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The Systematic Model (ESFE) for Implementation of open innovation in Yuchai Group in China

By Lin Zhang, Xiaojuan Yang & Dawei Zhang

Guangxi University

Abstract- Purpose: This paper aims to develop a systematic model of open innovation from a systematic view based on the case study of Yuchai Group's practices to illustrate the knowledge input and output in the open-innovation model.

Design/methodology/approach: The systematic model of open innovation is constructed based on Yuchai Group's practices in the People's Republic of China from a grounded theory approach.

Findings: The results show that, from the systematic view, the dynamic process of open innovation is divided into four interconnected parts: elements, integration, evaluation of performance and adjustment to the environment. For Yuchai Group, the element acquisition are much more vital than the development of ideas.

Keywords: *systematic model, open innovation, organizational change, chinese experience of change.*

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Lin Zhang ^α, Xiaojuan Yang ^σ & Dawei Zhang ^ρ

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Originality/value: The authors have built a systematic model (ESFE) of open innovation and elucidated some effective practices of open-innovation management based on the case study of a Chinese firm.

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I. INTRODUCTION

Modern enterprises rely on updating knowledge and innovation to sustain their competitive edge instead of by static skills or resources. In this regard, the concept of open innovation introduced by Chesbrough (2003) underpins the use of not only both external and internal ideas but also internal and external paths to the market applicable to the firms' innovation. Within the approach of open innovation, the inflow and

outflow of knowledge may create opportunities for cooperative innovation for partners, customers and suppliers (Gassmann and Enkel, 2004), which would, therefore, accelerate internal innovation (Chesbrough, 2006). Two types of open innovation are defined: inbound and outbound (Chesbrough and Crowther, 2006; Andreet al., 2011; Popa et al., 2017). Considered as a new paradigm of innovation, open innovation has been categorized into three interconnected branches by scholars: 1) change of theoretical understanding of the nature of open innovation; 2) reasons for the implementation of open innovation; and 3) performance management of open innovation.

It is vital if not pivotal for firms to exchange knowledge, ideas and concepts with entities operating in the ever-changing environment in open innovation, and the breath and the depth of the search for the elements are emphasized by Terjesen and Patel (2017). It is important to invest in relationship with partners by gathering, developing, controlling and disseminating external knowledge in the dynamic process of innovation (Bakiciet al., 2013; Dahlander and Gahnn, 2010; Howells, 2006). Some scholars suggested that firms should systematically cultivate favorable inner environments, such as IT infrastructure, attitudes to risk, innovation and open belief, willingness to share, good governance, and rule of training, to create knowledge and capture business values (Oliveira et al., 2017; Guannan Xu et al., 2017; Kratzer et al., 2017). We could thus deduce from the literature that open innovation is a dynamic process involving new knowledge in and out of the boundaries of firms and influenced by many factors, such as the elements for input, relationship with the environment, and the inner activities, but there lacks models to illustrate the dynamic process with multiple factors. Open innovation would increase labor division, improve market institutions for trading ideas, and foster collaboration across geographical distances with new information technologies in the era of globalization (Carayannis and Campbell, 2009; Dahlander and Gann, 2010). Firms could attain pecuniary and indirect benefits because opportunities let them gain access to exogenous expertise, to reduce time and cost, to promote learning, to enhance technology competence, and to share

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uncertainties and risks (Howells et al., 2008; Keupp and Gassmann, 2009). Nonetheless, contention exists in the literature, of which the most controversial is on the performance, because many uncertainties are involved for economic or innovative returns, to the point that the concept of –paradox of openness|| was suggested (Arora et al., 2016). Some scholars found that open innovation could increase the transaction cost, damage the interests of the innovators due to weak protection for intellectual property, and lead to knowledge leakage (Harmancioglu, 2009; Almirall & Casadesus- Masanell, 2010; Sisodiya et al., 2013). Others found difficulties in profiting from external knowledge, for the reasons below: 1) the lack of paths and motivation to exogenous innovation (Boudreau & Lakhani, 2009); 2) imbalance and mismatch between open-innovation and internal innovation (West & Gallagher, 2006; Enkel et al., 2009); 3) the lack of transfer of exogenous ideas into the firm's products and service strategies. It is plausible that Kübra and Nihan (2016) even illustrated 13 types of bars for the implementation of open innovation. Open innovation alone is insufficient for the performance of firms, because it is affected by many factors (Fu, 2012) – not only by the innovation inputs, such as R&D and the inflow of qualified knowledge (Cheng and Shiu, 2015), and environmental variables, such as knowledge-rich surroundings and appropriate resources and capabilities (Molina-Castillo et al., 2011), but also more importantly by the efficiency of firm's inner innovation activities, such as relational capability, flexibility for responsiveness and adaptability, business models attuned to open strategies, et cetera (Sisodiya et al., 2013; Tina and Nicolai, 2015). We thus could find from the literature that performance is vital for a firm to adopt and moderate the management on open innovation, but performance is affected by numerous factors, therefore, a holistic view is warranted. Open innovation is a complicated and dynamic process in the context of global, technological, and market dynamism (Rodrigo-Alarcón et al., 2017). Just as

“open innovation is on its way to become innovation| (Huizingh, 2011). The complexity theory, innovation, and other streams of literature can help overcome many of the gaps in innovation research (Foss and Saebi, 2017), thus, establishing a systematic model of open innovation to understand the feedback relationship between the innovation firm and the environment is considered an area for worthy exploration. Hence, we utilized content analysis for elucidating the development of open innovation based on a case study of the Yuchai Group in the People's Republic of China to illustrate the validity of the theory.

a) *Literature Review for a Systematic Model of Open Innovation*

Innovation has gradually stepped into the central stage of economic activities since the industrial evolution, with the development of economic and social environments, since the ideas and models of innovation exert potential influences on firms' success (Villarreal and Calvo, 2015). Those innovation activities confined in the boundary of the firm are referred to a closed model such as the linear model (Bush, 1945) or the chain-linked model (Kline and Rosenberg, 1986). From the beginning of 1990s, openness of innovation has become the frontier of research. Since knowledge is distributed and fragmented among persons and institutions, the innovation activities need coordination and integration of the actors with dispersed knowledge in different institutions or different departments. Hence, the knowledge production of model 2 (Gibbons et al., 1994), integrated model (Rothwell, 1994), techno-economic network model (Callon, 1994), or National Innovation System (Freeman, 1995) emerged in the literature, which emphasized not only inclusive innovation but also partnerships and linkages in a network of innovation agents. Since the early 2000s, the environment of innovation got much attention, Chesbrough (2003) generalized open innovation to illustrate the internal and external relationships and the process of knowledge exchange. Nowadays, some models with the systematic views are emerging, such as model 3 of knowledge production in the Glocal age (Carayannis and Campbell, 2006) and the Quadruple Helix Model (Carayannis and Campbell, 2009, 2011, 2012) to explain the more complicated process and the influence of numerous factors.

From the closed model to the open model, then to the systematic model, the principle and feature of innovation has been adapted to coordinate and integrate the internal business functions with the adaptability to the environment (see table 1) (Chesbrough, 2003; Carayannis and Campbell, 2011; Abulrub and Lee, 2012; Huang, et al., 2013;

Kübra Simsek, Nihan Yildirim, 2016). The elements for input are extended, including whether the type or the scale and the derivation of profit have been pluralism, whether the priority between technology and market focuses on the joint, and whether IP strategies are always mixed to attain the foreseeable payoff and to decrease the uncertainty in innovation.

Table 1: Comparison of Different Models on Innovation

	Closed Model	Open Model	Systematic Model
Employee and Talent	Learned people such as scientists and technicians in our field work for us.	Not all learned people work in the companies; some bright individuals are outside the company.	The emphasis is not only on learned people from scientific and technological disciplines, but also on information or standards.
Feature of Participants	Homogeneous	Similar or heterogeneous	Heterogeneous and hierarchical
Profit derivation	Discover, develop and ship from internal R&D.	External R&D could create significant values; internal R&D is needed to claim some portion of that value.	Integration of external knowledge and internal R&D; people, culture, and technology as three base blocks.
Priority between technology and market	Create the best ideas, discover new technology, commercialize an innovation, launch it in the market first.	Build a better business model first, best use the internal and external ideas.	Establish the junction of value first in order to adjust to the dynamic environment
IP strategy	Exclusive IP strategy, control our intellectual property so that the competitors do not profit from it.	Assignment and consignment of IP strategy, profit from others' use of our intellectual property.	Mixed
Payoff	Not interested in knowledge application and innovation.	Contract or flexible	Grants

(Source: Chesbrough, 2003; Carayannis and Campbell, 2011; Abulrub and Lee, 2012; Simsek and Yildirim, 2016)

As the core of innovation activities, the model of knowledge production has changed from Model 1 to Model 3 (Carayannis and Campbell, 2011; Gibbons et al., 1994) (see Table 2), and the appreciable progress has been achieved on knowledge management. Model 1 is on the basis of closed innovation: while Gibbons et al. (1994) emphasized knowledge is produced in trans-disciplines and trans-organizations, Carayannis and Campbell (2011) found the spatial dimension of knowledge innovation in the context of knowledge-based and knowledge-driven, global economy and society. The concept of knowledge fractals proposed by Carayannis and Campbell (2011) implies that knowledge owned by persons or institutions is only a part or fractal of the micro-subsystem and the openness is the inherent character of innovation. The innovative organization, even full of knowledge, needs to obtain information from the environment, develop the flexible ability to coordinate and cooperate with the other institutions to conceptualize, design, and manage the “knowledge stock” and “knowledge flow” to exploit the effect of innovation synergy. Accordingly, open innovation is always on the evolutionary path of coexistence, co-evolution, and co-specialization of different knowledge paradigms.

Table 2: The Changing Process of Model of Knowledge Production in Innovation System

	Model 1	Model 2	Model 3
Knowledge type	Normative, rule-based, scientific knowledge. Separate knowledge production and application. Dissemination is through discipline-based channels. Quasi-permanent, institutionally-based team.	Knowledge structure of discipline; consensual, continuous, negotiated knowledge. Integrated knowledge production and application. Dissemination is through collaborating partners and social networks. Short-lived, problem-defined, non-institutional team.	Knowledge fractals:—Knowledge fractals emphasize the continuum like bottom-up and top-down progress of complexity. Each-sub component (sub-element) of a knowledge cluster and innovation network can be displayed as a micro-level sub-configuration of the knowledge clusters and innovation networks.
Feature of knowledge Production	(1) Basic university research;(2) —pure basic researchI; (3) with in a single firm;(4)basic university research that is interested in delivering comprehensive explanations of the world, structured in a —disciplinary logic	Universities and —I entrepreneurial university over ial: (1) —Knowledge produced in the context of application I;(2) —trans-disciplinaryI ;(3)—heterogeneity and organization diversity I; (4)—social accountability reflexivityI ; and (5) —quality controll	Socioeconomic, political, technological, and cultural trends and conditions can shape the co-evolution of knowledge with the —knowledge-based and knowledge-drivenI, Glocal economy and society.
Organization of knowledge Production	Single discipline-based; Hierarchical and conservative team organization	Trans-disciplinary, involving a diverse range of specialists. Non-Hierarchical and transient team organization	Flexible organization networks within a multilateral, multinodal, multimodal, and multilevel systems approach to the conceptualization, design, and management of real and virtual, —knowledge stockI and —knowledge flowI modalities.
Evolutionary path of knowledge innovation	Innovation seen as production of —newI knowledge; Research practice should be —good sciencel. Newtonian model of science specific to a field of enquiry. Research practice conforms to norm of discipline's definition of —scientificI.	Innovation also seen as reconfiguration of existing knowledge for new contexts; universityre presents a partial extension of the business elements to the world of academia, the academic firm could serve as an example for an extension of the world of academia to the world of business.	The knowledge is —relativity of truthI in essenceand the path is —pluralismI, such as coexistence, co-evolution, and co-specialization of different knowledge paradigms and different knowledge modes of knowledge production, knowledge use and their resultant co-specialization.
Context	Problem formulation governed by interests of specific communities. Problem set and solved in (largely) academic context.	Problem formulation governed by interests of actors involved in the practical problems. Problem set and solved in application-based contexts.	Problem formulation governed by Glocalsystems within the simultaneous processing of knowledge and innovation at different levels (for example, global, national, and sub-national) and the stocks and flows of knowledge with local meanings and global reach.

(Source: Carayannis and Campbell, 2011; Gibbons et al., 1994)

Although Model 3 of open innovation (systematic model) has been suggested, whilst for the implementation of such a model, the need remains to develop a theoretical framework of innovation to illustrate the dynamic relationship among the multiple factors in or out of firm, and the environment with its attributes (social, economic, cultural), scales (local, regional, national and global), and types (inner environment, industrial, and trans-industrial).

b) A Research Framework of a Systematic Model for Open Innovation

A system is an entity with interrelated and interdependent parts (Bertalanffy, 1968). It consists of elements, the relationships between which characterize the structural feature. A system is always defined by its boundaries, and the world out of the boundaries for a given system is regarded as the environment; there are exchanges between system and its environment via materials and energy. Function represents the dimension, efficacy and ability with which the system interacts with its environment, and affected by the quality of the elements, feature of structure and environment, often measured by the scale, growth, efficiency, et cetera. System is dynamic, and it is the function of the system that decides whether a feedback is positive or negative. The concept of the innovation system was introduced by Lundvall in 1985, and has been extended as the national system of innovation (Freeman, 1995) and industrial innovation systems or regional innovation systems (Cooke et al., 2004). So innovation systems could be analyzed at different levels: firm, cluster, sub-regional, national, and international.

This paper focuses on how firms in a specific industry implement innovation activities in the open system. In essence, knowledge production is the core work in the innovation system, and as a dynamic system, there are huge flows of technology and information along with capitals and human resources. Moreover, the function of innovation mainly results from the interactions between the actors to realize an idea into a process, product, or service on the market.

c) Processes for Open Innovation System Management

Loasby (2000) argued that an organization is a knowledge-interpretation system that creates knowledge from the division of labor and evolution in the open world. Chesbrough (2003) defined the processes of open innovation: 1) forming relationships, 2) relying on venture capitalists, 3) managing intellectual property, 4) the metabolism of new knowledge; and 5) establishing new architectures and business models. Lane et al. (2006) simplified the process of open innovation into exploratory learning, transformative learning, and exploitative learning, and suggested that three processes for the absorption by a firm is identifying, assimilating, and applying external knowledge.

According to the general system, we could build the systematic model of open innovation (ESFE) as a skeleton for analysis of the relationship and mechanism in open innovation.

- 1) **Element Acquisition:** With information technology, it is not difficult for firms to collect the information on the market, and on the social, political, and administrative milieu to filter, judge, diagnose and integrate for innovation. Acquiring knowledge, especially the intellectual property, is imperative for open innovation, but under the protection of intellectual property, there is a little hope to attain the real innovation patent. Acquiring talents is the main aims for searching activities because talents with ideas are the main sources of the thoughts for core innovation, and head-hunting behavior always involves a wide-range search on the targeted university or personnel via social relations, information networks, and excellent communication skills. It is also important for firms to search for such exogenous R&D, not only to increase funding, but also to discern the trend of innovation.
- 2) **Structure Integration:** According to Porter's view of the value chain, every organization in an enterprise could be viewed as a knowledge base to modularize the enterprise knowledge and has its functions. In a systematic model of open innovation, every module with its special innovation activities in the value chain has the chance to obtain exogenous knowledge with special demands. When the exogenous elements outside are put into the firm, the management activities need not only to distribute into different modules, but also ascertain in the most necessary chain. So the firm could develop the most efficient absorptive ability and found the solid base for its innovation performance.
- 3) **Function Evaluation:** The evaluation of performance is the core of the management of innovation, and the key performance index (KPI) is always seen as the benchmark to adjust or even change of the management activities. The KPI mainly consists of economic performance (such as the yield, volume of production, profit, etcetera), knowledge output (such as patent production, knowledge diversity, ideas change in organization, etcetera), and social effects (such as the salary level of the staff, enthusiasm enhancement, entrepreneurship enhancement, etcetera).
- 4) **Environment Impact:** The performance of open innovation would ultimately be tested by the environment, and the activities of open innovation in the firm would also influence the environment.

Hence, the ways in which an open-innovation system adjusts to the uncertain environment or even surmount the environmental constraint is also an issue. Entering a higher platform, being a leader of the industry, and acquiring honors would richen the intangible asset and enable more opportunities to take advantage of environment for elements.

II. METHODOLOGY

a) Case Study Method

As a research method, case studies can be used for an up-close, in-depth, and detailed examination of open innovation, and its related contextual conditions in a company. Hence, we chose Guangxi Yuchai Machinery Group Co. Ltd. (Yuchai Group), headquartered in the city of Yulin, in Guangxi Zhuang Autonomous Region in P. R. China, as our case study for the reasons below.

1) Experiences from China are typical and useful for open innovation. China started its economic reform and opening up in 1978; this is especially exemplified by China's entry into the World Trade Organization (WTO) in 2001 which witnessed a more open and rapid process of change in reform since then. Given the several decades of reform and opening up, in Chinese industry, the discursive processes of knowledge creation has shifted from learning, imitation to innovation, and today many Chinese products compete successfully in the global markets in terms of speed, cost, quality, and innovativeness (Bi et al., 2017; Chung and Tan, 2017). Xu et al. (2017) argued that the progress achieved in China might be attributed to the innovation ecosystem: attention to the integrated value chain, the interactive network in the fast-developing industries and in a multi-layered

innovation ecosystem, and the favorable environment cultivated at the national level. Experiences from China are typical and useful not only for the nations that are catching up, but also for most companies that are likewise, because in the age of fractal knowledge, only a few knowledge that company has is leading in the fragmentation of knowledge.

2) The Yuchai Group has made a great technological progress since China's economic reform and opening up to the world. As a large-sized modern enterprise, the Yuchai Group has not only integrated the engine-industry chain with the petro chemical-industry chain but also diversified its industrial operations, which include a manufacturing base for internal combustion engines with the most complete spectrum of products in China, and the company ranks 17th among China's top 500 machinery manufacturers. As a domestic leading industrial conglomerate with over 20,000 employees and 30 wholly-owned, holding and joint-stock subsidiaries, the Yuchai Group has achieved sales revenues of 40.124 billion yuan in 2014 through group operations and open-innovation management. The Yuchai Group is a national high-tech enterprise with tremendous R&D strength, owning over 2,000 authorized patents, several of which filled in the domestic technical gaps. It also has numerous domestic and overseas products and technology R&D centers, which focus on independent technologies and are geared to global cutting-edge technologies. Now, the Yuchai Group is advancing the "second start-up", concentrating on "transformation and upgrading" to adjust the industrial strategy to the more competitive and open environment. Hence, researching on such a company would provide deep insights into open innovation in China.

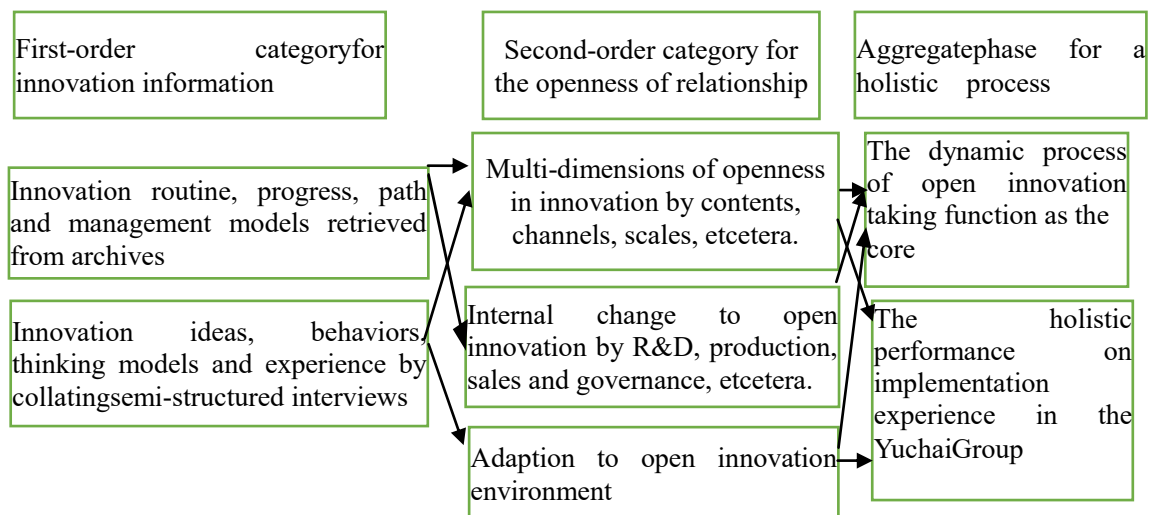


Figure 1: Three Steps for Data Coding

b) Data Collection

Data collection was conducted from January 2015 to March 2016. Archival data, semi-structured interviews were used in the process as in figure 1.

1) Archival data

In order to trace the historical path of open innovation in a company, archives represent the most comprehensive channel to acquire effective information and data, because archives contain primary-source documents that have been accumulated over the course of an organization's innovation and its environment and reflect the organization's evolution. We collected 65 documents in the Yuchai Group, including reports, articles, media reports, stories and Web materials: some were downloaded from the official website, others were offered by the general office of the firm. Those documents contained general introduction, production introduction, operation data, production quality reports, innovation processes, annual innovation reports, meeting notes, memos and annual reports. From the indexed archives of the Yuchai Group, we created categories for filing, searched and retrieved the appropriate issues, remarked the milestone in the process of open

innovation to clear the path of open innovation, and analyzed the difficulties, challenges and successes in the open innovation from the systematic view. By analyzing the archival data, we found major problems of concern to the firm included relationship building with external organizations, effective management of changes, proper judgement on the performance and optimal ways to adapt to the environment, which could be inducted as a systematic model: channel of elements input, absorption and assimilation of the knowledge structure, and the performance with environmental challenges.

2) Semi-structured interviews

Unlike rigorously-structured interviews that do not allow diversion of topics, a semi-structured interview offers an open framework of themes which allows the interviewer to explore new ideas. We conducted in-depth semi-interviews twice for searching information on the open innovation in the Yuchai Group. The characteristics of the interviewed participants are listed in table 3. We also had the opportunity to conduct non-participant observation on some operating situations in the laboratory and production departments for supplementary information.

Table 3: Characteristics of Interview Participants

	Number	Gender		Position		Length of employment (year)				Immigration	
		Male	Female	Manager	Worker	≤5	5-10	10-20	≥20	Local	Immigrant
First time	25	20	5	18	7	4	11	8	2	7	16
Second time	30	24	6	20	10	5	10	12	3	7	23

The first round of interviews was conducted from 15th to 18th in January in 2015 with the main aims of judging whether open innovation happened in the Yuchai Group and the ways in which it took place. The interviews consisted of two parts: 1) we ran a one-hour group interview with 25 members from production and innovation management departments including the vice president, product manager, directors of sales, director of human resources, directors of product research and project; 2) in the following days, we conducted individual interviews with the respective managers from the group to explore the information on innovation in each model of the value chain in the Yuchai Group, with the focus on where and what the open innovation involved.

The second round of interviews was conducted from 5th to 8th in March in 2016 with the main aims of obtaining detailed information on implementation of open innovation, identifying the challenges in its implementation, and collecting more comprehensive

experiences on the successes or challenges of open innovation in the Yuchai Group. The interviewees included 30 people, including the vice president, and production and innovation management department from the first interview, while the others were new interviewees from whom were solicited more detailed information on the implementation of open innovation, such as the technical director, technical worker, R&D personnel, production director, marketing personnel, etcetera. Each interview was conducted individually and lasted approximately one and half to two hours, and designed to elucidate the interviewees' perception and opinions of their own department or agency for open innovation. In line with the qualitative nature of our research and for avoidance of digressing into trivial conversations in the process, the semi-structure interviews were designed with sets of questions on open innovation management which were divided into three parts: where, which and how or why, as summarized in Table 4. The first set of questions was designed to

collect basic information on where the open innovation took place and what the scale of openness was; the second set was designed to elicit the depth of content of open innovation; and the third set to explore how the breadth and depth of innovation were interwoven into

the practice. Although the interview protocol was designed with major themes in mind, during the interviews, questions were governed by the actual situation instead of any specific orders (Gummesson, 2000).

Table 4: Semi structure Questionnaire on Open Innovation

	Where	What(which)	How
Elements	Where does the R&D(talent, information, knowledge, etc.) come from? University, other companies, National Internal Combustion Engine Association,or government? Does the Yuchai Group have information infrastructure for innovation?	What types of R&D (talent, information, knowledge, etcetera) are of the greatest concern? What is the main channel or derivation of the technological-market information?	What special tools to establish the R&D (talent, information, knowledge, etc.)? How about the technological training of the skilled workers?
Structure	Where tocombine the external R & D (talent ,information, knowledge, etc.) into the internal innovation and production process? Which moduleis mainly focused on for innovation?	What standards to use and combine the inbound elements? What standards to outbound R&D (talent, information, knowledge, etc.)?	What tools can be used to combine the elements and the products? How to implement outbound in novation and inbound innovation?
Function	Where is the value chain that affects the function to the greatest extent? Does the information technology satisfy the need of the enterprise? Does the Yuchai Group have strategic planning for the industry of internal combustion engines?	What are the dimensions for performance management ? What are the problems in management for the innovation in the industry of internal combustion engines? What problems have the Yuchai Group encountered in open innovation? What is the technologi callevel of the Yuchai Group? Compared with the same industry, to what extent dot echnical gaps exist in the Yuchai Group?	What is the special in performance management in open innovation? How about the quality management in internal combustion engines? How about the speed of production for new products of the enterprise? How about the O2O logistics development of the industry of internal combustion engines??
Environment	Where are the opportunities and challenges in the environment? Where is the market for the Yuchai Group? What level are the Yuchai Group competing for, local, regional, national, or international? What do you think about the political environment? What do you mainly think the market adaptation of Guangxi Yuchai Group?	What is the position of the company in the competition environment? What mainly are the customers' new requirements for Guangxi Yuchai Group? What are the reasons for the success of Guangxi Yuchai Group industry of internal combustion engines? What is the threshold for entering the industry of internal combustion engines?	How about the change of market of the internal combustion engine? How to get along with the change of the political environment, or of regulations?? How to adjust or control the environment most effectively?



c) *Data Analysis*

A testable, relevant and valid theory would be developed without the intimate connection with empirical reality (Eisenhardt, 1989). Through constant comparison (Glaser and Strauss, 1967) and content analysis (Krippendorff, 2004), researchers may enhance data interpretation and transform an empirical process into scientific results (Golden-Biddle and Locke, 2007). Through the systematic, iterative comparisons of data, we made data coding into categories and constructed an integrative, theoretical framework by the steps below. Firstly, we collated and sorted the raw data for the most information on the implementation of innovation in the Yuchai Group, especially on the ideas, cognition, behaviors, and routines evolved during the innovation process which indicated similar meanings into first-order activities or categories. Secondly, based on the collected information, we sought to illustrate the relationships, such as the channels, linkages and interactions with the environment, in the dynamic input-output process of innovation to capture the flow of innovation activities and evolution of organizational routines, which could lead to the development of second-order themes by formulating researcher-induced concepts at a more abstract level. Finally, with the method of constant comparison (Strauss and Corbin, 1990), we analyzed the ways in which existing shared schemata of innovation was overturned and then recreated by focusing on two aspects: internal innovation activities, and changes of management, in which a systematic framework was formulated to characterize open innovation based on the second-order themes of innovation; additionally, we discerned some special experience in the Yuchai Group.

III. RESULTS

a) *Element Acquisition with Five Models*

The Yuchai Group used four basic models to collect the specialized information and ideas on the technology on diesel engines from the relative organizations inside and outside the Guangxi Province as follows:

- 1) Purchase directly and then re-innovate
Owning to the intellectual property, the original knowledge underlying the innovative product could hardly be obtained but the innovative product itself could be purchased. Accordingly, firms could purchase the product and make a second-hand innovation to rapidly master the new technology. For example, in order to improve the production efficiency of the diesel engine, the Yuchai Group bought the complete set of equipment and the full set of product technology worth 120 million US dollars from the Ford Motor Brazilian diesel engine plant in 1992. Through intensive studies, the Yuchai's

technical teams improved the technological capacities, adopted the advanced technical knowledge, upgraded the current products and technologies, and finally made great progress in combustion technology, electronic control technology, structural design, fuel injection technology and emission control technology.

