Competency Development for Global Petroleum Supply Chain Management: The Case of Total Ethiopia

A Thesis submitted to the Department of Logistics and Supply Chain Management, School of Commerce of Addis Ababa University in Partial Fulfillment for the Degree of Master of Arts in Logistics and Supply Chain Management

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Declaration

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted at any university for a degree.

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Abstract

Studies frequently identified that Africa's biggest risk is supply chain risks, mainly due to poor supply chain management skills. Moreover, the studies reported that nowhere is the shortage of managerial talent more evident than in the management of global supply chains. This thesis, thus, has been initiated to reflect on the Global Supply Chain Management competency development based on the experiences from Total Ethiopia S.C which is engaged in petroleum supply activities in the country. To achieve the objective, hypotheses were formulated based on the learning development theories and empirically tested employing a cross-sectional survey quantitative study design. Primary data was collected using standard questionnaire measuring the dependent variable (i.e., Global Petroleum Supply Chain Management Competency), and the independent variables (Organizational factors, and individual factors). The study was planned to undertake census covering all the 222 employees and managers of Total Ethiopia. However, only 140 of them were found to be willing and accessible to participate in the study. Ultimately, about 97 percent response rate was achieved. The data collected, then, was analyzed using descriptive statistics and a hierarchical multiple regressions aided by SPSS. Accordingly, it is verified that organizational learning culture, as well as Personal competing values (create as well as collaborate focused practices only) have a significant effect on the competency. This study has indicated, therefore, important implications for organizational and individual endeavors for developing management competency for the effective global petroleum supply chains operations.

Key words: Global Supply Chain, competency, competing value framework, compete, create, collaborate, control, organizational learning.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

As stated by Harvey and Richey (2001), in 2050, more than 85% of the world's population will live in developing and/or emerging economies (World Development Report, 2000; Entering the 21st Century, 2000). It is forecasted that, at the present rate of population growth, 8 billion people will live in emerging countries while the developed countries of the world will have One billion inhabitants (World Resources: A guide to the Global Environment, 1996). This implies that an effective distribution of goods and services to consumers in emerging markets would be imperative which inturn, as stated by Harvey and Richey (2001) can only be accomplished if an effective supply chain along with its infrastructures is developed.

Bvepfepfe (2019) stated that in an Agility Emerging Market Logistics Index, 2018, Africa's biggest risk ahead of corruption, government stability and terrorism is identified as supply chain risks, mainly due to poor supply chain management skills. On the contrary, the World Bank's Logistics Performance Index (LPI) (Ojala and Çelebi 2015) identified logistics competence of transport operations and related logistics services as one of the key attributes for modern logistics and supply chain performance. This implies that having the resources (physical structures and equipment) alone without proper application and timely decision-making, will not give you the intended outcomes of supply chain operations. In this view, the key differentiator is how these competences and capabilities have been applied in the planning, co-ordination and operations of the supply chain. Therefore, the competency of the global supply chain operators including the management competency is crucial for the effectiveness and efficiency of the chain just like the modern infrastructure of the chain does. Yet, Africa is not only lagging behind interms of the supply chain and logistics infrastructure and technologies, but also interms of the human capital (including the management skills) of the sector.

The statements are very valid for the petroleum products as well. Of course, the effective supply of petroleum products to consumers in emerging markets will be a very topical issue in the forthcoming years than the supply of any other commodities. The petroleum industry is highly internationalized, and the sources of these products are almost monopolized by the governments of the endowed countries which are almost from the developed regions. Likewise, almost all underdeveloped countries do depend on the import of petroleum products.

Fuel has a very significant contribution to economic and social development. The effective supply of fuel, indeed, affects every aspect of human activities. The case is true for Ethiopia as well. Ethiopia is a developing nation which depends entirely on the import of fuel from the oil producing countries. The government of Ethiopia controls the import and supply of petroleum centrally through the Ethiopian Petroleum Supply Enterprise (EPSE). Established in 1967, EPSE is a registered public enterprise with a major mission of supplying refined petroleum products to the country (http://www.epse.gov.et/web/guest/profile). The enterprise is the sole importer and supplier of fuel from international sources.

Different sources show that currently there are about 31 domestic and international oil companies engaged in the distribution and marketing of petroleum products in the country. More than 650 gas stations (dealers) found in different regions of the country. For different reasons, however, they fail to satisfy current fuel need of the society and almost more than 75% of the total volume of fuel distribution has been undertaken by the bigger oil companies (Libiaya Oil, Total Ethiopia, NOC and Yetebaberuit Beherawi) (EPSE, 2017 cited in Kassahun, 2018).

As stated above, TOTAL Ethiopia is one of the major actors of the petroleum supply sector in Ethiopia. It is one of the international companies operating in the petroleum supply sector of the country. Total Ethiopia was established in 1958 as a distributor of TOTAL petroleum products, i.e. Fuel, lubricants, LPG and Bitumen. After more than 40 years of operating in the country, the name TOTAL Mer Rouge was changed and organized in accordance with the Ethiopian Commercial law with a new name Total Ethiopia S.C., in September 1997. Total Ethiopia further developed its activities by

merging with Mobil Oil East Africa Limited – Ethiopian branch at the end of 2006. Total Ethiopia is currently among the major oil companies in the country (www. totalethiopia.com).

As stated on the website of the company, Total Ethiopia runs a business with a registered capital of 790,696,412 ETB as of October 4, 2016. It operates 150 Retail Network Stations partnering with more than 2,400 government and private companies in the Country. Each year, the company transports more than 700,000 metric tons of fuels with 600+ contracted tanker trucks that cover an average of 34 million kms). The company undertakes all these activities employing highly competent and committed 172 full time employees.

Total Ethiopia is engaged in one of the business segments of Total Groups namely the Marketing and Service business segment that includes the global activities of supply and marketing in the field of petroleum products. It is the Group's subsidiary and owned 100% by the Total S.A. Total S,A is the groups parent company. It acts as a holding company and drives the group's strategy. The group's operations are conducted through subsidiaries that are directly or indirectly controlled by Total. As a Marketing and Service business subsidiary of the global giant the Total Group, the Total Ethiopia S.C has been engaged in the downstream activities of the group integrated business model. The Marketing and supply business segment of the Total Group is one of the main distributors of petroleum products on the key markets in Western Europe. Likewise, Marketing and supply business line of the Total Group continues to develop its activities in Africa, where it is the market leader.

Thus, it is appropriate to target the experiences of this company if one wants to investigate issues related to the global activities of supplying petroleum products. The focus of this thesis proposal is to derive the common practices among those firms with reputed success in developing their competences in distributing petroleum products in the Africa. By examining these areas, attempt was made to fulfill the primary objective of the thesis: to clarify what the Ethiopian government as well as the Petroleum Supply companies can do to enhance their competency of managing the global petroleum supply chain operations.

1.2 . Statement of the problem

Just like any other countries, it is recognized that an adequate and reliable supply of petroleum plays a vital role in the sustainable development of Ethiopia (EEA, 2014/15 cited in Kassahun, 2018). Ethiopia is a developing nation which depends entirely on the import of fuel from the oil producing countries. Cognizant of the importance of the fuel import and supply activities, the country has established a public enterprise, EPSE, responsible for the management and control of these activities. The import of fuel constitutes about 60% of the total annual imports of the Country. This takes up the lion share of the country's foreign exchange earnings. This share of fuel in import currency has been increasing steadily in recent years, and it is expected to grow even sharper following higher demand due to economic growth (Deloitte, 2016).

As stated by Kassahun (2018) driven by accelerating socio economic growth and development, Ethiopia is experiencing increased imported energy consumption and unmet demand for the last many years (Ministry of Water and Energy, 2012). The shortage of fuel supply in Ethiopia has become a chronic problem that can be attested by any by passers. Thus, different studies have been carried out on the issue. The government and other stakeholders have taken again different measures to tackle the problem. Nevertheless, the problem is not yet solved. Hence, it becomes imperative to undertake research related to the petroleum supply problems of the country.

As stated above, different interventions and studies have been carried out on the issue on hand. Yet, neither interventions, nor empirical studies have paid attention to the management competences aspects of the SC of the sector. Besides, the problem has not been analyzed holistically that there is neither study nor practical intervention undertaken in the context of the global environment. To fill these gaps, this thesis has investigated how to develop the competences of efficient global petroleum supply chain operations with a particular reference to Total Ethiopia S.Co. The purpose of this thesis was to identify effective opportunities to develop the global supply chain operation management competences based on the real experiences of the company with reputed success in

executing the global activities of supplying petroleum products (what the Total Group says M&S business) in Africa.

Supply chain management has been defined by Simchi-Levi et al. (2000, p. 1) as ‘‘a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, at the right time, in order to minimize system wide costs while satisfying service level requirements”. Specifically in petroleum sector, optimal supply chain management practices can add 3.4% to economic value added and reduce downside operational risk by conforming to industry-accepted best practices (Jacoby, 2012). Ofcourse, these set of practices need to be actively adapted, implemented, and governed. Thus, it is imperative to investigate how competences for managing the operations of global supply chain of petroleum products would be developed in Ethiopia. Global supply chains thrive because they coordinate and integrate the best that the globe has to offer to provide the greatest value possible to the system. Firms demand this, supply chain members demand it, and customers demand it. This requires global competence on the part of firms, their employees, and their supply chain partners (Hult, Closs & Frayer, 2014).

Furthermore, the thesis has been initiated, atleast partly, in response to the general concern of deriving a practical model of the global competency development as raised by various literature (e.g., Bratton & Gold, 2000; Schermerhorn, Hunt, & Osborn, 2002; Armstrong, 2009). These calls have been made following the rise of globalization along-with its pros and cons.

As stated by Harvey and Richey (2001) the ability of organizations to effectively compete in the global marketplace is contingent on developing an adequate number of qualified global managers. Schermerhorn, Hunt, and Osborn (2002), similarly, stated that along with prior developments in globalization, the search is now also on for the global manager, someone who knows how to conduct business globally.

As stated by Beaumont (2010) employees must be prepared to deal with the new requirements of the workplace. They need to have a global mindset. Concomitantly, as Bratton and Gold (2000) reported, organizations are more and more seeking to ensure that

the career paths of their managers contain element of international orientation and competencies. Paradoxically, however, Schermerhorn, Hunt, and Osborn (2002) researchers found that about two thirds of large global firms felt that they did not have the number or quality of global leaders that would be required for the future. Likewise, the authors indicated that the failure rate for Americans in overseas assignments has been measured as high as 25 percent, and a study criticizes British and German companies for giving inadequate preparation to their staff for global operations.

To curb the problem, organizations have been taking numerous measures to prepare their employees for this globalised business environment requirements. Despite these efforts, studies reported that, many organizations find it difficult to develop the critical knowledge, skills, and experience. Likewise, Cappellen and Janssens (2008) stated that empirical research on this increasingly relevant work (i.e., global management) remains lacking. In response to these global concerns, therefore, this thesis is to drive effective practices to enhance the global supply chain operation/management competences based on the real experiences of the firm with reputed success in developing its management potential. An empirical investigation framed by the learning theory has been undertaken at the case organization. The thesis generates new insight in the field of global supply chain managerial learning based on the experiences of the less researched region, Ethiopia.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of the study is to assess the competency development for the global petroleum supply chain management with a particular reference to Total Ethiopia S.C.

1.3.2. Specific Objectives

The specific objectives of the study are:

1. To assess the global supply chain competency of Total Ethiopia's employees and managers.

2. To assess the role of organizational learning culture in the global petroleum supply chain management competency development in the case of Total Ethiopia S.C.
3. To examine the role of learning by doing in global petroleum supply chain competency development with particular reference to Total Ethiopia.

1.4. Hypotheses of the Study

The hypotheses of the study are formulated as follow:

Ho1: Organizational learning culture has no statistically significant contribution in developing global petroleum supply chain management competency.

Ho2: Engagement in compete-focused practices has no statistically significant contribution in developing global petroleum supply chain management competences.

Ho3: Collaborate-focused personal work behavior has no statistically significant contribution in developing global petroleum supply chain management competency.

Ho4: Experiences in creative oriented tasks has no statistically significant contribution in developing global petroleum supply chain management competency.

Ho5: Personal development on the control oriented behavior has no statistically significant contribution in developing global petroleum supply chain management competency.

1.5. Scope of the study

This study is undertaken to assess the factors playing important role in development of the competency for global supply chain operations management by focusing on Total Ethiopia's employees and managers. Since it is not possible to cover all factors associated with such competency development in a single thesis work, it is necessary, therefore, to narrow the focus towards organizational factors and personal factors related to workplace learning (learning by doing) identified based on the theory of learning in the context of individual's competency development for managing GPSCM. Accordingly, this thesis is delineated to these organizational learning and personal work behavior from among organizational factors and personal factors respectively.

To be successful in the 21st-century work environment, managers must be comfortable with the global economy and the cultural diversity that it holds. This requires a global mind-set that is receptive to and respectful of cultural differences, global knowledge that includes the continuing quest to know and learn more about other nations and cultures, and global work skills that allow managers to work effectively across cultures. These altogether constitute basically the global SC competency of managers. Though it is clear that managerial global competency is a multifaceted variable, the present study has bounded its scope to these important competencies only.

The investigation will be delimited to a single organization namely Total Ethiopia due to the financial and non-financial constraints. Specifically, the study has covered the headquarter located in Addis Ababa city by focusing primarily on the perception of employees and managers towards the learning system of the company as well as their own self-assessed global competency level and personal style of working and managing in practice.

The study has been conducted by considering the actual situation of the company and the personal competences and work behavior/ styles. The data was collected in May, 2021.

1.6. Significance of the Study

This study is helpful to the Total Ethiopia in particular and to other companies in Ethiopia in general, in fact with appropriate customization. Assessing the level of managerial global competency helps organizations to communicate desired behaviors and increase stakeholders' satisfaction. It can also serve as the foundation to hire, train, and develop managers. By conveying the current competency level of managers, this study would help the Total Ethiopia offices in ensuring their human resources have the necessary orientations to perform the needed activities in these global business contexts. Put another way, this study benefits the corporation in identifying the global orientations that the mangers possess as well as any gaps existing between actual and required levels and provide tips on how to close these gaps. The question of how organizational learning and personal styles of managing impact on managerial global competency is also important for the managers

because it will clue on what types of and how organizational practices should be designed, delivered and communicated.

In this thesis research, one of the intentions is to describe how GPSCM competency is learned from practical experiences and the implication for human resource development. By assessing the developmental experiences of individuals, the study will describe the variety of experiences that prepare employees and managers to perform GSCM effectively and how different experiences translate into development. Thus, insights from the research can be used for assessing a person's current capabilities, communicating that assessment to the person, and planning experiences or education to meet the competence development goals.

Likewise, the output of this study is helpful to the managers as it pinpoints how they can perform at a higher level, and what competencies they should work to develop. As stated by Bersin (2007) the competency assessment process is essential to the process of building a managerial development plan.

The study is important for the Petroleum industry in general and the Ethiopian government too. It is obvious that the Ethiopian government is expending a huge amount of hard currency on importing petroleum products from abroad. The expenses are too high because of high inefficiency as a result of weak supply chain/logistics management of the product. The management has become weak because of lack of competent management in the sector. Thus thesis, thus, will help in indicating what the government and the industry can do to enhance the competences of managers in the sector based on, particularly, the experiences of Total Ethiopia S.Co.

This study is also important in contributing to the existing body of knowledge in the area of global managerial development by reporting a fresh perspective from the under-researched region of the globe. As stated by Kak, Burkhalter, and Cooper (2001) very few studies have been designed and conducted in developing countries on measuring competency and the relationship between competency and provider behavior.

1.7. Operational Definition of Terms and Concepts

The following are key words along with their operational definition as used in this study.

1. **Organizational learning**: A learning organization encompasses a collective effort to develop the ability of organizational members to create their preferred future, where innovative thinking is fostered and continuous learning is encouraged. It includes the extent of personal mastery, mental models, shared vision, team building and systems thinking efforts of Total Ethiopia.
2. **Global Supply Chain Competencies** are individual capabilities of the employees or managers of the Total Ethiopia that are necessary to initiate GSCM philosophy. They constitute global and supply chain management competencies; each of them are defined as below:

   2.1. Supply chain management competency is defined as (per AIPCS citing The Competency Model Clearinghouse) the capability to apply or use a set of related knowledge, skills, and abilities required to successfully perform 'critical work functions' or tasks in a defined work setting." The competencies used in this thesis are adapted from the APICS Operations Management Body of Knowledge Framework.

   2.2. Global orientation/ readiness is individual capabilities of managers of Total Ethiopia that are related to being comfortable with the global economy as well as cultural diversity of the 21 centaury workplaces. They constitute global mind setup, global knowledge and global work skills.
3. **Personal work behavior** is defined as the activities that the employees or managers of Total Ethiopia often perform in their position or daily duties. It is related to the four quadrants of the CVF. It includes competing roles such as the compete-focused practices, create-focused practices, control-focused practices and collaborate focused practices.

3.1. Collaborate focused work behavior refers to personal engagement of employees or managers in creating and sustaining commitment and cohesion at workplaces.

3.2. Control work behavior refers to establishing and maintaining stability and continuity practices.

3.3. Compete oriented work behavior refers to involvement in practices of improving productivity and increasing profitability.

