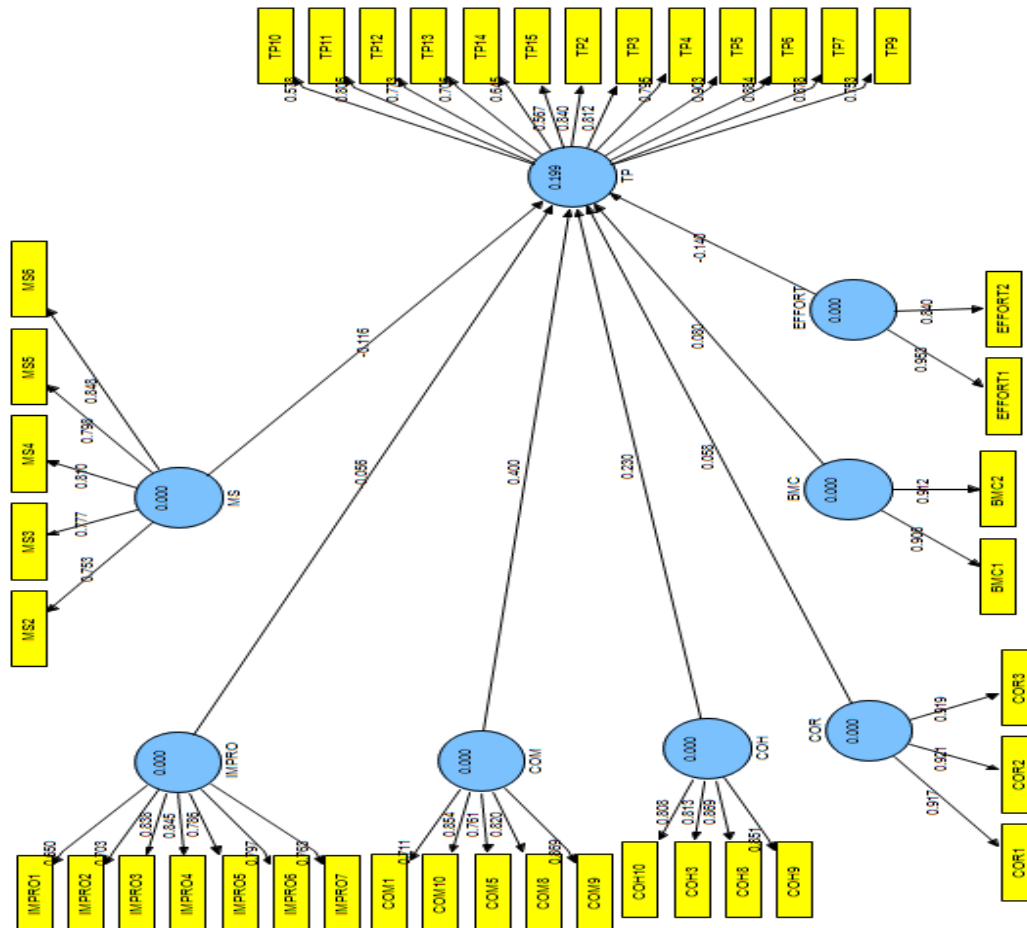
In the present study, VIF and tolerance model value were checked to ensure that the independent or exogenous latent construct are not highly correlated (O brien.2007). Table 4.3 presents the collinearity descriptive statistics for the exogenous latent construct. As presented in the table below, there is .no multicollinearity among the exogenous latent construct was observed because the value of VIF were less than 5 and the tolerance value exceeded 0.20 (Hair, Ringel, & Serstedet 2011).