- 2) Collaborative innovation based on entrusted project
As for the original ideas, based on the entrusted project, the Yuchai Group established strategic cooperative relationships with enterprises such as AVL, FEV and BOSCH from Germany and research institutions including UK's Brunel University, China's Tsinghua University, Shanghai Jiao Tong University and Tianjin University, etcetera. By the means of technological transfer, entrusted design and joint development, the Yuchai Group's R&D teams learned the high-quality knowledge from the exogenous institutions, and made the external knowledge localized. It followed that such new knowledge was helpful for the cultivation of the independent innovation capacity of the firm.
- 3) Production alliance and information sharing
The production base is always seen as the knowledge cluster for information-sharing. By co-building the production base with suppliers in and out of China, the Yuchai Group has utilized differential knowledge for obtaining the comparative advantage, to lower the cost, strengthen the functions of production, and satisfy the market needs of different regions with more diverse products and services. More importantly, strategic alliances could expand its R & D network and its cooperation with other companies, induce information sharing, integration and utilization, and increase the efficiency in the knowledge flow. In 2011, the Yuchai Group established a production base for marine engines in Zhuhai and Ziyang with Wärtsilä Corporation and China South Locomotive & Rolling Stock Corp. Ltd. respectively.
- 4) Public R&D acquiring
It is an important channel to apply for public funds for open R&D which could enrich the capital for innovation. By 2010, the Yuchai Group had acquired more than 110 million RMB sponsored by the government to focus on the technological innovation, technology transfer and standards, which dictate the trend of demand for innovation and the foreseeable market. For example, during 2004-2012, the Yuchai Group had had 10 projects from 863 National Science and Technology Innovation Programs (such as "product development of the CNG engine for large-scale buses" in 2006, "technology development

of heavy commercial-vehicle diesel engines" in 2008, "key technology research and prototype development based on diesel engine homogeneous compression ignition engine in 2012"), and five projects from the National Development and Reform Commission, three projects from the Technological Standardization Administration of China, and 38 projects from the Guangxi Commission of Industry and Information Technology and 35 projects from the Guangxi Science and Technology Department.

5) Talent hunting and training via projects

Talent hunting and cultivation is the foundation for innovation. The Yuchai Group has usually recruited employees from Chinese universities, especially for those joint laboratories, often take projects as a flexible work for many technicians and talents with domestic institutions. The firm has also created strong R&D platforms for the cultivation on independent R&D technologies that are geared to world cutting-edge technologies. As for the R&D projects of core engine technology, the relative technicians would be sent overseas for training to grasp the international standards and learn advanced ideas and designs.

b) *Structure Integration According to Knowledge Relationship*

Although innovation relies heavily on the outside world of a company, it is the internal innovation activities

that underlie the selection of the best knowledge among the alternatives, configure the best model to integrate the new technology into production, and create the best market opportunities for further development. The scale of open innovation includes the international, domestic and local ones. As in the value chain, the scale of open innovation of each model is determined by the knowledge quality comparable to the rivals at the different levels. Only those models with high-quality knowledge could enter the large-scale open innovation. In the company, the knowledge models with high quality and in the high competitive level could dominate the others, and they spearhead the enterprises' model innovation. Although each model in the value chain has chances for innovation, there are differences on their quality of knowledge. In the R&D model, the quality of knowledge in the Yuchai Group is lower than that in Europe but higher than that in the domestic setting, implying that it needs to acquire high-quality knowledge out of the country and could disseminate some ideas to the domestic companies. In the production model, the Yuchai focuses on the domestic scale for competition. In its sales and after-sales model, the knowledge is higher than that of other regions in western China. The Yuchai Group could outflow its know-how to compete with other firms in the regions (See table 5).

Table 5: The Relationship of Knowledge and Collaborative Innovation of Knowledge Modelin the Yuchai Group

Module	Scale for Competition	Relationship of Knowledge	Model of Open Innovation
R&D module	International level	The quality of knowledge is higher than that of domestic ones, but lower than the international ones.	Inbound innovation: adopt knowledge of high quality and establish strategic cooperative partnerships to co-build talents cultivation bases with well-known universities and research institutions both local and abroad. 1) Take the projects as platforms and make joint efforts in innovation. 2) Build high-level laboratories and technical centers and attract knowledge-oriented talents with appealing payments and welfares.
Production module	Domestic level in China	The quality of knowledge in production module is slightly higher than that of regional ones	Inbound innovation and sharing the technology for manufacturing: 1) Introduce production equipment for the diesel engine from Ford Company U.S.. 2) Be geared to re-innovation in order to satisfy market needs; 3) Establish strategic cooperative partnerships with institutions in and out of China, constructed a production base. 4) With standardized knowledge of production, cooperate with the suppliers of various modules of the Yuchai Industrial Park to co-produce and

Sales model and after-sales service module	Regional level	The quality of sales knowledge is superior to the ones in west China.	Outbound for business model innovation: 1) Increase the number and service networks of its agents and distributors out of the region via information technology. 2) Build a market end integrated with sales, service, accessories and information and assess the agents regularly 3) Export standardized sales and service knowledge to the other regions via training in training centers and distribution of service centers and accessories logistic centers.
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c) *Function evaluation on three indexes*

According to the experience from the Yuchai Group based on the quality management, the performance management of open innovation focuses not only on the dominant tangible indices such as new knowledge production and monetary profits but also on invisible indices such as diversity and specialization of modules in the value chain.

1) Patents, scientific and technological achievements
 The Yuchai Group has accumulated practical experiences in operating major national projects, consolidated its leading position in technology domestically, and contributed to the technological progress of the industry on internal combustion engines. By 2015, the Yuchai Group has had 2300 patents in force, of which over 120 were inventory

patents. As a technology core department, the Yuchai R & D Center accounts for more than 60% of the number of patents each year. In addition, the firm won two national prizes for progress in science and technology in China in 2012 and 2013 respectively.

2) Economic achievements
 With the implementation of open innovation strategy, the Yuchai Group insisted on satisfaction-oriented profit management but not the optimal profit management in innovation performance management, which nurtured the free air for innovation. Table 6 shows the profitability and the sale volume of engines and the internal combustion engines in the Yuchai Group. Gradual progress may be discerned and are higher than the average in China by 1998, 2006 and 2013.

Table 6: The Profitability Analyses of the Yuchai Engine and of the Whole Industry

Year	The rate of gross profit of the Yuchai engine	The average rate of gross profit in China	The sales volume of the Yuchai diesel engine	The average sales volume of diesel engines by firms in China
1998	-	-	50268	23828
2006	9.50%	6.29%	104674	72857
2013	12.34%	8.80%	178620	155721

3) Evolution of modules in value chain
 With the development of open and innovation, the Yuchai Group has expanded its scale tremendously, the internal technologies grow more advanced, and the modules are diversified and more refined. Such modular diversification translates into more bases for

the production of new knowledge, and the modular refinemeny translates into more competition for core values and can make more apexes for innovation. Table 7 illustrates the evolution of the modules in the value chain in the Yuchai Group.

Table 7: The History of the Diverse and Refined Evolution of Models in the Yuchai Group

Development stage	Diversity of modules *represents the newly added modules	Specialization of modules
The initial stage(1978-1992)Stock enterprise	R&D module Production module: including Engine module, Automotive	R&D module: Developed the turbo-diesel direct injection engine. Production module: The production ability is 6000 YC61050Q diesel engine. The conversion to the 6105QC

	<p>module, Mechanical engineering module Sales module After-sales service module</p>	<p>automotive diesel engine was a success. Sales module: Exported the engines to Vietnam and Singapore for the first time. After-sales service: First released the three guarantees for engines, which was a pioneer in the industry.</p>
<p>The development stage (1993-2001) Sino-foreign joint-stock company</p>	<p>R & D module Production module: including Engine module, Automotive module, Mechanical engineering module, Energy chemical module, Parts module; Logistic module Sales module After-sales service module</p>	<p>R&D module: Established the systematic reliability engineering of refined production and adopted the project of replacing the diesel engine with gasoline engine and firstly explored the electronic control technology of diesel engine and reached the standards of Euro I and Euro II. Production module: Produced rear-engines equipped with buses. Sales module: Developed five more specific markets including heavy machinery, light-industry machinery, buses, engines for general purposes, and export markets. After-sales service module: Established a customer service center and pioneered the repair process of engines.</p>
<p>The mature stage (2002-) A mixed-ownership enterprise with a diverse shareholding structure</p>	<p>R & D module; Production module: including Engine module, Automotive module, Marine power module, Mechanical engineering module, Energy chemical module, Parts module; Logistic module Sales module After-sales service module</p>	<p>R&D module: Developed three core technological plat forms of the combustion system, calibration system of electronic control engine, and power train packaging. Also developed smaller and lighter engines. Production module: Developed 27 series of products with a total of over 2000 kinds of products, covering the markets of trucks, buses, passenger vehicles, mechanical engineering, industrial equipment, agricultural equipment and marine generators. Sales module: Specialized in overseas sales service networks for different countries and households. After-sales service module: Divided the customer service center into automotive engine business with two parts (buses and trucks) and general-purpose engine business with two parts (general-purpose machines and marine-power machines).</p>

d) *Environment impact mainly on two dimensions*

In an open environment, the innovation of a firm needs to not only adjust the environment, but also influence or master the environment with the innovative power.

1) satisfied the needs for environmental protection

With the core concept of "Green Development & Harmony Win-win", the final aim for open innovation of the Yuchai Group is to satisfy the market needs. As shown in Figure 2, following international standards, the Yuchai Group satisfied the market needs with environmental protection requirements as the domestic pioneer. The engine, as the maple product in the Yuchai Group, is the key module for innovation; against this background, the group has always kept in line with international standards, paid

more attention to technological innovation on more energy-saving in combustion, and spearheaded the domestic technological standards and requirements of the internal combustion machines in China. In sum, the Yuchai Group has used the power of innovation to direct the domestic market needs.

2) Adjustment to the economic system reform in China
Alongside the economic system reform in China, the Yuchai Group has re-formulated its organization structure in accordance to the evolution of innovation. The active adaptation to changes may thus have laid a solid foundation for its open innovation to succeed in the institutional reform and product upgrading (See Table 8). For example, the Yuchai Group, restructuring as a Sino-foreign joint-venture limited company in April, 1993, broadened

its vision and enhanced the innovation strategy. Since 2002, under the innovation-oriented national strategy, more innovative departments have been established in the Yuchai Group, such as the national

technical center, the state-accredited laboratory, the postdoctoral workstation and the corporate academician and expert work stations.

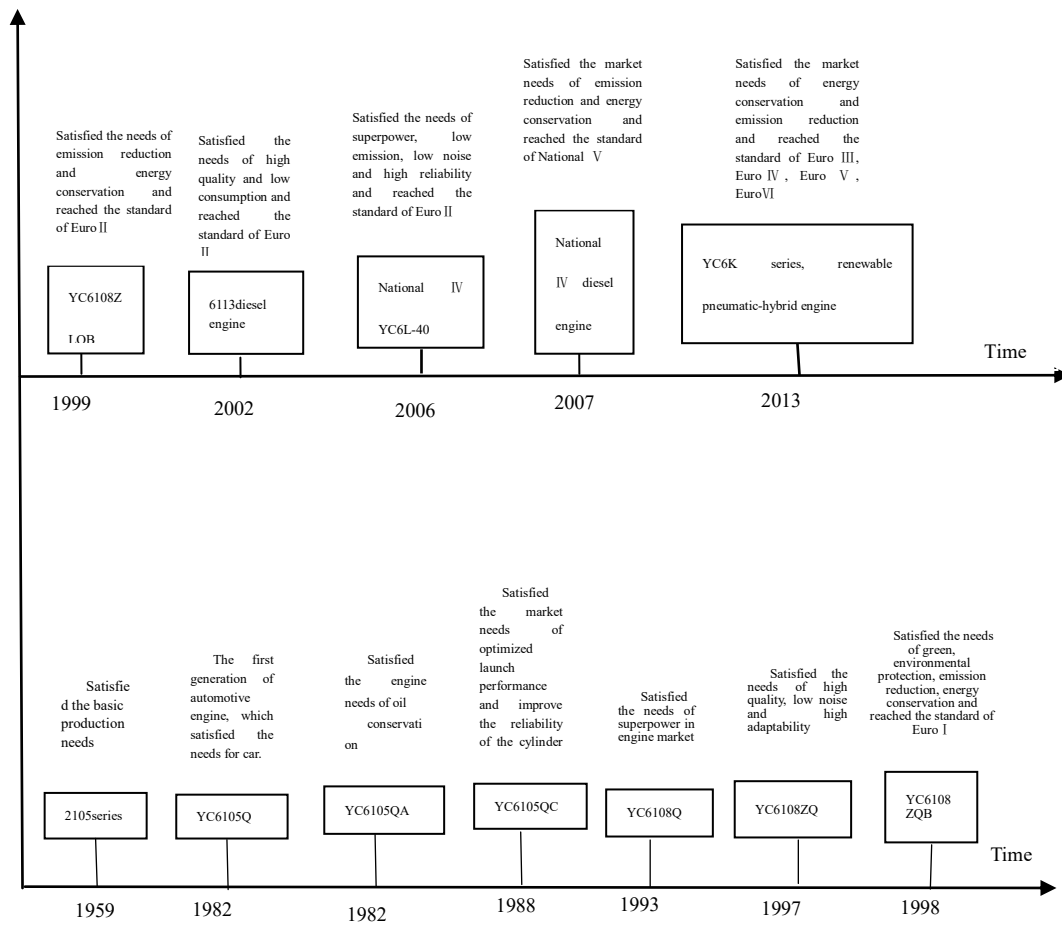


Figure 2: The Historic Path of Adjustment to the Market Environment

Table 8: Historical Changes in the Yuchai Group along with System Reform in China

The system reform in China	The organizational changes and innovative evolution of the Yuchai Group
From 1953 to 1977, China was under the policy of planned economy.	The Yuchai Group was a labor-intensive enterprise in 1951. The power machine was the main product of the enterprise in 1969. As the plans of production and categories were formulated by the government, the Yuchai Group lacked independent innovation and produced only the diesel engine which met the basic needs for production.
From 1978 to 1992, China established a market economic system.	From 1978, the Yuchai Group had become a self-management enterprise with full financial responsibility with its independent innovation, and started the innovation journey according to the market rules.
From 1993 to 2001, China stepped from the age of partial opening to the age of full opening.	Transformed into a Sino-foreign joint-stock limited company in April, 1993, the Yuchai Group became a listed company in New York Stock Exchange to target at foreign funds, cooperated with large foreign enterprises, and promoted internal systematic innovation. With the flow of foreign capital and knowledge, it has changed its paradigm from imitating to adapting and exploring new methods to improve its innovative capacity, and grew to be a leading enterprise in the production of internal combustion engines in China.
Since 2002, an innovation-oriented national strategy has played a crucial role.	The internationalized Yuchai Group started to transform into a mixed-ownership enterprise with diverse shareholding structures and adopted the combination of internal and external resources in research, development, production and sales. It built an R&D center, and established strategic alliances with many enterprises and research institutions.

IV. CONCLUSION AND LIMITATIONS

According to the literature review and the deduction from the systematic philosophy, the systematic model of open innovation was built to consider all the fragmented factors and the multilevel environment to holistically illustrate the procedure of knowledge input and output, and explain the dynamic process for open innovation. The results show that the dynamic process of open innovation could be divided into four interconnected parts from the systematic view: elements, integration, evaluation of performance and adjustment to the environment. We chose the Yuchai Group as a case study of such an implementation of open innovation: with the mixed tools of the experience analysis of historical records and interviews under the content analysis, we developed an implementation of the systematic model for open innovation in the People's Republic of China. In the case study of the Yuchai Group, the element acquisition are much more than ideas, and the structure integration is bidirectional according to the internal and external relationships of knowledge under the value chain. In addition, the KPI of performance evaluation focuses on knowledge production, not only about the patent production, but also the change of modules as the knowledge base. It is a long and comprehensive process to adapt to changes in both the external marketing environment and the political environment. Therefore, it would be appropriate

for organizations to adopt the systematic model for more judicious management of open innovation.

Some limitations of this research are of note. The first limitation is the quality of the sample. As only one company was investigated in the case, the representativeness of the sample needs to be amplified and strengthened in future. The second limitation is that our sample is limited in only one of the contemporary state-owned Chinese organizations, which is insufficient to represent all Chinese companies with different types of innovation. Our analysis does not preclude different interpretations in other settings since this research focuses only on inbound open innovation in China. The third limitation of this research is the lack of an econometric model to analyze the relationship between performance and factors affecting it. Although our findings are consistent with the systematic model, the dynamic process still needs to be further refined, thereby making the causal relationships between related variables more convincing.

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A Practical Demonstration of Social Networking System in a University Setting: A Case Study of Obong University

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Abstract- The study has to do with the explorations of a way to use the internet services to provide a platform for the use of individuals, groups of people and companies to interact with one another through the social media. The social media has really assisted interaction and even bringing together business tycoons and their services together through social networking, forums, blogs, etc. Forums are now being used at length as tools/platforms to create avenues for discussions connecting people mostly of related interests and as bases of significant information. This study made use of the precise decisions about their excellent choice of career, and choice of environment, etc. Based on an in-depth review of some relevant literature, some important requirements were considered in the development of a suitable web application.

Keywords: *internet services, social media, social networking, networking system forums, blogs, tools/platforms, choice of career, choice of environment, web application, obong university.*

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Abstract- The study has to do with the explorations of a way to use the internet services to provide a platform for the use of individuals, groups of people and companies to interact with one another through the social media. The social media has really assisted interaction and even bringing together business tycoons and their services together through social networking, forums, blogs, etc. Forums are now being used at length as tools/platforms to create avenues for discussions connecting people mostly of related interests and as bases of significant information. This study made use of the precise decisions about their excellent choice of career, and choice of environment, etc. Based on an in-depth review of some relevant literature, some important requirements were considered in the development of a suitable web application. Therefore we developed an online forum for students to interact and out ostensive care for one another in their needs and solve most if not all their pending and epoch problems as well as solve their choice of career problems, and the right choice of career study, with the availability of relevant information about an institution, etc. Our developed networking system is called "ff followme." The networking as the pilot scheme was developed, tested, and launched at Obong University for students and staff to be engaged in social networking. The programme was fascinating, and a total of 300 students in various departments networked finding the package cost-effective with less manning.

Keywords: internet services, social media, social networking, networking system forums, blogs, tools/platforms, choice of career, choice of environment, web application, obong university.

I. INTRODUCTION

Communication is a basic human need, and so, man is therefore prone to always find a way of meeting and using this means. The media is the general term for various means of communication, which has become part and parcel of human life. Accordingly, Idakwo (2011) in corroboration with this

statement says that, the earliest forms of personal media, speech and gestures, had the benefit of being easy to use and did not necessarily need complex technology.

The social media and the internet community have extensively increased its operations over the years. The social media has also become a significant part of today's modern way of life, being a trait of how integrated social interactions have become. Therefore, the impact of social media has been seen in reckoned essentially in five different contexts; news, interactions, political landscapes, learning, and marketing according to Guha, (2013). This means that social media has been reckoned by man as a means of communication in terms of networking among all categories of people. Everybody needs social media, thereby increasing the demand for it hence, making its operations to be very expensive.

With over 80 per cent of teenagers according to Chopra (2013), are Internet users who often times resorts to social media sites, and it's no wonder that the real world social lives are seeing some changes. Social media is changing the way people communicate, but in many ways, it's for the better as we expand our social circles and explore new horizons through our online connections.

Social media of any generation makes that age have its beliefs and new technologies, meeting the needs of individuals who are anxious to adjust to new forms of socialization. A time of real change is a period in which society looks for meaning. Information is already a device, the principal tool, which people use to perceive and understand their environment (Idakwo, 2011).

Therefore, the emergence of online forums has become hugely popular in recent times with interactions based on similar discussions, posts and threads according to Xiaolin, et al., (2009), and Sumit & Prasenjit, (2010).

Bedmar (2010) posits that online forums have become powerful tools for sharing information; and Falls (2012) stated that online discussion forums have also, become one of the most popular places to ask and answer questions.

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Online Forums, when compared to other social media sites, have various unique features like threads; and where discussions, posts, RSS feeds, and polls, etc. are made. Online Forums, provides a distinctive type of social environment that enables people to share and use information freely by either starting new topics or leaving comments in the threads of existing subjects as asserted by Xiaolin, et al., (2009).

Social life in most of our Universities is diminishing because of the inability of students not communicating effectively to adapt to their new environment. This imitation have affected some students who become ignorant, especially of their surroundings and not knowing how to relate in their immediate environ and the outside world. In Obong University it was found that socialism was a problem for lack of communication among themselves and other students in other universities. There is, therefore, the need for building a social network website for the students of Obong University to solve the problem of socialism. The development of a social network is imperious as a therapeutic measure by setting up a social arrangement that is made up of individuals or organizations called "nodes," which are connected to one another in friendship, kinship, and having common interest to be able to have financial exchange among them, and to express their dislikes, have common beliefs, knowledge or prestige. Hence, there is a need to create such a social network.

a) *Motivation of Study*

Potential students of an University as an institution, may have had issues in the past or present when it comes to selecting careers, choosing a course of study and making decisions regarding right school to apply for, etc. (Ogu, 2008; Orndorff & Herr, 1996). However, to solve this problem, there is the need to create a platform where students such difficulties can easily relate with people having answers to their questions with respect to helping them solve these issues. Consequently, appropriate requirements have to be taken into consideration while developing a web application to decipher these problems that confront students.

b) *Objective of the Study*

The main objective is to develop a web/online platform where students can share different opinions and to ask questions and receive answers as well as express their views on various topics and make information about any institution available and accessible. In other to achieve our desired objectives, the use of the following specific objectives will be imperative:

- i. To effectively and efficiently communicate between staff and students online.
- ii. To reduce the anti-socialism problem through the use of the common web.

- iii. To create an educative online group to enhance learning.
- iv. To ensure the possibility of making new friends online.
- v. To reduce or eliminate extra cost in buying recharge charges for their phones and internet services.

c) *Method of Study*

The research work was conducted using different sources of relevant data for research by carrying out online surveys, contacting journals, books, and reviews of relevant literature. The requirements needed for the development of this application was got by an evaluation of existing systems. A platform has to be created where users will interact with one another, give answers to questions asked by other users or provide any form of information that will be beneficial to all users, to solve the problems stated above successfully. The online forum was designed to show all the different functions that will be accomplished by using UML diagrams such as used cases, class diagrams, etc. The implementation of the web application can and was done by making use of the design diagrams and programming work is done with PHP and the database management was of MySQL database taking a clue from existing forum software's. The system was evaluated by making use of feedback and reports from relevant users. We went on to:

- i. *Gather the right requirements for this application through*
 - a. Requirements Elicitation
 - b. Review of Existing Systems
- ii. *Modelling the requirements gathered using a Unified Modelling Language (UML) through the:*
 - a. Review of Existing Models
 - b. Using UML diagrams like class diagrams and activity diagrams
- iii. Implementing the system by creating a user-friendly platform makes the use of the application much easier for students to interact with each other and possibly ask questions using threads and foci.

The code for the front-end, i.e. the interface was written in PHP, and the messages and threads were stored using My SQL relational database. Review of Forum Software's like phpBB, vBulletin, etc. was carried.

d) *Scope of the Study*

The scope of this study was centred on designing an automated and webbased application for students' online communication and eliminates or reduces anti-socialism. The system is strictly based on students, management, and lecturer's communication and online seminars presentations and the management of suggestion, and create enabling environment for making friends.

e) *Definition of Terms*

Computerized

Convert to a computer-based system to install or start using a computer system to organize, control, or automate something.

Processing

To deal with somebody or something according to an established procedure.

Communication

Communication means the interaction between two or more persons, or sending of messages from one person to another; and from place to another.

Online

A connection made via a computer attached to or available to a central computer or computer network.

System

Set of computer components i.e. an assembly of computer Hardware, Software and peripherals functioning together.

Automation

The replacement of human workers by technology; and a system in which a workplace or process has been converted to one that replaced human labour with electronic or mechanical equipment.

Web

A complex structure, or design www: a computer-based network of information resources that combine text and multimedia. The information on the www can be accessed and searched out through the internet, being a global computer network.

Database

This refers to any collection of data that is organized for storage in computer memory and is being designed for easy access by any authorized user.

Database Update

Database update simply means applying and maintaining changes in a database after data must have been added, removed or modified.

System Administrator

A system administrator is a person that is designated and accountable for maintaining and operating a computer system.

PHP

PHP being the acronym for Hypertext Preprocessor is a general-purpose scripting language that was originally designed for web development to produce dynamic web pages. Hypertext Preprocessor is the server code used to link the database to the interface of the website.

Apache

It is the server used for designing PHP, python pages.

SQL

Structured query language, it is a code used to query or insert records in a database.

My SQL

My SQL is a interpersonal database management system (RDBMS) that runs as a server providing multi-user access to several databases.

Php My Admin

It is an open-source tool written in PHP and intended to handle the administration of My SQL over the World Wide Web.

Cascading Style Sheet (CSS)

Cascading Style Sheet is a programming language used in the graphics and fine-tuning of the website.

Swish Max

It is animation software used in doing all the animations you can think of on the website, and the Macromedia Dreamweaver; which is software used in organizing the website called Macromedia Fireworks and is the software used to create the graphics and images on the website.

II. LITERATURE REVIEW

The social media is a form of electronic communication that enables the facilitation of interactions between people based on definite interests and characteristics. Social media is the media available for social interaction, which uses highly accessible and scalable publishing techniques. Social media uses web based technologies in transforming and broadcasting media monologues into social dialogues (Idakwo, 2011). A social media network platform is one that provides a medium for interaction by groups of people making it easy to share information (such as lecture materials, pictures, and ideas) across a circle of people or groups. Statistics have shown that the use of a social networks such as Facebook, Twitter, and LinkedIn is on the increase among young individuals, the crop of which are students of tertiary institutions (Ikhu-Omoregbe et al., 2012).

a) *The Impact of Social Network Services on People*

A social network service is set to have focused on building and reflecting on social networks among people, who share common interests and activities. A social network service basically consists of a representation of each user often called a profile, his/her social links, with a variety of additional services. A lot of social network services are web-based and provides avenues for users to interact with one another over the internet, in the form of sending e-mail and instant messaging. These social network services are known as online community services which are considered as a social relations service in a sense, meaning an

individual-centred service whereas online community services are group-centred. Shelly, (2000) stated that social networking sites allow users to share ideas, activities, events, and interests within their networks.

Social networking services encompass category places involving former school-year or classmates, meaning to connect with friends (usually with self description pages) and a recommendation system linked to trust. Popular methods today are combined with many of these sites, ie. Facebook, Twitter, and Bebo which are widely used worldwide according to Shelly (200) are: LinkedIn and MySpace are the most widely used in North America; whereas Nexopia are used mostly in Canada; while Bebo, Hi5, Hyves are the networks used mostly in The Netherlands. The StudiVZ is popularly used in Germany, iWiW used basically in Hungary, and Tuenti in Spain. Other network services so pronounced in in parts of Europe are Decayenne tagged, XING, Badoo and Skyrock; Orkut and Hi5 are the services recognised in South America and Central America; while Friendster, Mixi, Multiply, Orkut, Wretch, Renren and Cyworld in Asia and the Pacific Islands, and Orkut and Facebook in India.

Shelly (200) went on to say that there have been attempts made to standardize these services as to avoiding duplicate entries of friends and interests; yet, there are some of the largest social networks founded on the notion of digitizing real-world connections, couple with other networks that focuses on categories from books and music to non-profit business to motherhood as ways of providing both services and community networks to individuals with shared interests (Shelly, 2000).

b) *Brief History on Social Networking Website*

The essence of computer networking is to facilitate new forms of computer mediated social interaction. The efforts made by people to support social networks via computer-mediated communication were made during early online services provided, such as Usenet, ARPANET, LISTSERV, and bulletin board services (BBS). Chiemeke et al, (2008) stated that many prototypical features of social networking sites were features found in online services such as America Online, Prodigy, and CompuServe.

In the initial stage of development, social networking on the World Wide Web (www), were in the form of generalized online communities such as Theglobe.com (1994), Geocities (1994) and Tripod.com (1995). These early communities preoccupied with bringing people together through chat room to interact with each other and encourages users to share personal information and ideas via personal web pages using easy-to-use publishing tools and free or inexpensive web-space. Chiemeke et al., (2008) further stated that a number of communities - such as Classmates.com - took a different approach in the use of social network by

merely making people link up to each other via email addresses; and this was rampant in the late 1990s, where user profiles became a dominant feature of social networking sites, which allow users to compile lists of "friends" and also search for new users having similar interests.

Social networking methods were developed in late 1990s with many other sites that develop more advanced features for users in finding and managing friends. This newer generation of social networking sites began to flourish with the emergence of Friendster in 2002, and soon became part of the Internet mainstream.