3.4. Create-focused behavior refers to promoting change and encouraging adaptability.

4. **Supply chain management** has been defined (by adopting from Simchi-Levi et al. , 2000, p. 1) as a set of approaches utilized to efficiently integrate suppliers, refineries, depots/warehouses, stores and retailers, so that Petroleum product is sourced and distributed at the right quantities, to the right locations, at the right time, in order to minimize system wide costs while satisfying service level requirements.

1.8. Organization of the Study

This section, the final section in Chapter I, summarizes the contents of each of the chapters of the thesis.

Chapter I- presents the introduction, statement of the problem, research hypotheses, significance of the study, definition of terms, and limitations of the study. Chapter II contains the review of related literature and research related to the problem being investigated. The chapter will be organized based on the integrative model to literature review. Because, as stated by Cooper (1984) in Cresswell (2009) an integrative review model whereby the researcher summarizes broad themes in the literature is the most popular method in thesis writings. The specific methodology that has been applied in this study along with the procedures used to design instruments, gather and analyze data for the study is described in Chapter III. The results of data analyses and findings are presented in Chapter IV-together with discussion of these findings. Chapter V presents summary of major findings, conclusions that will be drawn from the findings and recommendations for practitioners and further studies.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1. What is Global supply chain management?

The term “supply chain management” has assumed many definitions over the past few decades. According to Min et al. (2007), SCM is a method to improve efficiency (cost reduction) and effectiveness (customer service) to create a competitive advantage that will result in benefits for the entire supply chain. Simply described by Lambert et al. (1998), SCM is the “alignment of firms that brings products or services to the market.” The alignment of firms enables independent organizations such as the “raw material and component producers, product assemblers, wholesalers, retailer merchants, and transportation companies” to move the materials forward to manufacture a product (La Londe and Powers, 1993; Simatupang and Sridharan, 2002). Lastly, Mentzer et al. (2001) describes SCM as “a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer.”

2.2. Supply Chain Management of Petroleum

According to Jacob (2o12) most people’s understanding of supply chain management stems from the consumer products industry, in which thousands of stock-keeping units (SKUs) of fast-moving consumer goods flow through distribution centers and move from pallets onto retail shelves. While this characterizes some logistics flows that occur in oil, gas, and power, supply chain management in these industries is different in several important ways. Supply chain management in oil, gas, and power more closely resembles supply chain management in the process industries (i.e., those with continuous production operations). Even so, it is much more complex than in low-value process industries such as paper and cement. While it more closely resembles supply chain management in high-value process industries such as petrochemicals and pharmaceuticals, it is different enough from those industries to have its own body of knowledge.

Natural gas flow and storage are affected by temperature and pressure changes (which depend on heat transfer, changes in viscosity and surface tension, and erosion and corrosion problems). Natural gas flow is ensured by minimizing corrosion, preventing hydrate

formation conditions, predicting the effectiveness of inhibitors, preventing wax deposition that may impact pressure and flow, avoiding slugging (i.e., liquid buildup that prevents gas from flowing), adjusting the number and pressure of the producing wells, and closely monitoring shutdowns and restarts. Higher profit margins, at least in the oil and gas industry, shift supply chain management priorities from inventory management, which is often the main focus for fast-moving goods, toward reliability, safety, asset management (risk, utilization, and productivity), and life-cycle cost.. Technology and supplier selection is done on the basis of life-cycle cost. The prohibitive cost of downtime makes reliability and field responsiveness critical. Since many assets are remote and/or offshore, the question of how to accurately value the opportunity cost of lost production is a recurring one, as well as the issue of how to factor those costs into inventory parameters for items like capital spares. Dangerous conditions—for example, subsea and deepwater offshore—present large potential safety hazards that result in extraordinary price premia for safety and process reliability. This highlights another trade-off that is less common in other industries. Finally, the high public visibility of accidents and environmental problems elevates the importance of risk management, including supply chain risk. Even if the risk of serious problems is low, the possibility of having to face public scrutiny over a decision to save a small amount of time or money often makes managers wary of aggressive cost-cutting projects.

2.3. The Concept of Competency

2.3.1 Understanding Competency

The term competency was probably first introduced to psychology literature in 1973 when David McClelland argued in his article ‘Testing for competence rather than for intelligence’ that traditional tests of academic aptitude and knowledge content in fact predicted neither job performance nor success in life. Thus, the quest for theory and tools that could reliably predict effectiveness in the workplace began (McClelland, 1973). In 1982 it was Boyatzis who first drew together comprehensive data that had been collected in the USA using the McBer & Company ‘Job Competence Assessment’ method. Since

then, competency has become a significant factor in HR development practices (Simpson, 2002).

The word competency came from a Latin word meaning “suitable” (Bueno & Tubbs, 2004). Boyatzis (1982) defines a competency as “an underlying characteristic of a person which results in effective and/or superior performance in a job” (p. 97). The competency movement was launched in 1973 when McClelland, a Harvard psychologist, published a landmark article stating that traditional academic aptitude and knowledge tests, as well as school grades and credentials, did not predict job performance or success in life.

Although they may sound similar, competence and competency are not necessarily synonymous. Competence refers to a potential ability and/or a capability to function in a given situation. Competency focuses on one’s actual performance in a situation. This means that competence is required before one can expect to achieve competency. Thus, competence makes one capable of fulfilling his/her job responsibilities. Black and Wolf (1990) describe competence as the ability to perform in effective ways on different occasions including in differing and unexpected contexts [cited in While, 1994].

Beinhauer and Frech (2009) define competences as a dynamic combination of knowledge, understanding, skills and abilities. A distinction can be made between generic competences (i.e. transferable competences across study areas) and subject-specific competences (i.e. competences specific to a subject area).

United Nations Industrial Development Organization (UNIDO, 2002) defines competency as a set of skills, related knowledge and attributes that allow an individual to perform a task or activity within a specific function or job. If an individual possesses these three elements of competency they can effectively perform duties as required by the specific job.

Competencies are a set of identified behaviors, knowledge, skills, and abilities that directly and positively impact the success of employees and the organization (Common Wealth Virginia, 2007 in Potluri & Zeleke, 2009). Competency is described also as: “The behaviors, knowledge and motivations that is required to be effective in a job” (Summers, 2004). Competencies are individual capabilities that can be linked to enhanced performance by individuals or teams (Mathis & Jackson, 2010).

In a nutshell, as stated by Hamel and Prahalad (1994) competency is an integration of skills, abilities, knowledge and capabilities. A competence is a bundle of skills rather than a discrete skill. Competencies are the sources of competitive advantage and the building blocks to future opportunities.

2.3.2. Importance of Competency

As stated by Derwik, and Daniel (2017), in supply chain management competence is a key factor in achieving superior performance and competitiveness. Supply chain competency leads to business improvements both operationally and financially. Moreover, the top 25 companies identified as having excellent competence in SCM in the annual research reports by AMR Research/Gartner (Gartner, 2007$2010) obtained substantially higher financial performance than their competitors.

Competent human resources are the main resource of any organization in acquiring a competitive advantage. Land, buildings or materials do not yield company productivity, rather, it is 'people capital' that runs a business and produces value from existing resources. HayGroup (2004) point out that an organization's best source of competitive advantage lies with its employees. Strategies, business models, products and services can all be copied by competitors, but talented and competent employees represent a sustainable source of differentiation. The demand for effective and competent employees continuously increases in both public and private organizations because a dynamic global marketplace and increasing foreign competition has compelled organizations to become more effective and flexible in response to the rapidly changing environment.

The value of competency has been widely explored. For example, in the 1990's the LBA Consulting Group conducted a study that focused on identifying the factors that most contributed to the creation and sustenance of organizational excellence. The study examined organizations that had survived and prospered, and those that had failed, over a 25-year period. The results of the study suggested that six human resource conditions have to be met. These conditions were a performance-oriented culture, low turnover, high levels of employee satisfaction, a cadre of qualified replacements, effective investment in employee compensation and development, and the use of institutional competencies

(success factors) in employee selection and performance evaluation processes (Berger & Berger, 2004). Mitrani et al. (1992) mention the need for competency and predict that organizations of the future will be built around people. They add that there will be less emphasis on jobs as the building blocks of an organization; instead increased attention will be focused on employee competence. If we are using people as the building blocks of an organization, then competence or what they bring to the job becomes crucial. The competency approach to selection and assessment is based on classifying, identifying, and measuring individual differences for particular work-related constructs that are relevant to successful job performance (Bartram, 2004). Cummings and Worley (2001) similarly state that organizational changes frequently demand new knowledge, skills and behavior from employees. They argue that in many cases changes could not be implemented unless employees gained new competencies. They also suggest that change agents are needed to provide multiple learning opportunities, such as traditional training programs, on-the-job counseling and coaching, and experiential simulations, covering both technical and social skills, and that it must be ensured that such learning occurs. Thomson and Strickland (2004) also place building core competencies and competitive capabilities as a key component of building a capable organization. They state that building core competencies and competitive capabilities will enable good strategy execution and that maintenance of a competence/capability portfolio, that is updated as strategy and external conditions change, will guarantee that an organization is capable of effective strategy execution.

From the literature cited above it can be summarized that, during the last thirty years, competency has become a key factor in terms of building a capable organization. This is because academic or knowledge content alone is insufficient for an individual to be successful in their job. Rather, desired characteristics or behavior are meaningful in ensuring that an individual is effective in performing their tasks according to the job demands. People capital has become a valuable asset to both current and future organizations. Therefore competence needs to be focused and, if we are using people as the building blocks of the organization, then their competence becomes crucial.

Also, employee competencies were considered by literature as one factor that most contributed to the sustainability and, creation of organizational excellence (Vathanophas,

2007). Employee competencies were considered as a source for attaining competitive advantage in competitive circumstances for organizations (Sanghi, 2004). Also, employee competencies are needed in order to increase the business success (Zakaria, Zainal, & Nasurdin, 2011).

2.3.3. Constructs of competencies:-Emphasis on the Facets and Aspects of Competence in GSCM

Derwik, and Hellström (2017) stated that although a consensus exists on the importance of competence in SCM for successful business performance, scholars vary considerably regarding the scope and meaning of the subject. The authors further stated that in the SCM literature, competence is embraced from a variety of views and its content remains relatively incoherent.

Spencer and Spencer (1993) identified five types of competency characteristics consisting of motives, traits, self-concept, knowledge and skills. First, motives are the things that an individual consistently thinks about or wants that stimulate action. Motives drive, direct and select behavior toward certain actions or goals and away from others. Second, traits are physical characteristics and consistent responses to situations or information. Third, self-concept is an individual's attitudes, values or self-image. Fourth, knowledge is the information that an individual has in specific content areas. Finally, skill is the ability to perform a certain physical or mental task. Knowledge and skill competencies tend to be visible and relatively surface characteristics, whereas self-concept, traits and motive competencies are more hidden, deeper and central to personality. Surface knowledge and skill competencies are relatively easy to develop and training is the most cost-effective way to secure those employee abilities (Spencer & Spencer, 1993).

According to McClelland (1994), based on the type of characteristic demonstrated, competencies may be grouped into five general areas or levels. Skills: the demonstration of expertise, such as organizing material into a logical order, the ability to make effective presentations or to negotiate successfully Knowledge: information accumulated in a particular area of expertise, such as accounting, product development or sales. Self-concepts: attitudes, values and self-image, such as a person's vision of himself or her-self

as a leader or a team player. Traits: a general disposition to behave in certain ways – tenacity, flexibility or initiative, for example. Motives: recurrent thoughts that drive behaviors, such as the socially acceptable use of power, affiliation or the drive for achievement.

For Cook and Bernthal (1998) competencies fall into three categories or types: 1. Organizational competencies—unique factors that make an organization competitive. 2. Job/Role competencies—things an individual must demonstrate to be effective in a job, role, function, task, or duty, an organizational level, or in the entire organization. 3. Personal competencies—aspects of an individual that imply a level of skill, achievement, or output.

According to Josh Bersin (2007) there are three types of competencies used in performance management: values-based competencies, leadership competencies and functional competencies. Values-Based Competencies (Core) refers to these competencies that take the form of values or behaviors, which can be applied to any person in any job. They represent the company's "inner core" and often do not change much from year to year (even decade to decade). When a major change occurs (e.g., a new management team, a major business challenge, a legal or regulatory upheaval), the competencies may be amended. They define "the type of company we want to be"– reflecting the type of people and behaviors, which are valued. These values-based competencies are applied to every performance appraisal in the company; they are usually posted throughout the workplace, given to employees in wallet cards, emblazoned on mugs and awards, and promoted at company meetings. Leadership competencies are those which are used to assess an individual's ability and skills to be a leader or manager. …These competencies reflect the organization's unique assessment of what leadership qualities actually "work" in the company's culture. The third form of competencies used in performance management is functional competencies (those that pertain to a particular job function), which are rarely defined at an enterprise level. Such functional competencies often take the form of specific skills(e.g., "database administration") and are best managed at a workgroup or functional level (Bersin, 2007).

As stated in Potluri and Zeleke, (2009), fundamentally there are three levels of competency requirement: first Organization-wide requirements in terms of the culture and the behaviors required at which the individual operate. Secondly, Organization-specific requirements: full understanding of the strategic requirements of the business and the requirements of the business as reflected in the strategic areas of competence. Third, job requirements: in terms of personal competencies of both business professional and technical requirements.

As stated by Common Wealth of Virginia (2007) these employees need to posses technical and behavioral competencies. The first elements technical competencies are predominately about acquired knowledge and technical abilities and skills about the service they provide. It is defined in terms of the specialized requirements of an occupation. These competencies are often easier to see, train, and develop. The second element is behavioral competencies, which is deep-seated qualities of an individual (attitudes, traits, and approaches) to communicate effectively and work cooperatively with team members and the ability to understand and help customers‟ needs and interests" (Common Wealth of Virginia ,2007).

Competency models refer to collections of knowledge, skills, abilities, and other characteristics (KSAOs) that are needed for effective performance in the jobs in question (e.g., Green, 1999; Kochanski, 1997; Lucia & Lepsinger, 1999; Mansfield, 1996; Mirabile, 1997; Parry, 1996; Rodriguez, Patel, Bright, Gregory, & Gowing, 2002; Schippmann et al., 2000). The individual KSAOs or combinations of KSAOs are the competencies, and the set of competencies are typically referred to as the competency model.

2.4. Competency Development

Quinn, Faerman, Thompson, McGrath and Bright (2015) stated that any competency refers to the possession of knowledge and the behavioral capacity to act appropriately using that knowledge. Thus, to develop competencies, you must both be introduced to knowledge and have the opportunity to practice your skills.

In this section of the chapter, an overview of managerial competency development is presented.

2.4.1. Management competencies development focusing on the global petroleum supply chain management

Management development is concerned with improving the performance of managers in their present roles and preparing them to take on greater responsibilities in the future. It has been described by Mumford and Gold (2004) as 'an attempt to improve managerial effectiveness through a learning process'. Although development is important for all employees, it is essential for managers. Without appropriate development, managers may lack the capabilities to best deploy and manage resources (including employees) throughout the organization.

Management development has grown as an activity with the growth in the number of managerial, professional and administrative roles. Management education, in the form of MBA and Doctor of Business Administration (DBA), is expanding rapidly. In addition, organizations see a benefit in the creation of tailor-made programmes delivered either in-house or at a training centre, in a business school, etc. The benefits from these in-company courses include the tailored materials with case studies and exercises from their own company, or from the same industry sector, and real time issues for the course delegates to work on. Alongside this expansion in management education needs, a more European or US focus to training is often sought. International experience for employees could be acquired through being moved around the overseas offices, or through taking a largely internationally organized program.

Though some authors distinguish between *management education* which "is taken to imply formal learning which takes place under the auspices of academic institutions within credit-bearing courses to enhance managers' analytic and critical skills," and *management development* as informal learning offering "a more effective approach by emphasizing on-the-job learning that occurs experientially in culturally embedded ways, situated in communities of practice within work-based organizations" (2). Management education (formal learning) fosters the acquisition of explicit or declarative knowledge, while management development (informal learning) results in the acquisition of tacit or procedural knowledge crucial for successful managers.

Management development can be undertaken through both formal and informal approaches. The formal approach includes: coaching and mentoring.; the use of performance management processes to provide feedback and satisfy development needs; and planned experience, which includes job rotation, job enlargement, taking part in project teams or task groups, 'action learning', and secondment outside the organization.
Informal approaches to management development, on the other hand, make use of the learning experiences that managers come across during the course of their everyday work. The approach adopted by the organization is to provide support through a range of related activities such as performance management, development centres, personal development planning, coaching and mentoring. A rigid, organization-wide programme is not essential, although management development interventions need to be made.

The extent to which management development activities are programmed depends on the organization: its technology, its environment and the type of managers it employs. A traditional bureaucratic/mechanistic type of organization may be inclined to adopt a more programmed approach, complete with a wide range of courses, inventories, replacement charts, career plans and results-oriented review systems. An innovative and organic type of organization may dispense with some or all of these mechanisms. Its approach would be to provide its managers with the opportunities, challenge and guidance they require, seizing the chance to give people extra responsibilities, and ensuring that they receive the coaching and encouragement they need. There may be no replacement charts, inventories or formal

appraisal schemes, but people know how they stand, where they can go and how to get there.