Table 4.8 Tolerance and variance inflation factors:

Exogenous Latent variables	Collinearity Statistics	
	Tolerance	VIF
COMUNICATION	.422	2.369
COORDINATION	.351	2.848
BALANCOF TEAM MEMBER	.759	1.318
EFFORT	.464	2.153
MUTUALSUPPORT	.229	4.372
COHESION	.456	2.193
IMPROVISATION	.482	2.074

4.4 The measurement model using the PLS approaches

Figure 4.1 the measurement model



4.5.1 Convergent validity

Convergent validity is the degree to which multiple items to measure the same concepts are in agreement. As suggested by Hair et al. (2010) factor loadings, composite reliability and average variance extracted are used to assess convergence validity.

Table 4.9 Measurement Model

Items	standard loading	C Alpha	C R	AVE	Composite Reliability
BMC1	0.910885	0.790641	0.905234	0.826854	0.905221
BMC2	0.907766				
COH10	0.801132	0.856851	0.902277	0.698444	0.902494
COH3	0.816014				
COH8	0.871641				
COH9	0.85111				
COM1	0.712449	0.842765	0.895979	0.648137	0.901579
COM10	0.887912				
COM8	0.804892				
COM9	0.891338				
COR1	0.916035	0.909063	0.942341	0.844772	0.942284
COR2	0.922525				
COR3	0.918996				
EFFORT1	0.955278	0.777746	0.891977	0.807118	0.892891
EFFORT2	0.835981				
IMPRO1	0.642706	0.885423	0.911202	0.595632	0.911003
IMPRO2	0.708834				
IMPRO3	0.844835				
IMPRO4	0.84626				
IMPRO5	0.778498				
IMPRO6	0.800103				
IMPRO7	0.76341				
MS1	0.64068	0.85867	0.894562	0.636318	0.89727
MS2	0.782121				
MS3	0.797808				
MS4	0.790876				
MS5	0.759462				
MS6	0.813526				
TP11	0.806149	0.951166	0.957722	0.596114	0.949545
TP12	0.764773				
TP13	0.681199				
TP14	0.609858				
TP2	0.848231				
TP3	0.818342				
TP4	0.80941				
TP5	0.906335				
TP6	0.877946				
TP7	0.893951				
TP9	0.770307				
TP1	0.880357				

Note: AVE = Average Variance Extracted. CR = Composite Reliability

The benchmarks given in the literature for loadings (> 0.4) Chin (1998), CR (> 0.7) and AVE (> 0.5) (Neupane et al., 2014). All constructs have met the recommended values. For this, the values are all above the cut off values then it can assumed that it has sufficient convergent validity.

4.4.2 Discriminant validity

Table 4.10 Discriminant Validity

	BMC	COH	COM	COR	EFO	IMPRO	MS	TP
BMC	0.909							
COH	0.324	0.835						
COM	0.306	0.649	0.805					
COR	0.316	0.569	0.733	0.919				
EFF	0.376	0.581	0.615	0.357	0.898			
IMPRO	0.336	0.712	0.614	0.541	0.495	0.771		
MS	0.205	0.659	0.789	0.760	0.512	0.615	0.797	
TP	0.200	0.350	0.404	0.339	0.203	0.271	0.305	0.772

The criteria for assessment of Table 4.10 is that the values in the diagonal should be higher than all other values in the row and column. If that is exhibited then it can conclude the measurements have discriminant validity.

4.5 Reporting the Structural Model from Smart PLS:

Once we have passed the measurement model, then we are ready to move to the second stage which is the structural model testing. From the results of bootstrapping, Table 4 shows the hypothesis testing results.

Table 4.11 Hypothesis Testing

Hypothesis	Relationship	Std. Beta	Std. Error	T-value	P-value	Decision
H1	COM -> TP	0.3999	0.1521	2.6303	0.00	SUPPORTED
H2	COH -> TP	0.2298	0.1475	1.5576	0.06	SUPPORTED
H3	MS -> TP	-0.1163	0.1334	0.8719	0.19	NOT SUPPORTED
H4	EFFORT -> TP	-0.1396	0.1517	0.9203	0.18	NOT SUPPORTED
H5	BMC -> TP	0.0795	0.0879	0.9045	0.18	NOT SUPPORTED
H6	COR -> TP	0.058	0.1398	0.4148	0.34	NOT SUPPORTED
H7	IMPRO -> TP	-0.0555	0.1244	0.4464	0.33	NOT SUPPORTED