Friendster was followed by MySpace and LinkedIn a year later, and finally, Bebo. Attesting to the rapid increase in social networking sites' popularity, by 2005, MySpace was reportedly getting more page views than Google. The launching of Facebook was in 2004 and has since become the largest social networking site in the world. As of 1998, Meleond (1998) stated that over 200 active sites using a wide variety of social networking models exist.

c) *Emerging Trends In Social Networking Website*

With the increase in popularity of social networking, new uses for the technology are constantly being observed. At the forefront of emerging trends in social networking sites are the concept of "real-time" and "location-based" that allows users to contribute content, which is then broadcasted as it is being uploaded, and the concept being similar to live television broadcasts. Twitter was said to have set the trend for "real-time" services, where users are permitted to broadcast to the world what they are doing, or the thoughts of their minds within a 140 character limit. Facebook was not left behind as their "Live Feed" site where users' activities are run as soon as it happens. Twitter focuses on words, Clixtr, a real-time service focuses its attention on group photo sharing where users can update their photo streams with photos while at an event. Friends and nearby users can contribute their photos gallery and make comments on them, thus contributing to the "real-time" aspect of broadcasting photos and comments on them. In the location-based social networking space, foursquare site gained popularity according to Parker, (1998)

Some of the social networking websites allow users to "check-in" to places that they are frequenting at that moment. Gowalla is another such service which functions in much the same way with what Foursquare network does, leveraging the GPS in Phones to create a location-based user experience. Calix to, though in the real time-space, is also a location-based social networking site as events created by users are automatically geotagged, and users can view such events occurring nearby through The Clixtr iPhone app. Recently, Yelp announced its entrance into the location-

based social networking space through check-ins with their mobile app; whether or not this becomes detrimental to Foursquare or Gowalla which is yet to be seen as it is still considered as a new space in the internet technology industry (Parker, 1998).

One prevalent word use for this new technology is social networking among companies who saw social networking sites such as Facebook and Twitter as great and marvellous invention to build their brand image. Jody Nimetz, writer of Marketing Jive, stated that there are five major uses of social media to or businesses namely:

- i. To create brand awareness,
- ii. As an online reputation management tool for recruiting,
- iii. A platform to learn about new technologies,
- iv. An avenue to know competitors, and
- v. As a lead gen tool to intercept potential prospects.

These companies according to Parker (1998) can drive traffic of their customers to their online sites and encouraging them as their clients to have mutual discussions on how to improve or change products or services. One other use that is being discussed is the use of Social Networks in the Science communities.

Julia Porter (2000) has published a study on how New Biotechnology firms are using social networking sites to share exchanges in scientific knowledge. He further stated that by sharing information and knowledge, people can "increase knowledge which ordinarily was not possible within a self-contained hierarchical organization. He went on and stated that social networking in scientific groups expands knowledge of users who share ideas through communication or else, their theories would become "isolated and irrelevant."

Social networks are both used by teachers and students as a communication tool, and while a lot of students are already acquainted with the use of a wide range of social networking sites, teachers have just begun to familiarize themselves with this application to their advantage. Teachers and professors have learnt to create chat-room forums and groups in which extended classroom discussions are incessantly held, and posting of assignments, tests and quizzes, as well as homework outside of the classroom setting are done. Social networks are similarly being used to foster teacher-parent communication; which makes it possible and convenient for parents to ask questions and voice out their concerns without having to meet with the teacher face-to-face.

Activists use social networks as a means of reaching out to the low-cost grassroots organizations. Therefore, the continues use of a range of social networking sites enabled the organizers of the "2009 National Equality March", to mobilize an estimated 200,000 participants to march in Washington D.C. with a

cost savings of about 85% per participant over previous methods used.

Jerry (2006) has affirmed that libraries uses online social networks in her communication with users of her services, seeing its use an increasingly prevalent and growing tool among individual libraries.

Furthermore, Jerry (2006) stated that social networking is being used by college professional students for internship and job seeking opportunities. Therefore, studies have shown that effectiveness of networking online in a college setting is much in prevalence as succinctly summarized by Phipps Arabie and Yoram Wind in their work on "Advances in Social Network Analysis."

d) *Ways in Which Social Networking Websites can be used*

i. *Government Applications*

Social networking is used extensively in recent times by various governments. The use of social networking tools by the government made it easy for her to get quick response of public opinion and their enlightenment. The use of social network especially the popular children's site Whyville and the National Oceanic and Atmospheric Administration made it possible for easy vaccination of children, and the demonstration of disease control in Centres for Disease Control which has a virtual island on Second Life where people can explore underground, caves or explore the effects of global warming. In the same way, NASA has taken advantage of social networking tools of Twitter and Flickr to aid the review of U.S. Human Space Flight Plans Committee, whose goal was to ensure that the nation was on a vigorous and sustainable path in its bid to achieving the boldest aspirations in space as opined by Meleond (1998).

ii. *Business Applications*

In the area of business Fraser et al. (2008) stated that the use of social network services in enterprises has the potential of having a real impact on the world of business and work (Fraser et al, 2008). The social network connects people at low cost, and this can be beneficial for entrepreneurs and small businesses that are looking forward to expanding their contact bases. These networks often act as a customer relationship management tool for companies selling products and services as orated by Abomaye-Nimenibo & Effiong (2019).

Waggoner et al. (1996) also talked about companies using social networks in their advertisement in the form of banners and text ads. Social networks make it easier for companies to keep in touch with contacts around the world such as LinkedIn.com, which aims to interconnect professionals, and has over 40 million users in over 200 countries.

Further use of the social network is the physical spaces made available to its members such as Hub Culture, an invitation-only to its members who are



entrepreneurs, and other business influentials, with pavilions in major cities such as London, UK; and having physical presence of memberships, allows its members to network in the real and virtual worlds, which added extra business value. Businesses having brand names are capable of creating their functional sites and sectors referred to as brand networking. Therefore, Waggoner et al (1996) cried out that the idea of a brand can build its consumer relationship by connecting their consumers to the brand image on a platform that provided them with relative content, elements of participation, and a ranking or score system that is of a peculiar form. Brand networking today stands as a new social marketing tool.

iii. *Dating Applications*

Dating application also found its feet in social networks by providing an online environment for people to communicate, and exchange both pleasantries and personal information for dating purposes. Dating intentions vary in terms of relationships ranging from one time date, short-term relationships, and long-term relationships. As is common in social networks, online dating services require users to give out certain pieces of information about themselves including user's age, gender, geographical location of persons, personal interests, and possibly a picture. The release of personal information is ordinarily discouraged for safety precautions which allows users to search for such information where it is of utmost importance using some sort of criteria. However, people are permitted to maintain a degree of anonymity similar to most online dating services. Online dating sites allow the creating of profiles to meet and communicate with others, whose activities on such sites are for the sole purpose of finding a person of interest to date. It is of prime importance to state that social networks do not necessarily have to be for dating; as many users just use it for keeping in touch with friends, loved one, family members and colleagues as envisaged by Cowper wait et al. (2002). The only difference between online dating and social networks sites is the payment of fees in the case of online dating site while the other has no charge attached to it. The fees charges by online dating industry experiences massive decrease in revenue as users of this site resort to using the social network site. Online dating site such as Yahoo Personals, Match.com, and eHarmony.com are experiencing a massive decrease in the number of users, while social networks of MySpace and Facebook are experiencing increase in the number of users. Hence, the total users of internet in the U.S. that visit online dating sites has fallen drastically from a peak of 21% in 2003 to 10% in 2006 and has further deteriorated in the number of users of this online dating site. The fall in usage is indubitable but for what reason is the fall in usage of this online dating site is not clear, whether is the cost of the services, the variety of

users with different intentions, or any other reason. These facts are also the stand of Cowper wait et al. (2002).

iv. *Educational Applications*

The National School Boards Association reported that almost 60 per cent of students who use social networking talk about educational topics online and, surprisingly, more than 50 per cent talks are precisely based on schoolwork. However, the vast majority of school authorities do not accept the use of all forms of social networking during the School day hours and accordingly impose stringent measures its usage, although there were few problematic behaviours cases so reported by students and parents. Although social networks focuses on supporting relationships between teachers and students using it as aids to learning, as an educator professional development, and content sharing. Social network such as Ning for teachers, Learn Central, Teach Street, and other sites are being built to foster relationships that include educational blogs, report folios, formal and ad-hoc communities, as well as effective communication in terms of discussion threads, chats, and synchronous forums meant for content sharing and rating features, according to Nova, (2006).

v. *Medical Applications*

Healthcare professionals has adopted social networks as means of managing institutional knowledge, highlight individual physicians and institutions, as well as disseminates peer to peer knowledge. The social networking is of especial interest to pharmaceutical companies who spend approximately 32 per cent of their marketing budget in attempts at influencing the opinion leaders of social networks. A new trend has emerged using social network created to help its members with the treatment of various physical and mental ailments. For people suffering from life-threatening diseases, Patients Like Me offers its members the chance to connect while dealing with similar issues and research patient data related to their condition. For alcohol and drug addicts, Sober Circle gives the addicts the opportunity to talk with one another and strengthen their recovery through the encouragement of others who can relate well to their situation. Nonetheless, Daily Strength being a website offers support groups a wider range of topics covered, and conditions that include the support topics presented by Patients like Me and Sober Circle, as well as Spark People offerings to the community and social networking tools for peer support during weight loss (Chiemeké et al, 2006).

III. REQUIREMENTS ANALYSIS AND DESIGN

The requirements for Followme Hub were gathered by observing the existing systems and their operations. We also provide details on the analysis and

design of the web application; the method of study, and design that was used in modeling the application with the necessary Unified Modelling Language (UML) as well as diagrams that will be used to analyse the architecture of this system.

a) *Analysis of the Existing System*

The social media system is a system that is carried out in terms of communication by students and staff, a system in which all the messages are passed on with ease, relating one with another within the University campus and with The outside world being introduced accordingly in 2015. Before the introduction and operation of this system, the school has no social life interaction and communication among students was at its lowest peak and passing of information to one another was equally low with the high cost of dissemination of information. There was no thing like

online seminars, and students don't have where to post some of their comments online as to their gathering or assembling to receive lectures etc.

b) *Benefits of Existing System*

With an existing system on the ground, we have easy access to information, rationalized interaction between students, in order to fostering social interactions, with no loss of information, security & access from anywhere. It is flexible and requires nothing more than a computer system with access to the web. Followme social network proposes to allow prospective students and staffs gets answers to their questions from fellow university students etc. and start-up any discussion with them.

c) *System Architecture*

The architectural drawing of the system is depicted in figure 3.1 below.

Figure 3.1: Web Application

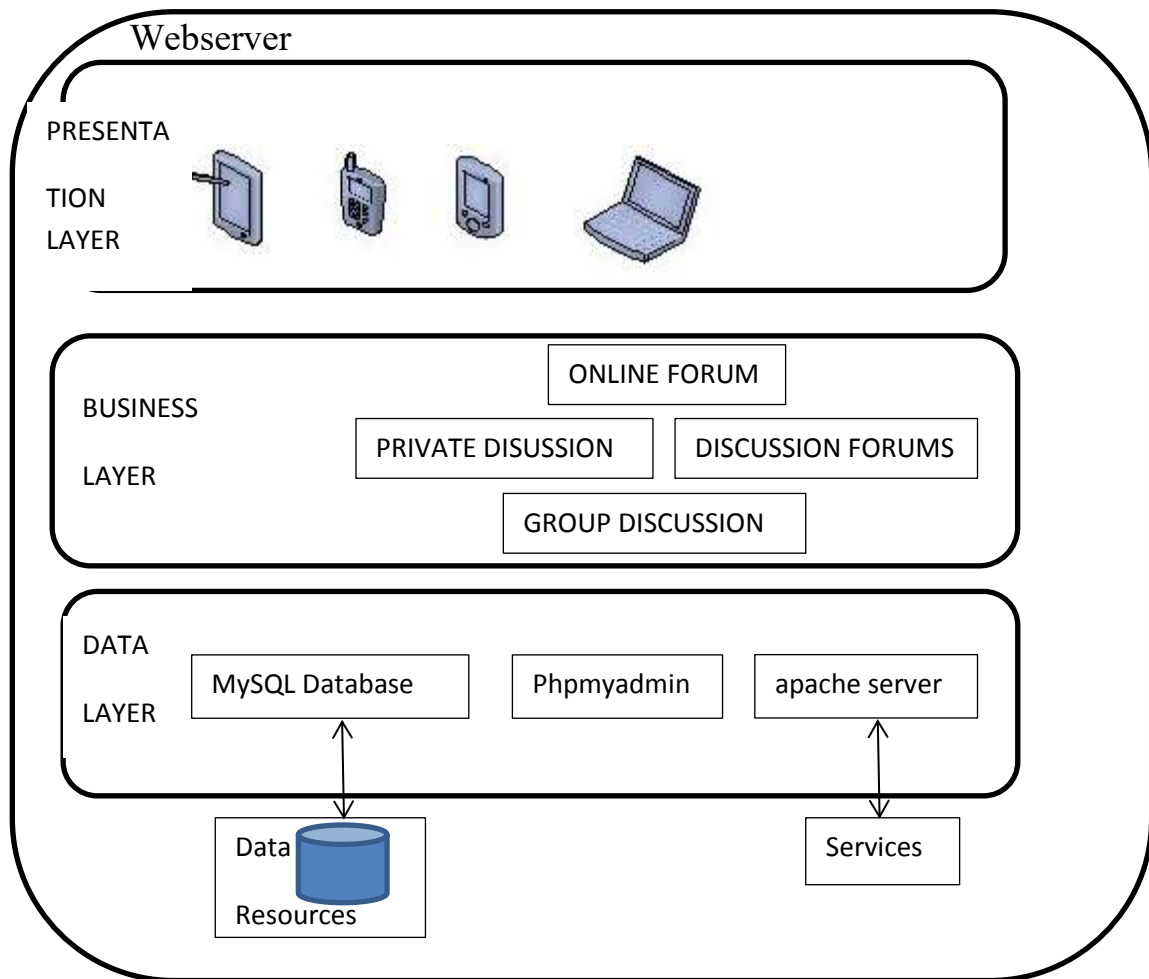


Figure 3.1: System Architecture Diagram

d) Flow Chart Diagram

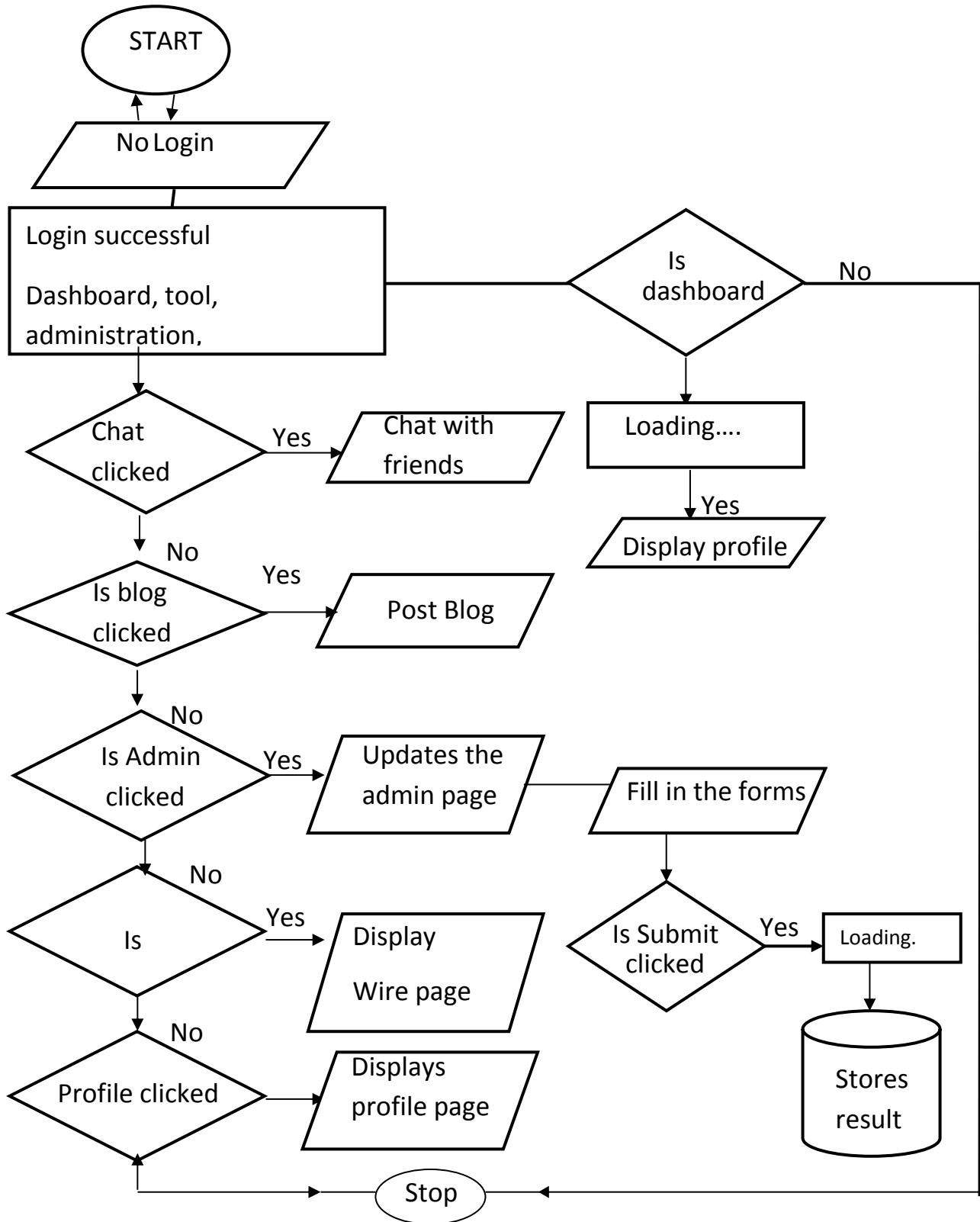


Figure 3.2: Flow Chart of (Followme) Obong University Social Network

e) *Database of the System*

Database of the system refers to the structure of the database used in the design of the system. It consists of tables which are in turn made of rows

(records) and fields (columns). Each table has a name, and the fields are defined as a number, date, text, etc. with well-defined data size.

Table 3.1: Login Table

S/N	FIELD NAME	DATA TYPE	SIZE	DESCRIPTION
1	User Name	Text	50	Unique User's Name for login
2	Password	Text	20	Unique User's Password

Researchers Computation

This stores login information and ADMIN users of the System.

Table 3.2: Student Table

The student table stores information about the student for reference purposes.

The required field includes student id, first name, last name, gender, etc.

FIELD	TYPES	FUNCTION	NULL	DESCRIPTION
Student_id	int(11)	Optional	Null	student's position in the database
Id_no	varchar	Optional	Null	student's i d
First name	varchar	Optional	Null	student's first name
Last name	varchar	Optional	Null	student's last name
Gender	varchar	Optional	Null	student's gender(M/F)
Course	varchar	Optional	Null	student's course
Yr_sec	varchar	Optional	Null	student's level at school

Researchers Computation

Table 3.3: Staff Member Table

The staff table stores information about staff status for reference purposes.

FIELD	TYPES	FUNCTION	NULL	DESCRIPTION
Staff_id	Int(11)	Optional	Null	Staff position in the database
Id_no	Varchar(20)	Optional	Null	Staff id
First name	Varchar(50)	Optional	Null	Staff first name
Last name	Varchar(50)	Optional	Null	Staff last name
Gender	Varchar(20)	Optional	Null	Staff gender(M/F)
Address	Varchar(500)	Optional	Null	Staff address

Researchers Computation

Table 3.4: The member table stores information about the member on the social Network

FIELDS	TYPE	FUNCTIONS	NULL	DESCRIPTION
Member i_d	Int(11)	Options	Null	Member i_d
Username	Varchar(20)	Options	Null	Member username
Password	Varchar(16)	Options	Null	Member password
First name	Varchar(30)	Options	Null	Member first name

Last name	Varchar(30)	Options	Null	Member last name
Address	Varchar(200)	Options	Null	Member address
Contact_no	Varchar(40)	Options	Null	Member contact
Email	Varchar(100)	Options	Null	Member email address
Birthdate	Varchar(100)	Options	Null	Member birth date
B_month	Varchar(20)	Options	Null	Member b_month
B_day	Varchar(20)	Options	Null	Member b_day
B_year	Varchar(20)	Options	Null	Member b_year
Gender	Varchar(6)	Options	Null	Membergender(M/F)
Relationship	Varchar(20)	Options	Null	Member relationship
Interest	Varchar(200)	Options	Null	Member interest
Quote	Text	Options	Null	Member quote
Hometown	Varchar(100)	Options	Null	Member hometown
College	Varchar(100)	Options	Null	Member college
High school	Varchar(100)	Options	Null	Member high school
About me	Text	Options	Null	Member about me
Image	Medium text	Options	Null	Member image
Type	Varchar(20)	Options	Null	Member type
Course	Varchar(100)	Options	Null	Member course
Yr_sec	Varchar(100)	Options	Null	Member Yr_sec
Batch	Varchar(20)	Options	Null	Member batch
I_d no	Varchar(20)	Options	Null	Member i_d no
Status	Varchar(20)	Options	Null	Member status
configuration	Varchar(5)	Options	Null	Member configuration

Researchers Computation

Table 3.5: Forum Table

Show the content of information that was broadcast over the social network.

FIELD	TYPE	FUNCTION	NULL	VALUE
Forum_id	Int(11)	Options	Null	Forum_id
Category	Varchar(100)	Options	Null	Forum category
Title	Medium text	Options	Null	Forum title
Content	Longtext	Options	Null	Forum content
Authors_id	Int(11)	Options	Null	Forum authors_id
Date	Varchar(100)	Options	Null	Forum date

Researchers Computation

f) *Input Specification And Design*

The input to the new system was derived at the Signup portion of the social media, on the part of the students and the lecturers to feel in the right information required which was used in registering them to the

online social media platform. At the end of the registration, after clicking the Signup button the information gathered will be stored inside the database automatically.



Researchers Computation

Figure 3.3: Shows the Signup form.

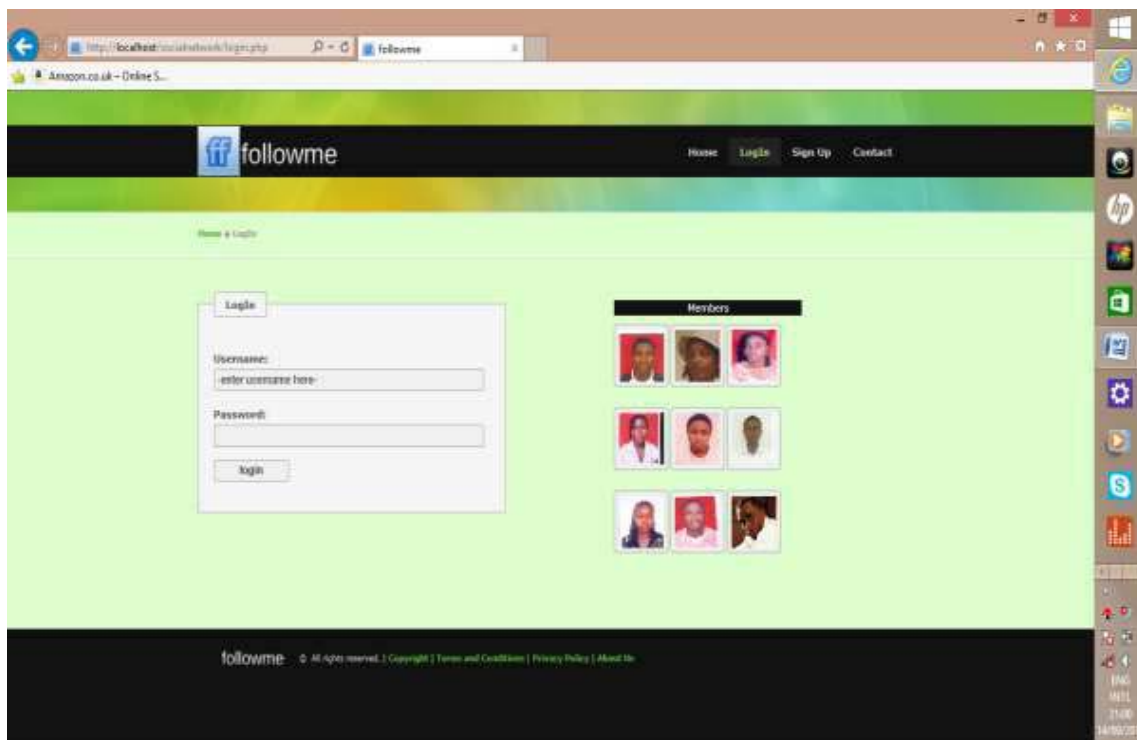


Figure 3. 6: Output Specification and Design

The output design was based on the inputs of the students, lecturers, and administrator. The system can log in the student, lecturer, and administrator as a member of the social network where he/she will be able

to see other members and communicate with other members who are also on the same platform or network.

On clicking the "Login" button, based on the option selected, the page will look like this:

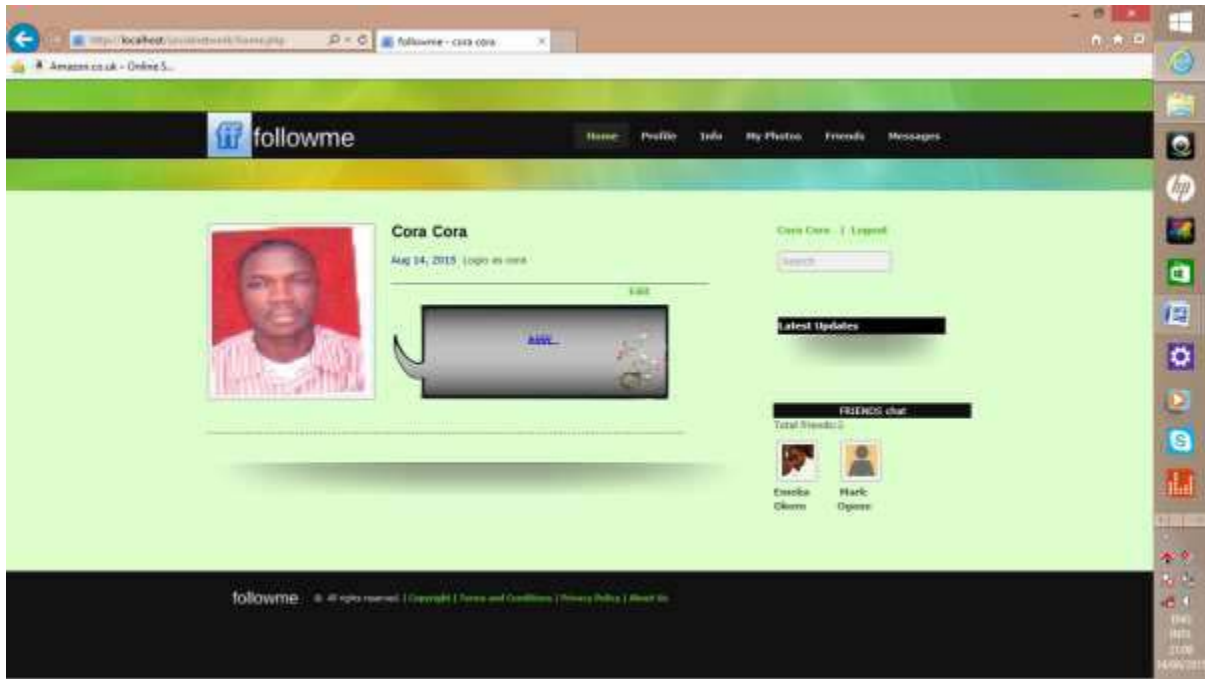


Figure 3.4: Output specification----result

g) System Design

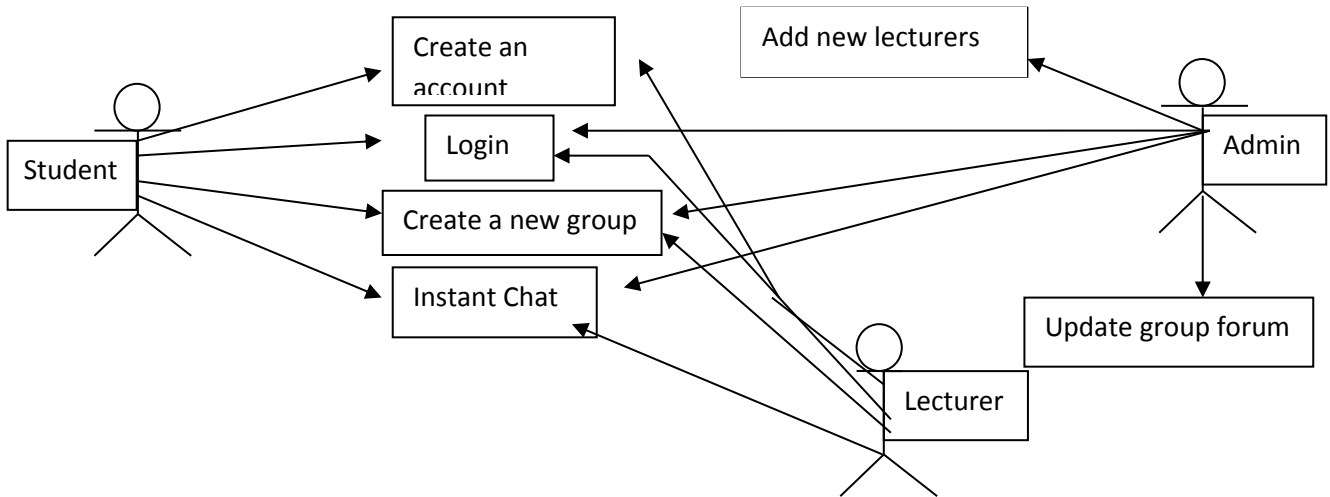


Figure 3.5: Use Case diagram for Online Social Network



IV. IMPLEMENTATION AND DOCUMENTATION

In this section, we discussed the implementation of (Followme), Obong University Social Media. Implementation is the realization of an application by following through several execution phases of planning, modelling, design, and analysis. After a thorough process of system analysis, system design and an exhaustive requirement specification, the system was implemented and test-ran using appropriate tools.