The approach to management development should be based on an understanding of how managers learn and develop, and of the use of formal and informal methods of development and development centers. Informal approaches to management development-Informal approaches to management development make use of the learning experiences that managers come across during the course of their everyday work. Managers are learning every time they are confronted with an unusual problem, an unfamiliar task or a move to a different job. They then have to evolve new ways of dealing with the situation. They will learn if they analyse what they did to determine how and why it contributed to its success or failure. This retrospective or reflective learning will be effective if managers can apply the lessons successfully in the future. Competing values management demonstrates the struggles managers have deciding role paths; each decision may counteract another (Quinn et al., 1990).

Experiential and reflective learning is potentially the most powerful form of learning. It comes naturally to some managers. They seem to absorb, unconsciously and by some process of osmosis, the lessons from their experience, although in fact they have probably developed a capacity for almost instantaneous analysis that they store in their mental databank and which they can retrieve whenever necessary.

2.4.2. "Learning by doing"-Personal work life as a source of competency development

"Managers learn by managing" is an adage that shaped the theoretical framework of this proposed thesis fundamentally. The adage vividly indicates that how managers do manage contributes to the development of managerial competences, knowledge, skills, etc. As Peter Drucker said many years ago (1955) the ability to manage is essentially something that individuals mainly develop for themselves while carrying out their normal duties. But, what really managing actually involves? What are the actual roles of managers at work places?

Miller reviewed management over fifty years in which time the position of manager has evolved from a task oriented manufacturing work environment to a more unstructured interpersonal work structure. The classic management functions identified then- planning, organizing, communicating, coordinating—remain primary functions in later models. Luthans, Rosenkranz, & Hennessy (1985) had observed successful managers balanced more functions. Ghiselli (1963) enhanced management research by introducing psychological traits he considered important to managerial performance. Ghiselli's psychological traits— intelligence, supervisory ability, initiative, self assurance, and level of occupation attainment—helped to form management competency frameworks as it was first developed for psychological traits.

Miner (1973) researched the patterns of characteristics of successful managers. Over a 15-year period, Miner recorded differences in motivation of students who selected a career in management and those of employed people. Miner found six characteristics that successful managers possess: (a) favorable attitude toward authority; (b) desire to compete; (c) assertive motivation; (d) desire for distinctive position; (e) a sense of responsibility and (f) managing conflict.

Mintzberg (1975) made significant contributions to the competency and skill development research in management. Mintzberg studied the role and behavior of a manager by studying chief executives in five different venues: (a) a school, (b) a technology company, (c) a consumer goods company, (d) a hospital, and (e) a consulting firm. He categorized a manager's job into ten roles under three headings: interpersonal, informational, and decisional. Some of the roles that were identified became essential components for effective management principles such as developing relationships, resolving conflict, disseminating information, and allocating resources. He also identified that managers should be lifelong learners with continuous improvement through learning (Mintzberg, 1973).

Mintzberg (1975) identified the need for skills training and emphasized that teaching management theory is necessary, yet without the application of the skill practice and a feedback loop for students to gain competency, the cognitive portion is lost. Mintzberg

(1975) states that management schools should clearly identify what management competencies the student needs, teach the competencies, and then provide opportunities for students to practice the skills and be evaluated in an environment that allows for improvement.

Katz (1974) researched the need for skill development of managers. Katz established that all managers need skills that require technical, human, and conceptual skills, while how the skill set is emphasized will depend on at what level of management the person is employed. Technical skills are needed for entry-level positions, and conceptual skills are most frequently used at the higher management level (Katz, 1974; Miner, 1973).

The work of Boyatzis (1982) established the first management competency framework. Boyatzis used over 2,000 generic management competencies that applied to the identified levels of management to develop the Job Competence Assessment Method. These became usable documents that managers or educators could adapt to their level of management to characterize effective performance competencies applied to their organization.

In 1986, Hales wrote about the expanding demands on managerial tasks (Hales & Nightingale, 1986). Hales and Nightingale (1986) based their management framework on former theorists to establish that previous work was too narrowly focused and needed to include the behavior patterns of managers and organization functions. Hales (1986) developed a framework with nine common strands, which included managerial functions identified by previous researchers but combined the functions in new categories. The Hales framework includes: figurehead, liaison, monitoring, allocating resources, handling disturbances, negotiating, innovating, planning, and directing subordinates.

In the late 1980s, Luthans et al. (1985) asked the question: “What do real managers do?” Their research distinguished between the managers who were success driven (meaning the individuals were promoted) and the other managers who were effective (meaning they had measurable performance). Luthans et al. identified twelve activities often performed by managers. These duties were then grouped into four categories, similar to the competencies

identified in the CVF (Quinn et al, 1990), the framework selected for this research to operationalize how managers learn global competences by doing.

The Competing Values Framework serves as a map, an organizing mechanism, a sense-making device, a source of new ideas, and a learning system. It has been applied by researchers and practitioners to many aspects of organizations such as value outcomes, corporate strategy, organizational culture, core competencies, leadership, communication, decision making, motivation, human resources practices, quality, and employee selection (Cameron & Quinn, 2005). From the Competing Values Framework comes a theory about how these various aspects of organizations function in simultaneous harmony and tension with one another. The framework helps identify a set of guidelines that can enable leaders to diagnose and manage the interrelationships, congruencies, and contradictions among these different aspects of organizations. In other words, the framework helps leaders work more comprehensively and more consistently in improving their organizations' performance and value creation.

More than two decades of work on the Competing Values Framework has produced a set of intervention processes, measurement devices, and change techniques that capture a comprehensive view of the organization, its outcomes, and its leadership. The framework highlights the inherent tensions and contradictions that face organizations and leaders as they navigate their complex and changing environments. It predicts the future success of enterprises with significantly greater accuracy than alternative models currently on the market. It goes beyond the capabilities of other approaches to leadership development, organizational change, or financial valuation in its ability to forecast, measure, and create positive value in organizations.

The competing values model first developed by Quinn and Rohrbaugh (1983) was used to categorize general organizational phenomena in relation to organizational effectiveness. Cameron and Ettington (1988) used the model to describe organizational behavior better. The competing values model is two-dimensional: (a) one is internal, person oriented, and (b) one is external, organization oriented. The first dimension is more pliable and deals with change, and the second dimension is more inflexible and stable. The two axes form a

four-quadrant typology of organizational culture. Each quadrant represents some group of the managerial role.

Since its development, the CVF has been used numerous times by researchers to assess managerial behavior, human resource practice, core competencies, financial performance, and organizational effectiveness (Cameron & Quinn, 1999, 2005; Quinn, 1988). The CVF uses action imperatives such as compete, control, collaborate, and create with the inclusion of the ends and the means of achieving balance within each action. Gifford, Zammuto, Goodman, and Hill (2002) state that the CVF precisely captures the tension between the different models, are highlighting the paradoxes that manager's face. The CVF emphasizes both control and flexibility and both internal and external factors (Whitley, 2007). Because the CVF can be used at multiple levels of analysis, it can be helpful in promoting the type of culture needed for successful quality improvement efforts and in explaining an organization's performance more consistently (Reich & Benbasat, 2000). The CVF model evolved from four other models: (a) the rational goal model; (b) the internal process model; (c) the human relations model, and (d) the open systems model (Gankofskie, 2011).

The CVF is a framework made up of leadership roles and models. The CVF clarifies leadership roles and expectations which minimizes ambiguity and avoids interpersonal conflicts within the organization (Belasen, 1998). The framework displays the tensions and contradictions that organizations and leaders encounter in their evolving and changing environments (Cameron, & Quinn, 1999). For instance, as the authors indicated, each continuum highlights a value that is opposite from the value at the other end of the range, i.e. flexibility vs. stability and internal vs. external. Likewise, Quinn et al., (1990) indicated that CVF model demonstrates the struggles managers have deciding role paths; each decision may counteract another. Hence, the competing values framework and CVFI instrument were selected for this thesis research. The roles, characteristics or managerial behaviors were clearly assessed as a source of managerial learning for they represent how the manager overcomes the paradoxes at workplaces.

It has been described that Leadership the individual level of analysis of CVF refers to factors such as personal leadership competencies, learning styles, skills and abilities, and attitudes that are associated with the individuals in the organization. These factors focus on the attributes of individual members in the organization, as separate from the organization's attributes or outcomes. Developing individual leaders, retaining highly valued employees, and fostering a highly energized workforce require attention to individual attributes, and the Competing Values Framework helps identify the importance of a comprehensive view of individual factors for value creation. Focusing on a single motivational technique, one incentive system, or a lone leadership approach without consideration for other approaches suggested by the remaining quadrants inhibits long-term success.

2.4.3. The Learning Organizational Culture: -Conducive Environment for Competency Development

Most Human resource management literature argues that an important variable in employee participation in development activities was management support. Management and coworkers support can be thought of as part of a "continuous learning culture" that encourages extensive participation in development activities of all kinds. Organizational learning is concerned with the development of new knowledge or insights that have the potential to influence behavior. It has been defined by Marsick (1994) as a process of: 'Coordinated systems change, with mechanisms built in for individuals and groups to access, build and use organizational memory, structure and culture to develop long-term organizational capacity.'

As stated by Antal & Sobczak (2004), the field of organizational learning offers insights into how organizations process information to expand their range of potential behaviors (Huber 1991:89), thereby creating new ways of seeing and doing things (Nonaka 1994). Learning is by definition a dynamic approach to organizational behavior (Berthoin Antal, 1998), and current thinking on organizational learning emphasizes its interactive and social nature (Wenger 1998, Nonaka, Toyama, Byosière 2001). Organizational learning takes place within the wide institutional context of inter-organizational relationships and 'refers broadly to an organization's acquisition of understanding, know-how, techniques and practices of any kind and by any means' (Argyris & Schon, 1996).

As stated by Antal and Sobczak (2004) there are multiple kinds of learning, and that organizations must master each of them and know when to take which approach. Among the most important ones are: single loop, double loop and deutero learning (Argyris & Schön 1974, 1996), unlearning (Hedberg 1981), and knowledge creation (Nonaka 1994). By using and combining different learning strategies, organizations will learn to come to grips with the multidimensional content (economic, social, environmental and other) and the wider scope (local, national, regional, world-wide). And by engaging together, organizations are likely to learn more and faster. Recent research on organizational learning highlights the value of inter-organizational collaboration for sharing knowledge and generating synergistic solutions (Hardy, Phillips & Lawrence, 2003).

Promoting a culture of learning organization is essential to meeting various types of challenges. First in situations of rapid change only those that are flexible, adaptive and productive will excel. For this purpose organizations need to discover how to tap people's commitment and capacity to learn at all levels. This is necessitated further by the need to link individual performance with organizational performance. A learning organization can ensure that there is strategic alignment between customer needs, organizational goals and resource allocation. Coupled with this, learning organizations promote information exchange and capture expertise at all levels from human resources using technology as leverage to support information. Besides this, typical organizations of this nature can utilize alternative strategies which integrate learning within the working environment by providing continuous learning opportunities. Learning may take several forms such as adaptive, generative and transformative learning. Adaptive learning affects stimuli and in turn results in changes in processes and outcomes as a coping mechanism (Berry and Dienes, 1993; Reber, 1993; Senge, 1990). Behavioural theorists assert that groups may change in reaction to stimulus within the external environment. Clues about changes in the organizational environment inform them about new ways of getting things done and group behavior. They engage in incremental change processes as they adjust behaviours and clarify their interdependencies (Pulakos, Arad, Donovan, & Plamondon, 2000). Adaptation determines the group's sustainability and reduces pressures and challenges thus leading to increased competitiveness. Within organizational settings adaptations that fit with group and organization goals should be incorporated in strategy making processes for long term

sustainability. This enables employees develop a higher sense of self potential, cohesiveness and commitment. Closer working relationships should be bound by a shared mental model. This implies therefore that existing groups should monitor and adjust to changes reflected in the external environment through learning processes. Employees within such groups are self motivated, cohesive and share a high sense of commitment. Existing working relations are closely knit by shared mental models. These features aid in learning and its long term benefits may lead to sustainable organizational competitiveness. On the other hand generative learning is in proactive strategy to attaining long term competitiveness by exploring learning needs and opportunities. The knowledge, skills and behaviour acquired together with interaction patterns are used to improve group learning (Ausubel, 1968; Bruner, 1960; Gagne, 1978; Vera and Crossan, 2003). The process entails; A mastery learning orientation (Buderson and Sutcliffe 2003; Dweck 1986; Vandewalle 1997), self efficacy derived from learning from others (Bandura, 1997) and andragogy (adults who are ready to learn and are responsible for their own learning (Knowles, 1975).

Organizational learning outcomes contribute to the development of a firm's resource capability. This is in accordance with one of the basic principles of human resource management, namely that it is necessary to invest in people in order to develop the intellectual capital required by the organization and thus increase its stock of knowledge and skills. As stated by Ehrenberg and Smith (1994), human capital theory indicates that: the knowledge and skills a worker has – which comes from education and training, including the training that experience brings – generate productive capital.

Pettigrew and Whipp (1991) believe that the focus of organizational learning should be on developing 'organizational capability'. This means paying attention to the intricate and often unnoticed or hidden learning that takes place and influences what occurs within the organization.

'Hidden learning' is acquired and developed in the normal course of work by people acting as individuals and, importantly, in groups or 'communities of practice' (Wenger and Snyder, 2000).

2.5. Conceptual Framework of the study

Globalization requires that managers develop business strategies for the new world market place. Many companies already have many customers, suppliers, partners, and competitors located abroad. Many business transactions of necessity already cross international borders. Businesses already are operating or planning to establish facilities in many countries. Businesses already know that many of their customers and some of their competitors are located abroad. Dealing with globalization requires a comprehensive system for achieving global competitive advantage.

As stated by Hult, et., al., (2014), global supply chains thrive because they coordinate and integrate the best that the globe has to offer to provide the greatest value possible to the system. Firms demand this, supply chain members demand it, and customers demand it. This requires global competence on the part of firms, their employees, and their supply chain partners. The basic question, therefore, is "how" these competences can be developed.

Triggered by the same question, , the main intention of this study is to explain the development of competency required to successfully operate the global petroleum supply chains based on the experiences of Total Ethiopia. Particularly, the intention of the study is to test the relevancies of two developmental opportunities namely the organizational learning culture and the individual personal learning by doing styles.

Thus, the two general propositions are: The competence to manage GPSCO is essentially something that individuals develop for themselves while carrying out their normal duties (Ho1); and. The competence to manage GPSCO is essentially something that individuals develop for themselves from the organizational learning culture (Ho2 - Ho5).

These propositions have been formulated mainly based the learning theories. The arguments presented below have framed these propositions.

Tyson (2006) stated that how people including managers learn has been the subject of continuing discussion and some controversy for many decades. Much of the evidence leads to the conclusion that mostly we learn from experience. Kolb's (1974) learning cycle suggests a cyclical process of continuous learning. It addresses the role of experience in learning where we generalize from our experience and experiment with new ideas as a

consequence of what we have learned; taking into account the feedback we have received from significant others. The challenge for development processes is to find ways of creating learning environments where new behaviours can be tested, and where there is assistance with observation and reflection to facilitate the learning process.

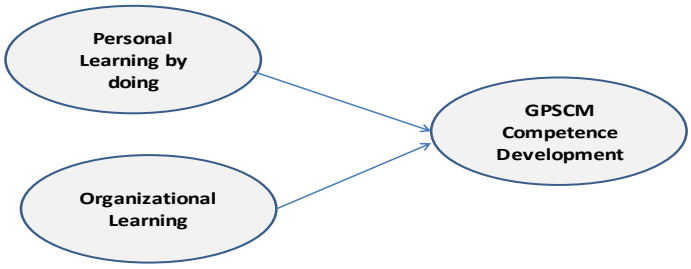
As addressed by Armstrong (2011), the traditional view is that the organization need not concern itself with employee and management development. The natural process of selection and the pressure of competition will ensure the survival of the fittest. Managers, in fact, are born not made. Cream rises to the top (but then so does scum). Management development is not a separate activity to be handed over to a specialist and forgotten or ignored. The success of a management development program depends on the degree to which all levels of management are committed to it. The development of subordinates must be recognized as a natural and essential part of any manager's job, but the lead must come from the top. Management development was seen in its infancy as a mechanical process using management inventories, detailed job rotation programs, elaborate schemes to appraise personal characteristics, and lots of formal courses. The true role of the organization in management development lies somewhere between these two extremes. On the one hand, it is not enough, in conditions of rapid growth and change, to leave everything to self development. On the other hand, elaborate management development programs cannot successfully be imposed on the organization.

As Peter Drucker wisely said many years ago (as cited in Armstrong, 2011) development is always self-development. Nothing could be more absurd than for the enterprise to assume responsibility for the development of human-beings. The responsibility rests with the individual, his abilities, and his efforts. The ability to manage is essentially something that individuals mainly develop for themselves while carrying out their normal duties. But they will do this much better if they are given encouragement, guidance and opportunities by their company and managers. In McGregor's as cited in Armstrong (2011) phrase: managers are grown – they are neither born nor made. The role of the company is to provide conditions favourable to faster growth, and these conditions are very much part of the environment and organization climate of the company.