In addition, communication has positive and significant impact on team performance at the 0.01 level of significance ($\beta = 0.3999$, $t = 2.6303$). Moreover, there is a positive impact of cohesion on team performance at level of significance ($\beta = 0.2298$, $t = 1.5576$). On the other hand mutual support has no significant on team performance at level of significance ($\beta = -0.1163$, $t = 0.8719$), effort as a dimension of team work quality has insignificant on team performance at level of significance ($\beta = -0.1396$, $t = 0.9203$). The relationship between balance of team member coordination and team performance is not supported at level of significance ($\beta = 0.0795$, $t = 0.9045$). There is no effect of coordination on team performance at the 0.01 level of significance ($\beta = 0.058$, $t = 0.4148$). Finally there are no relationships between the team work quality improvisation at the 0.01 level of significance ($\beta = -0.0555$, $t = 0.4464$).

4.6 Summary

The findings of the current study have been presented in the previous chapter. The data were collected amongst a number of employees at the SNTF national Algerian railways in Algeria. The least chapter has particularly described the background of the participants. The descriptive result of the main variables, the inter correlations between the variables, and the result of the hypothesis testing have also been presented. The findings are discussed in detail in this chapter.



CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter deals with the following issues. First, it starts with recapitulating what the current study aims to achieve. Then, it discusses the findings of each research hypothesis which considers a critical subject to statistical testing. Next, this chapter highlights the implication of the findings revealed to practice and future research. In addition, limitations of this study are outlined. Finally this chapter concludes with some remarks about the current study.

5.2 Recapitulation of research objectives

It has been found that literature indicates that some theoretical gaps still exist pertaining understanding the team performance. In particular, to what extent factors such as communication, cohesion, effort, mutual support, balance of team member, coordination, and improvisation as items of teamwork quality are likely to influence the team performance which is yet to be confirmed in Algeria due to the mixed findings in the literature. Additionally, there is lack of the characteristics of the team work quality among the Algerian employees in the SNTF Company.

To recap, the research objective of the present study is aims to examine the role of communication, effort, and mutual support, balance of team members, coordination, cohesion and lastly improvisation as the teamwork quality on the team performance.

To achieve the research objectives, the present study employed a survey design. The researcher collected data from employees of SNTF from Algeria. The participants were selected randomly. A questionnaire was used as the main data collection technique. The

investigation started from early September 2015 to the end of October 2015. The data were personally administrated and collected.

In order to test the research hypothesis, the researcher used PLS path modelling to analyse the data. PLS was running to get the data. It should be noted that descriptive statistics and frequency analysis were performed to profile of the participants as well as describing the character of the main variables.

It has been found that results indicated that out of seven research hypothesis, only two (i.e H₁,H₂) received empirical support. On the other hand, the remaining five failed to receive any (i.e H₃, H₄, H₅, H₆, H₇). Specifically, it has been found that only communication and cohesion affect the team performance in this current study. The next section discusses the results in greater detail. It answers the research question and addresses the research objectives set earlier.

5.3 Teamwork Quality and Team Performance

As presented in Table 4.11 the relationship between communications in team performance was significant. However, this result is consistent with the study reported by Hoegl and Gemuenden (2001). They found that teamwork quality correlated positively with team performance evaluated by team members, team leaders, and project managers. Furthermore, this result disagrees with Lu, Xiang, Wang and Xiaopeng's (2010) research. The previous scholars found that there is lack of communication and the existence of misunderstanding between team members and stakeholders of a project. These were the two main causes of project failure. In this study, communication was however, treated in a general manner and the specific features were not given any consideration. Past research proposes that teams that informally communicate are likely to be more effective than those that have to depend on structured channels of communications. It should be noted that the reason is that informal communication

is less time consuming. This may allow team members to respond in a timely manner (Pinto & Pinto, 1990).