The section provided an overview of the choice of platform, tools and programming languages, software and hardware requirements, and the different modules and interfaces that were implemented.

a) *Implementation*

The website or portal for online communication system was implemented, using PHPMy Admin, Macromedia Dreamweaver, Mysql database, swish max, fireworks and apache server. System implementation follows the approval of the system proposals and its object thus it is to arrive at a satisfactory, implemented, wholly evaluated and functioned from the automated system. The system implementation embodies the preparation of resources including equipment and personnel with the testing of the system.

b) *Choice of Programming Language*

The requirements of the Obong University Social Network website system demands that a capable programming language should be used for its implementation. Hence PHP was chosen.

PHP: Hypertext pre-processor is a widely used, general-purpose scripting language was originally designed for web development, and production of dynamic web pages. PHP code is embedded into the HTML source document, to be interpreted by a web server that has a PHP processor module, which generates the web page document. PHP is a general-purpose programming language, which PHP code is processed by an interpreter application in command-line mode performing desired operating system operations and producing program output or its standard output channel. It may also function as a graphical application. PHP is a processor for most modern web servers and a standalone interpreter on most operating systems and computing platforms.

Why I found it appropriate to choose it in implementing this project was that it is a powerful debugging facility that provides useful hints and suggestions for error handling.

c) *Program Description*

The program starts with the default home page. Here you can log in as a STUDENT, LECTURER, or ADMIN. There are Six (6) tabs: Home, Profile, Info, My photos, Friends, and Messages. The Home tag is a

portion which welcomes non members and members of the social network and allows them to Login or register using the Signup tab. After the Student, Lecturer or Admin must have Login to the social network, the next tab is the Profile tab of the member allowing him/she as a member to view his/her profile picture, and also getting them to see some update (such as friend's comment on another friend profile picture or a friend changing his photo). The Info tab gives the member access to view his/her details that were supplied when signing up and remains valid and still in progress and also to provide additional information. My photo tab is a portion where members can upload their favourite photo and also make comment on them. Friends tab is a portion where a member gets to see all the number of friends he/she has and also get to see friends that are available on the social network. Message tab is a portion where all messages are seen. Mails which are sent are stored in the sent items folder, while those received are stored in the inbox folder, and the trash folder contains those that are sent on broadcast within a group.



4.3.1: HOME PAGE

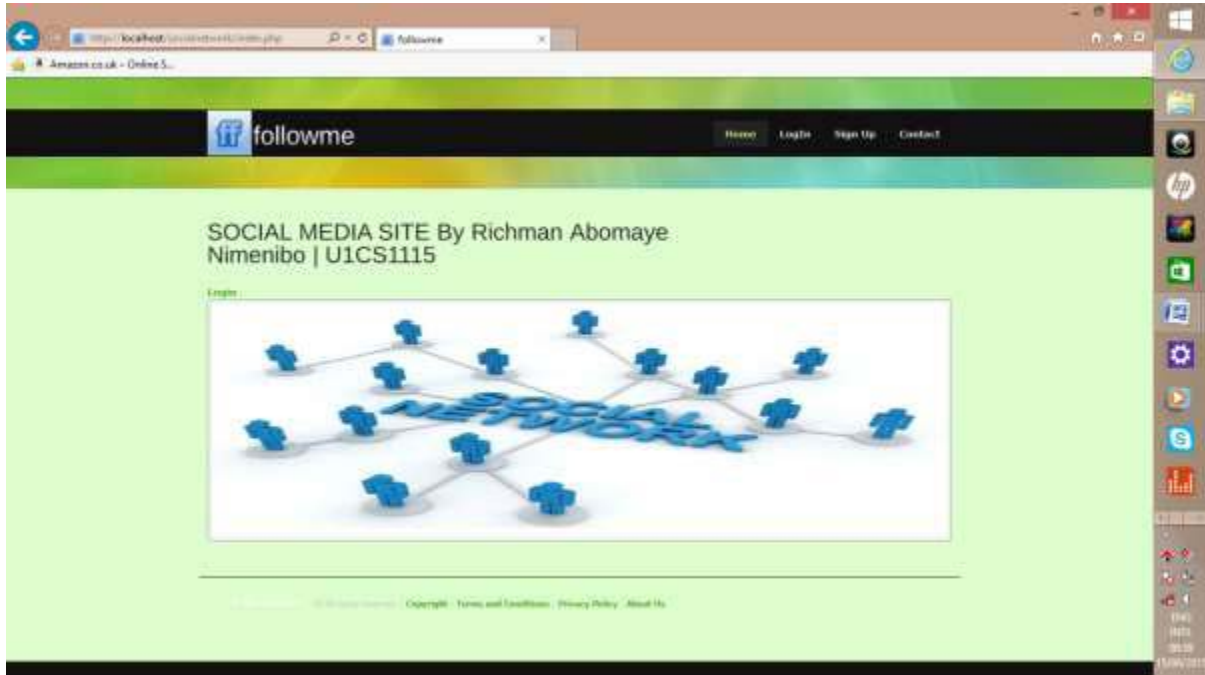


Figure 4.1: Showing home page

4.3.2 PROFILE



Figure 4.2: Showing the Profile page

4.3.3 INFO

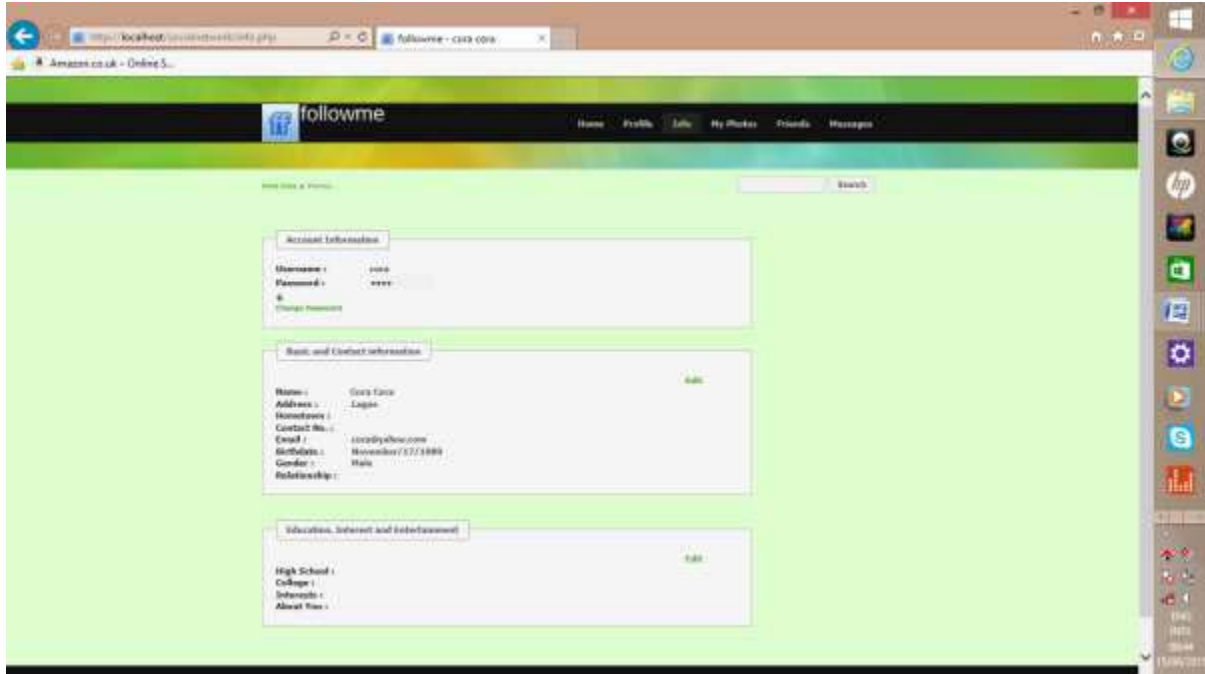


Figure 4.3: Showing the information about the individual Member

4.3.4 My Photos

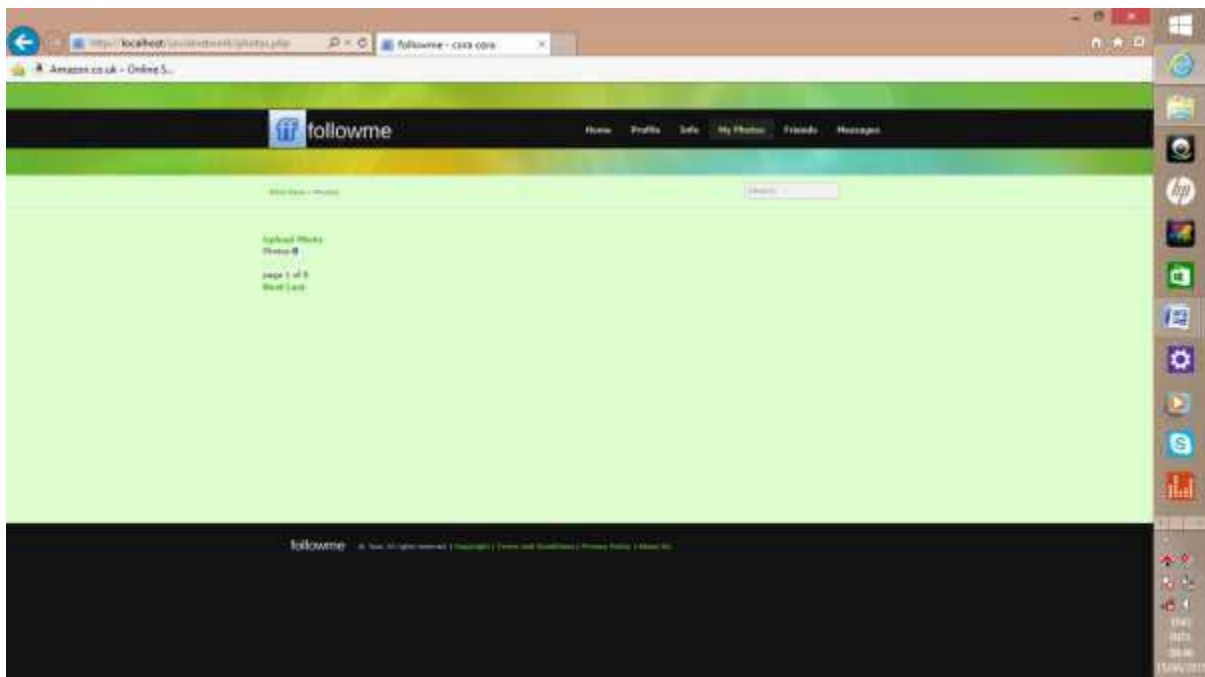


Figure 4.4: Showing the page that will display once you clicked on the individual dashboard

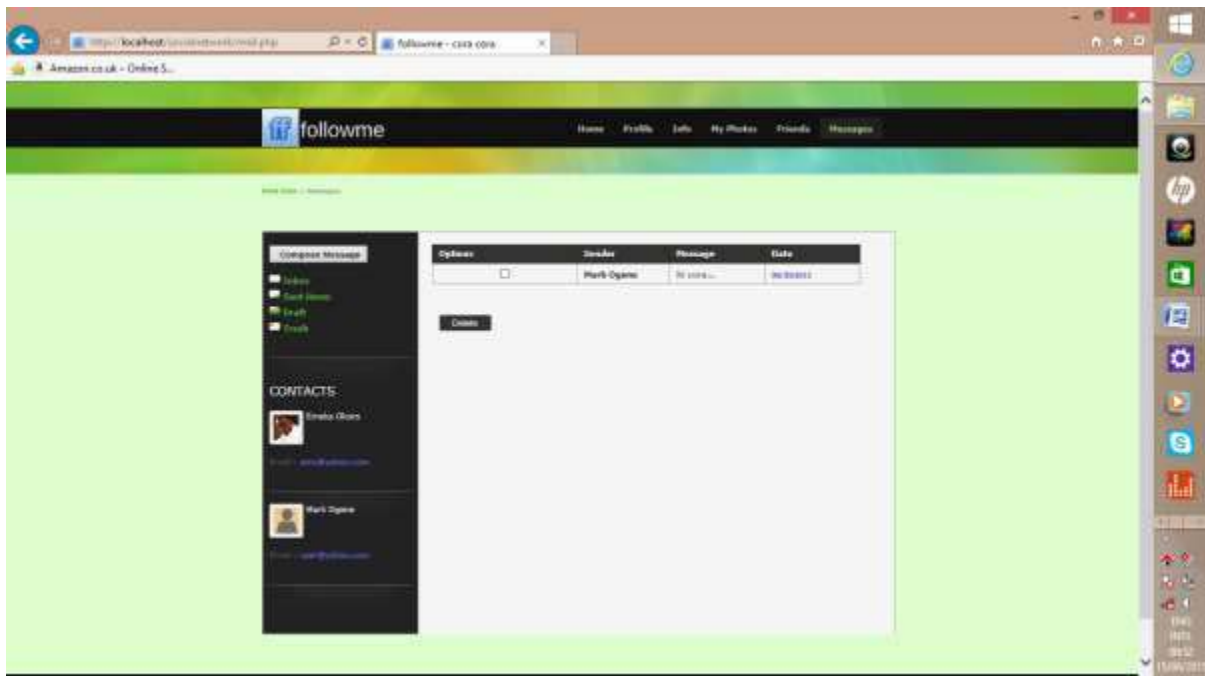


4.3.5 FRIENDS



Figure 4.5: showings of friends on the link

4.3.6 MESSAGES



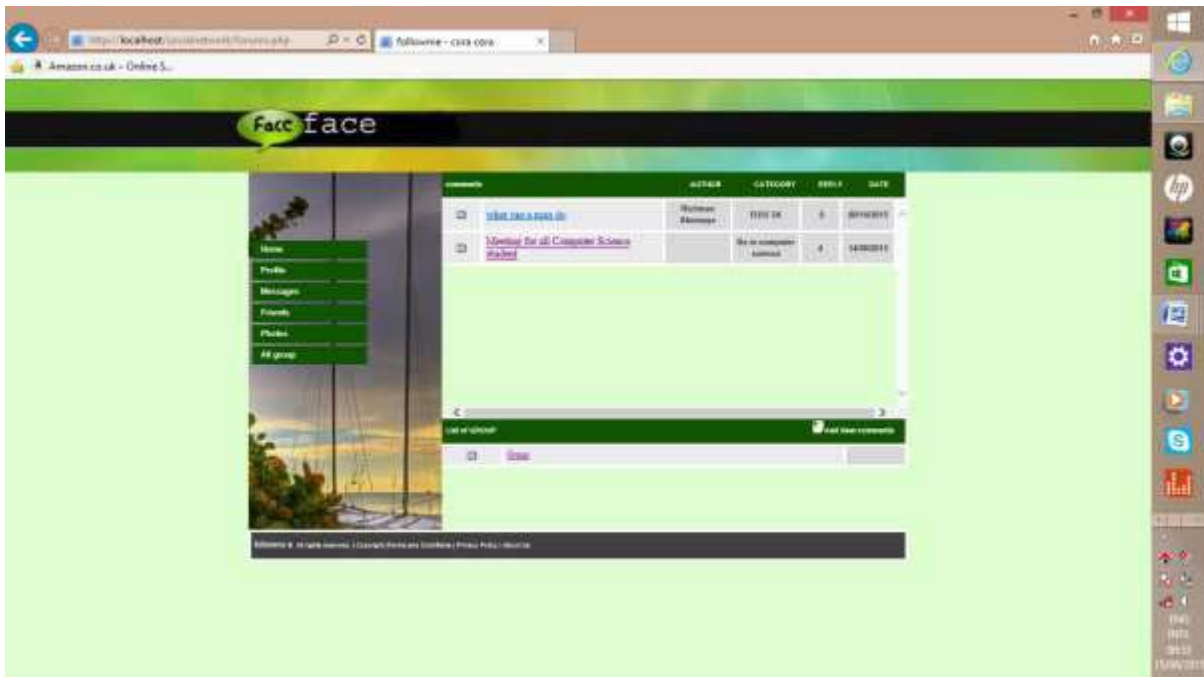


Figure 4.6: showing the individual messages display board

d) *System Requirement*

The system for running this project involves both the hardware and the software parameters.

i. *Hardware requirements*

- Pentium III processor (minimum)
- 256MB – 4GB RAM/memory space
- 10GB Hard disk space (minimum)
- SVGA colour monitor
- Standard keyboard
- Mouse
- CD ROM drive or DVD drive
- A Stabilizer
- 1500v uninterrupted power supply (UPS)
- Local Server

ii. *Software Requirements*

- Operating system:* Window XP professional edition or windows vista, other versions of windows include Windows 7, 8.0, 8.1, and 10.
- Internet service application
- Internet Explorer 6.0
- Macromedia family: consisting of Dreamweaver 8, Firework 8, and Flash player 8.
- MySQL database
- Apache server
- Phpmyadmin

iii. *User Requirements*

The computer user should be given proper orientation on how the new system works. Training improves the efficiency of both the user and the designed system. All staff has to be promptly notified

whenever new modifications are made. The students and staff using this system must be trained in the operation of the system.

e) *System Maintenance*

System maintenance is the last phase in the development of computer software. It deals with adjusting, improving the systems performance, reliability, efficiency, and effectiveness through system audits, user feedback, and periodic evaluation. Furthermore, it is the maintenance that involves upgrading and updating of the system(s) to keep them in place with new products, services, customers, demand, government regulations, and so forth.

V. SUMMARY, CONCLUSION AND RECOMMENDATION

This section presents the summary of the research work, recommendations, and the general conclusion of the research work.

a) *Summary*

People have used the idea of social network loosely for over a century to indicate complex sets of relationships among members of social systems at all levels, from interpersonal to international. Social network analysis has now moved from being a suggestive metaphor to an analytic approach and a paradigm, with its theoretical statements, methods, social network analysis software, and researchers. Analyst's way of reasoning is from whole to part; from structure to relations and individual; and as well from behaviour to attitude. This web-based system can be implemented

online or locally. This programme was developed to the local taste and is still running on localhost as well as on intranet which is in support of MySQL, MyPhpAdmin, Apache server and PHP. The system database is updatable, reliable, and secure and enables students' applications to be processed and well documented.

VI. CONCLUSION

The benefits of using the social networking website system cannot be overemphasized, since the system will increase the speed of communication, online seminars, group chats, networking, and many more.

VII. RECOMMENDATIONS

We recommend this work to the management of Obong University or any other institute of learning for ease of use of both staff and students that are cost-effective and save them of the stress of manual system of communication or the restriction in the social life of the students. With the deployment of this social networking website, there will be growth in students' population when effectively used of networking. The programme is cost-effective. We also recommend this work to all institutions and organizations that deal with many employees and a large student population. We are ready to install in any institution or workplace.

REFERENCES RÉFÉRENCES REFERENCIAS

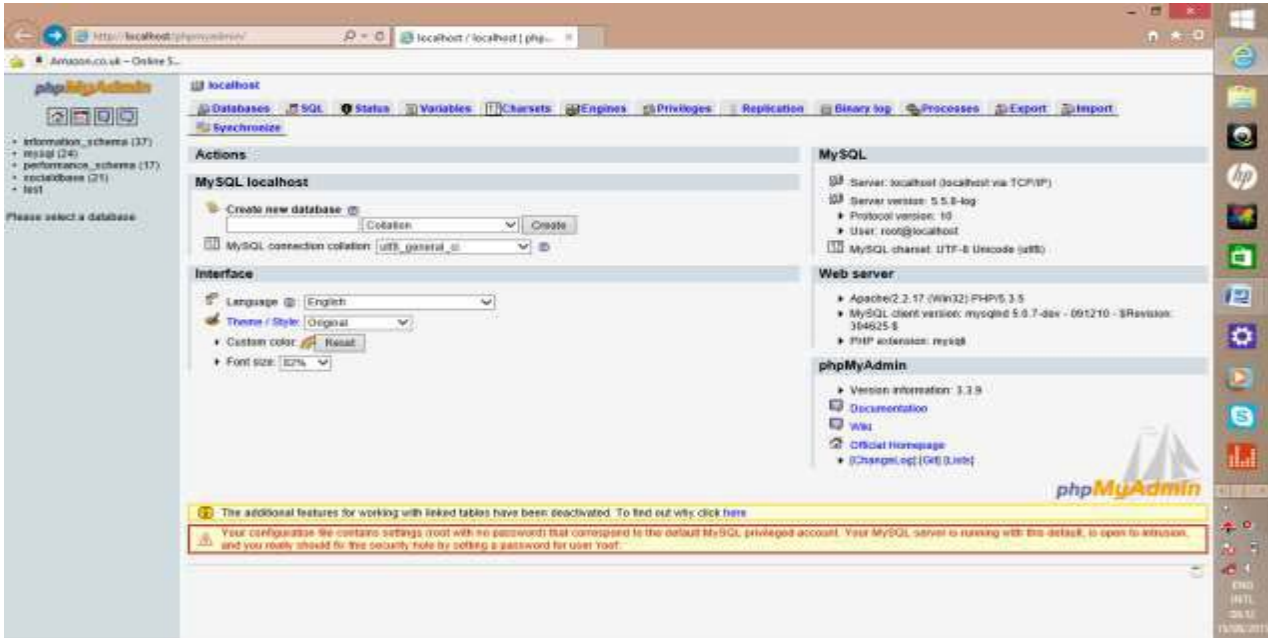
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URL

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- http://www.w3schools.com/tags by w3schools.
- http://en.wikipedia.org/wiki/Hierarchical database by Wikipedia.
- http://www.tekmom.com/buzzwords by Tekmom Buzzwords.

APPENDIX ONE

SCREENSHOTS OF SOME DEVELOPMENT TOOLS



php myadmin interface.

APPENDIX TWO
SOURCE CODES

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

  <link rel="stylesheet" type="text/css" href="css/style.css" />
  <link rel="stylesheet" type="text/css" href="css/cycle.css" />

  <!-- Here is where your page title must go -->
  <title>followme</title>

  <link rel="shortcut icon" HREF="images/logo.png" />

  <!-- Metadescription and MetaKeyWords are used for SEO -->
  <meta content="Metadescription" name="Insert the description of this
page here" />
  <meta content="MetaKeyWords" name="Insert the keywords that describe this
page here" />
  <script type="text/javascript" src="js/jquery.js"></script>
<script type="text/javascript">
$(document).ready( function() {
```

```

        $("#bi").click( function() {
            $("#backin").fadeIn();
            $("#bi").fadeOut();
        });

        $("#mis").click( function() {
            $("#mission").fadeIn();
            $("#mis").fadeOut();
        });

        $("#vis").click( function() {
            $("#vision").fadeIn();
            $("#vis").fadeOut();
        });

        $("#man").click( function() {
            $("#mandate").fadeIn();
            $("#man").fadeOut();
        });

        $("#int").click( function() {
            $("#intrams").fadeIn();
            $("#int").fadeOut();
        });

        $("#che").click( function() {
            $("#cheer").fadeIn();
            $("#che").fadeOut();
        });

        $("#ac").click( function() {

            $("#acq").fadeIn();
            $("#ac").fadeOut();

        });
    });
</script>
<!-- JQUERY -->
<script type="text/javascript" SRC="js/jquery-1.4.2.min.js"></script>
<!-- -END- JQUERY -->

<!-- Cycle -->
<script type='text/javascript'
SRC="js/jquery.cycle.all.min.js"></script>
<script type="text/javascript">
    $(document).ready(function() {
        if ($('#slides').length > 0) {
            $('#slides').cycle({
                fx: 'fade',
                speed: 750,
                timeout: 6000,
                randomizeEffects: false,
                pager: '#slidepager',
                cleartypeNoBg: true
            });
        }
    });

```

```

</script>
<!-- -END- Cycle -->

<!-- Superfish Menu -->
<script type="text/javascript"
SRC="js/superfish/hoverIntent.js"></script>
<script type="text/javascript"
SRC="js/superfish/superfish.js"></script>
<script type="text/javascript"
SRC="js/superfish/supersubs.js"></script>
<script type="text/javascript">
    $(document).ready(function() {
        $("ul.sf-menu").supersubs({
            minWidth:    12,    // minimum width of sub-
            menus in em units
            maxWidth:    27,    // maximum width of sub-
            menus in em units
            extraWidth:  1     // extra width can ensure
            lines don't sometimes turn over
                                // due to
            slight rounding differences and font-family
        }).superfish(); // call supersubs first, then
            superfish, so that subs are
                                // not display:none
            when measuring. Call before initialising
                                // containing tabs for
            same reason.
        });
    </script>
<!-- -END- Superfish Menu -->

<!-- IE6 PNG Transparency Fix -->
<script type="text/javascript"
SRC="js/jquery.pngFix.pack.js"></script>
<script type="text/javascript">
    $(document).ready(function() {
        $(document).pngFix();
    });
</script>
<!-- -END- IE6 PNG Transparency Fix -->

<!-- CUFON Font Replacement -->
<script SRC="js/cufon-yui.js" type="text/javascript"></script>
<script SRC="js/Liberation Sans font.js"
type="text/javascript"></script>
<script type="text/javascript">
    Cufon.replace('h1,h2,h3,h4,h5,h6');
    Cufon.replace('.logo', { color: '-linear-gradient(0.5= #FFF,
0.7= #DDD)' });
</script>
<!-- -END- CUFON Font Replacement -->

</head>
<body>
    <div id="header">
        <div class="container_12">

```



```

        <div class="grid_3">
            <h1 class="logo">
                <a href="index.php"><span
style="margin-left:10px;">followme</span></a>
            </h1>
        </div><!-- end grid -->
        <div class="grid_9">
            <ul class="sf-menu">
                <li>
                    <a class="current"
HREF="index.php">Home</a>
                </li>
                <li>
                    <a href="login.php">LogIn</a>
                </li>
                <li>
                    <a HREF="reg.php">Sign Up</a>
                </li>
                <li><a
HREF="contact.php">Contact</a></li>
            </ul>
        <!-- end sf-menu -->
    </div><!-- end grid -->
</div><!-- end container -->
<div class="clear"></div>
</div><!-- end header -->
<div id="content">
    <div class="container_16 clearfix">
        <div id="featured">
            <div class="grid_12">
                <div id="slideshow"><h2>SOCIAL MEDIA
SITE By Richman Abomaye Nimenibo | U1CS1115 </h2><font size="6"
color="green"><a href="login.php">Login</a></font>
                <div id="slides">
                    <img class="framed"
SRC="images/featured/slide1.jpg" alt="Slide 1" />
                </div>
                <div id="slidepager"></div>
            </div><!-- end slideshow -->
        </div><!-- end featured -->
    <div class="grid_4">
        <p align="justify">
    </div>

```

```
<div id="sub_footer">
  <div class="container_12 clearfix">
    <div class="grid_12">
      <a class="logo left" href="#">followme</a>
      <p><small>&copy; All rights reserved. | <a href="copyright.php">Copyright</a> | <a href="terms.php">Terms and Conditions</a> | <a href="privacy.php">Privacy Policy</a> | <a href="about.php">About Us</a> </small></p>
    </div><!-- end grid -->
  </div><!-- end container -->
</div><!-- end subfooter -->