Likewise, this thesis assumed that the GSCM competence development is the function of both the individual and organizational efforts. Both of them do play important roles in the development the competences to manage GSCO. The individual personal role argument claims that the ability to manage GSCO is essentially something that individuals mainly develop for themselves while carrying out their normal duties. Thus, it claims that the competence to manage the GSCO is learnt by doing. It is a function of self/personal development efforts. Thus, it has been assessed based on the effectiveness of the individual's self development. It is obvious that the ultimate goal of any self development initiatives and efforts is personal effectiveness. Thus, the self development variable has been assessed based on personal effectiveness. Personal effectiveness is a complex concept. Yet, the personal effectiveness in today's workplace is commonly operationalised and measured through CVFI. The framework is one of the most popular invention/breakthroughs in organizational/business studies over the last 50 years. The frame work has identified the critical competencies that characterize the most effective leaders, organizations and individuals worldwide. These competences have been found to be predictive of personal and organizational effectiveness (Cameron, 2005). The extent that a person has developed those competences is an indicator of the level of effectiveness. Likewise, the CVFI has been also used to assess and guide personal developments in Becoming a Master Manager (Lawrence et al., 2007). So, a personal development status/ success level to become a GPSC master manager is assessed by CVFI (in this thesis the same approach has been applied).

The role of the organization in the development of individual competence to manage the GSCO is operationalised in terms of the efforts of an organization to create conducive environment for developing the competence. As stated above, the role of the organization is to provide conditions favorable to faster growth, and these conditions are very much part of the environment and organization climate of the company. This variable has been operationalised via the organizational learning. A learning organization encompasses a collective effort to develop the ability of organizational members to create their preferred future, where innovative thinking is fostered and continuous learning is encouraged.

Figure 2.1: Conceptual Framework of the Study



Source :(Self Developed, 2021)

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Description of the study setting and the Selection Procedure

3.1.1. Overview of the Total Ethiopia

Ethiopia is one of the countries with no natural gas resource endowment. The country imports 100% of its fuel consumptions from abroad. As per the 2020 financial year, there are about 31 petroleum companies operating in Ethiopia. One of these companies is Total Ethiopia.

The site of this study was Total Ethiopia S.C. head office located in Addis Ababa. Total Ethiopia was established in 1950 E.C as a distributor of TOTAL petroleum products, i.e. Fuel, lubricants, LPG and Bitumen. After more than 40 years of operating in the country, the name TOTAL Mer Rouge was changed and organized in accordance with the Ethiopian Commercial law with a new name Total Ethiopia S.C., in September 1997.

Total Ethiopia further developed its activities by merging with Mobil Oil East Africa Limited – Ethiopian branch at the end of 2006. Total Ethiopia is currently among the major oil companies in the country. Total Ethiopia is also a responsible citizen company that actively promotes road safety, fighting against malaria and HIV/AIDS ensuring product quality and developing renewable energies such as solar energy **(**www. totalethiopia.com= Downloaded from https://www.totalethiopia.com/sites/g/files/wompnd701/f/atoms/files/total_ethiopia_cp.pdf on November 1, 2020)**.**

As stated on the website of the company, Total Ethiopia runs a business with a registered capital of 790,696,412 ETB as of October 4, 2016. It operates 150 Retail Network Stations partnering with more than 2,400 government and private companies in the Country. The company operates Fuels and LPG Depot at Dukem, 4 Aviation depots at Bole, Mekele, Bahir Dar and Lalibela. Each year, the company transports more than 700,000 metric tons of fuels with 600+ contracted tanker trucks that cover an average of 34 million kms). The

company undertakes all these activities employing highly competent and committed 172 full time employees. The company is organized under seven (7) departments reporting to the General Secretary through the office of the Managing Director; Department of Operations Management; Department of Human Resource and Public Affairs; Department of HSEQ (Health, Safety, Environment and Quality); Department of Network Administration; Department of Specialty B2B Services; and Department of Audit Services.

As stated in The Universal Registration Document 2019 published by the Total Group (available at total.com), the group has an ambition of becoming a responsible energy major and listed its enabling factors to that end as; 1) a collective ambition to meet the challenges facing the energy sector, 2) an established strategy. The Total Group's strategy relies on four pillars among which expanding along the natural gas value chain is the top. Likewise, the report indicated that, TOTAL Group has developed several core competencies based on: its long standing and broad geographic presence; the know-how and commitment of its employees; and the power of its integrated business model.

3.1.2. Description of the Case Selection

Total Ethiopia has been targeted for the proposed study. Though lack of capacity to successfully operate in the global economy have been observed among most (if not all) Ethiopian industries, only Total Ethiopia has been selected in the present study. The justifications for the case company selection are given below.

Among the Ethiopian Petroleum companies, Total is one of the oldest and renowned one. It is the most dominant player of the sector in the country as well as the continent-Africa. Besides, the company is selected for its reputation of its global supply chain practices. As indicated in Chapter 1 of the proposal, the Company has defined that its integrated business model spanning across the globe as an enabling/advantage/ opportunity for its business success and strategic performance. Besides, the company is the market leader in Africa for its marketing and supply (M&S) business segment and continues to develop its activities in continent.

Because as Soens, Buyens and Taylor (2012) showed industry contexts where the incumbents work do matter for managerial competency developments. Hence, this study

was conducted with a particular emphasis on only one company. This approach is consistent with previous works (e.g., Liao & Chuang, 2004; Wright et al., 2003; Wright et al., 2005). Furthermore, limiting to a single corporation enabled the student researcher to control for a number of extraneous sources of variability such as the type of work performed, and the operational procedures and technology employed, that otherwise influences the roles played by the organizational and personal learning systems in building the GPSCM competency for employees and managers. Similarly, industry characteristics may have far-reaching implications for competence development initiatives. Industries, like national cultures, are the contexts within which meanings are constructed, effectiveness is defined, and behaviors are evaluated (e.g. see Hofstede 1991). Hence, the student researcher believed that targeting a single industry is methodologically more reliable. Accordingly, the petroleum industry has been selected for the study purpose. But, why the Petroleum Industry? Why not other sectors in Ethiopia? The answer is given below.

The study has targeted the petroleum industry particularly because of the following reasons. First, it is the industry which is highly globalised. Secondly, the competency of global supply chain managers matters to a greater extent to the success of the sector. Besides, as described in the Chapter 1 of the thesis, the sector is not able to offer adequate and efficient services on the scale required in Ethiopia that shortage of fuel and other related products has been an acute problem of the country. Furthermore, in landlocked countries, like Ethiopia, effective and efficient functioning of the sector has significant role in reducing the inflationary challenges thereby accelerating economic growth of the country. Hence, an attempt to improve any segment or condition of the sector is a value adding endeavor even at a national level. Hence, this thesis was conducted with a particular emphasis to this giant company in the important sector of the global economy.

3.2. Research Approach

The research has applied a quantitative research approach. Quantitative research involves studies that make use of statistical analyses to obtain their findings (Cresswell, 2009). Quantitative Research approach is used to quantify the role of personal and organizational factors in the competence development of global Petroleum Supply Chain management with a particular reference to Total Ethiopia employees and managers.

3.3. Study Design

The purpose of this study is to assess the role that organizational learning system and personal learning by doing style do play in improving the global supply chain management competency in the case of managers and employees of Total Ethiopia. As indicated by Cresswell (2009), studies that establish causal relationships between variables may be termed explanatory research, and the emphasis of such endeavors is on studying a situation or a problem in order to explain the relationships between variables. Accordingly, the present study has been investigated via the explanatory research design that can model the relationship between these variables.

Moreover, consistent to other similar studies carried out in other locations; quantitative survey study design was adopted for this thesis research in order to be able to empirically examine the relationships amongst the variables of interest. The technique has been used as such a design is relevant to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population (Babbie, 1990 in Saunders, Lewis,& Thornhill, 2009). In addition to compatibility with the objective of the study, survey is suitable for economical and prompt data collections (Creswell, 2009). The study had employed cross-sectional survey hence data was collected at one point in time, i.e., May, 2021.

3.4. Population of the Study

As mentioned earlier, this study centers on the /managerial/ capability for the effective global petroleum supply chain operations with a particular reference to Total Ethiopia employee/ managers. Population of the study, therefore, consisted of all employees and

managers of the Total Ethiopia. The total size of the population is 172 employees and 50 managers which is 222 in total. To identify individuals in the population, list of all of the employees and managers was obtained from the department of Human Resource and Public Affairs at the head-quarter. DeCenzo, Robbins, and Verhulst (2010) stated that one critical component of employee development that should be considered always is that all employees, regardless of level, can be developed. Historically, development was reserved for potential management personnel. The author stated that time has taught us that non-managerial employees should also develop management skills as well. The use of work teams, reductions in supervisory roles, allowing workers to participate in setting job goals, and a greater emphasis on quality and customer service have changed the way we view employee development. Thus, the study has undertaken census covering all of the above mentioned employees and managers. The study did not undertake sampling for the population size was found to be manageable.

3.5. Study Variables: Operationalization and Measurement Instruments

This study, as the conceptual framework shows, involves a dependent variable (GPSCM competency of individuals), two independent variables (organizational factors and individual factors). The influences of demographic and contextual variables are considered for better internal validity design. The procedures adopted to conceptualize and measure these variables have been discussed below. With the exception of the control variables, all variables were measured on a 7-point Likert scale.

Independent Variables: As independent variables of the study, organizational factors (represented by organizational learning) and individual factors (using personal learning by doing style) have been conceptualized and measured as follow.

Organizational Learning: Organizational learning is defined as the capacity or processes within an organization to maintain or improve performance based on experience (Nevis, DiBella and Gould, 1995), a capacity to encode inferences from history or experience into routines that guide future activity and behavior (Levitt and March, 1988), and systematic problem solving and ongoing experimentation (Garvin, 1993). It is the process by which

management teams reshape their shared cognitive maps of the firm, its markets and competitors (De Gues, 1988). In this proposed study, organizational learning is operationalized based on Senge (1994). Per the author the key disciplines forming the main element of learning organizations are the personal mastery, mental models, shared vision, team building and systems thinking. Likewise, to measure the context of learning in the Total Ethiopia, the instrument formulated by Watkins and Marsick (1996, 2003) has been used. From what they termed the seven "action imperatives" of the learning organization, Watkins and Marsick (1996, 2003) have developed the dimensions of a learning organization questionnaire (DLOQ), in order to assess the extent to which a company meets certain criteria as a learning entity. While there is a number of assessment instruments available in the areas of organizational learning (e..g Garvin, 2000; Templeton et al., 2002), the DLOQ is chosen for the study because it is the instrument specifically designed as an assessment tool to measure changes in organizational learning practices and culture (Marsick and Watkins, 2003), and it's validity has been confirmed by different researchers (Yang, 2003).

Individual Learning by doing: The personal learning style of individuals at work places is the second independent variable of the study. It refers to the experiential learning which implies that employees and managers learn by doing/ managing. Thus, the personal learning variable has been assessed inlight with what the employees and managers do in their actual engagements at the Total Ethiopia. The variable is operationalised and measured based on the Competing Value Framework/ model. It is a well established effectiveness model (Quinn et al., 1990; Hooijberg and Quinn, 1995) that can be applied at all levels of organizations including the individual level analysis. As indicated by Gankofskie (2011) the CVF was updated to reflect new roles and behaviors in managerial leadership by measuring psychometric properties. The instrument selected for the proposed study is the Competing Values Framework Instrument: Becoming a Master Manager (CVFI) (Lawrence et al., 2007). The CVFI consists of four major subscales (Collaborate, Crate, Control, and Compete). The CVFI utilizes a 7 point Likert type response scale of *Never* (1) to *Almost Always* (7). The instrument to be used is the 20- item self-reported version of the CVLI. Reliability coefficients were computed to verify quality/ consistency

of the instrument. As stated by Quinn, Thompson, Mcgrath and Clair (2011) the questionnaire is a tool to help users assess their development as a managerial leader with respect to the four quadrants of the competing values framework. The questionnaire consists of questions related to competencies that people need to meet the challenges of complexity, ambiguity, and paradox that characterize the world today. Each item, of the questionnaire assesses how often the respondent has successfully engaged in the activity on 7 point scale. Quinn et al.,(1990) noted the early version of the CVFI had both high-test validity and high-test reliability.

Dependent Variable: As dependent variable of the study, global SC operations competency is defined as a characteristic/ behavioral element of individuals that contributes to successful implementation of SC Philosophy in the globalised economy. Building this competency refers to the development and sustainment of behavioural elements that allow a company/organization to build relationships with their supply chain partners. It has two elements/ dimensions: Global Readiness /orientation and SCO. Global operations readiness/ orientation/competency of managers refer to the capabilities that an effective managers need to have in order to operate in this globalized economy. The capability measures managerial readiness to participate in the global economy. As stated by Schermerhorn, Hunt and Osborn (2002) to be successful in the 21st-century work environment, you must be comfortable with the global economy and the cultural diversity that it holds. This requires a global mind-set that is receptive to and respectful of cultural differences, global knowledge that includes the continuing quest to know and learn more about other nations and cultures, and global work skills that allow you to work effectively across cultures. The present thesis also operationalized and measured the global readiness/orientation competency based on these dimensions. The ten items scale thus was used to measure this element of the dependent variable. SCO as the second element of the GSCM competency is the capability /behavioural element of the responndents that helps to successfully implement the SC philosophy / build relationships with supply chain partners. This element of the DV was measured using the 7 item scale adapted from Tinny (2012).

As stated by Schroeter (2010), there are different methods and frameworks utilized for competency assessment. Among those methods and frameworks, self-reflection is the most

suitable for the purpose of the proposed study. As stated by aforementioned author, self-reflection is essential when speaking broadly of competency as the knowledge, skills, and values essential in carrying out one's role. Reflection is directly tied to experience and job role. Similarly, the author has stated that other researchers like Hasson and Arnetz (2008) used similar technique to measure competencies at workplaces. Accordingly, a self reporting Likert Scale instrument will be used in the proposed thesis work to measure the GPSCM Competence of individual respondents.

Control Variables

Field based and workplace behavioral researches have frequently reported the importance of the third variables known as extraneous variables (Pedhazur and Schmelkin, 1991 as cited in Heffernan, 2012). Particularly, explanatory studies in the field, as they attempt to explain variability of a phenomena of interest (the dependent variable) by attributing it to its presumed causes (the independent variables), confronted to this kind of variables. Thus, different authors have emphasized that such kind of researches must minimize the possibility of confounded results that limit the explanatory power of the model (Pedhazur & Schmelkin, 1991 cited in Heffernan, 2012).

According to Pedhazur and Schmelkin (1991 as cited in Heffernan, 2012), these variables can be controlled through elimination or inclusion techniques. The elimination technique involves holding some of the variables constant, for example through robust design. Alternatively, inclusion method refers to when a researcher statistically control for the effects of these variables. Likewise, in the present study, after proper identification of the extraneous variables, an attempt will be made to manage their effect using both techniques.

Effects of the demographic profile of the respondents as well as the other contextual variables (regarding the firm and its environment) will be controlled in this proposed study. Boselie et al., (2005) found that individual-level studies at workplaces tended to control for personal characteristics such as gender, age, work experiences duration and educational attainment. Similarly, Greenberg and Wiethoff (2001) stated that research has shown that these variables affect attitude behaviors at workplaces. Thus, effects of the basic

demographic profile of the respondents such as gender, age, and educational level will be controlled by the inclusion technique as described above. Therefore, data on these demographic variables are collected using a questionnaire.

Besides, the possible effects of the contextual variables regarding the firm and its environment (e.g. size, age, ownership, international presence or scope of operations, working hours etc.) will be controlled using the elimination technique that the proposed study will consider only one organization as a typical case which Total Ethiopia. Generally speaking, case design was employed to capture any internal environmental differences of the firms by selecting a typical (interms of size, age -years of operations, etc) firm in the industry.

3.6. The Data: Sources, Types and Collection Procedures

As most other studies, there are primary and secondary sources of data to carry out empirical investigation on GPSCM competency and the selected determinant factors. However, primary data, as collected from the study participants through questionnaire, was dominantly used in this study. Besides, secondary sources of data such as company, industry and national reports will be also used.

Particularly, primary data was collected from the individual respondents using the self administered questionnaires. Self-administered questionnaire, among other data collection techniques/ tools, is selected after a through consideration of their strengths and weaknesses interms of the planned data for the present study. Convenience of the tool for the study purpose, the nature of data sought and cost are specific criteria used in the endeavor. Through the questionnaire, respondents were asked to rate their own competence for global petroleum SC operations and style of learning by doing in their day to day practices. Besides, they were requested to rate the learning cultural context of the Total Ethiopia interms of the specific indicators of a learning organization. Accordingly, the questionnaire has been designed to capture all these information (Annex A). In addition to the cover letter, the questionnaire has two parts. The first part comprises items related to socioeconomic background information of the respondents. The second part of the

questionnaire comprises items that are related to assessing the organizational learning culture, personal style of learning by doing based on the CVFI and finally the global petroleum SC operations competency of the respondent.