Cohesion was also found to influence the team performance in Algeria. This result goes in line with Hoegl and Gemuenden's (2001) finding. They found that teamwork quality was correlated significantly with team performance evaluated by team members, team leaders, and project managers. In addition, the result confirms Auh and Menguc's (2005) contention that between different functional areas cohesiveness is able to improve new product process. Thus, researchers have found that cohesion is an essential property of a team in a way that it predicts team outcomes such as performance, perceived team utility, communications among team members, and conflict (Beal et al., 2003). In their research, they studied the relationship between group cohesion and performance. A direct relationship between specific dimensions of group cohesiveness and performance was found.

In terms of mutual support, the result indicated that there is no significant relationship with team performance SNTF employee in Algeria. This result does not support Hoegl and Gemuenden's (2001) observation. Which revealed that teamwork quality was significantly correlated with team performance evaluated by team members, team leaders, and project managers.

In Algeria, it has been found that efforts do not affect team performance. This result is inconsistent with the study of Hoegl and Gemuenden (2001) research. They found that teamwork quality is significantly correlated with team performance. Hence, effort reflects the physical and mental energy that team members expend towards the completion of team tasks. Team performance may be higher when group members focus more attention on the task (intensity) and work longer (duration). On the other hand, team performance may suffer when some members fail to contribute to the best of their effort (Shepperd, 1993). In a step of

supporting such argument in past research on social loafing, Hardy (1990) found that team performance and productivity declines when some team members do not expend sufficient effort.

Regarding the balance of member contribution in this study, it has been found that this factor does not affect significantly the team performance. This finding does not support the findings of Hoegl and Gemuenden's (2001) as well as Seers's (1989). These researchers indicated that teamwork quality was correlated significantly with team performance which was evaluated by team members, team leaders and project managers. In respect of coordination, such result showed that there is no significant relationship between coordination and team performance. Additionally, this result does not support Hoegl and Gemuenden's (2001) contention. From the perception of team members, leaders and managers, the teamwork quality is significantly related with team performance. When the Coordination is high in teams, this is due to the functions of the team members. Therefore, teams engage in coordinating activities when they formulate action plans in relation to the team goals, (McGrath, 1984). Concerning the team improvisation and performance, the results of this study also proved insignificant relationship; thus the results are inconsistent with Vera and Crossan's (2005) contention.

5.4 Implications of Study

The present study aims to contribute to theory and practice with regards to the impact of teamwork quality on team performance in Algeria. In addition, it also assists in addressing some gaps in the body of literature by expanding the research in this area. Thus, this current study has a number of significant implications for managements.

Since teamwork is crucial for team performance, managers are required to be concerned about how to improve team effectiveness in order to assess higher team performance. This

should facilitate an environment conducive to teamwork to realize superior course of reflective activities. This is probable in many ways.

First, management should ensure that team members are well-informed of their skills and knowledge such as the communication and cohesion. According to Dayan and Di Benedetto (2008), prior studies revealed that in order to maximize the perception of teamwork members of their skills and knowledge, management should discourage turnover and facilitate a collective workplace environment. According to these results, the promotion of effective team's interaction requires managers to sustain a degree of functional diversity and longevity of team at a moderate level. This is to guarantee that the team members have the required skills and knowledge.

Third, managers have to assure that the team members understand the aims and goals of SNTF. Attention should be directed to give the team autonomy self-management as well as autonomous control. Prior studies showed that if the teams are motivated to become involved in decision-making, team empowerment can be increased.

5.5 Recommendation for future research

Based on the finding spelled out above, we recommend the following. More studies should be conducted on teamwork quality and team performance in Algeria that will enrich the knowledge among the teamwork quality and team performance. Furthermore, future studies can use for the academic purpose and nonacademic purpose; this will give more clearness about this field such as the comparative purpose. On other hand, the use of moderator and mediator can give more suggestion and finding regarding the relationship between this variables and the use of the mechanism.