<!-- For CUFON Under IE -->
<script type="text/javascript"> Cufon.now(); </script>
</body>
</html>
```

SIGNUP

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
<script>
function verifyEmail() {
var emailRegEx = /^[A-Z0-9._%+-]+@[A-Z0-9.-]+\.[A-Z]{2,4}$/i;
  if (document.alokm.email.value.search(emailRegEx) == -1) {
    alert("Please enter a valid email address.");
  }

  return false;
}
</script>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<link rel="stylesheet" type="text/css" href="css/style.css" />
<link rel="stylesheet" type="text/css" href="css/pswd.css" />

<title>followme</title>

<link rel="shortcut icon" HREF="images/logo.png" />

<meta content="Metadescription" name="Insert the description of this page here" />
<meta content="MetaKeyWords" name="Insert the keywords that describe this page here" />

<script type="text/javascript" SRC="js/jquery-1.4.2.min.js"></script>
```

```

        <script type="text/javascript"
SRC="js/superfish/hoverIntent.js"></script>
        <script type="text/javascript"
SRC="js/superfish/superfish.js"></script>
        <script type="text/javascript"
SRC="js/superfish/supersubs.js"></script>
        <script type="text/javascript">
            $(document).ready(function() {
                $("ul.sf-menu").supersubs({
                    minWidth: 12,
                    maxWidth: 27,
                    extraWidth: 1

                }).superfish();
            });
        </script>

        <script type="text/javascript"
SRC="js/jquery.pngFix.pack.js"></script>
        <script type="text/javascript">
            $(document).ready(function() {
                $(document).pngFix();
            });

function passwordStrength(password)
{
    var desc = new Array();

    desc[0] = "Very Weak";
    desc[1] = "Weak";
    desc[2] = "Better";
    desc[3] = "Medium";
    desc[4] = "Strong";
    desc[5] = "Strongest";

    var score = 0;
    if (password.length > 6) score++;

    if ( ( password.match(/[a-z]/) ) && ( password.match(/[A-Z]/) ) )
score++;

    if (password.match(/\d+/)) score++;
    if ( password.match(/.[!,@,#,$,%,&,*?,_~, -, (,)]/) ) score++;
    if (password.length > 12) score++;

    document.getElementById("passwordDescription").innerHTML =
desc[score];

    document.getElementById("passwordStrength").className = "strength" +
score;
}

</script>

        <script SRC="js/cufon-yui.js" type="text/javascript"></script>
        <script SRC="js/Liberation Sans font.js"
type="text/javascript"></script>
    
```

```
<script type="text/javascript">
    Cufon.replace('h1,h2,h3,h4,h5,h6');
    Cufon.replace('.logo', { color: '-linear-gradient(0.5=#FFF,
0.7=#DDD)' });
</script>

<SCRIPT type="text/javascript">

pic1 = new Image(16, 16);
pic1.src = "loader.gif";

$(document).ready(function() {

$("#username").change(function() {

var usr = $("#username").val();

if(usr.length >= 4)
{
$("#status").html('&nbsp;Checking
availability...');

$.ajax({
type: "POST",
url: "check.php",
data: "username="+ usr,
success: function(msg){

$("#status").ajaxComplete(function(event, request, settings) {

if(msg == 'OK')
{
$("#username").removeClass('object_error');
$("#username").addClass("object_ok");
$(this).html('&nbsp;');
}
else
{
$("#username").removeClass('object_ok');
$("#username").addClass("object_error");
$(this).html(msg);
}
});
}

});

}
else
{
$("#status").html('<font color="red">The username should have at least
<strong>4</strong> characters.</font>');
$("#username").removeClass('object_ok');
$("#username").addClass("object_error");
}
}
```

```

});

});

//-->
</SCRIPT>

</head>
<body>
<div id="header">
  <div class="container_12">
    <div class="grid_3">
      <h1 class="logo"> <a href="index.php"><span style="margin-left:10px;">followme</span></a> </h1>
    </div>
    <!-- end grid -->
    <div class="grid_9">
      <ul class="sf-menu">
        <li> <a href="index.php">Home</a> </li>
        <li> <a href="login.php">LogIn</a> </li>
        <li> <a href="reg.php">Sign Up</a>
          </li>
        <li><a href="contact.php">Contact</a></li>
        <li></li>
      </ul>
    </div>
  </div>
  <div class="clear"></div>
</div>
  <div id="breadcrumb">
    <div class="container_12 clearfix">
      <div class="grid_9">
        <p><a href="index.php">Home</a> ♦ Sign Up</p>
        <p></p>
      </div>
    </div>
  </div>
  <div id="content">
    <div class="container_12 clearfix">
      <div class="right" align="right" style="margin-left: 0px; padding-left: 20px;">
        <h1>Welcome to followme.....</h1><br>
        It is free and always will be....<br>
        <br>
      </div>
      <div class="grid_12" style="width: 350px;">
        <fieldset>
          <legend>Sign Up</legend>
          <form id="form1" method="post"
            action="reg.php" name="alokm">
            <input name="image" type="hidden"
              value="uploads/propic.jpg" />
            <h3>&nbsp;</h3>
          </form>
        </fieldset>
      </div>
    </div>
  </div>

```

```
<p>
    <label>Username:
    <input id="username"
style="width: 250px; font-weight: bold; color: #222;
text-transform: none;" type="text" name="username" /><br /><span
id="status"></span></label>
</p>
<p>
    <label>Password:
    <input style="width:
250px; font-weight: bold; color: #222;
text-transform: none;" name="password" type="password"
onkeyup="passwordStrength(this.value)" /></label>
    <br />
    <span id="passwordDescription"></span>
    <span id="passwordStrength" class="strength0"></span>
</p><br />
<p>
    <label>Firstname:
    <input style="width:
250px; font-weight: bold; color: #222;
text-transform: capitalize;" type="text" name="firstname" /></label>
</p>
<p>
    <label>Lastname:
    <input style="width:
250px; font-weight: bold; color: #222;
text-transform: capitalize;" type="text" name="lastname" /></label>
</p>
<p>
    <label>Email:<br />
    <input type="text"
style="width: 250px; font-weight: bold; color: #222;
text-transform: none;" onblur="verifyEmail()" name="email" /></label>
</p>
<p>
    <label>City:<br>
    <input style="width:
250px; font-weight: bold; color: #222;
text-transform: capitalize;" type="text" name="address" /></label>
</p>
<p>
    <label>Birthdate:<br />
    <input
name="birthdate" type="hidden" size="25" />
    <div id="bmonth"><select
class="" style="width: 100px;
font-weight: normal;
color: #222;" name="birthday_month" ></div>
        <span id="valmonth" style="display:none;">
        <option value="-1">Month:</option>
        <option value="January">Jan</option>
        <option value="February">Feb</option>
        <option value="March">Mar</option>
        <option value="May">May</option>
        <option value="June">Jun</option>
        <option value="July">Jul</option>
    </p>
```



```

        <option value="August">Aug</option>
        <option value="September">Sep</option>
        <option value="October">Oct</option>
        <option value="November">Nov</option>
        <option value="December">Dec</option>
    </select></span>
    <span id="bday">
        <select name="birthday_day" style="width: 100px;
font-weight: normal;
color: #222;" autocomplete="on"></span> <span id="valday"
style="display:none;">
        <option value="-1">Day:</option>
        <option value="1">1</option>
        <option value="2">2</option>
        <option value="3">3</option>
        <option value="4">4</option>
        <option value="5">5</option>
        <option value="6">6</option>
        <option value="7">7</option>
        <option value="8">8</option>
        <option value="9">9</option>
        <option value="10">10</option>
        <option value="11">11</option>
        <option value="12">12</option>
        <option value="13">13</option>
        <option value="14">14</option>
        <option value="15">15</option>
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        <option value="18">18</option>
        <option value="19">19</option>
        <option value="20">20</option>
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        <option value="22">22</option>
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        <option value="24">24</option>
        <option value="25">25</option>
        <option value="26">26</option>
        <option value="27">27</option>
        <option value="28">28</option>
        <option value="29">29</option>
        <option value="30">30</option>
        <option value="31">31</option>
    </select></span>
    <span id="byear"> <select name="birthday_year"
style="width: 100px;
font-weight: normal;
color: #222;" autocomplete="on"></span><span id="valyear"
style="display:none;">
        <option value="-1">Year:</option>
        <option value="2011">2011</option>
        <option value="2010">2010</option>
        <option value="2009">2009</option>
        <option value="2008">2008</option>
        <option value="2007">2007</option>
        <option value="2006">2006</option>
        <option value="2005">2005</option>
        <option value="2004">2004</option>
    </select></span>

```

```
<option value="2003">2003</option>
<option value="2002">2002</option>
<option value="2001">2001</option>
<option value="2000">2000</option>
<option value="1999">1999</option>
<option value="1998">1998</option>
<option value="1997">1997</option>
<option value="1996">1996</option>
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<option value="1983">1983</option>
<option value="1982">1982</option>
<option value="1981">1981</option>
<option value="1980">1980</option>
<option value="1979">1979</option>
<option value="1978">1978</option>
<option value="1977">1977</option>
<option value="1976">1976</option>
<option value="1975">1975</option>
<option value="1974">1974</option>
<option value="1973">1973</option>
<option value="1972">1972</option>
<option value="1971">1971</option>
<option value="1970">1970</option>
</select></span>
</p>
<p>
<label>Gender:
<select name="gender"
style="width: 300px; font-weight: bold; color: #222;
text-transform: none;">
<option value="-1" selected="selected">-Select
Gender-</option>
<option>Male</option>
<option>Female</option>
</select></label>
</p>
<p>
<label>country:
<input style="width:
300px; font-weight: bold; color: #222;
text-transform: uppercase;" type="text" name="yr_sec" /></label>
</p>
<br />
<p><input type="radio"
name="checkbox" id="check" checked/>
<a href="termsfuse.php">Terms of Use</a><br
/><br />
```



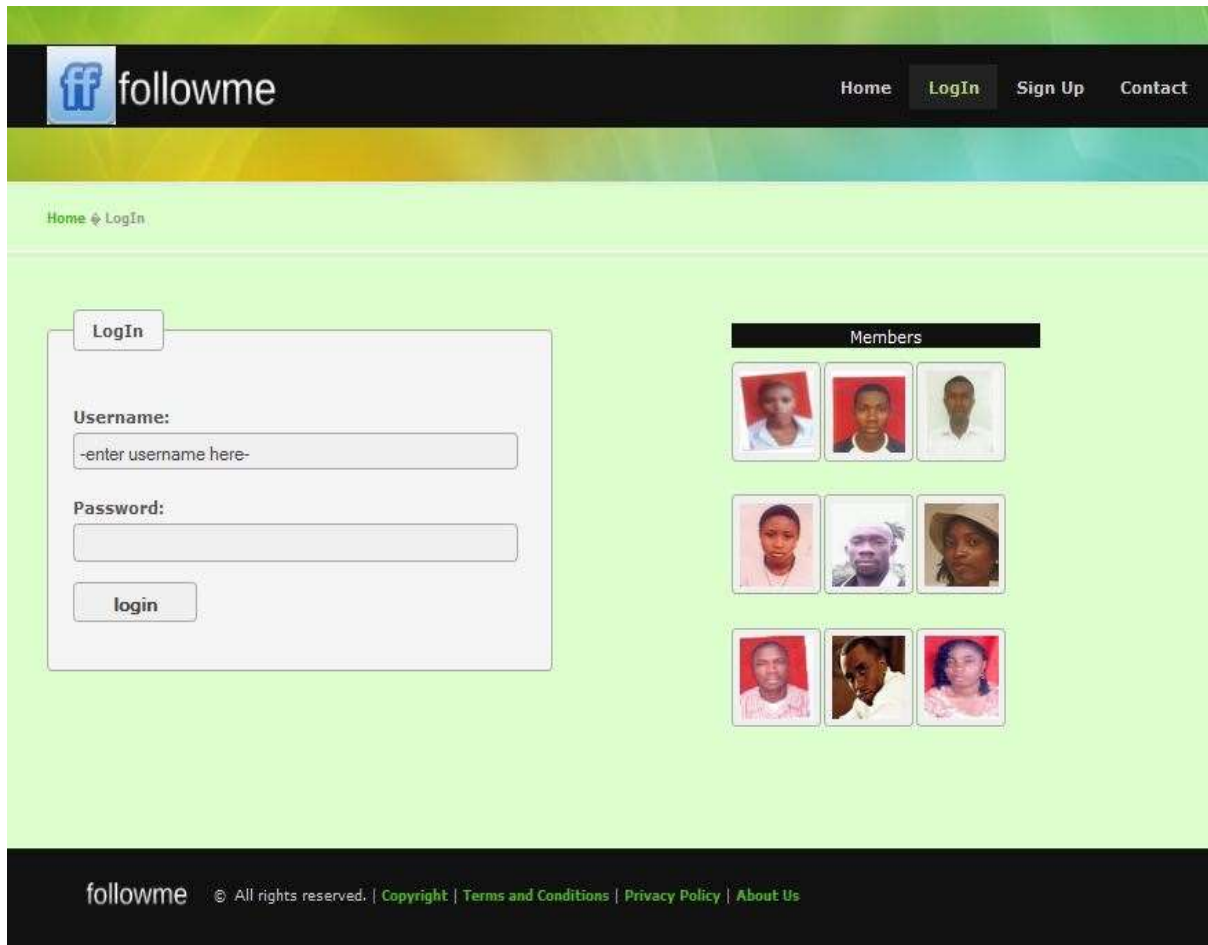
```
value="Sign Up" type="submit" name="register" />
<input class="button"
</p>
</form>
</fieldset>
</div>
<!-- end grid -->
</div><!-- end container -->
</div><!-- end content -->
<!-- end footer -->
<div id="sub_footer">
<div class="container_12 clearfix">
<div class="grid_12"> <a class="logo left" href="#">followme</a>
<p><small>&copy;&nbsp;&nbsp;&nbsp; All rights reserved. | <a
href="copyright.php">Copyright</a> | <a href="terms.php">Terms and
Conditions</a> | <a href="privacy.php">Privacy Policy</a> | <a
class="current" href="about.php">About Us</a></small></p>
</div>
</div>
</div>
<script type="text/javascript"> Cufon.now(); </script>
<script type="text/javascript"> Cufon.now(); </script>
</body>
</html>
```

APPENDIX THREE



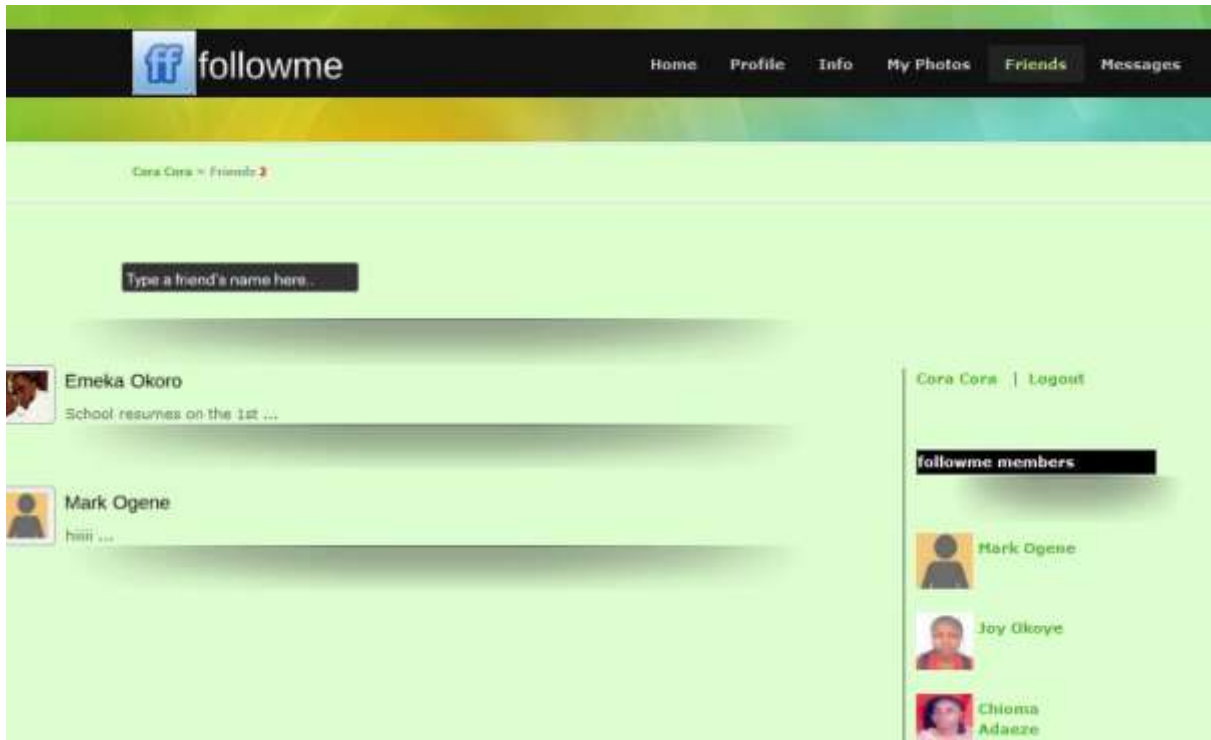
APPENDIX FOUR

Login Page



APPENDIX FIVE

Friends





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ARDL Modeling of the Impact of Financial Reforms on Private Domestic Saving in Cameroon

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University of Douala

Abstract- The aim of this study is to model the effects of financial sector reforms on private domestic savings in Cameroon. After building an econometric model of private domestic savings from the theory of financial repression of McKinnon and Shaw (1973), it is analyzed using ARDL co integration approach. The results indicate that there exist a long run negative and significant relationship between private domestic savings and financial reforms. In the short run, this relationship is positive though not significant. On the basis of these results, we recommend that Cameroonian authorities, in their quest for growth and prosperity for the country, should envisage revising the ongoing liberalization process in the country.

Keywords: *financial reforms, private domestic savings, ARDL modeling approach.*

GJHSS-E Classification: FOR Code: 349999



Strictly as per the compliance and regulations of:



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ARDL Modeling of the Impact of Financial Reforms on Private Domestic Saving in Cameroon

NEBA Cletus YAH ^α & Ebo' oh Ntjen Salomon Desiree ^ο

Abstract- The aim of this study is to model the effects of financial sector reforms on private domestic savings in Cameroon. After building an econometric model of private domestic savings from the theory of financial repression of McKinnon and Shaw (1973), it is analyzed using ARDL co integration approach. The results indicate that there exist a long run negative and significant relationship between private domestic savings and financial reforms. In the short run, this relationship is positive though not significant. On the basis of these results, we recommend that Cameroonian authorities, in their quest for growth and prosperity for the country, should envisage revising the ongoing liberalization process in the country.

Keywords: financial reforms, private domestic savings, ARDL modeling approach.

I. INTRODUCTION

The financial system plays an important role in economic development. It intermediates between savers and borrowers (investors) in the economy. Economies with well-developed financial systems boast of liquidity availability created by financial institutions through the mobilization of savings (resources). The savings are allocated to the different productive investment sectors of the economy. A healthy and developed financial system does not only benefit the economy through savings mobilization but also through increased efficiency of financial intermediation (Levine, 1997). The efficiency of financial intermediation increases the ratio of private domestic savings to income. This in turn will make the process of domestic savings mobilization more effective. Thus efficient resource allocation and financial deepening will be achieved hence economic development (Shaw, 1973). According to Levine (1997), the financial intermediation functions of savings mobilization and the efficient allocation of resources leads to capital accumulation and technological innovation which in turn promotes economic growth and development.

One of the main aims of financial sector reforms is to enhance the efficient mobilization and allocation of private domestic savings in an economy by removing price distortions and decreasing the problem of incentives for both borrowers and lenders. Financial

reforms therefore, entail usage of indirect monetary policy instruments, money and capital markets development, liberalization of interest rate and credit control relaxation. These efforts work towards promoting the efficiency of the financial sector in the mobilization and allocation of the savings of the economy (Ngugi, 2000).

Many countries, influenced by economic theories en vogue, applied different financial sector policies with the aim of ensuring the efficiency of financial intermediation. Kase kende and Atingi-Ego (2008) observed that most of the developing countries in the periods from 1970 to mid-1980s were characterized by financial repression. The wisdom behind financial restriction was to persuade financial institutions and other instrument from which the government obtains revenue disregarding other sectors. This was based on Keynes argument that capital formation could only be promoted by keeping interest rates low (Levine, 2001). This theoretical argument came under sharp criticism in the works of McKinnon (1973) and Shaw (1973) who termed the position as financial repression. According to these authors, financial repression policies lead to a loss in the efficiency of the financial sector in saving mobilization and allocation.

McKinnon (1973) and Shaw (1973) argued that LDCs underdevelopment was mainly as a result of financial repression which according to them interferes with financial deepening and financial intermediation. They hold that when interest rates are controlled, savings mobilization through financial institutions will not be allocated efficiently among competitive uses. This implies that the returns on the savings will be unpredictable and unstable. Capital investments are discouraged making the economy to stagnate. Interest rates therefore need to be attractive so as to mobilize more savings for productive and profitable investments. The McKinnon and Shaw hypothesis is based on the assumption that savings are always positively related to real interest rates and that if nominal interest rates are administratively determined, they will always be below the equilibrium level of real interest rates. The expected benefits of financial reforms therefore include among others; an increase in the size of domestic savings channelled through the formal financial sector,

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increased efficiency of financial intermediation and the effectiveness of monetary policy (Levine (1997). There is therefore need to develop well-functioning financial systems to aid the process of economic development.

A large number of Sub Saharan African (SSA) Countries widely adopted Structural Adjustment Programs (SAPs) in view of reviving their deteriorating economies in the mid-80s (World Bank, 1994). SAPs were basically meant to encourage governments to pursue measures of economic liberalization in order to remove restriction in financial intermediation process, improve resource mobilization, productivity and operational efficiency which had made the process of economic development unachievable (Aryeetey, Hettige, Nissanke, & Steel, 1997). One of the major economic liberalization measures was the reform of the financial sector. Financial liberalization was therefore viewed as a process of allowing market forces to determine who receives or makes credit and what price. The financial liberalization measures that were to be adopted included deregulation of interest rates; elimination or reduction of directed credit control; allowing free entry in the banking sector as well as giving autonomy to commercial banks; allowing private ownership of banks; and liberalizing international capital flows (Odhiambo, 2009).

Cameroon as most of the countries in SSA initiated financial sector reforms in the late 1980s with liberalization of interest rates taking the lead in 1991 followed by removal of credit guidelines, free entry into the banking sector and opening of the financial sector to foreign investors (Noula, 2012). Despite the implementation of these reforms, private domestic savings rate has been falling and remains very low. Domestic savings divided by GDP stood at 16.19% in 2018 according to the World Development Indicators 2019 online version. This figure is half its 1990 level which stood at 30% when reforms were undertaken. Furthermore, the performance of Cameroon in this indicator is very poor as it is below the average of Sub-Saharan Africa which stands at 18.89% in 2018. For high income countries, the domestic savings rate in 2018 was 24%, making us to believe that the low growth performance observed during the past years can be partly explained by its poor savings rate. As such, if the country intends to accomplish its ambitions of meeting the millennium development goals and becoming an emerging nation in 2035, it needs to increase its efforts in mobilizing financial resources to finance its projects. This might permit the country to realize the minimum required growth rate of 5.5% as stipulated in its Growth and Employment Strategy Paper (GESP) elaborated after the attainment of the completion point of the Heavily Indebted Poor Country (HIPC) Initiative in 2009.

II. LITERATURE REVIEW

The important role played by the financial sector in economic development can be traced back to Schumpeter (1911) who highlighted the key role of banks in facilitating financial intermediation between entrepreneurs who require credit to finance the acquisition of new products. His line of argument was later supported by authors such as Gurley and Shaw (1955), Goldsmith (1969) and Hicks (1969). These authors were in agreement with Schumpeter on the important role that the financial sector plays. They therefore recommended the formulation of policies which aim at enhancing the role of the financial sector in the process of economic development. However, though economists agreed on the important role played by the financial sector, they differed in the policies that would enhance its efficiency. This Keynesians proposed the ideology of financial repression which was highly adopted in developing countries. The governments in these economies used the policy measure of keeping interest rates low in order to finance their fiscal deficits. This measure was preferred because no increase in taxes or inflation was desirable. Other policy measures included high reserve requirement, selected credit to priority sectors of the economy, weak monetary policy and accommodation of government borrowing. There was no incentive to hold money anymore and other financial assets in these economies limiting, as such, credit available to investors. These diminished the size of the banking system and restrained financial intermediation.

The Keynesian ideology was later in the 1970s challenged by McKinnon (1973) and Shaw (1973). McKinnon model argued that since investment is self-financed, there is need therefore to have sufficient savings. On the other hand Shaw's model postulated on the role that financial intermediaries play in the process of economic growth by promoting investment through borrowing and lending. McKinnon (1973) analysed an open economy with little possibility of external finance for vast majority of investors. He argues that because of the lumpiness of physical capital, savers may find it convenient to accumulate funds in monetary assets until they have enough resources to invest in high yielding physical assets. In his words, McKinnon stipulated that deposits may serve as a conduit for capital formation making deposits and capital complementary assets. The availability of deposits generating real rates of returns may thus encourage both savings and capital accumulation. This however is in contrast with the neo-classical theory where these two assets (money and physical assets) are considered substitutes.

Shaw (1973) also stressed on the importance of positive real interest as an inducement to save in financially repressed economies. However unlike

McKinnon, Shaw hypothesized on external rather than internal financial possibilities as the effective constraint on capital formation. Focusing on the role of deposits as a source of funds for financial intermediaries, Shaw argues that deposit rates would stimulate investment spending by allowing the supply of credit to expand in line with financial needs.

One clear argument of both Shaw and McKinnon hypothesis is the assumption that savings are always positively related to real interest rates and that administratively determined nominal interest rates were therefore always below the equilibrium market level of real interest rates. Their framework therefore advocates that economies should implement financial liberalization policies in order to enhance the mobilization of domestic savings, improve efficiency in resource allocation among the many investment alternative projects so as to contribute to economic development. Other financial liberalization policies apart from interest rate liberalization include: adoption of measures that enhance security markets development; reserve requirement reduction; privatization of publicly owned financial institutions; removal of entry into the banking sector; directed credit elimination; openness of both the capital and current accounts and enhancing prudential regulation measures (Levine, 2001).

The McKinnon and Shaw school of thought came under sharp criticism in the 1980s by the Neo-Structuralists school lead by Wijnbergen (1983), Taylor (1983) and Buffie (1984) due to their failure of including the informal financial market in the model. This school of thought contends that the benefits associated with financial liberalization will not be realized in the presence of an efficient curb market or informal financial market. This is because commercial banks were still subjected to reserve requirement which hinders efficiency of intermediation between savers and investors. The neo-structuralists school therefore saw households to be holding three types of financial assets which were substitutes. They are bank deposit, currency or gold and curb market loan. After financial liberalization, the neo-structuralists foresaw an increase in bank deposits rates. This will make households to demand more or want to hold more of bank deposits against curb market loans. This increases the cost of getting working capital from the informal sector since their rates will also increase as a result of financial liberalization. This implies that players in the curb market will disappear leading to a transfer of all the funds in this market to the banking system (Ang, 2007).

Later on, Campbell and Mankiw (1990) examined the effect that liquidity constraints could have on private savings rate. They divided households into two types in both developing and developed countries; those that are liquidity constrained and others who are not liquidity constrained. Those households that are

liquidity constrained, their consumption is determined by current income while those that are not liquidity constrained can smooth out consumption since they can access capital markets freely. Financial liberalization enables the liquidity constrained households to freely access the capital market hence smoothing their consumption path. This implies that the household consumption has been stimulated at the expense of savings. Therefore a fall in the saving rates will be expected. This means that financial liberalization leads to a fall in private savings rates. This sentiment is shared by a host of other authors who felt that easing credit constrains as a result of financial liberalization reduce the incentive of previously constrained households or individuals to save (Bayoumi, 1993; Jappelli and Pagano, 1994; Bandiera *et al.*, 2000).

Other critics of the McKinnon-Shaw framework are found in the works of Stiglitz (1994), Akyuz (1995) and Ogaki, Ostry and Reinhart (1996). According to Stiglitz (1994), financial markets experience imperfections which call for some form of intervention from the government to correct the imperfections. The government should intervene and keep interest rates below their market clearing level. The wisdom behind the government intervention is due to the presence of a certain level of interest rate threshold beyond which will lead to lower lending. This is because the quality of borrowers will be changed in favour of the high risk category.

Akyuz (1995) criticized the efficacy of the McKinnon-Shaw framework in an analysis in which households, private firms and governments were considered. According to the his analysis, a rise in interest rates that result from financial liberalization tends to benefit deposit holding households though they are perceived to be low savers compared to firms. As a result, the profit of the firms falls due to high cost of debt. This further results to a fall in private savings rate since the profit of higher saving firms would have declined as opposed to low saving households who end up getting the highest share of total income. This also happens in public sector savings too since financial liberalization makes interest payments on government debt high. This will reduce tax revenue from interest income leading to a fall in public sector savings. Thus overall savings decline as compared to financial savings.

Ogaki *et al.* (1996) on their part focused on the subsistence level of households in a country. According to them, countries with a significant proportion of households near subsistence level of income, their elasticity of substitution will approach zero whenever there is a change in income. This implies that when interest rates rise as a result of financial liberalization, private savings in these countries will not respond to the rise, thus no effect in the levels of savings. On the

contrary, countries which have a significant proportion of its households just above the income subsistence level will have an increase in their levels of private savings as a result of interest rates from financial liberalization.