The questionnaire is prepared in English Language; I did not see any relevance to translate it into the local language for the targeted respondents can understand English language too. Before administering the questionnaire to the whole respondents, it was pre-tested. After pre-testing the questionnaire, the final version will be prepared and administered for data gathering. Permission from the Total Ethiopia management and consent from the individual respondents were secured before dispatching the questionnaire. Thus, the questionnaire was dispatched to voluntary respondents only. Appropriate and careful follow-up was undertaken to enhance response rate of the survey. A copy of the questionnaire has been annexed with this thesis report (Annex I).

3.7. Reliability and Validity of the Instruments

The measurement instrument for each variable of the study is taken from the standard sources. The validity and reliability of these scales have been reported sufficient by different studies undertaken using these instruments. Thus, it is believed that the instruments are valid.

Yet, additional attempts were made to assure the validity and reliability of the instruments used. In order to assess internal consistency, reliability, Cronbach's alpha value was used to learn how well the items on each subscale reflected unitary constructs (i.e., the extent to which all items measured the same thing). The reliability of each scale measuring variables was tested by Cronbach's Alpha in order to determine the internal consistency of the scale.

3.8. Method and Procedure of Data Analysis

The data collected from the respondents was analyzed statistically. The data was carefully edited and logged to the computer program. Frequency tables are used to describe the distribution pattern of respondents along with pertinent demographic characteristics.

Mean/ average values of the responses are used to explore the nature of organizational learning culture of Total Ethiopia, personal learning by doing style and GPSC management competency level of the respondents. An additive single index of organizational learning system, each dimensions of the personal learning by doing style, GPSC operation competency of the respondents, was used to describe the dependent and independent variables of the study.

Finally, a hierarchical multiple regressions was used to address the hypotheses for the analysis involves assessing the role of the independent variables in the dependent variable after controlling for selected demographic variables of the respondents. Hierarchical multiple regression analysis is suitable for such endeavors as in hierarchical multiple regression variables are not entered simultaneously but in logical order which is the practice whenever the study involves control variables. In such statistical analysis, control variables are typically entered into the hierarchical regression before other independent variables in order to determine their explanatory power exclusive of the independent variables (Tabachnik & Fidell, 2001). Therefore, the hierarchical multiple regression model used in the analysis of this study can be as presented as follows:

Step1 $Pi = a + \beta_1 C_i + €$

Step 2 $Pi = a + \beta_1 C_i + \beta_2 D_i + €$

Where P_i=Dependent Variable (Global SC Operations Competence)

C_i=Control variables (sex, experience, and educational qualification)

D_i=Independent Variables (Organizational Learning + Personal Learning by doing)

Before running the model, all necessary assumption tests were carried out and the suitability of the data for multiple hierarchical regression analysis was verified.

R^2 , indicates the degree of the goodness of fit for your estimated multiple regression equation. It can be interpreted as how good a predictor your multiple regression equation is likely to be. It represents the proportion of the variability in the dependent variable that can be explained by your multiple regression equation. R^2 change reflects the newly added degree of predictability by each added variable to the explanation reflected in R^2 whereas; the b-values stated by Field (2009), of the multiple hierarchical regressions tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant.

The F-test, F-change test, t-test are used to work out the probability of the relationship represented by your regression analysis having occurred by chance at a specified degrees of freedom and a significance level. The F-test is used to find out the overall probability of the relationship between the dependent variable and all the independent variables occurring by chance. The F-change test was used to compute the significance of each added variable to the explanation reflected in R^2 (Garson, 1998). In- contrast, the t-test is used to find out the probability of the relationship between each of the individual independent variables and the dependent variable occurring by chance. For all tests, a 0.05 significance level was used at a specified degrees of freedom.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents the data, analysis methods, results and discussions of these results inline with the research questions. The chapter, thus, is organized into parts as: description of the demographic profile of the respondents' as well as the extents /levels of dependent and independent variables based on descriptive statistical analyses. Reliability tests of the measurement scales are also presented in the chapter. The final part of the chapter presents and discusses results of the regression statistical analyses.

4.2. Demographic Profile of the Respondents

Though all employees and managers of the Total Ethiopia head quarter (i.e.,222) respondents were opted to participate in the study, only 140 of them were found to be accessible and willing to participate in the study. Among these participants, four of them were not able to fill the questionnaires successfully. Specifically, the number of items rated by these four respondents was below half of the total number of items in the questionnaire. Thus, these four questionnaires were discarded. The descriptive statistical analysis of the data collected from 136 respondents was undertaken as depicted in Table 4.1.

Table 4.1: Socio-demographic Profile of the Respondents

Demographic Variable	Subcategories	Frequency	Percent	Valid percent	Cumulative Percent
Sex	Female	31	22.8	23.7	23.7
	Male	100	73.5	76.3	100.0
	Missing	5	3.7		
	Total	136	100.0	100	
Educational level	Degree and below	87	64.0	65.4	65.4
	Master or above	46	33.8	34.6	100.0
	Missing	3	2.2		
	Total	136	100.0	100	
Experience in years	Less than 5	25	18.4	18.5	18.5
	5 or more	110	80.9	81.5	100
	Missing	1	0.7		
	Total	136	100	100	

Source (Survey, 2021)

When we look at the distribution of respondents interms of the first demographic variable namely sex; 100 (76.3%) were male while female respondents were 31 in number and constitute (23.7%) of the total respondents. Distribution of the respondents in-terms of the educational qualification shows that 87 (65.4%) of them were qualified at the first degree or lower levels, and 46 (34.6%) were qualified at master degree or higher levels. Likewise, the distribution of respondents interms of work experiences show that 110 (81.5%) of the respondents are experienced for 5 years or above, while 25(18.5%) of them were reported less than 5 years of work experience.

4.3. Reliability Analyses of the Measurement Scales

Though the instruments used to measure each variable in the study are established instruments, it was important to ensure the instruments continued to be a reliable instrument for this group of respondents. As can be seen from Table 4.2 below, the

Cronbach's alpha reliability coefficients indicate the scales have a moderate level of internal consistency and reliability. Infact, for the three subscales of CVFI deleting selected item, one from each, has been undertaken.

The calculated Cronbach alpha of the overall measure of the dependent variable (GPSCMC with two dimensions i.e., PSCM and Global Readiness / orientation) scale is found to be .832. the value shows that the scale containing all the 35 items is reliable that there was no need to reduce items from the original scale items. Similarly, the reliability test result for the Organizational Learning scale of 21 items altogether entered is .873. Hence, no item is deleted.

Table 4.2: Measurement Scale Reliability Tests

	Variable Measured	Cronbach alpha	Items deleted
1	Global Petroleum Supply Chain Competency	.83	-
2	Organizational Learning Culture	.87	
3	Competing Values Framework:		
	Collaborate-Focused Work Behavior	.68	1
	Compete oriented behavior	.7	-
	Creative work behavior	.7	1
	Control oriented work behavior	.62	1

Source (Survey, 2021)

The other instrument used for the study was the Competing Values Framework Instrument (Lawrence et al., 2007). The CVFI utilizes a 7-point Likert type response scale of *Never* (1) to *Almost Always* (7). The instrument consists of four major subscales (Collaborate, Crate, Control, and Compete) of 5 items each. The reliability test results of the managerial competing value orientations are as follow. The computed Cronbach alpha value for the creative oriented work behavior measurement scale is .696 after deleing one item from the original scale items. The item deleted reads as how often has the manager successfully involved in inspiring people to be creative. The Cronbach alpha value for the competition oriented managerial behavior scale is 7 with no item deleted. The Cronbach alpha value for the scale measuring the Control Oriented behavior after deleting one item from the original five items of the scale is .62. The item deleted reads as "How often have you successfully engaged in seeing that procedures are understood". Similarly, the Cronbach alpha for the scale measuring the Collaboration orientation of the respondents is, again

after deleting one item, .7. The item assessing "How often has the manager successfully involved in recognizing people's feelings" is the deleted item.

As stated in the preceding chapter of the thesis, Dennison, Hooijberg and Quinn (1995)[i] used the peer-reported version of the CVFI and recorded evidence of instrument reliability for a sample of 176 executive managers from 84 different public utilities. Reliability coefficients ranged from .61 to .87. On the other hand a study by Gankofskie (2011)[ii] reported that scale reliabilities of the instruments measuring collaborate, create, control, and compete variable of the CVFI were .917, .937, .946 and .929 respectively.

4.4. Descriptive Analysis of the Variables

This section presents simple descriptive statistics (mean and standard deviation values) of both dependent variable (global petroleum supply chain management competences / orientation of the respondents) as well as independent variables (the learning culture of Total Ethiopia and personal learning by doing/work practices of the respondent employees and managers). The responses of respondents towards the scales measuring each variables have been aggregated and relevant statistical values (i.e., mean score and standards deviations) have been computed as presented in Table 4.2.

Table 4.3: Descriptive Statistics of the variables

Variable	Mean	Std. Deviation	N
Global Petroleum Supply Chain Competency	5.8	.58	136
Organizational Learning	4.2	.92	136
Compete Work Behavior	4.3	.66	136
Control focused Work Style	4.0	.61	136
Create Work Style	5.1	.83	136
Collaborate focused Work Behavior	4.8	.71	136

Source (Survey, 2021)

These descriptive statistics values were analyzed based on the recommendation of Best (1977) by adjusting the ranges to a 7-point Likert scale. Accordingly, on a 7-point point Likert scale, the mean score from 1.00-2.52 is lowest, from 2.53-3.65 is low, from 3.66-4.77 is average/moderate, from 4.78-5.88 is good/high, and from 5.89-7.00 has been considered very good/ very high.

As can be seen in the above table, respondents have reported a high level of Global Petroleum Supply Chain Management Competency (mean=5.8, std=0.58). The high /good level of the competency suggests that the respondents are sufficiently ready for global operations. It is an indicative that the employees and managers of Total Ethiopia have perceived the importance of global supply chain management competency for their future effectiveness is high.

On the other hand, the scores computed based on the perceptions of respondents pertaining to the learning culture of the Total Ethiopia was reported to be moderate (Mean=4.2; std=0.92). Hence, the respondents have indicated that the learning culture of Total Ethiopia for global operations or for any other changes and adaptabilities is moderate. This may mean that the Total Ethiopia has not yet created a favorable environment for learning for global operations though globalization is, atleast believed by many scholars and authors, reaching to the every life of us.

“Managers learn by managing” is an adage that shaped the theoretical framework of this thesis fundamentally. The adage vividly indicates that practical experiences relevant for the development of managerial competences, knowledge, skills, etc. To validate the statement, thus, the real experiences of the respondents were measured via Competing Value Framework model. As stated by the Competing Values Company on its website, the Competing Values Assessment provides a detailed and accurate measurement of the values and beliefs driving leadership, teams and enterprise-wide employees. Assessed through self-reports of employees and managers, the role behavior of Total Ethiopia employees and managers is depicted in table 4.3 above on the four subscales of CVFI. Accordingly, the role behavior of the respondents assessed on each subscale show their decisions and actions are driven mostly by create focused behavior (Mean=5.1), collaborate oriented behavior (Mean=4.8), complete focused behavior (Mean=4.3), and control oriented behavior

(Mean=4.00), consecutively. The arrangement of these scores shows how employees and managers at Total Ethiopia are creating values, as well as how they achieve results. Specifically, the pattern of these CVF behaviors indicate that the employees and managers at TOTAL Ethiopia are creating values mostly through create style closely followed by collaborate, compete and control styles consecutively. The pattern is also an indicator of the basis (interms of values and beliefs) upon which their actions and decisions are often founded. Consequently, it is revealed that their actions and decisions are dominantly emanating from create, closely followed by collaborate, compete and finally by control focused actions and practices.

Besides, the values of all dimensions of the CVFI are found to be greater than "moderate" level in the Total Ethiopia S.C. Thus implies that the company's practices /approaches to human capital development is rigorous and appropriate for its long-term success. As stated by the-CVF Leadership, developing individual leaders, retaining highly valued employees, and fostering a highly energized workforce require attention to individual attributes, and the Competing Values Framework helps identify the importance of a comprehensive view of individual factors for value creation. Focusing on a single motivational technique, one incentive system, or a lone leadership approach without consideration for other approaches suggested by the remaining quadrants inhibits long-term success.

4.5. Inferential Analyses of the Data via Hierarchical Multiple Regression

4.5.1. Introduction

This subsection presents the procedures followed in testing the study hypotheses using Hierarchical Multiple regression along-with brief description of the analytical tool used.

Hierarchical multiple regression is a variant of the generic multiple regression analysis. As stated by Cohen,J., Cohen,P., West and Aiken(2003) multiple regression analysis is broadly applicable to hypotheses generated by researchers in the behavioral sciences, health sciences, education, and business. Cohen et al (2003) further described that the multiple regression system has properties that make it a powerful analytic tool. It yields measures of the magnitude of the total effect of a factor on the dependent variable as well as of its partial (unique, net) relationship, that is, its relationship over and above that of

other research factors. It is also regarded as a complete and comprehensive apparatus for statistical hypothesis testing, estimation, construction of confidence intervals, and power analysis. Besides, multiple regression is a major tool in the methods of causal analysis. Thus, it is a versatile, all-purpose system of analyzing the data over a wide range of sciences and technologies.

The hierarchical multiple regressions was preferred to address the validity of the hypotheses as the analysis involves assessing the effect of an independent variable on a dependent variable after controlling for selected demographic variables of the respondents. Hierarchical multiple regression analysis is suitable for such endeavors for the variables are not entered simultaneously but in logical order during the analysis procedure. Yet determining the order of entry is generally based on logical or theoretical considerations. Control variables often entered first because according to Tabachnik and Fidell (2001) control variables are typically entered into the hierarchical regression before other independent variables in order to determine their explanatory power exclusive of the independent variables. F-tests are used to compute the significance of each added variable to the explanation reflected in R^2 (Garson, 1998) at .05 level of significance. On the other hand, as stated by Field (2009), b-values of the multiple hierarchical regressions tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The significance of b-values is used to test the hypothesis. By employing similar procedures, hierarchical multiple regression model has been fitted herein the thesis.

Particularly, on SPSS v20, I have entered the variables in steps or blocks in a predetermined order. In the first block, I did 'force', sex, experience and educational qualification altogether into the analysis. This has the effect of statistically controlling for these variables. In the second step I did enter the other independent variables into the model as a block. This removes the possible effects of the demographic variables; and then verifies whether the block of independent variables are still able to explain some of the remaining variance in our dependent variable. As suggested by many SPSS books, often researchers enter variables as related sets or blocks. Likewise, I have entered all demographic variables in a first step, and then the variable that are the focus of my thesis (both personal and

organizational learning factors as a block all of them entered simultaneously) as a second step. I did specify the SPSS default "Enter" as a "Method" for each step.

In the following sections, the output of the regression analysis has been presented and described. For the sake of clarity, however, results of the assumption tests that have been undertaken in the process of fitting the data to the regression model has been presented before the model per se. both pre and post modeling assumption tests have been presented altogether to avoid fragmentation of ideas.

4.5.2 Checking Assumption Tests and Initial Data Screening

Before statistical tests are applied to the data, it is important to consider if the assumptions behind the tests are in fact supported by the data. As stated by Cohen et al (2003) all statistical procedures including multiple regression requires that assumptions be made for their mathematical development. Violation of an assumption may potentially lead to one of two problems: first and more serious, the estimate of the regression coefficients may be biased; and second, only the estimate of the standard error of the regression coefficients may be biased.

Tabachnick and Fidell (2007) have recommended the following major assumptions to be verified before running any Multiple regression analysis. Based on the recommendation, I have also verified these assumptions before interpreting the output of the analysis in this thesis.

Sample size

Sufficient samples in an empirical study may help in improving the generalisability or repeatability of the results with other samples thereby increasing the scientific value of the study. The suggestions of different authors concerning the number of cases required for multiple regression analysis are different, however. For example, Stevens (1996) as cited in Cohen et al (2003) recommends that 'for social science research, about 15 participants per predictor are needed for a reliable equation'. Field (2009), on the other hand, recommends a formula $N > 50 + 8m$ (where m = number of independent variables) for calculating a minimum sample size requirements. Accordingly, in this thesis, the adequacy

of sample size has been verified. Accordingly, the sample size considered in this thesis is 136 which is sufficient. Specifically, the number of independent variables (m=5) in the thesis, the minimum size per the formula recommended above is (50+(8*5)=90); which is less than the actual sample size considered by this thesis.

Multicollinearity and singularity

This refers to the relationship among the independent variables. Multicollinearity exists when the independent variables are highly correlated (r=.9 and above). Singularity occurs when one independent variable is actually a combination of other independent variables (e.g. when both subscale scores and the total score of a scale are included). If there is collinearity between predictors, it becomes impossible to obtain unique estimates of the regression coefficients. One way of testing collinearity problem is the variance inflation factor (VIF*)*. The VIF indicates whether a predictor has a strong linear relationship with the other predictor(s). Although there are no hard and fast rules about what value of the VIF should cause concern, Myers (1990) as cited in Field (2009) suggests that a value of less than 10 is a good value. Similarly, Landau and Everitt (2004) as cited in Field (2009) stated that the VIFs are inversely related to the tolerances with larger values indicating involvement in more severe relationships (according to a rule of thumb, VIFs above 10 or tolerances below 0.1 are seen as a cause of concern).