5.5 Limitations

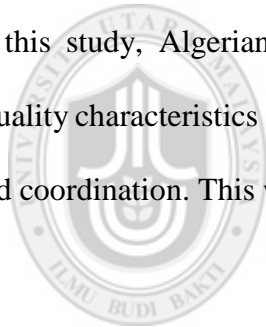
The research has several limitations. This study was primarily limited by its small sample size. The sample size could have been expanded by including all the branches of SNTF among the whole country. Once obtained more contact between the researchers and target sample, this may increase participation. An earlier start in data collection would have increased the time needed to survey more participants. The participants represent a narrow range of age, year of services, income, and educational level. Therefore a large sample with more diversity would have benefited the result. Including multiple colleges or branches and all the staffs among SNTF could have diversified the ethnicities.



5.7 Conclusion

While there are still many questions left unanswered about the teamwork quality and team performance and many possible truths to be drawn from their lives, this study was conducted in Algeria. The chosen company was SNTF in the west regional administration. The population sample was officers and team members and top management working in SNTF. The questionnaire gathered was 113.

The statistical PLS has shown the lack of teamwork quality characteristics. Moreover, the communication and cohesion have a positively associated and they are able to influence the overall of team performance. Thus, this means that teamwork quality is moderately able to influence the team performance in Algeria firm, SNTF. Eventually, with the result from the analysis of this study, Algerian manager should focus on developing and improving the teamwork quality characteristics such as effort, mutual support, improvisation, balance of team member, and coordination. This will support and enhance the team performance.



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References

- Alanazi, T. (2014). *The impact of teamwork quality on new product development cycle time: Evidence from Saudi Arabia Telecom Industry*. Universiti Utara Malaysia.
- Applebaum, E. & Batt, R. (1994). *The new American workplace: Transforming work systems in the United States*. Ithaca, NY: ILR Press.
- Auh, S, & Menguc, B. (2005). *The influence of top management team functional diversity on strategic orientations: The moderating role of environmental turbulence and inter-functional coordination*. International Journal of Research in Marketing, 22(3), 333-350.
- Barrick, M., Stewart, G., Neubert, M., & Mount, M. (1998). *Relating member ability and personality to work-team processes and team effectiveness*. Journal of Applied Psychology, 83(3), 377-391.
- Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). *Cohesion and performance in groups: a meta-analytic clarification of construct relations*. Journal of applied psychology, 88(6), 989.
- Bensimon, E., & Neumann, A. (1992). *Redisigning Collegiate Leadership: Teams and Teamwork in Higher Education*
- Berghaus, E. (1964). *The History of Railways*. London: Barrie & Rockliff.
- Bogdan, R.C. & Biklen, S.K. (1992). *Qualitative research for education: An introduction to theory and methods*, 2nd edition. Boston: Allyn and Bacon.
- Brannick, M., Prince, A., Prince, C., & Salas, E. (1995). *The measurement of team process*. Human Factors, 37(3), 641-651.

- Campion, M., Papper, E., & Medsker, G. (1996). *Relations between Work Team Characteristics and Effectiveness: A Replication and Extension*. *Personnel Psychology*, 49(2), 429-452
- Cannon-Bowers, J., Tannenbaum, S., Salas, E., & Volpe, C. (1995). *Defining Competencies and Establishing Team Training Requirements*. In R. Guzzo & E. Salas (Eds.), *Team Effectiveness and Decision Making in Organizations*. San Francisco: Jossey-Bass.
- Chin, W.W. (1998a), "The partial least squares approach for structural equation modeling", in Marcoulides, G.A. (Ed), *Modern Methods for Business Research*, Lawrence Erlbaum Associates Publishers, NJ, pp. 295-336.
- Cooper, D., & Schindler, P. (2008). *Business Research Methods* (10ed). Boston: McGraw-Hill
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.
- Dayan, M., & di Benedetto, C. A. (2008). *Procedural and interactional justice perceptions and teamwork quality*. *Journal of Business and Industrial Marketing*, 23(8), 566-576.
- DeChurch, L., & Mesmer-Magnus, J. (2010). *The cognitive underpinnings of effective teamwork: A meta-analysis*. *Journal of Applied Psychology*, 95(1), 32-53.
- Delarue, A., Van Hootehem, G., Procter, S., & Burrige, M. (2008). *Team working and organizational performance: A review of survey-based research*. *International Journal of Management Reviews*, 10(2), 127-148.
- Dhillon, B. S. (2007). *Human Reliability and Error in Transportation Systems*. Springer.
- Dionne, S., Yammarino, F., Atwater, L., & Spangler, W. (2004). *Transformational leadership and team performance*. *Journal of OrgchangeMgmt*, 17(2), 177-193.