In summary, there exists a vast body of literature that supports the efficacy of financial liberalization theory. However some authors have argued that fall in savings rates are more pronounced after implementation of financial liberalization policies. The authors have attributed the decline in private savings rate to either income distribution effect (Akyuz, 1995), easing liquidity constraint (Campbell and Mankiw, 1990; 1991; Bayoumi, 1993; Jappelli and Pagano, 1994; Bandiera *et al.*, 2000) or presence of subsistence consumption (Ogaki *et al.*, 1996). These theoretical arguments against the McKinnon and Shaw hypothesis lead to the question whether financial liberalization has indeed promoted savings mobilization. According to Odhiambo (2009) demystifying this remains as an empirical issue. This study aims at empirically testing the case of Cameroon. An earlier study was carried out in Cameroon by Noula (2012) who used cointegration time series techniques to investigate the effects of financial liberalisation on household savings. He found a long run positive effect of financial liberalisation on household savings. The present study improves on this

$$M/P = l(y, d - \pi^e, I_p/Y) l_y > 0; l_{I_p/Y} > 0; l_{d-\pi^e} > 0 \quad (1)$$

$$I_p/Y = f(y, d - \pi^e, I_g/Y) f_{I_g/Y} > 0; f_{d-\pi^e} > 0 \text{ or } < 0 \quad (2)$$

Equation (1) represents the accustomed long-run real money balances demand function. Real income y is the scale variable. The opportunity cost variable represented by $d - \pi^e$ is real interest rate, while private sector investment to Gross Domestic Product (GDP) ratio represented by I_p/Y is the argument. Equation (2)

previous study by using the Autoregressive Distributed Lag (ARDL) cointegration technique which deals with issues of simultaneity bias and short time series that could have flawed the first study.

III. METHODOLOGY

a) Model Specification

The theoretical base of financial liberalization is the seminal works of McKinnon (1973) and Shaw (1973). They argued that nominal interest rates which are administratively determined; a situation largely evidenced in LDCs in the 1960s and early 1970s; would hold real interest rates below their equilibrium level. This according to McKinnon and Shaw (1973) is financially repressing. This is because interest rates will be fixed at very low level leading to very low amount of savings that hinders investment levels. According to them, real interest rates at each rate of economic growth are assumed to be positively related to savings. The theory of McKinnon (1973) focuses on demand for real money and investment response to different rates of return. Since the McKinnon theory assumes these two as the only forms of assets held by the private sector, then the McKinnon model can be summarized as follows:

on the other hand is a private sector investment function which depends on real interest rate, real income and public sector investment to GDP ratio (I_g/Y). McKinnon (1973) postulated under equilibrium condition that the ratio of actual investment to income (I/Y) must correspond to existing savings in the economy, thus:

$$I_p/Y = S/Y = f(y, d - \pi^e, I_g/Y) \quad (3)$$

Where, S/Y is the actual savings to income ratio. Since real deposit rates are below equilibrium under a financially repressed economy, there is therefore a positive relationship between savings and the real deposit rate ($d - \pi^e$). This is because a rise in interest rates towards equilibrium induces economic agents to shift from other assets to savings.

In order therefore to get the relationship between savings and growth in the demand for real money balances, equations (1) and (3) are differentiated with respect to arguments and then dividing their differentials, equation (4) is obtained:

$$\frac{d[M/P]}{d[S/Y]} = \frac{d[M/P]/d(.)}{d[S/Y]/d(.)} = \frac{l(.)}{f(.)} > 0 \quad (4)$$

Equation (4) above states that there is a positive relation between savings rate and the demand for real money balances. The complementarity hypothesis holds true on the assumption that investment opportunity are

plentiful and that the binding constraint is the supply of savings and not the demand for investable funds. Thus savings rate can be incorporated as one of the determinants of demand for real money balances.

$$M/P = l(y, S/Y, d - \pi^e, I_p/Y) l_y > 0; I_{s/y} > 0; I_{lp/Y} > 0; I_{d-\pi^e} > 0 \quad (5)$$

Equations (4) and (5) exhibit a case where there is disequilibrium in the money market; where the supply of loanable funds is less than its demand. Thus in the model a rise in real interest rates leads to an increase in savings and also growth in the demand for real money leading to an increase in savings. The problem now is to

reverse the complementarity hypothesis. However, since complementarity hypothesis works on both ways in that the conditions of money supply have first order impact on the decision to save and invest, a savings function that must be determined simultaneously with demand for real money is specified as follows:

$$S/Y = f(y, r, M/P, S_f/Y, v) \quad (6)$$

Using equation (5) and since the complementarity hypothesis works in both directions, a savings function is estimated in order to examine the effects of financial reforms on private domestic savings as specified in equation (6).

In order to test the effects of financial reforms on private domestic savings in Cameroon, equation (6) is re-specified to include measures of financial reforms, financial development, real deposit interest rates, and public savings as a proportion of GDP. The equation therefore becomes:

$$S/Y = f(fr, m_2/y, fd, y, tot, s_g, v) \quad (7)$$

Equation (7) can be written in linear form as follows:

$$PDSG_t = \beta_0 + \beta_1 FR + \beta_2 \ln RMBP_t + \beta_3 FD_t + \beta_4 \ln PGDP_t + \beta_5 \ln TOT_t + v_t \quad (8)$$

Where: PDSG is the ratio of private domestic savings to GDP; RMBP is real money balances (M2/GDP); FD is financial development (private domestic credit to GDP ratio); PGDP is per capita real GDP; TOT is terms of trade; FR is an index of financial reforms and v is the error term. In order to deal with the problem of spurious association and heteroscedasticity which arise from variables trend movements, real money balances and real income have been expressed in per capita terms (Thornton, 1990). Per capita real money balances and terms of trade are expressed in logarithmic form so as to smooth them since they are in ratios. Per capita Real GDP is also expressed in logarithmic form so as to smooth it out since it has large figures. All the variables are constructed by the authors using data from the World Bank's World Development Indicators (WDI) 2019 online version.

b) Measuring financial reforms (FR)

Financial reform is a process that involves the implementation of a number of policies. In order to show the degree or the level of financial reform at a particular time, a financial reform index (FLI) is constructed based on the method proposed by Abiad and Mody (2005). Their measure of financial reform takes into account six different dimensions of financial market policies. These are:

- *Credit controls*: directed credit towards favored sectors or industries, ceiling on credit toward sectors, and high reserve requirements,
- *Interest rate controls*: direct interest rate controls by the government, or interest rate controls through the use of floors, ceilings and interest rate bands,

- *Entry barriers*: licensing requirements for newly established domestic financial institutions, entry barriers for foreign banks, and restrictions on certain types of banking practices, such as specialized bank services or establishing universal banks,
- *Operational restrictions for securities markets*: restrictions on staffing, branching and advertising, and the establishment of securities markets,
- Privatization of financial institutions, and
- *Restrictions on international financial transactions*: capital current account controls and the use of multiple exchange rates.

For each of these six dimensions, a country gets a score that runs from zero to three. The meaning of the scores is as follows:

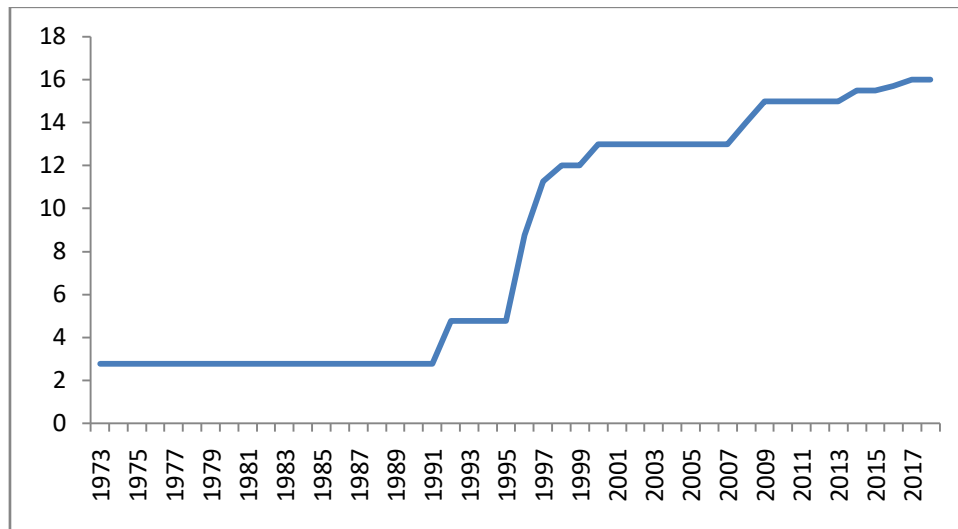
1. means that for a particular dimension of financial market policies, the country is fully repressed;
2. means partial repression;
3. means largely liberalized; and
4. means fully liberalized.

The way the financial reform measure is constructed allows for identifying changes in financial market policies and quantifying the extent to which they contribute to liberalizing financial markets. It also allows us to take into account periods in which governments decide to re-control markets, for instance during or after periods of severe financial and/or economic crisis. In short, the measure enables to determine more exactly the magnitude and timing of changes of various dimensions of financial market policies.

In this study, we consider a time period from 1973 to 2018 and the following dimensions of financial reforms for the construction of the financial liberalization

index for Cameroon: credit controls, interest rate controls, entry barriers, privatization of public financial institutions, restrictions on international capital

movement, and prudential regulations. Figure1, shows the evolution of the process of financial reforms in Cameroon.



Source: Authors

Figure 1: Evolution of financial reform index in Cameroon

c) *ARDLcointegration technique*

Equation (8) will be estimated using the ARDL bound testing approach. The bounds technique is based on three validations. First, Pesaran *et al.* (2001) advocated the use of the ARDL model for the estimation of level relationships because the model suggests that once the order of the ARDL has been determined, the relationship can be estimated by OLS. Second, the bounds test allows a mixture of I(1) and I(0) variables as

regressors, that is, the order of integration of appropriate variables may not necessarily be the same. Therefore, the ARDL technique has the advantage of not requiring a specific identification of the order of the underlying data. Third, this technique is suitable for small or finite sample size (Pesaran *et al.*, 2001).

Following Pesaran *et al.* (2001), we assemble the vector auto regression (VAR) of order p , denoted VAR (p), for the following saving function:

$$Z_t = \mu + \sum_{i=1}^p \beta_i z_{t-i} + \varepsilon_t \tag{9}$$

where z' is the vector of both x' and y' , where y' is the dependent variable defined as Private Domestic Savings on GDP (PDSG), x_t is the vector matrix which represents a set of explanatory variables i.e., financial reforms(FR), real money balances(RMBP), Financial Development(FD), per capita GDP (PGDP), Terms of

Trade(TOT) and Public savings(PS). According to Pesaran *et al.* (2001), y_t must be I(1) variable, but the regressor x_t can be either I(0) or I(1). We further developed a vector error correction model (VECM) as follows:

$$\Delta z_t = \mu + \alpha t + \lambda z_{t-1} + \sum_{i=1}^{p-i} \gamma_i \Delta y_{t-i} + \sum_{i=1}^{p-1} \gamma_i \Delta x_{t-i} + \varepsilon_t \tag{10}$$

Where, Δ is the first-difference operator. The long-run multiplier matrix λ as:

$$\lambda = \begin{bmatrix} \lambda_{YY} & \lambda_{YX} \\ \lambda_{XY} & \lambda_{XX} \end{bmatrix}$$

The diagonal elements of the matrix are unrestricted, so the selected series can be either I (0) or I(1). If $\lambda_{yy} = 0$, then Y is I (1); In contrast, if $\lambda_{yy} < 0$, then Y is I (0).

The VECM procedures described above are imperative in the testing of at most one cointegrating vector between dependent variable y_t and a set of regressors x_t . To derive the model, we followed the postulations made by Pesaran *et al.* (2001) in Case III,

$$\begin{aligned} \Delta(PDSG) = & \beta_0 + \beta_1(RMBP)_{t-1} + \beta_2(FD)_{t-1} + \beta_3(PGDP)_{t-1} + \beta_4(TOT)_{t-1} + \\ & \beta_5(FR)_{t-1} + \sum_{i=0}^p \delta_1 \Delta(PDSG)_{t-i} + \sum_{i=0}^q \delta_2 \Delta(FR)_{t-i} + \sum_{i=0}^r \delta_3 \Delta(RMBP)_{t-i} + \sum_{i=0}^s \delta_4 \Delta(FD)_{t-i} + \\ & \sum_{i=0}^t \delta_5 \Delta(PGDP)_{t-i} + \sum_{i=0}^u \delta_6 \Delta(TOT)_{t-i} + \mu^t \end{aligned} \quad (11)$$

Where Δ is the first-difference operator and μ^t is a white-noise disturbance term.

Equation (11) can also be viewed as an ARDL of order (p, q, r, s, t, u) . Equation (11) indicates that private domestic savings ratio tends to be influenced and explained by its past values. The structural lags are established by using minimum Akaike's information criteria (AIC). From the estimation of UECMs, the long-run elasticities are the coefficient of one lagged explanatory variable (multiplied by a negative sign)

$$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0 \quad (\text{No long-run relationship})$$

Against the alternative hypothesis

$$H_1 : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0 \quad (\text{Long-run relationship})$$

The computed F -statistic value will be evaluated with the critical values tabulated in Table CI (iii) of Pesaran *et al.* (2001). According to these authors, the lower bound critical values assumed that the explanatory variables x_t are integrated of order zero, or $I(0)$, while the upper bound critical values assumed that x_t are integrated of order one, or $I(1)$. Therefore, if the computed F -statistic is smaller than the lower bound value, then the null hypothesis is not rejected and we conclude that there is no long-run relationship between private domestic saving ratio and its determinants. Conversely, if the computed F -statistic is greater than the upper bound value, private domestic saving ratio and its determinants share a long-run level relationship. On the other hand, if the computed F -statistic falls between the lower and upper bound values, then the results are inconclusive.

IV. RESULTS AND DISCUSSIONS

a) Unit root test results

The order of integration of variables should be checked because ARDL-bounds test approach depends on the time series characteristics of the data

that is, unrestricted intercepts and no trends. After imposing the following restrictions, $\lambda_{yy} = 0$, $\mu \neq 0$ and $\alpha = 0$, the GIIIE hypothesis function can be stated as the following unrestricted error correction model (UECM):

divided by the coefficient of one lagged dependent variable (Bardsen, 1989). The short-run effects are captured by the coefficients of the first-differenced variables in equation (11).

After regressing Equation (11), the Wald test (F -statistic) was computed to differentiate the long-run relationship between the concerned variables. The Wald test is carried out by imposing restrictions on the estimated long-run coefficients. The null and alternative hypotheses are as follows:

sets. Although both $I(0)$ and $I(1)$ variables can be used in the ARDL approach, the variables must not be $I(2)$ stationary because, in the presence of $I(2)$ variables the computed F -statistics provided by Pesaran *et al.* (2001) are not valid as the bound test is based on the assumption that the variables are $I(0)$ or $I(1)$. Therefore, the implementation of unit root tests in the ARDL procedure is still necessary in order to ensure that none of the variables is $I(2)$ or higher. The ADF test is applied for unit root test of all series under consideration. The results of the stationarity tests on the variables are presented in table 1 below.

Table 1: ADF unit root test results

Variables	ADF TEST STATISTICS		
	Level	First difference	Decision
PDSG	-2.893872	-7.304418***	I(1)
RMBP	-1.129090	-3.627007***	I(1)
FD	-1.439138	-2.643870***	I(1)
PGDP	-1.353104	-5.626483***	I(1)
TOT	-5.871967***	-----	I(0)

Source: Authors calculations

NB: (*), (**), (***) indicates significance at 10%, 5%, and 1% respectively

b) Cointegration test results

The bound test procedure begins by estimating equation (11), followed by the verification of the robustness of the model using several diagnostic tests such as Breusch- Godfrey serial correlation LM test, ARCH test, Jacque-Bera normality test, Ramsey RESET specification test and the CUSUM and CUSUM squared test. All the tests disclosed that the model has the aspiration econometric properties, it has a correct functional form and the model's residuals are serially uncorrelated, normally distributed and homoskedastic. Therefore, the outcomes reported are serially

uncorrelated, normally distributed and homoskedastic. Also, the CUSUM and CUSUM squared tests ascertain the stability of the coefficients throughout the period of study. The results of the regression of equation (11) and the different tests are presented in Appendix. Then, finally, the Wald test is used to test restrictions on the long run coefficients in order to ascertain the existence of a long run relationship. The results of the bound test based on the regression results of equation (11) are shown in table 2 below. If a cointegration relationship exists, the long and short run coefficients are then deduced.

Table 2: Bounds Test for Cointegration Analysis

Wald F- Statistics	Critical value	Lower Bound Value	Upper Bound Value
10.20296	1%	3.74	5.06
	5%	2.86	4.01
	10%	2.45	3.52

Note: Computed F-statistic: 10.20296 (Significant at 0.01 marginal values). Critical Values are cited from Pesaran et al. (2001), Table CI (iii), Case 111: Unrestricted intercept and no trend.

As the computed F-statistics (10.20296) is greater than the upper bound at the five percent level (4.01), we conclude that there exist a long run relationship between private domestic saving ratio and its determinants in Cameroon. We then proceed to compute the long and short run coefficients.

c) Long run relationship

The coefficients of the long run relationship between the private domestic savings ratio and its determinants are reported in table 3.

Table 3: Long-run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FD	-0.148126	0.117092	-1.265045	0.2180
FR	-0.872285	0.197110	-4.425374	0.0002
LOG(PGDP)	14.268669	4.153708	3.435164	0.0022
LOG(RMBP)	-7.821694	4.388518	-1.782309	0.0874
LOG(TOT)	2.764350	2.478589	1.115292	0.2758
C	-134.625705	46.413959	-2.900543	0.0079

Source: Authors' calculations

The results show that there exist a long run negative relationship between financial reforms and private domestic savings ratio in Cameroon. Also, per capita GDP has a very positive impact on private domestic savings.

d) Short run relationship

The estimation of the short run parameters show that there exist a strong error correction

mechanism, through the error correction term, that absorbs 94% of a shock the following year. This confirms the existence of the cointegration relationship. In the short run, there is also a positive and significant effect of per capita GDP on private domestic saving ratio.

Table 4: Short-run coefficients

Cointegrating Form				
Variable	Coefficient t	Std. Error	t-Statistic	Prob.
D(FD)	-0.197790	0.163834	-1.207260	0.2391
D(FR)	-0.442915	0.480818	-0.921170	0.3661
DLOG(PGDP)	23.946474	10.972280	2.182452	0.0391
DLOG(PGDP(-1))	17.202912	9.334074	1.843023	0.0777
DLOG(RMBP)	3.361143	5.692924	0.590407	0.5604
DLOG(RMBP(-1))	6.456417	4.912707	1.314228	0.2012
DLOG(RMBP(-2))	1.094555	5.070514	0.215867	0.8309
DLOG(RMBP(-3))	7.919262	4.534231	1.746550	0.0935
DLOG(TOT)	-1.936732	2.454001	-0.789214	0.4377
DLOG(TOT(-1))	4.111056	3.303551	1.244436	0.2254
DLOG(TOT(-2))	-3.988065	3.109966	-1.282350	0.2120
DLOG(TOT(-3))	-5.814529	3.031494	-1.918041	0.0671
ECT(-1)	-0.935280	0.185527	-7.197221	0.0000

Source: Authors' calculations

V. CONCLUSION

The objective of this study was to test for the relationship between financial reforms and private domestic saving behavior in Cameroon using an ARDL cointegration modeling approach. The results reveal that there exist a long run negative and significant relationship between financial reforms and private domestic saving ratio in Cameroon. Also, per capita GDP is found to have a positive and significant effect both in the short and long run.

This therefore has significant policy implications for government authorities in Cameroon. In their search for resources to carry out their ambitious programs of higher economic growth and prosperity, they should revise the ongoing reform process in the country so as to permit its financial sector better mobilize domestic resources. This should obviously begin by carrying out further studies so as to determine the effect of each reform measure and even determine their optimal levels.

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APPENDIX

Dependent Variable: PDSG

Method: ARDL

Date: 09/06/19 Time: 08:38

Sample (adjusted): 1977 2018

Included observations: 42 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): FD FR LOG(PGDP) LOG(RMBP)

LOG(TOT)

Fixed regressors: C

Number of models evaluated: 12500

Selected Model: ARDL(1, 0, 1, 2, 4, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PDSG(-1)	-0.335280	0.185527	-1.807173	0.0833
FD	-0.197790	0.163834	-1.207260	0.2391
FR	-0.442915	0.480818	-0.921170	0.3661
FR(-1)	-0.721829	0.512492	-1.408469	0.1718
LOG(PGDP)	23.94647	10.97228	2.182452	0.0391
LOG(PGDP(-1))	12.30910	14.19949	0.866869	0.3946
LOG(PGDP(-2))	-17.20291	9.334074	-1.843023	0.0777
LOG(RMBP)	3.361143	5.692924	0.590407	0.5604
LOG(RMBP(-1))	1.664943	5.268594	0.316013	0.7547
LOG(RMBP(-2))	-6.456417	4.912707	-1.314228	0.2012
LOG(RMBP(-3))	-1.094555	5.070514	-0.215867	0.8309
LOG(RMBP(-4))	-7.919262	4.534231	-1.746550	0.0935
LOG(TOT)	-1.936732	2.454001	-0.789214	0.4377
LOG(TOT(-1))	-0.063626	2.946358	-0.021595	0.9829
LOG(TOT(-2))	-4.111056	3.303551	-1.244436	0.2254

LOG(TOT(-3))	3.988065	3.109966	1.282350	0.2120
LOG(TOT(-4))	5.814529	3.031494	1.918041	0.0671
C	-179.7630	73.72885	-2.438163	0.0225
R-squared	0.801838	Mean dependent var		21.03716
Adjusted R-squared	0.661473	S.D. dependent var		3.202040
S.E. of regression	1.863044	Akaike info criterion		4.379828
Sum squared resid	83.30243	Schwarz criterion		5.124544
Log likelihood	-73.97639	Hannan-Quinn criter.		4.652796
F-statistic	5.712534	Durbin-Watson stat		1.907854
Prob(F-statistic)	0.000065			





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Should Turkey Excluded from NATO or she Should Quit it Itself

By Prof. Dr. Ali Serdar Erdurmaz

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Introduction - The humiliation targeted to the founder of Turkish Republic, Mustafa Kemal Atatürk, and the President Recep Tayyip Erdoğan portrayed as enemies of the alliance in the NATO exercise “Trident Javelin” held in Norway in November 2017, has created sound indignation either within the public and mass media or government in Turkey. In the same token, it was opened a chat account under the name of Recep Tayyip Erdogan shown him as a collaborator with a “leader of an enemy state” according to the scenario (AFP, 2017). Ultimately, Turkish participants pulled out of the drill, and NATO Secretary-General immediately extended apologize to Ankara. However, it created a great deal of disappointment all over Turkey against NATO solidarity. This event, probably, would be registered in NATO history as a first scandal disquieting one of its member states.

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Should Turkey Excluded from NATO or she Should Quit it Itself

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I. INTRODUCTION

The humiliation targeted to the founder of Turkish Republic, Mustafa Kemal Atatürk, and the President Recep Tayyip Erdoğan portrayed as enemies of the alliance in the NATO exercise “Trident Javelin” held in Norway in November 2017, has created sound indignation either within the public and mass media or government in Turkey. In the same token, it was opened a chat account under the name of Recep Tayyip Erdogan shown him as a collaborator with a “leader of an enemy state” according to the scenario (AFP, 2017). Ultimately, Turkish participants pulled out of the drill, and NATO Secretary-General immediately extended apologize to Ankara. However, it created a great deal of disappointment all over Turkey against NATO solidarity. This event, probably, would be registered in NATO history as a first scandal disquieting one of its member states.

Furthermore, this event reinitiated the discourse that Turkey should secede from the NATO or not. In this context, the highest discourse that was given on twitter by the Nationalist Movement Party leader, Devlet Bahçeli (Hurriyet, 2017) (tr. sputnik news, 2017). Yalcin Topcu, President Erdogan political adviser, also came up with that Turkey should quit NATO claiming that “it had supported every military coup in Turkey and said it was time to question Turkey’s NATO membership” (Idiz, 2017) (Aksam, 2017). President Erdogan assessed this scandal as an “outward expression of a skewed attitude toward Turkey that we have been observing for some time” (Idiz, 2017) (NTV, 2017). But above all those statements, any official announcement from government took place in the agenda even to imply of quitting NATO. Turkish high-level authorities in government seemed to be very cautious on this highly sensitive issue not to give any leverage to those, some members alliance, that has claimed that Turkey should be forced to leave NATO (Bandow, 2016).

On the other hand, some contradictory discourses have arisen by the western media, in the course that Turkey adopted the presidential system saying that “Turkey has been moving toward the authoritarian one-party state and Ankara undermines alliances’ security then it is membership in NATO becomes more incompatible. A divorce in civilized way

would be best for all parties” (Bandow, 2016) (Griffiths, 2016).

The reason why that issue emerged between the USA and other NATO members in Europe and Turkey has depended on firstly, the USA has experienced the problem which create the rifts between both countries. Secondly, the problem of Ankara with the individual European countries, also NATO members, and Eastern Mediterranean security crises between them.

The problem with the *USA and Turkey* has emerged within *four-folds*. One of them is the divergency on Syrian issue to solve between the USA and Turkey. First, the decision of the USA to use PYD/YPG, which Turkey considers as a terrorist organization affiliated with PKK, against the ISIS. This problem deteriorated during the “Operation Euphrates Shield” undertaken right after the failed coup 2016 in al-Bab region/Syria. At the beginning of 2018, Turkish Armed Forces began to operate “Olive Brach Operation” to prevent possible emergence of a terrorist state on its borders, after that announcement that the USA plans to form a 30.000-strong Kurdish-led border security force in Syria, create anxiety within both countries (Akal, 2018). And since the beginning of the conflict in Syria, two allies disagree on Iran to take place effectively in Syria. While Washington was strictly against Iran involvement in Syria, in contrast, Ankara was less opposite to Iran since it has flourishing trade relationship (Phillips, 2012).

Another issue of strain is about Mr. Gulen, who lives in the US, is blamed by Ankara for July 15, 2016, failed coup attempt. Ankara officially requested to hand over Mr. Gulen to Turkey, an idea that Washington dismissed (Reuters, 2017).

The one other problematic field between two allied members is Reza Zarrab case. This case has strained relations between Ankara and Washington.

There are one another event created trouble between NATO and Turkey is that Ankara’s decision to buy Russian S-400 anti-aircraft system, in favor of the American Patriot or Franco-Italian SAMP/T systems, because western army suppliers had not offered either reasonable price alternative or transfer of know-how in line with Turkey’s desire. The Pentagon expressed its concern to Ankara about the deal (Dolan, 2017).

The Second issue that problems with *European Union and European NATO members*; In March 2017, Justice and Development Party (JDP) members

attempted to visit Germany and Nederland to make campaigns there before a referendum on constitutional changes to expand presidential power blocked by two countries. Following these reactions, JDP leaders accused Germany using Nazi application caused of undesirable rifts between two states and Ankara (Smale, 2017). On the top of it, other crisis had emerged when soldiers, diplomats, judges and other government officials living in Germany and at NATO facilities in Germany had requested to asylum in Germany after facing persecution following the failed coup on July 15, 2016. Nevertheless, application for asylum had been made by the Turkish government officials who worked all over the EU countries such as Belgium, Greece (Deutsche Welle, 2017a). President Erdogan extended official requisition officially to extradite all asylum seekers in a meeting with German Chancellor Angela Merkel. However, it was rejected due to that is not a political decision but decision of The Federal Office for Migration and Refugees (Deutsche Welle, 2017b).

The last issue emerged as an Eastern Mediterranean security concerns of EU and Turkey since new natural gas resources were exploded on the offshore of Israel, Southern Cyprus Government and Greece, and Turkey, would be the center of crises for ongoing days.

All events we put on caused mutual lack of confidence between Turkey and the USA and western European countries reflect automatically to NATO and its other alliances. Even though, as a higher authority, NATO Deputy Secretary-General Rose Gottemoller has reaffirmed the alliance's commitment to Turkish security saying that "NATO stands in solidarity with Turkey in the fight against terrorism"(Cebul, 2018), the question that Turkey should leave NATO has been brought by the member states mass media such as the USA, Germany and, Nederland. That means troubles between those countries and, Turkey has been reverberated by those western countries to NATO (The Economist, 2018).

In this article, a study will be held to find answers two different but relevant questions. The first question has two pillars, one is "Do western countries want that Turkey must secede from NATO" and the other is "Does Ankara really eager to quit NATO". The second question is about NATO "as an organization does NATO seriously contemplate leaving Turkey out of NATO".