As depicted in the regression coefficient Table 4.6 in this report, the multicollinearities involving the explanatory variables of the final block of model are assessed. Specifically, the block/model selected in the second step of the procedure included control/demographic variable, and both personal learning by doing styles of employees and managers and the organizational learning culture as explanatory variables. So a multicollinearity and tolerances involving these variables have been assessed. The VIF and tolerance values of each explanatory variables are less than 10 and greater than 0.1 respectively. Thus, the multicollinearity assumption is not violated.

Outliers

Multiple regression is very sensitive to outliers (very high or very low scores). Checking for extreme scores should be part of the initial data screening process. I have done this for all the variables, both dependent and independent as used in the dissertation as part of data exploration. Additional procedures for detecting outliers are also included in the multiple regression program. Outliers on your dependent variable can be identified from the standardised residual plot that can be requested. Tabachnick and Fidell (2007) define outliers as those with standardised residual values above 3.3 (or less than –3.3). In the case of my data, the maximum value is 2.503 and the minimum is -2.279; as can be noted from the annex. Thus, no outlier value was found except that a single value that was wrongly entered. Besides, careful and proper editing were undertaken to eliminate outliers from the data.

Missing data imputation

As stated by APA (2010) missing data can have a detrimental effect on the legitimacy of the inferences drawn by statistical tests. For this reason, it is critical that the frequency or percentages of missing data be reported along with any empirical evidence and/or theoretical arguments for the causes of data that are missing. It is also important to describe the methods for addressing missing data, if any were used (e.g., multiple imputations). Though careful exploration was performed to identify missing values, none was found, yet. Hence, no action was taken to handle missing values (infact two questionnaires that were found only partially filled were discarded entirely as described earlier in the chapter).

Normality of the Dependent Variable

Regression model assumes that the dependent variable/s have normal distributions. AS stated by Field (2009) some people confuse this assumption with the idea that predictors have to be normally distributed. In fact, predictors do not need to be normally distributed **.** Hence, normality analysis of the criterion variable (global orientations/ readiness index) only has been checked as presented below**.** Schaefer(2015) a scale measuring the dependent variable had distribution characteristics that was acceptable with respect to skewness (< 1) and kurtosis (< 2), according to the guidance found in Tabachnick and Fidell (2001) with respect to sample sizes of 100 or more cases, and *z*-score distribution tables and rules

of thumb for curve analysis found in Howitt, and Cramer (2004). A visual inspection of histogram was made for the variable to assess the shape of its distribution against a normal curve. Its distribution approximated a normal curve (Figure B1.1: .Annex B). Thus, it is clear that the values of the dependent variable are normally distributed.

Table 4.4: Normality Test of the Dependent Variable

Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
-.211	.208	-.447	.413

Normally distributed residuals

Defined as the differences between the obtained and the predicted dependent variable (DV) scores, residuals are important variables in regression model diagnosis. It is assumed that the residuals in the model are random, normally distributed variables with a mean of 0. This assumption simply means that the differences between the model and the observed data are most frequently zero or very close to zero, and that differences much greater than zero happen only occasionally.

The histogram of the standardized residuals is useful for checking the assumption of normality of errors. To test the normality of residuals, we must look at the histogram and normal probability plot. Figure B1.2a annexed shows the histogram and Figure B1.2b is the normal probability plot of the data. The histogram looks like a normal distribution (a bell-shaped curve). A curve drawn on the histogram shows the shape of the distribution. Besides, the normal probability plot (p-p plot as annexed) also provides information about whether the residuals in the model are normally distributed. Thus, we can conclude that for the data, distribution is almost normal.

Linearity

Regressions can only accurately estimate the relationship between dependent and independent variable/s if the relationships are linear in nature. That is to say the mean values of the outcome variable for each increment of the predictor(s) lie along a straight line. Authors such as Pedhazur and Schemelkin (1991), and Cohen and Cohen et al., (2003) suggest three primary ways to detect non-linearity. The first method is the use of theory or previous research to inform current analyses. The second method of detecting curvilinearity is to routinely run regression analyses that incorporate curvilinear components (squared and cubic terms) or utilizing the nonlinear regression option. The third method, ofcourse the preferable one as noted by Montgomery et al., (2002) as cited in Field (2009), is examination of residual plots (plots of the standardized residuals as a function of standardized predicted values).

Thus, to check whether the independent variables (the organizational learning culture as well as individual respondents learning by doing behaviour) are linearly associated with the dependent variable in this thesis, residual plots against the fitted values were plotted. Both the overall and partial plots were examined. The plots of the residuals against the control/demographic variables and the dependent variable are not used herein the thesis for they will not be informative about linearity because they are nominal (qualitative) variables.

Thus, from the figure B1.3 depicted in Appendix B , it could be easily understood that the observations do lie on the straight line of the graph or no observations far from the line and as a result this reflects that the linearity assumption is fully met. The partial regression plots are also included in the analysis to verify the relationship pattern of each independent variable with the dependent variable separately. For example figure B1.3a is the partial plot exhibiting a positive relationship of the organizational learning variable to global petroleum supply chain management competency (DV).

Homoscedasticity

Another requirement of regression analysis, refers to the extent to which the data values for the dependent and independent variables have equal variances. Homoscedasticity assumption states that at each level of the predictor variable(s), the variance of the residual terms should be constant. This just means that the residuals at each level of the predictor (s) should have the same variance (homoscedasticity); when the variances are very unequal there is said to be heteroscedasticity. According to Tabachnick and Fidell (2001) slight heteroscedasticity has little effect on significance tests; however, when heteroscedasticity is marked it can lead to serious distortion of findings and seriously weaken the analysis. This assumption can be checked by visual examination of a plot of the standardized residuals (the errors) by the regression standardized predicted value. Figure B1.3 show a plot of the study and as it can be observed from the figure the plot of fitted value against the standardized residuals do vary without any systematic pattern. The error terms are varied constantly without any increment or decrement. Thus this nonsystematic or random pattern indicates the presence of homoscedasticity and the assumption has been achieved.

Independence of Residuals errors

Multiple regression assumes that the residuals are independent. For any two observations the residual terms should be uncorrelated (or independent). As stated by Cohen et al(2003) index plots (also termed casewise plots) provide a simple method for exploring whether the residuals are related to some systematic feature of the manner in which the data were collected. The authors stated further that a more precise statistical measure of serial dependency is provided by a measure known as *autocorrelation.* This assumption can be tested with the Durbin–Watson test, which tests for serial correlations between errors. Specifically, it tests whether adjacent residuals are correlated. The test statistic can vary between 0 and 4; whereas as a very conservative rule of thumb, values less than 1 or greater than 3 are definitely cause for concern (Field, 2009). The Durbin–Watson test in the present instance yielded a value of 2.6 (the "Model summary Table" (Table 4.5). on page 57 the thesis report) which is within safe limits.

Thus, we could summarize by saying that the model appears, in most senses, to be both accurate. An indepth presentation and description of the results are given in the following section.

4.5.2. The Regression Model Fit

Having checked the assumptions of multiple regression that they all are met satisfactorily or said safely that having confirmed that there is no worth considering violation of the assumptions, interpreting the output of the hierarchical multiple regression analysis (as carried-out via SPSS v20) is continued. This section, thus, contained interpretation of the analysis output so that the efficacy of the model (that contains a set of demographic variables as a control variables and set of personal and organizational learning culture, as predictors, to explain the global petroleum supply chain management competency variable) gets evaluated.

As mentioned previously, the hierarchical multiple regressions used in this thesis involved two steps. The first step contains control variables altogether (sex, educational qualification and work experience in years) and represented in model1. Step two of the hierarchical regression includes main predictors (organizational learning culture and personal competing value orientations/personal learning style by doing) as represented in model 2. As stated earlier in the chapter, I did specify the SPSS default "Enter" as a "Method" for each step.

Relevant outputs of hierarchical multiple regressions analysis to serve the purpose just mentioned above (evaluating the model) are presented in the following tables: a "Model Summary" table and an "ANOVA" table. The former includes for model1 and model2 each, the multiple correlation coefficients (*R)*, its square (*R*2), and an adjusted version of this coefficient as summary measures of model fit. As Table 4.5 below indicates, ANOVA tests were performed to check the significance of the models in explaining the variation for the dependent variable.

Table 4.5: Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.110[a]	.012	-.012	.58216	.012	.504	3	124	.680	
2	.559[b]	.312	.266	.49574	.300	10.400	5	119	.000	2.178

a. Predictors: (Constant), educational level, sex , experience in years

b. Predictors: (Constant), educational level, sex , experience in years , Organizational Learning , Learning by doing Collaborative Work Style, Learning by doing Competitive Work Style, Learning by doing Controlling Work Style, Learning by doing Creativity Work Style

c. Dependent Variable: Global Petroleum Supply Chain Competency

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.513	3	.171	.504	.680[a]
	Residual	42.025	124	.339		
	Total	42.538	127			
2	Regression	13.293	8	1.662	6.761	.000[b]
	Residual	29.246	119	.246		
	Total	42.538	127			

a. Predictors: (Constant), educational level, sex , experience in years

b. Predictors: (Constant), educational level, sex , experience in years , Organizational Learning , Collaborate Work Style, Compete Work Style, Control Work Style, Creative Work Style

c. Dependent Variable: Global Petroleum Supply Chain Competency

As depicted in the above Table 4.5, model 1 refers to the first block of variables that were entered (control variables) to the hierarchical regression analysis while model 2 contains all variables that were entered in both blocks. The table shows that all control variables, as entered into block one, explain 1.2% of variance in the dependent variable. Likewise, it shows that all study variables (control as well as main predictors), as entered into the model

on the second block, explain a total variation of 31.2% variance in the global petroleum supply chain competency of the respondents.

But, since the main target of the study is to know how much variation is explained by the main predictors only, the column labeled R^2 change has been used for the purpose. In Model 2, R^2 change is indicating after controlling for demographic variables, the independent variables (the personal and organizational learning factors) significantly contributed to the model ($\Delta R^{2=}0.300$, $P<0.01$). This means our variables of interest (the set of main predictors) contributed an addition of 30.0% variation on the global PSCM Competency development of the respondents even after the effects of the control variables (sex, educational qualification, and length of work experience) is statistically controlled. For this variation, the F change is statistically significant (.000).

Furthermore, the Sig. F of 0.000 is statistically significant which belongs to the overall R^2 value for all variables used in the study. Hence, it could be concluded that the demographic variables as well as personal and organizational factors altogether explain 31.2% of the variance in the global PSCM competences. Besides, this shows that the model, which is used in this study, is well and significantly fitted.

4.5.3. Regression Coefficients

Once the significance and overall variation of the model on the dependent variable are determined, it is proper stage to see individual predictor's contribution to the variability of the dependent variable so that the most important variable could be identified. Besides, the relative contribution of each variable would be uncovered. We can find this information in the output box labelled Coefficients as depicted in the Table 4.6 below. Other detail information pertaining to the output of regression analysis has been annexed (please refer to Table A1.1)

Table 4.6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
2	(Constant)	3.087	.427		7.239	.000	2.243	3.932					
	Sex	.008	.106	.006	.080	.937	-.201	.218	.108	.007	.006	.953	1.050
	Experience in years	.015	.119	.010	.125	.901	-.220	.250	.030	.011	.010	.906	1.104
	Educational level	-.068	.095	-.056	-.719	.474	-.257	.120	-.002	-.066	-.055	.936	1.068
	Organizational Learning	.165	.050	.261	3.271	.001	.065	.264	.352	.287	.249	.904	1.106
	Compete Work Behavior	.054	.076	.062	.715	.476	-.096	.205	.241	.065	.054	.762	1.312
	Control Work Behavior	.031	.100	.033	.310	.757	-.168	.230	.351	.028	.024	.511	1.956
	Create Work Behavior	.200	.077	.286	2.606	.010	.048	.352	.468	.232	.198	.481	2.080
	Collaborate Work Behavior	.147	.068	.181	2.161	.033	.012	.282	.326	.194	.164	.819	1.221

a. Dependent Variable: Global Petroleum Supply Chain Mgt Competency

The table above, thus, gives regression coefficients, one for each explanatory variable. These coefficients provide the estimated change in the response variable associated with a unit change in the corresponding explanatory variable, conditional to the other explanatory variables included in the model remaining constant.

Referring to the column labelled Beta under Standardised Coefficients as depicted in the second row of the table of coefficients given above, evaluations of the unique contribution of each variables (when the overlapping effects of all other variables are statistically kept constant) are described as follow.

The coefficients for all demographic variables are not significant since all P-values are greater than 0.05 so that a unit (of their standard deviation) increases in each of them (i.e., a change from one category of the group to another) does not determine global petroleum supply chain management competency variances by a significant value different from zero.

The standardized coefficients corresponding to the other two variables (namely create-focused work behavior as well as collaborate focused work behavior) of personal factors are significant and positive indicating the prevalence of direct link between these personal factors and the extent of global supply chain management competency of the respondents. Besides, create focused behavior of the respondents is the most important variable to explain the global competency differences of these respondents, followed by collaboration, compete and control oriented work styles/ behaviors consecutively.

The unique contribution of organizational learning to the dependent variable is significant (p-value=.001<.05) indicating that organizational learning is statistically an important variable to predict the global supply chain management competency of the respondents.

4.5.4. Constructing the regression equation

Unlike the evaluation of the independent variables included in the model interms of their respective contribution in predicting the dependent variable, the unstandardised coefficient values listed as B in the coefficients table above is used in constructing a regression equation. The equation is presented as below.

$$GPSCMC = 3.087 + 0.165OL + 0.200creat + 0.147collb + \varepsilon$$

Where;

$GPSCMC\ is\ the\ Global\ Petroleum\ Supply\ Chain\ Management\ competency\ (DV);$

$OL\ is\ Organizational\ learning\ culturer\ (\ main\ predictor1);$

$collb\ is\ collaborate\ focused\ orientations\ (main\ predictor2);$

$creat\ is\ create\ focused\ work\ behaviour\ (main\ predictor\ 3);\ and$

$\varepsilon\ is\ an\ error\ term$

4.6. Hypotheses Testing and Discussion of the Results

As stated in Chapter I of the thesis report, about five hypotheses were formulated to be tested based on empirical data. Here below, thus, summary of the hypotheses test results is depicted (Table 4.7).

The significance of b-values is used to test the hypotheses at 0.05 level of significance. Again scanning the Sig. column of the coefficients table above, decisions were made in-line with each hypothesis.

Table 4.7: Test results of the Null Hypotheses

Hypothesis	Decision
Ho1: Organizational learning culture has no statistically significant contribution in developing global petroleum supply chain management competences.	Rejected
Ho2: Engagement in compete-focused practices has no statistically significant contribution in developing global petroleum supply chain management competences.	Failed to reject
Ho3: Collaborate-focused personal work behavior has no statistically significant contribution in developing global petroleum supply chain management competences.	Rejected
Ho4: Experiences in creative oriented tasks has no statistically significant contribution in developing global petroleum supply chain management competences.	Rejected
Ho5: Personal development on the control oriented behavior has no statistically significant contribution in developing global petroleum supply chain management competences.	Failed to reject

As indicated in the summary Table 4.7 above, the empirical data failed to support the first null hypothesis (Ho1). The hypothesis was formulated stating that the role of organizational learning culture in enhancing the development of global petroleum supply chain management competency is not statistically significant. Since the data fails to support the proposition, we may infer then that the thesis has produced evidence that organizational

learning culture does positively contribute to the development of global petroleum supply chain management competency of employees and managers of Total Ethiopia.

Likewise, Hypothesis III (H03) and Hypothesis IV (H04) are not supported. Thus, the research could not produce evidences from the experiences of the Total Ethiopia that Collaborative personal work style as well as Creativity oriented personal work style do contribute to the development of Global Petroleum Supply Chain management competency of employees and managers. On the contrary, Hypothesis II (Ho2) and hypothesis v (Ho5) have been rejected, that the contributions of each of the compete oriented personal work style and controlling oriented personal work styles to the development of global petroleum supply chain management orientation/ readiness of employees and managers of the Total Ethiopia is statistically not significant, means the contribution of each personal work style is not significantly different from zero.

CHAPTER FIVE
SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1. Summary and Conclusions

The main purpose of the study was to assess how the Ethiopian Petroleum supply chain is developing its competences for global operations; with a particular reference to the Total Ethiopia. As the development may take place for different competencies by different actors, the present study had emphasized the global supply chain management competency development for petroleum products. As presented in the first chapter of the thesis, enabling organizational environment (organizational learning culture) and individual factor (personal styles of learning by doing or competing values) have been hypothesized for influencing the global supply chain management competences of with particular reference to Total Ethiopia employees and managers.

Consistent with the theories of learning (organizational, managerial, and experiential learning theories); and empirical findings pertaining to body of knowledge related to determinants of management competency development (for global petroleum supply chain operations), it has been hypothesized that learning organizational culture as perceived by the respondents has no significant effect on their global SC Competency level (see Ho1). Similarly, personal factors (individual competing value orientations/ styles) were hypothesized to have no significant effect on management competency development for global petroleum SC as reflected in their competency extent (see Ho2 through Ho5).

A hierarchical multiple regression analysis has been used to test whether the collected data supports these hypotheses or not, as summarized here under. The first hypothesis sought to determine whether there was no statistically significant association between organizational learning culture and management competency learning for global petroleum supply chain operations by considering employees and managers of the Total Ethiopia. The null hypothesis was rejected. The other hypotheses were formulated to determine whether each competing value work styles predict the management competency development for global SC operations at the aforementioned case organization. Each contribution of compete, collaborate, creative and control work styles for global petroleum supply chain operations learning are hypothesized for statistical significance represented by H02, H03, H04 and H05 respectively. H03 and H04 null hypotheses were rejected.