- Drew, S., & Thomas, C. (1997). *Transformation through teamwork: the path to the new organization? Team Performance Management*, 3(3), 162-178.
- Edison, T. R. (2007). *The relationships between work team strategic intent and work team performance*, (No. NPS-AM-07-010). DEFENSE ACQUISITION UNIV FT BELVOIR VA.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Gilley, J., Morris, M., Waite, A., Coates, T., & Veliquette, A. (2010). *Integrated Theoretical Model for Building Effective Teams. Advances in Developing Human Resources*, 12(1), 7-28.
- Glickman, A. S., Zimmer, S., Montero, R. C., Guerette, P. J., & Campbell, W. J. (1987). *The evolution of teamwork skills: An empirical assessment with implications for training*. old dominion univ Norfolk vac enter for applied psychological studies.
- Greer, L. L. (2012). *Group cohesion: then and now*. *Small Group Research*, 1046496412461532.
- Hackman, J.R. (1987), "The design of work teams", in Lorsch, J.W. (Ed.), *Handbook of Organizational Behaviour*, Prentice-Hall, Englewood Cliffs, NJ, pp. 315-42.
- Hair, J. F. (2010). *Multivariate data analysis*. New Jersey: Pearson Prentice Hall, Seventh Edition.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). *The use of partial least squares (PLS) to address marketing management topics*. *Journal of Marketing Theory and Practice*, 19(2), 135-138.
- Hoegl, M., & Gemuenden, H. (2001). *Teamwork Quality and the Success of Innovative Projects: A Theoretical Concept and Empirical Evidence*. *Organization Science*, 12(4), 435-449.

- Huselid, M.A. (1995). *The impact of human resource management practices on turnover, productivity, and corporate financial performance*. *Academy of Management Journal*, 38 (3), 635-672.
- Ilgen, D., Hollenbeck, J., Johnson, M., &Jundt, D. (2005). *Teams in Organizations: From Input-Process-Output Models to IMOI Models*. *Annual Review of Psychology*, 56(1), 517-543.
- Kendall, D., & Salas, E. (2004). *Measuring Team Performance: Review of Current Methods and Consideration of Future Needs*. *Advances in Human Performance and Cognitive Engineering Research*, 5, 307-326.
- Kozlowski, S. W., & Chao, G. T. (2012). The dynamics of emergence: Cognition and cohesion in work teams. *Managerial and Decision Economics*, 33(5-6), 335-354.
- Kozlowski, S., & Ilgen, D. (2006). *Enhancing the effectiveness of work groups and teams*. *Psychological Science in the Public Interest*, 7(3), 77-124.
- Mahboud, G. (2004). A study of cross cultural communication of postgraduate students in Universiti Utara Malaysia. UUM.
- Marosi, I., & Bencsik, A. (2009). *Teamwork in Higher Education: Teamwork as Chance of Success*. *International Journal of Learning*, 16(5), 167-174.
- Mathieu, J., Gilson, L., & Ruddy, T. (2006). *Empowerment and team effectiveness: An empirical test of an integrated model*. *Journal of Applied Psychology*, 91(1), 97-108.
- Mathieu, J., Heffner, T., Goodwin, G., Salas, E., & Cannon-Bowers, J. (2000). *The Influence of Shared Mental Models on Team Process and Performance*. *Journal of Applied Psychology*, 85(2), 273-283.
- McGrath, J. E. (1984). *Groups: Interaction and performance*. Englewood Cliffs, CA: Prentice-Hall.