II. DETERIORATING RIFTS BETWEEN WASHINGTON AND ANKARA

a) Crises on the Syrian Civil War

Turkey did not immediately react against the Syrian crisis that broke out after 2011. At the first stage, Prime Minister Erdoğan tried to convince the US and the West that he could influence Assad in the desired direction because of his close relations. Therefore, the

Foreign Minister Davutoğlu and various authorities visited Damascus and tried to convince Assad so that he would carry out the demanded reforms (Yeşilmen, 2011). It was clear that these visits did not have any effects when Assad made some statements. Following that, Ankara sent a message indicating that it "lost its patience" (Bakri, 2011). When it was November 2011, the Prime Minister Erdoğan, supporting the initiative by the Arab League and the UN's plan, called for Assad to abdicate (Bağci, 2015) (Arsu, 2011). Afterward, Ankara backed up the opponents in military terms and began to take steps for overthrowing the Assad regime together with the USA (Cumhuriyet, 2013) (Weiss, 2012). Turkey declared many times that it attached great importance to the territorial integrity of Syria (Bilici, 2013).

Since 13 August 2011, Ankara has shifted its policy to support the US, NATO, and the UN. In October 2011, the UN Security Council could not issue a resolution against Syria due to the veto by Russia and China (Adams, 2015) (Council, 2011). In February 2012, the bloody incident in Hama, in which 500 people died, took place (Arnold, 2012).

After June 2012, the Turkish-Syrian relations have deteriorated. Thereafter, Syria shot down a Turkish jet, and Turkey requested an evaluation meeting at NATO, on the grounds of the 4th Article (Al Arabiya, 2012). Following the bombing in Reyhanlı in May 2013, Turkey demanded from the US and NATO for intervention in Syria (Bağci, 2015). NATO was reluctant to intervene because that Syria would require considerably more NATO resources than Libya did (Phillips, 2012). For that reason, NATO Foreign Ministers decided on December 4, 2012, that NATO would "augment Turkey's air defense capabilities to defend the population and territory of Turkey and contribute to the de-escalation of the crisis along the Alliance's border." Patriot Missiles batteries contributed by the USA, Netherlands, Italy and, Germany deployed to Turkey soils under NATO command and control on February 15, 2013(NATO, 2013)(NATO, 2016). Spanish troops joined in January 2015, replacing a Dutch unit (NATO, 2015). Thus, "NATO Support to Turkey" defensive action started (NATO, 2018c). NATO Secretary-General Rasmussen said on December 2012 in Brussels "we stand with Turkey in the spirit of strong solidarity. ...To the Turkish people, we say, we are determined to defend you and your territory. To anyone who would want to attack Turkey, don't even think about it". ..."Such a deployment would contribute to the de-escalation of the crisis along NATO's south-eastern border." (Dempsey, 2012). In other words, the existence of Patriots did not mean NATO wish to intertwine in Syria (Dempsey, 2012).

Nevertheless, Ankara would like to declare a "no-fly zone" that USA considering reluctantly to impose it("Syria crisis: US and Turkey consider no-fly zones," 2012), however, it was not supported by the USA(Cooper & Gordon, 2014)(Report, 2015). And NATO

Secretary-General Rasmussen emphasized that the deployment of Patriots not for the support of “no-fly zone”; *“The Turkish government has supported Syria’s opposition, and as an alliance member had requested that NATO provide the U.S.-built Patriot air defense system to deter further threats to its territory. NATO officials stress that use of the missiles will be purely defensive”*. Rasmussen emphasized that the Patriots will never be used to support a no-fly zone over Syria, as Turkey proposed (Simeone, 2012). As a result, Turkey’s demand for establishing no-fly zone did not consider in a part of the plan applied on Syria either by the USA or NATO in 2012 and 2015, even though, France agreed on this issue (RNW, 2012).

Beginning in August 2011, IS’s presence in Syria has become more evident (Jasser, 2014). As IS made headway, there were some claims that Ankara supported this organization (Gürsel, 2014) (Akinci, 2015). Ankara rebuffed these allegations (Al Jazeera, 2015b). The bombing incidents by the IS in Ankara, in August 2015, and in Suruç, on 20 July 2015, resulted in the death of so many people (BBC, 2015). Following these, Turkey participated in the coalition formed by the US and provided the necessary support through air force (Tuysuz & Bilginsoy, 2015). It was brought forward that the US and the West should counter-action against the IS’s strategy of expansion in the Syrian territory and of spreading terror on the global scale. At the first stage of the uprisings in Syria, the US and Turkey had only one aim; overthrowing the Assad and establishing instead, a democratic regime as demanded by the people (Falk, 2014) (Ayhan, 2011). When the IS came out, the priorities of the US and the West changed. The US has altered its strategic target as primarily eliminating from Syria the IS, which is considered an extremist religious terrorist organization. At the beginning of September 2014, President Obama declared that a coalition consisting of 10 countries was formed against the IS. Turkey, at first, abstained from getting involved in this coalition (Sanchez, 2014). Turkey had some reservations; first was that there were no limitations of striking the Syrian regime; second was that a security corridor through a “no-fly zone” would not be provided; and the last one was the demand for supporting the moderate opponents for the military operation against both the IS and the Assad regime. This new approach caused a dissent with Turkey.

The second significant rift erupted between US and Turkey upon the failure of “train and equipped” (Dohery & Bakr, 2012) aimed for organizing and training the opponents (McLeary, 2015), the US began to look for new elements to utilize for the ground operation (Ahmed, 2015).

The USA has decided to avoid from intervening to Syria directly by using its troops made impact on the United Kingdom parliament not to authorize British military involvement in Syria civil war (Pierini, 2016). Then

US president Barack Obama is labeled by various media outlets as a “reluctant warrior” (Pierini, 2016). Utilizing the military wing (YPG) of PYD due to its organization and experience could not be prevented by Turkey’s loud objections (“Erdoğan Obama’ya resti çektii! Ortağın kim?,” 2016) (Yeginsu, 2016). President Recep Tayyip Erdogan said Washington “Are you on our side or the side of the terrorist PYD and PKK organizations?” (Yeginsu, 2016). Turkey in fact recognizes PYD as a terrorist organization and the extension of PKK in Syria. The reasons are below. Turkey argues that if the US and the West recognize PKK as a terrorist organization, then they should consider PYD in the same manner. Nonetheless, the US declares that it does not consider PYD as a terrorist organization and that their cooperation will be maintained (bianet, 2016). Turkey is isolated on this issue (Pierini, 2015). Even though these problems were prevailing between both countries, the decision has been taken in NATO Summit on 4-5 December 2012 to augmentation of Turkey’s air defense capabilities upon the request of Turkey (Republic of Turkey Ministry of Foreign Affairs, 2012). And since January 2013, five Allies, Germany, Italy, Spain, the Netherlands and, the United States, have contributed missile batteries to deploy just along with the Syrian border (NATO, 2016). In May 2015, SCEUR, Gen. Philip Breedlove paid a visit to greek, a Spanish Patriot Unit (Bush, 2015).

In 2012, as the regime forces retreated from the north of Syria, the PYD forces filled in the gap, and the good relations with Damascus tried to be maintained. Because of PYD’s connection with PKK and the Assad regime, Ankara, from the beginning, objected to PYD’s being an influential force in the north of Syria.

In September 2015, Russia began military intervention after an official request by the Syrian government to fight on the side of the regime of President Bashar al-Assad against all rebel groups and IS (Aji and Deeb 2015). This attempt would end Ankara’s desire to establish a buffer zone in Northern Syria. However, it had a long time to persuade Washington of the need for (Doha Institute 2016).

On November 24, 2015, the downing of Russian fighter plane by Turkish forces broke ties with Moscow (Tisdall, 2015). Although Russia put some sanctions on Turkey, Russian President Putin was one of the first to condemn the coup attempt and declare support for the elected government of Turkey right after the 15 July 2016 coup attempt that begun to flourish bilateral relations of both countries. Following this initiative, on 28 June 2016, the letter has been sent by President Erdogan to Russian President Vladimir Putin, to extend his condolences and regret over the downing of the Russian fighter plane (Daily Sabah 2016). On 6 August 2016, President Erdogan paid a visit to Russia and said in a press conference in Konstantin palace at St. Petersburg that Ankara determined to restore

relations (Republic of Turkey Ministry of Foreign Affairs, 2016).

December 2016, Turkey met in Moscow with Russia and Iran to work toward a political accord to end the Syrian war. Leaving the U.S. on the sidelines which have been sought to proceed the conflict in accordance with their interests (Hubbart and Sanger 2016). With this attempt, Ankara has tried to take counteraction against that the U.S. will go on to support PYD under the Trump administration. On January 2017, Turkey sought a joint effort to end the war in Syria with Russia and Iran while the U.S. sidelined in Kazakhstan capital Astana (Meyer 2017).

Before Operation Euphrates Shield, President Erdogan visits Moscow on 9 August to end the crisis between two countries and strengthened his hand for such military intervention in Syria (Akyol, 2016).

In early 2016, Turkey "Euphrates Shield" military operation, targeted Islamic State and YPG, was completed in Jarablus region successfully (Akyol, 2016). Before the operation, Turkey had informed, and coordinated the USA, Russia and coalition forces. In this course, while the US State Department has made balanced statements, but the Pentagon tries to protect the PYD as a partner (Akyol, 2016).

On January 20, 2018, Turkey commenced an attack in Afrin region (Operation Olive Branch), in northwest Syria just near the Turkish border, after the US announcement that it will set up a 30.000 strong border security force with YPG (Hacaoglu & Syeed, 2018). According to the Russian Defense Ministry statement, *"The main reasons contributing to the development of the critical situation in this part of Syria were the provocative U.S. steps aimed at the separation of regions with predominantly Kurdish populations". "The uncontrolled delivery of modern weapons, including the reported delivery of man-portable air defense systems, by the Pentagon to the pro- U.S. forces in northern Syria, has contributed to the rapid escalation of tension in the region and resulted in the launch of the special operation by Turkish troops"* (Yetkin, 2018a). *Washington collaboration with the PKK-affiliated Syrian Kurdish People's Protection Units (YPG) has continued since 2014, despite President Erdogan's reiterated calls several times on US presidents to work together as two NATO allies* (Yetkin, 2018a).

On Afrin operation, NATO announced on Jan 21, 2018, that "every country has the right to self-defense." However, US Defense Secretary, James Mattis told reporters on January 21, *"Turkey is a NATO ally. It's the only NATO country with an active insurgency inside its borders. And Turkey has legitimate security concerns", "They warned us before they launched the aircraft that they were going to do it. We are very alert to it. Our top levels are engaged and were working through it"* (Lewis, 2018). Nevertheless, France has brought this issue to the UN Security Council to discuss the

humanitarian situation in Afrin region (Kenyon, 2018). In return for that, Turkey sent a letter to the UN Security Council on the justification for Military intervention in Syria on January 22, 2018, as self-defense in terms of Article 51 of the UN Charter (Behles, 2018).

President Erdogan said *"We shattered the terror corridor being formed on our southern border with these operations. ... Our soldiers, ..., are ready for a new mission"* (Reuters & Brown, 2018).

On April 14, 2018, US-led air-strikes together with Britain and France, targeting as an "appropriate response" to Bashar Assad regime facilities in retaliation for a suspected chemical attack. Ankara welcomed this operation considering that as a humanitarian intervention. Minister of Foreign Affairs said in a statement, *"We welcome this operation which has eased humanity's conscience in the face of the attack in Douma, largely suspected to have been carried out by the regime", "The Syrian regime, which has been tyrannizing its people for more than seven years, be it with conventional or chemical weapons, has a proven track record of crimes against humanity and war crimes"* (hurriyet daily news, 2018b). Even though, Incirlik air-base, allocated to the USA, was not used in the course of operation, The USA has informed Ankara about the air strikes in advance (DW, 2017a).

Ankara announced that it would continue a military operation to Manbij, after that Operation Olive Branch to Afrin region, where US troops are stationed, and risking confrontation between NATO allies. President Erdogan demanded that the US administration withdraw its troops from Manbij province. Saying that *"We will continue this process until we completely abolish this corridor. ... One night, we will suddenly enter Sinjari"* President Erdogan revealed Turkey's determination to eliminate all YPG forces exist in Manbij, Raqqa, and Hasaka region in Syria (Sayed, 2018). On the contrary, US General Joseph Votel, the head of US Central Command, pointed out *"withdrawing from Manbij is not something we're looking into," "wherever US troops are, they're going to be able to defend themselves"* (Hacaoglu & Syeed, 2018). At the beginning of 2018, mutual meetings were held between Washington and Ankara to reach "understanding" to normalize ties (Onum, Kutlugun, & Dikme, 2018). On press conference held on the occasion that Rex Tillerson, US Secretary of State, visits to Ankara Mevlut Cavusoglu, Minister of Foreign Affairs, said *"We clearly expressed [to the U.S. side] our expectations with regard to the fight against FETO and the PKK terrorist organizations, and the U.S. support for the YPG. ... We agreed to establish some mechanisms which will cover and evaluate all the issues.... We should be sure that the YPG crossed to the eastern side of the Euphrates River, and we should see its execution together"*. Thus, Cavusoglu put emphasize to prioritize Manbij issue to coordinate with the USA. (Aliriza, 2018). As a result,

According to The US Embassy and Consulate in Turkey statement, The Turkish and US Working Group on Syria met in Ankara and published joint statement following May 25 talks in Ankara, saying that “*The two sides outlined the main contours of a Road Map for their further cooperation in ensuring security and stability in Manbij*”. Foreign Minister Çavuşoğlu and Secretary Pompeo will meet on June 4 to consider the recommendations of the Working Group”(Statement, 2018). However, this roadmap has been explained in Hurriyet Dailynews article as, “*The draft plan oversees the withdrawal of the Syrian-Kurdish People’s Protection Units (YPG) militants from Manbij in northern Syria and the security of the region to be maintained by Turkish and U.S. soldiers*”(hurriyetdailynews, 2018c).

b) *Gulen’s Coup Attempt*

On the night of July 15, 2016, Turkey was surprised and shocked by an outrageous and bloody coup attack attempted by Gulenist terror organization (Keyman, 2017). This attack was to accomplish to topple down the current Justice and Development Party government and Grand National Assembly, and President Recep Tayyip Erdogan as well. However, this attempt failed thanks to the wisdom and common sense of the Turkish people. And, Turkish unity displayed by Turkish citizens, in the name of protecting democracy over insurgents of Gulen organization. President Recep Tayyip Erdogan and Turkish government accused Fetullah Gulen of orchestrating the coup attempt along with the CIA, FBI, and demand for the extradition of Gulen, even though, Gulen denied any involvement in the coup attempt (Spetalnick & Harte, 2017). Shortly after the suppressing uprising, the Turkish government sent official request to the US administration to prove Gulen’s involvement in it. Even, President Erdogan demanded directly from US President Donald Trump in his official visit to the USA, May 17, 2017. But before that he sent two top officers, Chief of General Staff of Turkish Armed Forces Hulusi Akar and Chief of Intelligence Hakan Fidan, to hold talks with senior US officials on this issue (Al-jezeera, 2017). In September 2017, Turkey detained a US pastor and suggested to free him if Washington handed over Fetullah Gulen to Ankara. However, Washington seemed to dismiss this swap(Reuter, 2017). Washington has denied repeated demands of Ankara for Gulen’s extradition, citing a need for evidence of his involvement in the coup was one of the causes of the main tension between two NATO partners(DW, 2017b).

c) *Reza Zarrab Case*

In March 2016, US authorities accused Reza Zarrab and three others of participating in a broad conspiracy to violate the US’ sanctions against Iran (Weiser, 2017) and arrested Reza Zarrab, a businessman who has both Iranian and Turkish

citizenship, for breaching US sanctions against Iran (TRT World, 2018). After a while, Reza Zarrab case turned on against Hakan Atilla, former deputy CEO of Turkey’s public bank, due to that Zarrab agreed with the New York prosecutor to become the witness. The case angered Turkish President Erdogan and Justice Minister Abdulhamit Gul said, the verdict “*an attack on Turkey’s judiciary and sovereignty*”. And, Presidential spokesman Ibrahim Kalin said, “*This case is a conspiracy with the purpose of complicating Turkey’s internal politics and intervening in Turkish internal affairs.*” According to Al-Jazeera news, “*The case against Atilla was built on the testimony of Turkish-Iranian gold trader Reza Zarrab, who cooperated with prosecutors and pleaded guilty to charges of leading the operation to evade US sanctions on Iran. Zarrab alleged that top Turkish officials, including Erdogan, personally authorized two Turkish banks to join the scheme when he was prime minister, in addition to other ministers*”(AL- Jazeera News, 2018) On top of all other strains between both NATO allies, this case, accusations, and verdict also increased the tension of Ankara against Trump administration (The Telegraph, 2018).

d) *Russian S-400 Purchase*

After that shooting down of Russian fighter plane, Ankara try to re-establish mutual relations with Russia. In this context, the Erdogan Government has signed an agreement with Moscow to purchase Russian S-400 missile defense systems, which are incompatible with the NATO system (Reuters & Brown, 2018). However, this agreement has been made on the one hand to restore the relations with Russia, on the other hand, to use as a pressure instrument on the USA and the other NATO allies (Wasilewski, 2017). This partnership with Russia brought some questions about Turkey’s role as a loyal ally in NATO in mind. The main goal of this agreement to obtain “know-how” to domestic production, that NATO member countries did not agree to transfer of such technology to Turkey. Nevertheless, US Secretary of State, Mike Pompeo has warned Ankara to underscore the seriousness of the US concerns that Ankara could face sanctions if Turkey would purchase this system(Radio Free Europe, 2018). S-400 missiles were delivered on July 2018 by Russia, is a great concern for the USA claiming that they will pose a security threat to NATO military system in Turkey since this missile system has counter-measures against F-35’s stealth technology. U.S. concern on this issue, on the one hand, that Turkey wants to connect the F-35 systems with the Turkish Air Force information network (HvBS-Hava Bilgi Sistemi) would create a risk that data collected by the advanced Joint Strike Fighter’s sensors may end up being transmitted to Russia(Fergus, 2019). On the other hand, the flight of F-35 in Turkey could be detected by its S-400 radar systems, and that data

would send to Russia to improve and targeting of the stealthy F-35(Fergus, 2019).

As is known, Turkey is the partner country in the F-35 program, even some parts of it are produced in Turkey (Joe, 2019). Nevertheless, the objections put forward in the U.S. Congress introducing the bill by some of the Senators saying that "It concerns that Turkey would seek close defense cooperation with Russia, whose authoritarian ruler seeks to undermine NATO and U.S. interests at every turn...the Kremlin is an adversary of the United States and many of our NATO allies. The prospect of Russia having access to U.S. aircraft and technology in a NATO country, Turkey, is a serious national and global security risk" (Joe, 2019). Supreme Allied Commander Europe for NATO and the head of American forces in Europe, U.S. Army General. Curtis Scaparotti said that the F-35 sale to Turkey should be canceled if Turkey buys the S-400. However, Turkish President Recep Tayyip Erdogan announced immediately to local tv. Channels that Turkey will stick to its S-400 acquisition program, and even it might go further to have more advanced S-500 in the future(Joe, 2019).

Since Turkey obviously is interested in a missile technology transfer and joint production of the ballistic missile defense system that she will purchase. And the U.S. and other NATO allies who have that of rejected such request but Russia accepted(Fergus, 2019).

This purchase has brought some other challenges with Turkey and the USA that the US put some restrictions even to sell some rifles due to concerns of the US Congress, under the Countering America's Adversaries Through Sanctions Act (CAATSA), which was signed by the US President last August(RT News, 2018).

This event has two folds; one of them is the tensions escalate between Ankara and Washington. The other is NATO's different stance that NATO Secretary-General did not say anything about Turkey cannot buy S-400 system. On the contrary, He told ally ever has the right to purchase any system (Jones, 2019). According to the NATO Secretary-General Jens Stoltenberg Press release to remain Conference release following the meeting of the North Atlantic Council in Foreign Minister's session, NATO tries to remain unbiased leaving this issue between Ankara and Washington to solve with compromise. (NATO Press Release, 2019)

Nowadays, even though, it is witnessed that Ankara and Washington are in the process of negotiation to solve all problems between themselves. However, there is not sound result yet. Both sides should make concessions mutually without making any sacrifice from their national interest particularly on Syria issue vital matter for Turkey to preserve its sovereignty and solidarity with NATO.

III. TROUBLES WITH EUROPEAN UNION AND EUROPEAN NATO MEMBERS

- a) *Some, particularly striking evens took place between Ankara and Germany to strain diplomatic relations between two ancient friends after the first quarter of 2016.*

First strain emerged between two countries due to that German comedian and satirist Jan Böhmermann's defamatory poem about Turkish President Recep Tayyip Erdogan, on March 31, 2016. President Erdogan sued him, but German prosecutors eventually dropped the charges on October 4, 2016, that was the first case to spark a diplomatic strain between Ankara and Berlin (Staudenmaier, 2018). On June 2, 2016, the resolution recognizing 1915 Armenian Genocide passed unanimously in German Parliament, in response that Ankara recalled its ambassador in Berlin and the Turkish community in Germany held protest in several German cities. Ankara accused Berlin and other NATO allies of not taking a clear stand against the failed coup attempt in On July 15, 2016 the Turkish authorities purged the governmental institutions such as army and judiciary, detaining some of them caused to criticize of German politicians. On the top of it, another crisis had emerged when soldiers, diplomats, judges and other government officials living in Germany and at NATO facilities in Germany had requested to asylum in Germany after facing persecution following the failed coup on July 15, 2016. Nevertheless application for asylum had been made by the Turkish government officials who worked all over the EU countries such as Belgium, Greece (Deutsche Welle, 2017a). President Erdogan extended official requisition officially to extradite all asylum seekers in a meeting with German Chancellor Angela Merkel. However, it was rejected due to that is not a political decision but decision of The Federal Office for Migration and Refugees(Deutsche Welle, 2017b). Since Berlin did not take any reaction to extradition who applied for asylum, in return for that, Ankara has taken into custody two German journalist accusing them supporting terrorist organizations, on February 2017. On March 2017, the Justice and Development Party (JDP) members attempt to visit Germany and Nederland to make campaigns there before a referendum on constitutional changes to expand presidential power were blocked by two countries. Following these reactions, JDP leaders accused Germany using Nazi application caused by undesirable rifts between two states and Ankara (Smale, 2017). It goes on like a chess game, Berlin accused Ankara of spying in Germany, then President Erdoğan announced of Germany's main political party as "enemies of Turkey" and urges German-Turks not to vote for them in 2017. German Chancellor Angela Merkel said on the eve of the election that Turkey should

not become EU member and backed a move to cut Turkey's pre-accession EU funds in October 2017. German politicians criticized "Operation Olive Branch" in Afrin region also allowed mass protest of Kurdish communities in Germany, on 20 January, 2017 (Staudenmaier, 2018). Now, in Germany, foreign politicians are banned from election campaigning for up to three months ahead of the vote in their home country. Netherlands and Austria have also made similar moves (MacKenzie, 2018). On March 2017, Cavusoglu called Netherlands "the capital of fascism" (MacKenzie, 2018).

Nevertheless, On February 2018, Turkish Prime Minister, Binali Yildirim paid a visit to Germany and started in Berlin with face-to-face talks between German Chancellor Angela Merkel to revive relations again (Jurgens, 2018). In response, the formation of the new grand coalition in Germany by the leadership of Angela Merkel made an attempt bringing an end to the icing period in Turkish-German relations (Yetkin, 2018b). In May 2018, German Chancellor Angela Merkel with other German leaders gathered in Düsseldorf met with Turkish political leaders, including Turkish Foreign Minister Mevlut Cavusoglu, on the 25th anniversary of a neo-Nazi arson attack in Solingen that killed five members of a Turkish-German family on May 29, 1993. This action taken by German Chancellor should be assumed a good-will intention to the de-icing and re-improve mutual interest of both countries (DW, 2018). According to Aksam newspaper in Turkey, Der Spiegel magazine on June addition claimed that German government reviewed its approach to FETO (Fetullah Gulen organization) and has taken Turkey's warning into accounts on that FETO members fled to Germany had attended the failed coup attempt on July 15 (Aksam, 2018). This policy changing should inevitably be a positive effect on Ankara-Berlin relations without any doubt.

All those events happened with Germany, which is the most influential member of the EU and NATO eventually affected relations between the EU, NATO, and Turkey. EU leaders and Germany made a meeting to reevaluate and discussed Turkey position and avoid making any rash decisions that could reduce its engagement with the country and its ability to offer support to civil society and other pro-democratic and pro-EU actors in Turkey (Paul, 2017).

According to the Minister of Foreign Affairs, Mevlut Cavusoglu, expressed in an exclusive interview on DW's top political interview show Conflict Zone, "Europe and the West are showing "double standards" over democracy and their treatment of Turkey" (MacKenzie, 2018).

b) *The last issue emerged as an Eastern Mediterranean security concerns of EU and Turkey,*

Turkey has a great deal of impact and an exclusive role for the Eastern Mediterranean Energy

security mainly in two different but intertwined aspects. *Firstly*, in the second decade of the 2000's, hydrocarbon energy resources exploited in the Eastern Mediterranean Sea region, just near the offshore of Israel, Egypt, and southern Cyprus. This development has brought new aspect to geostrategic importance of Turkey because its proximity to the research area of particularly to Cyprus region, regarding the Exclusive Economic Zone (EEZ) is overlapping. Exploding new natural gas resources on the offshore of Israel, Southern Cyprus Government and Greece, and Turkey would be the center of crises for ongoing days. *Secondly* Turkish territory has a unique location as transit hub for oil and gas pipelines. Turkey, the fact that its advantageous geopolitical position, has the privilege of playing a crucial role as an energy transit route country for hydrocarbon sources directed to the European countries, either from the Caspian Sea, from the Middle East or Russia. Many interregional oil and gas pipelines already pass through its soils makes it a unique geostrategic asset as an energy transit country and an energy hub ('The East Mediterranean Geopolitical Puzzle and the Risks to Regional Energy Security' 2018). By establishing an Eastern Mediterranean Energy Corridor, offshore natural discoveries in the Eastern Mediterranean will pave the way for European countries to reach new energy supplies (Pelagias, 2012). Today Europe has scarce options to provide natural gases except for Russia. However, Russia has always an opportunity to use this option as leverage to European countries due to the Russian-Ukrainian problem. In this regard, building up new transit routes to reduce dependence on Russian gas, the geographical position of Turkey has critical and significant in respect to its exact central location of the European continent and the Middle East and Caucasian Countries which have a huge amount of energy sources (Hardem, n.d.). According to the Hardem Attorneys at Law assessments "Due to the current situation of Middle East and geographical position of Israel the transmission of Israeli Gas is a critical issue with regards to security so that it is obvious that pipelines should be constructed through the Mediterranean Sea if Turkey achieves to solve politic problems with Cyprus because in the event of transmission of Israeli gas, most probably the pipeline route would be planned through Cyprus. Given that the fact that Turkey does not recognize Cyprus as a state, it can be easily predicted that challenging negotiations are close at hand for Turkey."

In a website of Minister of Foreign Affairs, "Turkey's Energy Profile and Strategy," Turkey's role in the regional energy trade has been explained as follows; (MFA Turkey, n. d.)

"Turkey is geographically located between energy-producing countries of the Region with more than 75% of the world's proven oil and gas reserves and the well-developed European energy consumer markets. This privileged natural bridge position provides Turkey with both opportunities and responsibilities in term of energy security. ... In this regard, while developing its energy strategy, Turkey aims to strengthen its position between East-West and South-North Energy Corridors.

The "East-West" gas pipeline projects which are envisaged to bring gas from Caspian and the Middle East regions to Europe through Turkey are referred to as "Southern Gas Corridor" (SGC). South Caucasus Pipeline (SCP), Baku-Tbilisi-Erzurum Natural Gas Pipeline (BTE), Turkey-Greece Interconnector (ITG) are existing pipelines while the Trans-Anatolian Natural Gas Pipeline (TANAP) and the Trans-Adriatic-Pipeline (TAP) are planned projects within the context of Southern Gas Corridor. The delivery of gas to Turkey through TANAP will start in mid-2018 and to Europe in 2020".

In this article, recently explored hydrocarbon sources in the Eastern Mediterranean Sea will be taken under consideration, but the others in which Russia, Iran, and other gas and oil producer states put aside.

The most economical way for transporting gases from Israel to European market is neither to carry it with huge transatlantic cargo ships or with the pipeline along with Israel to Italy via Cyprus and Greece, but using Turkish territory as a transit hub from Cyprus, to convey Europe which costs approximately 4.7 billion US dollars, while the others costs would be much more respectively (Sandikli, 2016) (Litsas & Tziampiris, 2015).

As a result, geographically Turkish territory is most an appropriate and reasonable transportation route to convey Mediterranean natural gases to European markets primarily, in respect to the project costs, constructions, and maintenance and operation point of views.