Thus, it can be concluded that the validity of organizational learning culture and experiential learning for managerial development even for global petroleum supply chain operation competences is intact. These imply that to "grow" the global petroleum supply chain managers, the real life experiences as well as the creation of organizational learning culture that may include the formal educations initiatives are helpful. Yet, the validity of compete focused as well as control focused work roles for global petroleum supply chain managerial development requires further investigations.

5.2. Recommendations

Based on the conclusions drawn from the study, the following recommendations are forwarded:

1. Typically the thesis has uncovered that work roles helped the respondents develop global supply chain competences. Hence, petroleum supplying organizations in Ethiopia in general and Total Ethiopia in particular can develop the global supply chain operation competences of employees and managers by properly designing diversified work roles and experiential learning initiatives.
2. Though all types of competing values leadership styles contribute to the global learning of managers, competition oriented leadership style shall be encouraged most as it is the highest contributing factor as compared to the other dimensions of competing values leadership styles. The style is a reflection of the rational goal model. Thus, managers seeking to develop global competences should orient their behavior/ style by investing more time at doing these management activities as the planning element that would allow the manager to develop direction and to set goals for the department or entire organization.

3. For the organizational learning culture of the Total Ethiopia was rated moderate, yet lower than the personal learning by doing variable, relevant organizational practices should be transformed in an integrated manner. Particularly, Total Ethiopia should create systems to capture and share learning; create continuous learning opportunities, promote inquiry and dialogue; encourage collaboration and

team learning; empower people toward a collective vision; strongly connect the organization to its environment; and provide strategic leadership for learning.

4. As the finding revealed that there is no well established pattern of relationship between learning by doing compete work style and control-focused work roles and global petroleum supply chain competency level of employees and managers. The work roles in these areas should be reexamined that they could be enriched with learning opportunities.
5. As the organizational learning culture has a significant contribution to the global petroleum supply chain management competency development of the respondents, the organization needs to strengthen and continually enhance its learning practices/ systems.

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Appendix A

Questionnaire

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT MA PROGRAM

Questionnaire to Collect Data for Thesis Work

Dear respected respondent,

Enclosed is a questionnaire to collect data that will be used to study on **"Competency for Global Petroleum Supply Chain Management: the Case of Total Ethiopia" for the fulfillment of the requirements of Graduation in MA degree, department of Logistics and Supply Chain Management, School of Commerce, Addis Ababa University[1].**

Its purpose is purely academic and hence no part of your information would be disclosed to anyone else or can be used for other than research purpose. If otherwise I assure you that I would take all the responsibilities.

To realize the objective, your candid and prompt response is very important hence I request your kind cooperation.

Thank you for your participation in this study!

Sincerely,

[1] Please note the following key definitions as used in this questionnaire:

- ***Supply chain management*** refers to a set of approaches utilized to efficiently integrate suppliers, refineries, depots/warehouses, stores and retailers, so that petroleum products are produced and distributed at the right quantities, to the right locations, at the right time, in order to minimize system wide costs while satisfying service level requirements.
- ***Competency*** is the capability to apply or use a set of related knowledge, skills, and abilities required to successfully perform critical work functions or tasks in a petroleum supply work setting.

Alpha Adamu

Part I: Competing Values Assessment

Direction: This part of the questionnaire consists of 20 questions related to competences that you need to meet the challenges of complexity, ambiguity, and paradox that characterize the world today. For each item stated below, please indicate how often you have successfully engaged in the activity using the following scale.

Never	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Almost Always
1	2	3	4	5	6	7

Please note that this questionnaire is not designed to provide a final evaluation of your ability. It is designed to provide a"snap-shot" profile, based on your perceptions of your current experience, strengths, and weaknesses. Some items refer to general activities that you may do regularly, such as recognizing people's feelings. Others items refer to more specific activities and tools that you may not have had any experience with yet. If you have not had a chance to engage in the activity specified or is unfamiliar with the tool or technique mentioned, you should give that item a rating of 1– Never.

Your Rate	No	**How often have you successfully engaged in . . .**
	1.	launching important new efforts.
	2.	inspiring people to be creative.
	3.	showing an appetite for hard work.
	4.	emphasizing the need to compete.
	5.	seeing that procedures are understood.
	6.	providing fast responses to emerging issues.
	7.	keeping projects under control.
	8.	maintaining an open climate for discussion.
	9.	making sure that everyone has a plan to help them develop.
	10.	recognizing people's feelings.
	11.	communicating my expectation that people need to get the details of their work right.
	12.	identifying the changing needs of customers and others with whom I negotiate.
	13.	recognizing when one source of power is likely to be more useful than another source of power.
	14.	deciding when a face-to-face interaction is more appropriate than an email, phone call, or paper memo.
	15.	avoiding prematurely smoothing over constructive task-related conflicts.

	16.	improving performance by appropriately applying the concepts of division of labor and specialization.
	17.	identifying goals that are not aligned vertically or laterally in the organization.
	18.	knowing my audience and having a clear understanding of my purpose when I communicate.
	19.	reducing resistance to change.
	20.	picking the right people to work on a cross-functional team.

Part II: Petroleum products Supply Chain Management Competency Survey

Direction: Please evaluate your comfort with each competency listed below. Indicate your current comfort level with each competency below using the following scale:

Not at all	Very low	Low	Acceptable	Good	Very Good	Excellent
1	2	3	4	5	6	7

Right now, my comfort level with this competency is . . .	No	Supply Chain Management competency
	1.	Design a responsive, agile and efficient supply chain that has the ability to deliver Petroleum/LNG products with short lead times at low cost.
	2.	Design effective structure of petroleum supply chain.
	3.	Formulate effective supply chain strategy- the total pattern of decisions that shape the long-term capabilities of the supply chain and their contribution to overall strategy.
	4.	Undertake supply chain planning- the determination of a set of policies and procedures that govern the operation of a supply chain.
	5.	Apply a total systems approach to designing and managing the entire flow of information, materials, and services — from producer, suppliers, through plants and warehouses, and finally to the customer.
	6.	Ensure efficient use of transportation resources while meeting the needs of the customer.
	7.	Integrate movement demands with vehicle resources.
	8.	Plan, schedule and control activities related to mode, vendor and movement of stock/inventories into and out of depots.
	9.	Balance supply with demand, considering both lead time and demand variability created by supply patterns not matching demand patterns.

	10.	Develop strategies such as dual sourcing, buffering, and forward buying that minimize financial impact uncertainties such as timing, pricing, and catastrophic events.
	11.	Understand current industry and government regulations governing sustainability.
	12.	Apply sustainable solutions.
	13.	Design and periodically review of inbound and outbound transportation networks, all types of depots/warehouses by number, location, size, layout and optimum mix of stock/inventory levels per location to facilitate the effective and efficient supply of petroleum products.
	14.	Choose shipping methods, considering the trade-offs between costs and benefits.
	15.	Receive, store, and ship petroleum products to and from production or distribution locations by incorporating warehousing activities.
	16.	Develop and implement a formal logistics strategy.
	17.	Obtain, refine/produce, store and distribute petroleum products in the proper places and in the proper quantities.
	18.	Manage the forward and reverse movement, handling, and storage of fuel products between origin and destination points.
	19.	Comply with international regulations in decision making in the distribution system, including customs regulations; trade tariffs and duties; security regulations; and trade agreements.
	20.	Effectively locate and source key suppliers, while analyzing the total cost associated with procuring petroleum products.
	21.	Focus on developing and maintaining long-term relationships with partners who can help your organizations and end users meet their goals.
	22.	Collect and analyze of information designed for sales and marketing support to understand and support existing and potential customer needs.
	23.	Establish improvement initiatives focused on the reduction or elimination of waste in all areas of the supply chain.
	24.	Undertake improvements and upgrades to a process in search of excellence.
	25.	Apply quality systems, TQM, ISO etc .

Part III: Global Readiness Index

Direction: Please rate yourself on each of the following items to establish a baseline measurement of your readiness to participate in the global supply chains of petroleum products.

Rating Scale:

Not at all	Very poor	Poor	Acceptable	Good	Very Good	Excellent
1	2	3	4	5	6	7

Your Rate	**No**	**Statement**

	1.	I understand my own culture in terms of its expectations, values, and influence on communication and relationships.
	2.	When someone presents me with a different point of view, I try to understand it rather than attack it.
	3.	I am comfortable dealing with situations where the available information is incomplete and the outcomes unpredictable.
	4.	I am open to new situations and am always looking for new information and learning opportunities.
	5.	I have a good understanding of the attitudes and perceptions toward my culture as they are held by people from other cultures.
	6.	I am always gathering information about other countries and cultures and trying to learn from them.
	7.	I am well informed regarding the major differences in government, political, and economic systems around the world.
	8.	I work hard to increase my understanding of people from other cultures.
	9.	I am able to adjust my communication style to work effectively with people from different cultures.
	10.	I can recognize when cultural differences are influencing working relationships and adjust my attitudes and behavior accordingly.

Part IV: Organizational Learning

Direction: Rate the culture of your organization/ Total Ethiopia on the following 7 point scale:

Never	Very Seldom	Seldom	Occasionally	Frequently	Very Frequently	Almost Always
1	2	3	4	5	6	7

Your Rate	No	**Statement**
	1.	In my organization, people help each other learn.
	2.	In my organization, people are given time to support learning.
	3.	In my organization, people are rewarded for learning.
	4.	In my organization, people give open and honest feedback to each other.
	5.	In my organization, whenever people state their view, they also ask what others think.
	6.	In my organization, people spend time building trust with each other.
	7.	In my organization, teams/groups have the freedom to adapt their goals as needed.
	8.	In my organization, teams/groups revise their thinking as a result of group discussions or information collected.

	9.	In my organization, teams/groups are confident that the organization will act as their recommendations.
	10.	My organization creates systems to measure gaps between current and expected performance.
	11.	My organization makes its lessons learned available to all employees.
	12.	My organization measures the results of the time and resources spent on training and development.
	13.	My organization recognizes people for taking initiative.
	14.	My organization gives people control over the resources they need to accomplish their work.
	15.	My organization supports employees who take calculated risks.
	16.	My organization encourages people to think from a global perspective.
	17.	My organization works together with the outside community to meet mutual needs.
	18.	My organization encourages people to get answers from across the organization when solving problems.
	19.	In my organization, leaders/managers mentor and coach those they lead.
	20.	In my organization, leaders/managers continually look for opportunity to learn.
	21.	In my organization, leaders/managers ensure that the organization's actions are consistent with its values.

Part V: Socio-Demographic Information of the Respondent

Direction: Please indicate your answer for general information by ticking (√) in the blank space.

1. Sex Male _____ Female _____
2. Age 18-25 _____ 26-35 ____ 36-45_____ > 45 _____
3. Qualification Please indicate your highest education level: (tick one)

   High school or Lower _____ Diploma _____
   Bachelor's Degree_____ Master Degree _____ PhD _____

4. For how many years did you work for this organization?

   Less than 2 _____ years 2 to 5 years _____
   6 to 10 years _____ More than 10 years _____

5. Current Position Managerial _____ Non Managerial _____
6. Marital status Married _____ Single _____

Thank you for your cooperation!

Appendix B

Tables and Charts

Tables

Table B1.1: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	5.714	.147		38.855	.000	5.423	6.005					
Sex	.144	.122	.106	1.180	.240	-.097	.385	.108	.105	.105	.989	1.011
Experience in years	.031	.135	.021	.226	.821	-.237	.299	.030	.020	.020	.958	1.044
Educational level	-.004	.110	-.003	-.035	.972	-.222	.214	-.002	-.003	-.003	.966	1.035
2 (Constant)	3.087	.427		7.239	.000	2.243	3.932					
Sex	.008	.106	.006	.080	.937	-.201	.218	.108	.007	.006	.953	1.050
Experience in years	.015	.119	.010	.125	.901	-.220	.250	.030	.011	.010	.906	1.104
educational level	-.068	.095	-.056	-.719	.474	-.257	.120	-.002	-.066	-.055	.936	1.068
Organizational Learning	.165	.050	.261	3.271	.001	.065	.264	.352	.287	.249	.904	1.106
Learning by doing Competitive Work Style	.054	.076	.062	.715	.476	-.096	.205	.241	.065	.054	.762	1.312
Learning by doing Controlling Work Style	.031	.100	.033	.310	.757	-.168	.230	.351	.028	.024	.511	1.956
Learning by doing Creativity Work Style	.200	.077	.286	2.606	.010	.048	.352	.468	.232	.198	.481	2.080
Learning by doing Collaborative Work Style	.147	.068	.181	2.161	.033	.012	.282	.326	.194	.164	.819	1.221

a. Dependent Variable: Global Petroleum Supply Chain Competency

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Organizational Learning	.345[a]	4.078	.000	.345	.991	1.009	.957
	Learning by doing Competitive Work Style	.232[a]	2.615	.010	.229	.968	1.033	.945
	Learning by doing Controlling Work Style	.356[a]	4.120	.000	.348	.945	1.059	.937
	Learning by doing Creativity Work Style	.471[a]	5.800	.000	.463	.958	1.044	.950
	Learning by doing Collaborative Work Style	.321[a]	3.753	.000	.321	.982	1.018	.958

a. Predictors in the Model: (Constant), educational level, gender , experience in years

b. Dependent Variable: Global Petroleum Supply Chain Competency

Table B1.2: Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions								
				(Constant)	gender	experience in years	educational level	Organizational Learning	Learning by doing Competitive Work Style	Learning by doing Controlling Work Style	Learning by doing Creativity Work Style	Learning by doing Collaborative Work Style
1	1	3.162	1.000	.01	.02	.02	.03					
	2	.570	2.355	.01	.05	.01	.90					
	3	.186	4.126	.01	.66	.42	.06					
	4	.082	6.213	.97	.27	.56	.00					
2	1	7.930	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.620	3.575	.00	.01	.00	.92	.00	.00	.00	.00	.00
	3	.201	6.282	.00	.97	.03	.03	.00	.00	.00	.00	.00
	4	.158	7.078	.00	.01	.90	.02	.01	.00	.00	.00	.00
	5	.041	13.906	.00	.00	.00	.00	.80	.05	.01	.00	.03
	6	.018	21.205	.05	.00	.00	.00	.00	.06	.12	.10	.52
	7	.016	22.483	.03	.00	.02	.02	.02	.64	.07	.18	.07
	8	.009	30.094	.51	.01	.03	.00	.08	.21	.31	.20	.15
	9	.007	33.214	.40	.00	.01	.00	.08	.04	.49	.51	.22

a. Dependent Variable: Global Petroleum Supply Chain Competency

Table B1.3: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	5.1328	6.5728	5.8415	.32141	127
Residual	-1.12960	1.24071	.01647	.47828	127
Std. Predicted Value	-2.209	2.242	-.018	.993	127
Std. Residual	-2.279	2.503	.033	.965	127

a. Dependent Variable: Global Petroleum Supply Chain Competency

Charts

Figure B1.1: Normality Distribution Curve of GPSCM Competency (DV)