- Merriam, S.B. & Simpson, E.L. (1995). *A guide to research for educators and trainers of adults*; Second edition. Malabar, FL: Krieger Publishing Company.
- Merriam, S.B. (1988). *Case study research in education; a qualitative approach*. San Francisco: Jossey-Bass Publishers.
- Morrow, P. C., & Goetz, J. F. (1988). *Professionalism as a form of work commitment*. *Journal of vocational behavior*, 32(1), 92-111.
- Neupane, A., Soar, J., Vaidya, K., & Yong, J. (2014). *Willingness to adopt e-procurement to reduce corruption: Results of the PLS Path modeling*. *Transforming Government: People, Process and Policy*, 8(4), 500-520.
- Nock, O. S. (1975). *Railways Then and Now. A World History*. London: Paul Elek Ltd.
- Pallant, J. (2013). *SPSS Survival Manual (5th edition)*. Singapore: The McGraw-Hill Companies.
- Parumasur, SanjanaBrijball., Govender, Patsy (2013). *The Importance of Teamwork, Continuous Top Management Support and Training in Bringing About TQM*. *Journal of Economics and Behavioural Studies*. (5)9, 639-651.
- Patton, M. Q. (2002). *Qualitative evaluation and research methods (3rd ed.)*. Thousand Oaks, CA: Sage Publications, Inc.
- Peiró, J. M., González-Romá, V., & Fortes-Ferreira, L. (2009). *Team climate, climate strength and team performance: a longitudinal study*.
- Pfeffer, J. (1994). *Competitive advantage through people: Unleashing the power of the work force*. Boston: Harvard Business School Press.
- Pfeffer, J. (1998). *The human equation: Building profits by putting people first*. Boston: Harvard Business School Press.

- Pinto, M. B., & Pinto, J. K. (1990). *Project team communication and cross-functional cooperation in new program development*. *The Journal of Product Innovation Management*, 27(3), 200-212.
- Ransom, P. J. G. (1981). *The Archaeology of Railways*. Surrey: World's Work Ltd.
- Revill, G. (2012). *Railway*. Object Series. London: Reaktion Books Ltd.
- Robert F. Easley, Sarv Devaraj, and J Michael Grant . *Relating Collaborative Technology Use to Teamwork Quality and Performance: An Empirical Analysis* *Journal of Management Information Systems* / spring 2003, Vol. 19, No. 4, pp. 247–268.
- Salas, E., Bowers, C. A., & Cannon-Bowers, J. A. (1995). *Military team research: 10 years of progress*. *Military Psychology*, 7(2), 55–75.
- Salas, E., Burke, C., Stagl, K., Day, D., Zaccaro, S., & Halpin, S. (2004). *Developing Teams and Team Leaders: Strategies and Principles Leader development for transforming organizations: Growing leaders for tomorrow*. (pp. 325-355). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.
- Salas, E., Cooke, N. J., & Rosen, M. A. (2008). *On teams, teamwork, and team performance: Discoveries and developments*. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 50(3), 540-547.
- Salas, E., Stagl, K., Burke, C., & Goodwin, G. (2007). *Fostering team effectiveness in organizations: Towards an integrative theoretical framework*. Paper presented at the Nebraska Symposium on Motivation, Nebraska.
- Sánchez, J., & Yunebaso, A. (2009). *Group cohesion: Relationships with work team culture*. *Psicothema*, 21(1), 97-104.