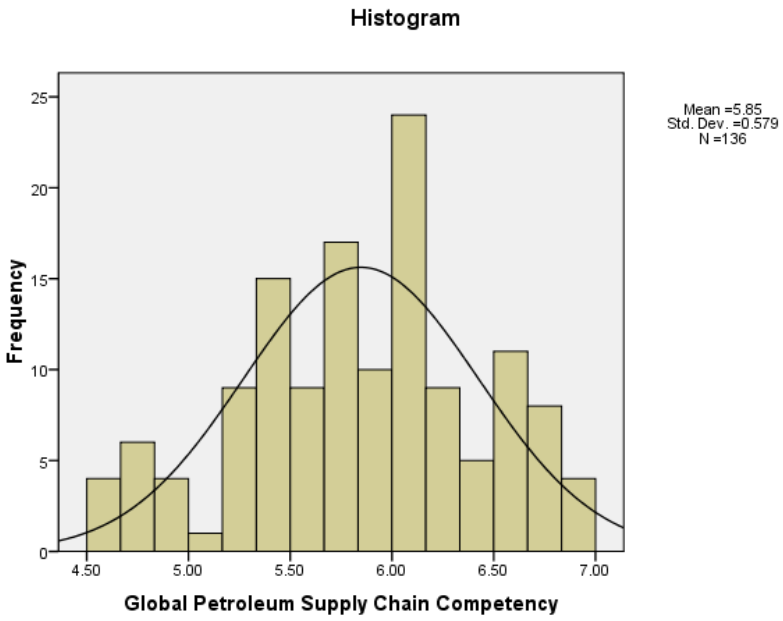


Figure B1.2a: Histogram of the Residuals

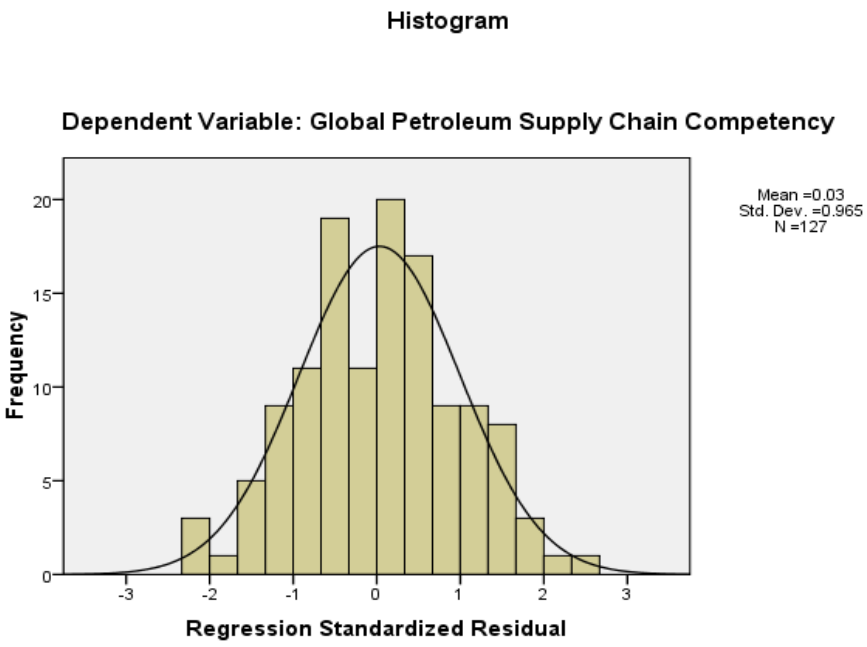


Figure B1.2b: P-P plot of Residuals

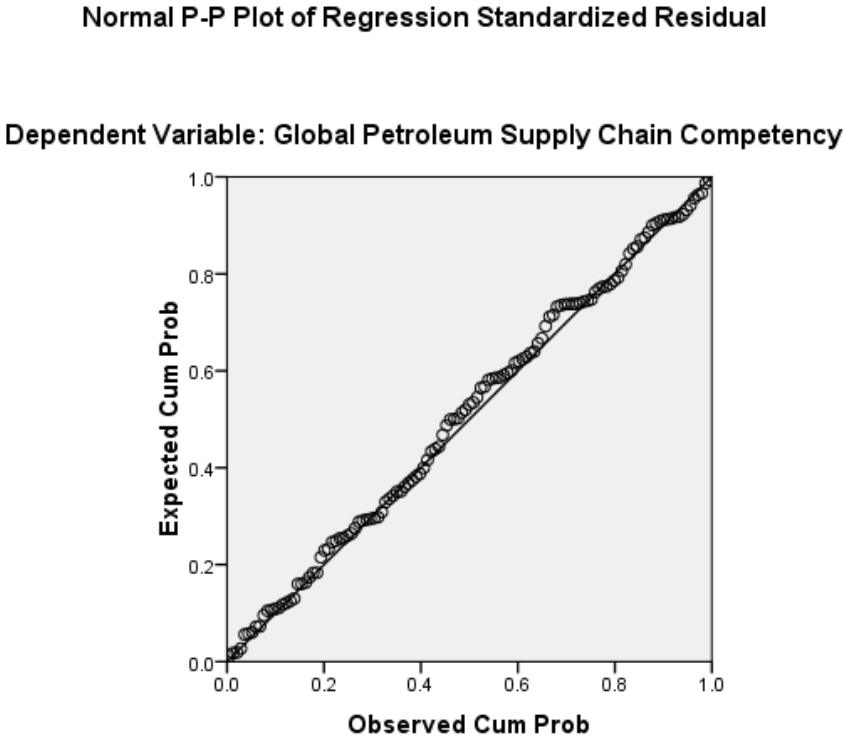


Figure B1.3. Scatter Plot

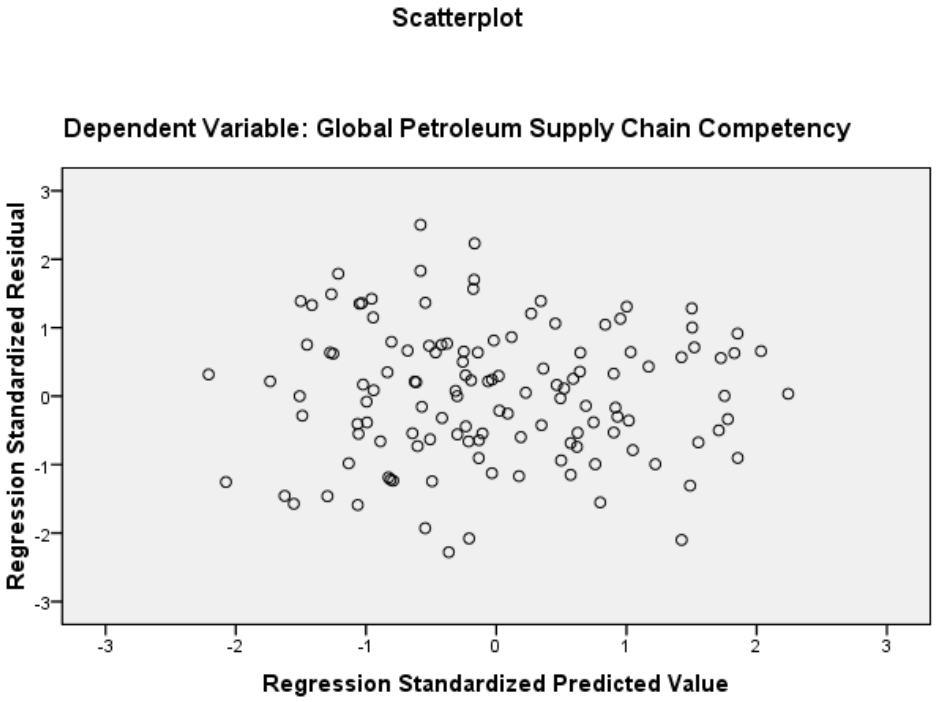


Figure B1.3a: Partial Regression Plot for DV vs Organizational Learning Culture

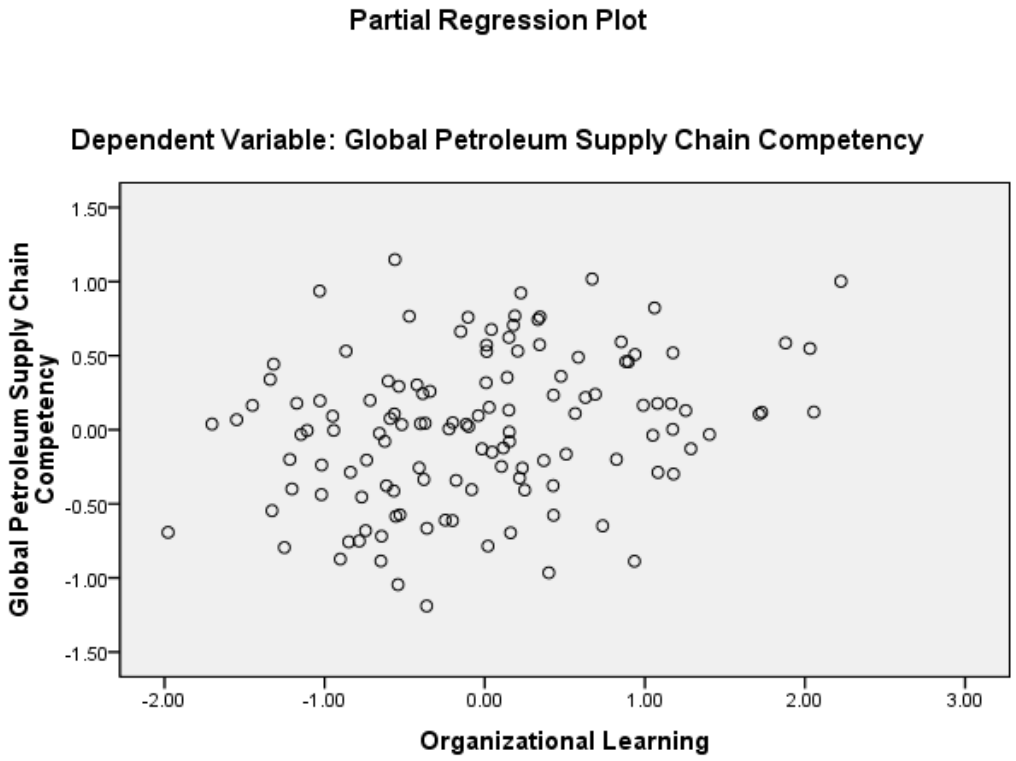


Figure B1.3b: Partial Regression Plot for the DV vs LDCompetitive Value orientation

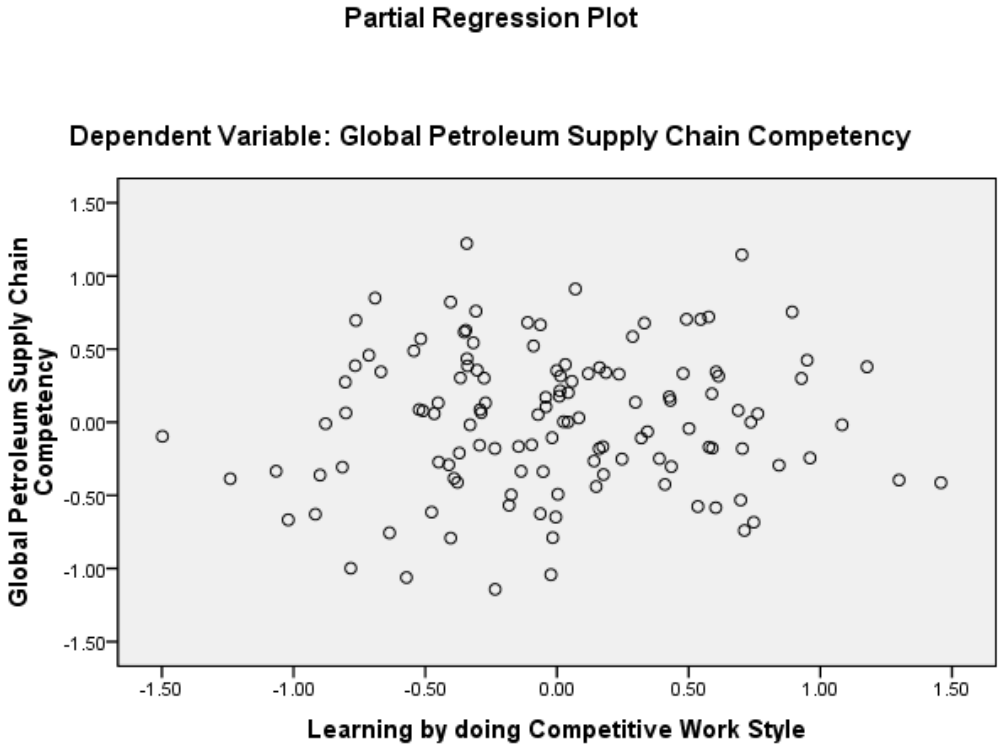


Figure B1.3c: Partial Regression Plot DV vs LDControlling Value Orientation

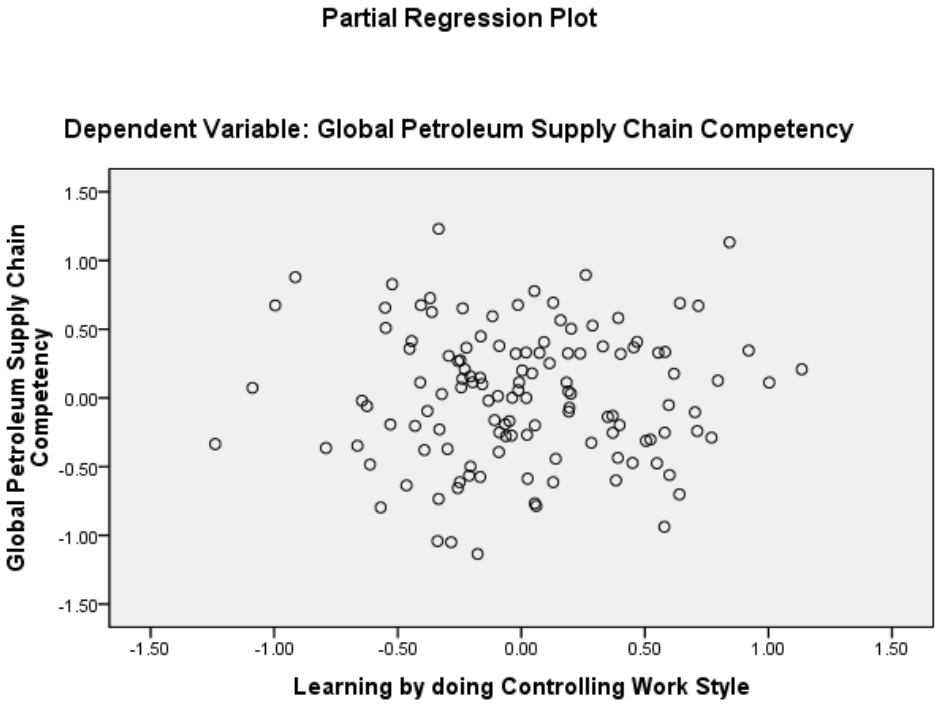


Figure B1.3d: Partial Regression Plot DV vs LDCreativity Value Orientation

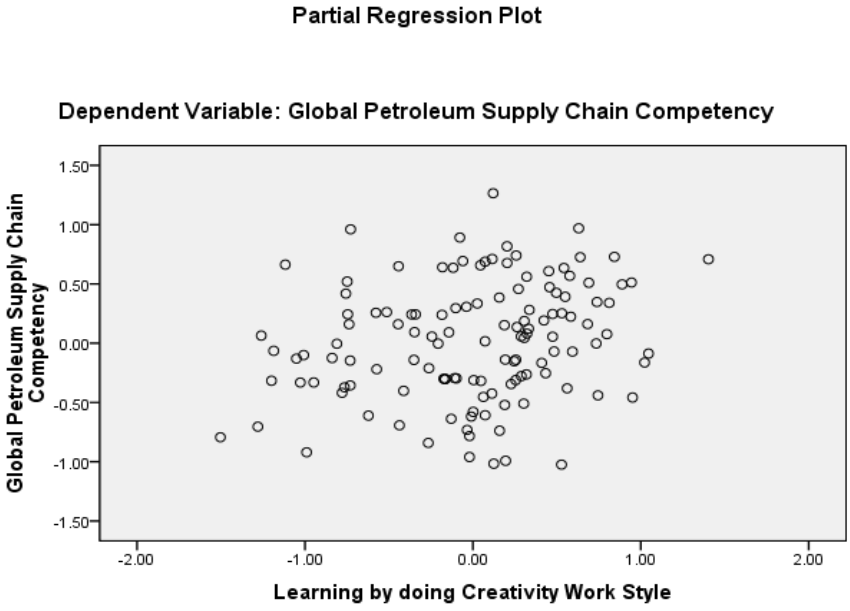
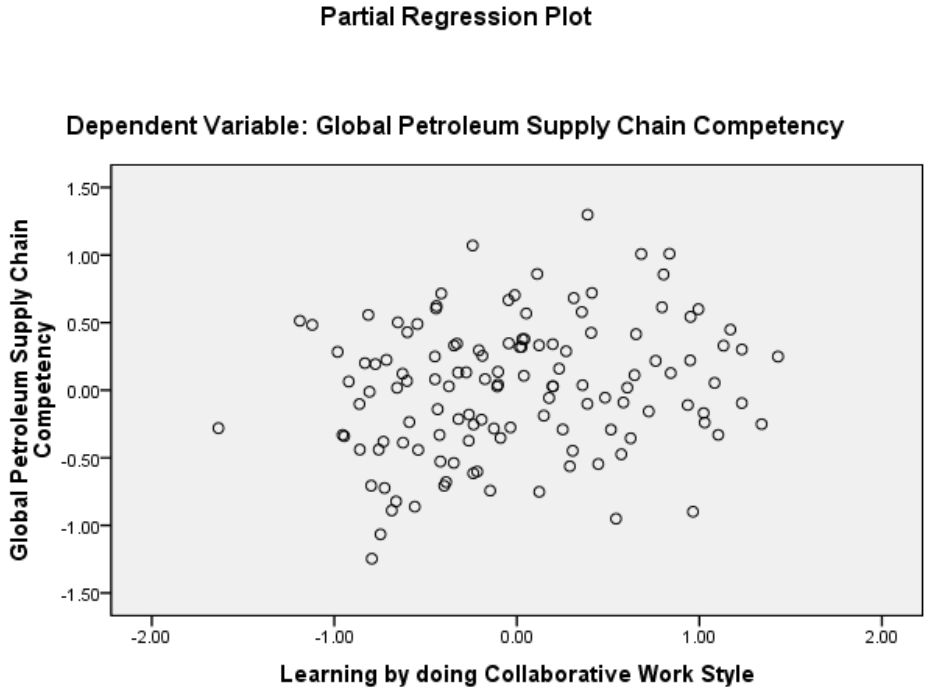


Figure B1.3e: Partial Regression Plot DV vs LDCollaboration Value Orientation



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[ii] Gankofskie, B., T.(2011). Measuring dietetic students' perceptions of management skill competency gained during school food service practicum experience: A competing values framework method - A national study. *Graduate Theses and Dissertations.* Paper 12033.