- Saunders, M., Lewis, P. & Thornhill, A., (2003). *Research Methods for Business Students*, 3rd ed. Harlow: Pearson Education Ltd.
- Scarnati, J. (2001). On becoming a Team player. *Team performance Management: An International Journal*, 7(1/2), 5-10.
- Sekaran, U. & Bougie, R. (2013). *Research Methods for Business: A Skill Building Approach*. Sixth Edition. UK: John Wiley & Sons. Ltd.
- Senior, B., & Swailes, S. (2007). *Inside Management Teams: Developing a Teamwork Survey Instrument*. *British Journal of Management*, 18, 138-153.
- Sethi, R., & Nicholson, C. Y. (2001). *Structural and contextual correlates of charged behavior in product development teams*. *Journal of Product Innovation Management*, 18, 154–168.
- Shepperd, J. A. (1993). *Productivity loss in performance groups: A motivation analysis*. *Psychological Bulletin*, 113, 67-81.
- Sofu, F. (1999). *Human Resource Development: perspectives, roles and practice choices*. Sydney: Business and Professional Publishing.
- Sofu, F. (2002). *Thinking Style Inventory*. Unpublished. University of Canberra. Australia.
- Soldan, Z. (2010). *Group Cohesiveness and Performance: The Moderating Effect of Diversity*. *International Journal of Interdisciplinary Social Sciences*, 5(4), 155- 168.
- Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA: SAGE Publications.
- Stashevsky, S., & Koslowsky, M. (2006). *Leadership, team cohesiveness and team performance*. *International Journal of Manpower*, 27(1), 63-74.

- Stewart, G. L. (2006). *A meta-analytic review of relationships between team design features and team performance*. *Journal of management*, 32(1), 29-55.
- Susana Pérez López, José Manuel Montes Peón and Camilo José Vazquez Ordás. *Human Resource Management as a Determining Factor in Organizational Learning*. *Management Learning* 2006 37: 215.
- Tarricone, P., & Lucca, J. (2002). *Successful teamwork: A case study, in quality conversations*. Paper presented at the HERDSA Annual Conference, Perth, Western Australia.
- Teddlie, C., & Yu, F. (2007). *Mixed methods sampling a typology with examples*. *Journal of mixed methods research*, 1(1), 77-100.
- Tjosvold, D., Hui, C., Ding, D. Z., & Hu, J. (2003). *Conflict values and team relationships: Conflict's contributions to team effectiveness and citizenship in China*. *Journal of Organizational Behavior*, 24, 69-88.
- Tjosvold, D., Andrews, R., & Jones, H. (1983). *Cooperative and Competitive Relationships between Leaders and Subordinates*. *Human Relations*, 36(12), 1111-1124.
- Troutt, M. D., Ponce de Leo, J. A., & Bateman, D. N. (1995). *The interplay between quality improvement principles and the employee communication process*. *Benchmarking for Quality Management & Technology*, 2(4), 51-60.
- Vera, D., & Crossan, M. (2005). *Improvisation and innovative performance in teams*. *Organization Science*, 16(3), 203-224.
- Vera, D., Nemanich, L., Vélez-Castrillón, S., & Werner, S. (2014). *Knowledge-based and contextual factors associated with R&D teams' improvisation capability*. *Journal of Management*, 0149206314530168.

Wilson, J. R., Norris, B., Clarke, T. & Mills, A. (eds.). (2007b). *People and Rail Systems Human Factors at the Heart of the Railway*: Ashgate.

Winter, G. (2000). *A comparative discussion of the notion of validity in qualitative and quantitative research*. *The Qualitative Report*, 4(3&4). Retrieved January 25, 2010.

Wolmar, C. (2007). *Fire & Steam. A New History of the Railways in Britain*. London: Atlantic Books.

Wright, N., & Drewery, G. (2006). *Forming cohesion in culturally heterogeneous teams, differences in Japanese, Pasific Islander and Anglo experiences*. *Cross Cultural Management*, 13(1), 43-53.

Yin, R.K. (1994). *Case study research; Design and methods*, second edition. Thousand Oaks, CA: SAGE Publications.