IV. RELATIONS WITH NATO AND TURKEY AFTER THAT SYRIAN CIVIL WAR

a) Syria is the cradle of a "proxy war" currently, with regional and international actors arming one side or another. On the one hand Russia, Iran, and Lebanese Hezbollah fighters together with supporting Assad regime are very active in Syria, on the other hand, the USA and Syrian Free army mostly composed by YPG/PYD forces backing by the US, France, and Britain have taken place in the region against those who support Bashar Assad (Coleman, 2018). While Turkey tries to protect its sovereignty rights and national interests against Assad regime,

Daesh and Kurdish insurgents (YPG/PYD) in Syria to keep the unified structure of Syrian territory without taken any solid support from NATO allies (Winter, 2017).

Nonetheless, NATO Secretary-General Jens Stoltenberg recent visit to Ankara (April 16, 2018) reflected NATO political perception on Turkey. In a press conference held in Ankara, Secretary-General Stoltenberg said that "No other Ally has suffered as many terrorist attacks as Turkey. And you are the Ally most exposed to the instability in this region. Turkey generously hosts more than three and a half million refugees. But you do not stand alone. NATO stands with you in solidarity." and pointed out, "You make essential contributions to NATO operations and the fight against Daesh. Our AWACS surveillance aircraft flies from Konya in support of the Global Coalition to defeat Daesh. Turkey also helps to build stability abroad:

- By playing a lead role in Afghanistan with hundreds of troops in our Resolute Support Mission in Afghanistan and Turkey also helps with funding for the Afghan national army and security forces;
- Turkey is contributing to NATO's mission in Kosovo;
- And you actively support our training activities in Iraq.

So Turkey does a lot for our Alliance, despite facing serious security challenges" (NATO, 2018b).

In 2015, after that the involvement of Russian forces in Syria civil war and Moscow's support for the Assad regime, NATO defense minister had decided to enhance response forces to be able to deploy troops speedily. Also, Turkey has complained that Russian fighter planes have violated its air space frequently. Secretary-General Stoltenberg said, the doubling of the size of the NATO Force to 40.000, NATO would be able to intervene the situation (Marcus, 2015). Thus, NATO has assured to defend allies given the escalation of Russian military activities in Syria (Marcus, 2015).

But, according to the study made by Carnegie Europe in 2015, titled, "NATO's Powerlessness over Syria and Refugees" assessed the NATO position on Syria issue. In this article writer, Judy Dempsey said, "NATO is unwilling to become involved as an alliance in fighting the so-called Islamic State, and with good reasons: fears of being dragged into a prolonged conflict, fears of retaliation by the Islamic State in other European countries, and no clear post-military goal." NATO countries are also not prepared to boost the defenses of the organization's Southern members, which are vulnerable to the Islamic State—and now to Russia too, given Moscow's increasing presence in the Mediterranean" (Dempsey, 2015).

Syrian Democratic Forces were formed on October 2015 by the military support of the USA and

provided Washington with the opportunity to deepen its relationship with PYD, considered as terror group affiliated with PKK, to occupy a large area in the guise of fighting Daesh. Moreover, Meanwhile, PKK is listed as a terrorist group by Turkey, the USA, and the EU, Washington has considered the YPG/PYD a key ally of it in fighting against Daesh in Syria (Anadolu Agency, 2017) (Winter, 2017). The USA provides explosives and weapons to the PYD in Syria are also used by PKK terrorist in Turkey. In this framework, some of the Turkish media assess that The United States is obviously in default of its obligations under Articles 3, 4, and 5 of the NATO treaty by giving a hand the PYD/YPG terrorist groups in the fight against Daesh in war-torn Syria (Anadolu Agency, 2017).

Article 3 of the NATO charter states: *"In order more effectively to achieve the objectives of this Treaty, the Parties, separately and jointly, using continuous and effective self-help and mutual aid, will maintain and develop their individual and collective capacity to resist armed attack."*

Article 4, The Parties will consult together whenever, in the opinion of any of them, the territorial integrity, political independence, or security of any of the Parties is threatened.

Article 5, asserting the principle of collective defense, says: *"The Parties agree that an armed attack against one or more of them ... shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defenses recognized by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force to restore, and maintain the security of the North Atlantic area."*(NATO, 1949)

Moreover, NATO's New Strategic Concepts define in the title of *"Core Task and Principles"* as Collective defense, Crises management and Cooperative security (NATO, 2010). Collective defense, *"NATO members will always assist each other against attack, by Article 5 of the Washington Treaty. That commitment remains firm and binding. NATO will deter and defend against any threat of aggression, and against emerging security challenges where they threaten the fundamental security of individual Allies or the Alliance as a whole"*. And Cooperate security, *"... NATO is remaining the unique and essential transatlantic forum for consultations on all matters that affect the territorial integrity, political independence and security of its members, as set out in Article 4 of the Washington Treaty."* The security environment depicted in the new concept, *"...Instability or conflict beyond NATO borders can directly threaten Alliance security, including*

by fostering extremism, terrorism, and trans-national illegal activities"(NATO, 2010)

Turkey's approach to current NATO policy on Middle East issue was nothing much beyond the discourse of the government authorities to give some messages to the United States as a NATO member that reminded it on collective defense principle. In this course, Ankara saying that "one for all, all for one", would like to have NATO support against the decision that Washington is opting for supporting PYD/YPG terrorist organization. However, even though President Recep Tayyip Erdogan has made exclamation from time to time, saying that "NATO where are you?" President Erdoğan urged NATO to come to Turkey's aid, saying its borders are "under threat right now." (hurriyet daily news, 2018a) And Minister of Foreign affairs pointed out that *"we called upon the Allies and NATO to give more support to us in our counterterrorism efforts. At the beginning of my words, I said that the biggest threat against the Allies is terrorism and terrorist organizations. That's why it's not the task or duty of one Ally to fight against terrorist organizations, and we must refrain from double standards in fighting against terrorism. But unfortunately, this double standard is so obvious."*(NATO, 2018a) As is seen those statements Turkish authorities never mentioned any words about quitting NATO but needs much more support to fight against terrorism threat to protect its territorial integrity in the framework of NATO concept.

Even Though, according to Collective security principle of the New Concept of NATO pointed out that the members will always assist each other against attack,... and, *that commitment remains firm and binding*. NATO member states especially, Washington has a different strategic and political comprehension in Syria, in spite that above-mentioned article stated clearly *"that commitment remains firm and binding,"* and seems to apply a double standard regarding to Turkey's integrity coming from beyond its and NATO borders which are cooperative security. The USA and European members of NATO hypocritically ignoring the threat that Turkey faces due to the fact that the severe distinction of perception between Ankara and Washington on the YPG/PYD, which Turkey considers as a terrorist organization to threat and the USA counts as an ally to fight with against Daesh, constitute a significant inconvenience that retains the chance of NATO consensus in Syria. (Ulgen, 2017)

As the last word on NATO strategy to involve in Syria affairs and the current USA strategy dealing with PYD/YPG, versus Turkey's national interest, explained very well by the article written by Mevlut Cavusoglu, Minister of Foreign Affairs, also published in Foreign Policy Journal. It said, *"...The weaknesses of Daesh were most clearly exposed after Turkey became the only*

NATO army to directly engage — and unsurprisingly crush — it in Jarablus in northern Syria. A prospective regrouping of Daesh is now being prevented by the dedicated work of a coalition that includes Turkey, which maintains the largest no-entry list of foreign terrorist fighters and runs the world's biggest civilian anti-Daesh security operation...". In this sentences, Mr. Cavusoglu put emphasize Turkey's position as a NATO member very and coalition attentively. That means Turkey is proud of its membership in NATO on the contrary to all claims against it.

In a statement, "A point of discord with the United States is its policy of arming the PKK/YPG to act as foot soldiers, even as they have a history of terrorism. This (policy) is a legally and morally questionable policy that was prepared by the Obama administration in its waning days and somehow crept into the Trump administration. The United States has played into the hands of all its critics and opponents by deciding to ally with terrorists despite its values and its 66-year-old alliance with one of their primary targets, Turkey....I have been pleased to see many NATO allies distance themselves from this U.S. policy, which flies in the face of our alliance's values. It also runs against our common interests in the region and beyond." (Cavusoglu, 2018) Turkish Minister of Foreign Affairs put Washington strategic approach to handle the Syrian issue could not be accepted by Turkey in any case. And, Ankara announced once again its happiness that most of the NATO allies do not approve of this U.S. policy without and doubt.

b) Energy Security for NATO

Today, NATO is not only a military organization but also political organization after that the end of the cold war. Addition to that its mission against potential Russian threat, especially, its security concern beyond the military affairs has taken priority, regarding protecting the national interest of allied members, covering out of NATO borders as well as that of within its borders.

In Chicago Summit Declaration article 20, May 20, 2012, said, "NATO and the EU share common values and strategic interests. The EU is a unique and essential partner for NATO. Fully strengthening this strategic partnership, as agreed by our two organizations and enshrined in the Strategic Concept, is particularly important in the current environment of austerity; NATO and the EU should continue to work to enhance practical cooperation in operations, broaden political consultations, and cooperate more fully in capability development." (NATO Press Release, 2012)

Except for the USA, Canada, Norway, Montenegro, and Turkey, all NATO countries are also members of the EU. All European countries either being

a member of the EU or NATO are not only depending on Russia for their oil and natural gas needs in Russia, but also depending on the Middle East, Middle Asia and, Northern Africa. Meanwhile; all those countries would like to diversify finding some other resources and transit hub in order to free their dependence, particularly to Russia since Moscow has greater leverage as an energy power. (Beehner, 2006) In this point, Turkey, as a NATO member, has undertaken a new strategic role as an energy transit hub for the transportation of hydrocarbon reserves from its neighboring regions to NATO member countries and the UE as well. Turkey's Geopolitical location gives the privilege to be driving force due to its proximity to natural resources reserves, especially in the Middle East and Eastern Mediterranean. In this framework, Turkey could contribute to enhancing the European and NATO "energy security" concerns as a NATO member offering a relatively safe "transit route" for these resources. (Biresselioglu, 2011)

NATO, aware of this subject, has established its pipeline system funded by NATO Security Investment Programs, 10.000 km long and runs through 12 NATO countries, including Turkey and has a storage capacity of 4.1 million cubic meters.(NATO, 2017) NATO pipeline System consists of eight national pipeline systems and two multinational systems. And the Turkish Pipeline System (TUPS), which comprises two separate pipeline systems known as the Western Turkey Pipeline System and the Eastern Turkey Pipeline System. That means Turkey has undertaken an important role in this respect (NATO, 2017).

On December 2005 and January 2006, a natural gas crisis experienced between Ukraine and Russia has made mainly to be Turkey, Hungary, Slovakia, Poland, France and Romania, impact on most of NATO member states. This subject has been taken as main security problems that affect the NATO energy security concerns and adopted one of the main articles (13) of NATO New Concept in NATO Lisbon Summit on November 19, 2010. (NATO, 2010)

Taking some lessons from above case, in Chicago Summit Declaration article 52, covers energy security, "A stable and reliable energy supply, diversification of routes, suppliers and energy resources, and the interconnectivity of energy networks, remain of critical importance. ... We will continue to consult on energy security and further develop the capacity to contribute to energy security, concentrating on areas where NATO can add value.... To this end, we will work towards significantly improving the energy efficiency of our military forces; develop our competence in supporting the protection of critical energy infrastructure; and further develop our outreach activities in consultation with partners, on a case-by-case basis" (NATO Press Release, 2012).

In this token, NATO has taken the role to provide security of energy resources and transit hubs in the Middle East, using member states that established a coalition in Syria civil war to fight against Daesh and Assad regime supported by Russia and Iran.

In April 27, 2018, NATO Secretary-General Jens Stoltenberg said a group of Turkish reporters, reiterating Turkey's importance to the joint defense of the alliance, to look at the map is enough to recognize the country's value, amid rising criticism of Turkish actions in the media and Western capitals (Demirtas, 2018).

"Turkey is a highly valued ally. Turkey is important for our shared security. Not least in the fight against terrorism because Turkey has provided infrastructure basis for the efforts to the global coalition to defeat [the Islamic State of Iraq and the Levant] ISIL. We are grateful for Turkey for that," "It's enough to just look at the map and see the strategic geographic location of Turkey, bordering Iraq and Syria, bordering the turmoil and violence that is a threat to Turkey and to all other NATO allies," "As you know, NATO is not present on the ground in Syria, but some allies are (there). For me, the important thing is that the U.S. and Turkey now talk, have contacts, and see how they can deal with the situation in northern Syria in a coordinated way. I welcome this dialogue between Turkey and the U.S.," "We recognize that Turkey is the NATO ally that has suffered most from terrorist attacks. Turkey, of course, has the right to protect itself, and we expect it to be done in a proportionate way (proportional). Turkey has the right to protect itself because Turkey has suffered from many terror attacks." On the question of growing tension between Turkey and Greece, he said; "There are differences between Turkey and Greece related to issues in the Aegean Sea. I hope these differences can be solved in the spirit of dialogue and I welcome that the Greek prime minister and the Turkish prime minister have spoken to address these issues. It's only through this kind of dialogue that these differences can be solved. I have spoken of course with both the Turkish and the Greek authorities. I welcome the fact that these issues are being addressed through direct dialogue between Turkey and Greece."(Demirtas, 2018)

Nevertheless, in joint press conference on April 17, 2018, a question asked to the Secretary-General Stoltenberg, "some NATO Allies have stated that Turkey should be excluded from NATO" and about "Turkey-Greece increasing tension on Greece flags on some islands which are not knowing who own." Secretary-General Stoltenberg's respond to the first questions in line with Turkey's contribution on NATO is highly valuable. And going on putting emphasize that *"And I would like to underline that all NATO Allies welcome Turkey as a highly valued Ally. We understand the*

importance of having Turkey in the Alliance. Turkey has been a committed Ally for decades, and we would like to continue to work with Turkey, especially in the more demanding and challenging security environment as we see today" (NATO, 2018a). On the Turkey-Greece tension, he opted for not stepping in or interfering in such bilateral problems between Allies. Ultimately, he would like to keep his neutral position as a Secretary-General. This neutral position could be assessed that NATO is reluctant to take sides on the problems emerged natural gas resources in the Eastern Mediterranean, between Turkey, Greece, and Southern Cyprus. Meanwhile, European Union unconditionally supports Greece, and Southern Cyprus claims on this issue.

As is seen clearly, NATO would like to take any sides either Ankara-Washington relations or that of Ankara-Athens and the same goes Turkish relations with other NATO members such as Germany and Netherland.

When we consider the energy security necessities of NATO in comply with its "The New Concept," Turkey has gained much more weight than it had during the Cold War era.

V. CONCLUSIONS

In this article, either Western countries, particularly the USA and EU countries or Turkey's approach to Turkey's membership to NATO was studied by analyzing empirically of the experienced problems between them. To find an answer both of the question that "Do western countries really want that Turkey must secede from NATO" and "Does Ankara really eager to quit NATO organization", the second question is about NATO; "as an organization is NATO seriously contemplate leaving of Turkey out of NATO" are not very difficult. Since, most of the problems with the Washington and Turkey and with some European countries like Germany and Turkey are exclusively the issues relevant to their relations individually, but not whole NATO concerns.

There are four major conflicting issues between Ankara and Washington as NATO allies, as it is mentioned above. The major problem emerged on Syrian issue that the USA has insisted to cooperate with PYD/YPG, a terrorist organization affiliated with PKK, which Ankara considers as a threat aiming to sovereignty right and territorial integrity of Turkey. And this partnership with PYD/YPG creates non-negotiable and un-accepted situation against Turkish unification as a sovereign country. The recent development of diplomatic negotiations with high-level authorities between both countries in Manbij region has been brought a common understanding that the USA should leave the cooperation with PYD/YPG. Instead, Washington and Ankara would act together to fight

against the common threat in Syria. This development shed a gleam of hope to quick resilience between both countries. It is assumed that Gulen issue and Reza Zarrab case could be considered as a secondary matter to work out later that would not harm mutual relations.

Some striking evens took place between Ankara and Germany to strain diplomatic relations between two ancient friends after the first quarter of 2016. However, an account of Turkey, the most troublesome issue between Berlin and Ankara is that various diplomats and FETO members from Turkey fled to Germany and other European countries after that failed coup attempt and requested asylum. Ankara continuously put official request to the extradition of those asylum seekers although, German law makers rejected this demand. But, according to Der Spiegel magazine on June addition, German government reviewed its approach to FETO and has taken Turkey's warning into accounts on that FETO members fled to Germany had attended the failed coup attempt on July 15. Without any doubt, whole this policy changing should inevitably be a positive effect on Ankara-Berlin relations. The recent meeting held with Prime Minister, Bin Ali Yılmaz and Chancellor Merkel, the Chancellor of Germany, the most influential member of EU and NATO, eventually would contribute the improvement of relationships between Ankara and Berlin, which would make a positive impact of and improve Turkish relations with NATO and the EU as well.

Erdoğan government has never put agenda that Turkey should leave NATO Organization. On the contrary, Ankara reiterated several times that NATO should give hands to Turkey to fight with the terrorist threat to its territorial integrity. But NATO is reluctant to intervene in Syria. Meanwhile, Turkey's NATO membership questioning by some journalist or some opposition against Turkey's operation in Syria to protect its vital national interest in the expense of United States leadership in the course of Washington's strategy in partnership with PYD/YPG. This is what Turkey would not agree in any case even as a member of NATO. For that reason, Washington must respect Turkey's very delicate and vital issue on that matter. According to the latest diplomatic initiatives, the common understanding could be established between Washington and Ankara, in line with Turkey's indispensable and vital necessities.

The latest event that escalates tensions between Turkey and the United States over the procurement of Russian S-400 missile systems has brought a question that Turkey has turned its face to Russia, ignoring NATO ally. As Turkish presidential spokesman Ibrahim Kalin said: "*we (Ankara) will not allow the questioning of Turkey's position in NATO since Turkey has a word in all decisions as a NATO member*" (Jones, 2019). Against all odds, "*Russia is not alternative to Turkey*", as said professor Bağcı in his interview to Voice of America. "*Turkey will not look to Russia as a*

trusted ally. It is not the case and will not be. Turkey always uses Russia as a balance of power. as leverage. Turkey will not leave NATO... ." (Jones, 2019)

Moreover, this idea was strongly advocated by the prominent diplomat and former ambassador Sukru Elekdag in his interview, in Sozcu newspaper, was made by Ugur Dundar recently.(Dundar, 2019a) Mr. Elekdag also added that "*In case that Turkey leaves NATO not only the relations with the U.S.A. but also that of with EU would be cut.*"(Dundar, 2019b)

Regarding NATO concern on Turkey's position. On the one hand, NATO Secretary-General, Jens Stoltenberg stated very clearly that Turkey's membership is very valuable for NATO. That means there is no official statement that Turkey should be excluded from NATO, and it is out of the question. On the other hand, NATO has the determination that it would like to remain in a neutral position on the problem of Turkey and Greece just as its role on the Cyprus issue.

In summary, there is an inconvenience that NATO concerns about Turkey membership. While NATO as an organization put a great value of Turkey's membership and contribution to it. Some alliances try to use Turkey's membership as leverage to direct Ankara's foreign policy in parallel with their requirements. The United States and some other European countries using some of the mass media, spend efforts to force Ankara in line with their desire, to create an agenda that Turkey's NATO membership is in question since Ankara follows the independent foreign policy to fulfill its sovereignty requirements. Such initiatives have created anxiety in Turkish public opinion and cause a counter-reaction in Turkish media. Despite all those negative pressures, the government of Ankara has never brought that mater, which Turkey would leave NATO, on the international agenda officially. Ankara always put emphasize that NATO has a double standard when Turkey needs NATO contributions. This is what the Turkish government and people believe by heard.

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A Critical Review of Health and Education in the “Least Developed Countries” (LDCs)

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Zhongnan University of Economics and Law

Abstract- In the framework of educational globalization and the growing power of international organizations in health and educational governance sector in the least developed countries (LDCs) have faced the latest stage of stress about whether their learning strategies should go behind the global educational models or seek out solutions of their diverse problems by encouraging restricted native literacy practices. This article presents an outline of (Least Developed Country) LDCs Asset in which there are several indicators, including health, school enrollment, and literacy. Economic growth has been elevated in the year leading to the economic crisis but remains weak. It repeatedly does not the advantage of the population at large, comes at high ecological costs, as shown by the rate of resource reduction and environmental damages, and youth unemployment remains very high. This article terminated with an appeal for developing circumstantially related literacy plans and policies throughout an asset point of view; and offers instructions for further research to investigate the Least Developed Countries literacy rate, school enrollment, and health policies.

Keywords: *child health, child nutrition, education, human capital.*

GJHSS-E Classification: *FOR Code: 340499*



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I. INTRODUCTION

Many kids in less developed countries are suffering from low quality nutrition and health. The United Nations estimates that one-third of pre-school age kids in the less developed country a total of 180 million kids under the age of 5 are experiencing slow-moving development compared to global standards (United Nations, 2000). Many investigators have tried to estimate the effect of child health on schooling results; however, there are redoubtable boundaries to acquiring realistic estimates. Data are frequently scarce, but more importantly there are numerous viable assets of bias when attempting to estimate relationships between kid health and training.

Studies in Indonesia and India by Soemantri, Pollitt, and Kim (1989), Soewondo Seshadri and Gopaldas (1989), and Pollitt, E., Hathirat, P., Kotchabhakadi, N., Missel, L., Valyasevi, A. (1989). Investigate big and statistically significant forces on cognitive development and school presentation of iron supplementation amongst weak children, but Pollitt et al. (1989) have investigated that there is no such impact in Thailand. Nokes, Bosch, and Bundy (1998) also an assessment of the iron supplementation literature. Bobonis, Miguel, and Sharma (2006) has

conduct health program in India in a poor urban area of Delhi and provided deworming and supplementation medicine to 200 preschool kids at the Age of 2 to 6 years. 30 percent sample kids were found to have worm diseases according to the international standard, 69 percent of kids had restrained to face anemia. After five months of continuous treatment of schools children has weight gains and one-fifty a reduction in absenteeism. Miguel and Kremer (2004) has the same study in Kenyan primary schools and found the Same results. Three recent randomized evaluation studies by economists on the impact of health intercessions on education outputs. These studies have carried out by real-world non-government organizations (NGOs) and their findings may be of beneficial interest to policymakers in the least developed countries. All three paper about school-based health interventions which some economists have investigated may be the most cost-effective looms for delivering nutrition and health services in the least developed countries (Bundy and Guyatt, 1996).

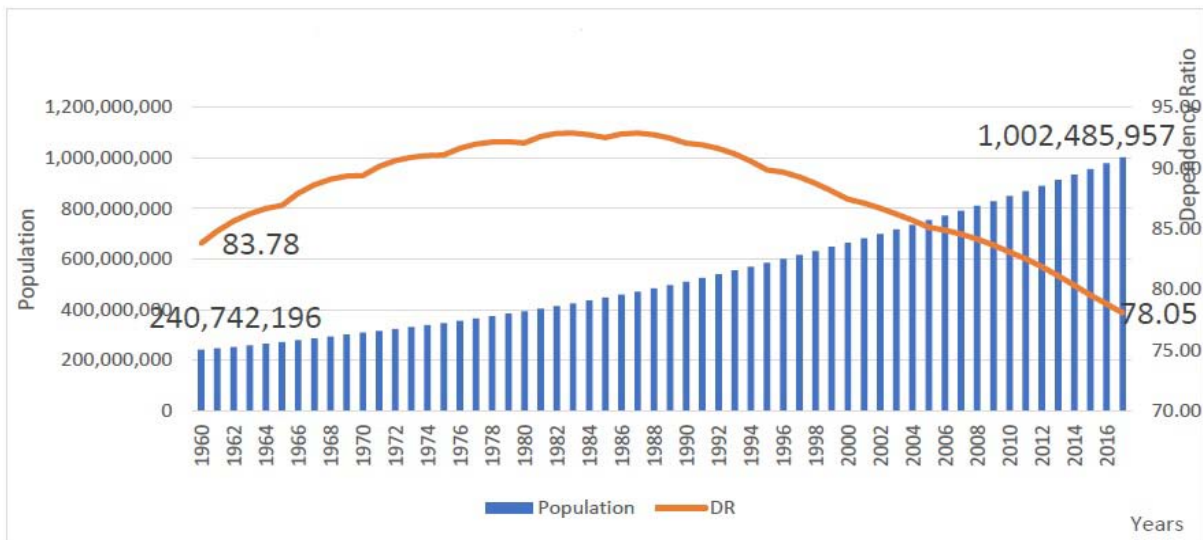
While remarkable socioeconomic progress occurred around the world in the past decades, the majority of the least developed countries (LDCs), which make up the most vulnerable and poor families of the countries, were not able to share the global progress. In the first meeting of the United Nations seminar on Development and trade detained in 1964, hand over from the (OECD) countries promoter for generating a new group in the middle of developing countries to magnetize particular hold up events to help the LDCs countries in reducing poverty, and work out education and health interrelated troubles. Many researcher and policymaker adviser shown that the education started after 1990s when significant international evaluation such as the Trends in International Mathematics and Science Study (TIMSS), the International Adult Literacy Survey (IALS) and the Programmed for International Student Assessment (PISA), the Programmed for the International Assessment of Adult Competencies (PIAAC), instigates within the OECD backgrounds ongoing to be a international observable fact determining the educational schemes of Least Developed countries during a homogeneous testing management (Addey, Sellar, Steiner-Khamsi, Lingard, & Verger, 2017).

(De Silva, McKenzie, Harpham, & Huttly, 2005) Have investigated that a systematic evaluation of mental

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health and social capital have found in 21 research papers and which only two research papers have investigated in developing countries. Sirven (2006) observes social capital as an arbitrating feature in the corridor among the result of income on self-assessment health in the rural republic of Madagascar. (Szreter & Woolcock, 2004) Has contained access to suitable capital and the potential to advantage from that property throughout social relations inside and between organizations & communities. Edge worth and Collins (2006) discover the function of social capital in supplementary households throughout times of independence action of diarrhoeal ailment in the rural area of Bangladesh.

United Nations Economic and Social Council every three years reviewed the list of LDCs to determine LDC's status follow three criteria: (1) Human Assets (2) Per capita income (3) Economic Vulnerability. There are 47 countries in the list of LDCs 2018. Before, several people in this countries have graduated from Least Developed countries status, Botswana in 1994, Cape Verde in 2007, Maldives in 2011, Samoa in January 2014, and Equatoria Guinea in June 2017. In addition to the overview of LDCs, this paper will focus on discussing LDCs Human Asset in which there are several indicators, including health, school enrollment, and literacy.

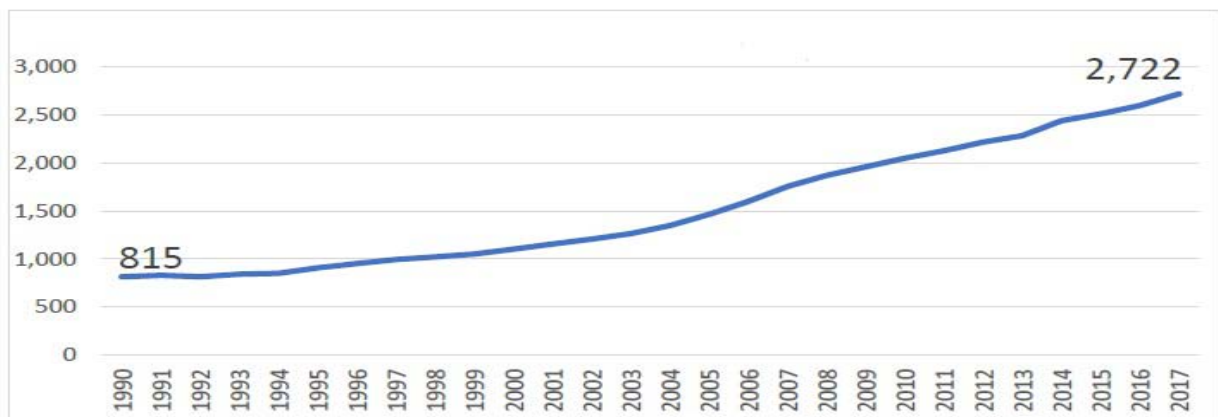


Source: World Bank Data 2018, processed by the author

Figure 1: Population and Dependency Ratio in LDCs 19060-2017

Figure 1 shows that in 2017, the population of LDCs was one (1) Billion - 13.28% of the world's population total (7,53 billion in 2017). Although the LDCs dependency ratio decreases, it is still very high, from 83.78 in 1960 and 2017, it is still 78.05. The high number of LDCs Dependency Ratios shows that the population

is in unproductive age (under 15 years and over 64 years). Its means the burden that must be borne by the productive population to finance residents who are not productive. This high dependency ratio can affect a country's economic development.

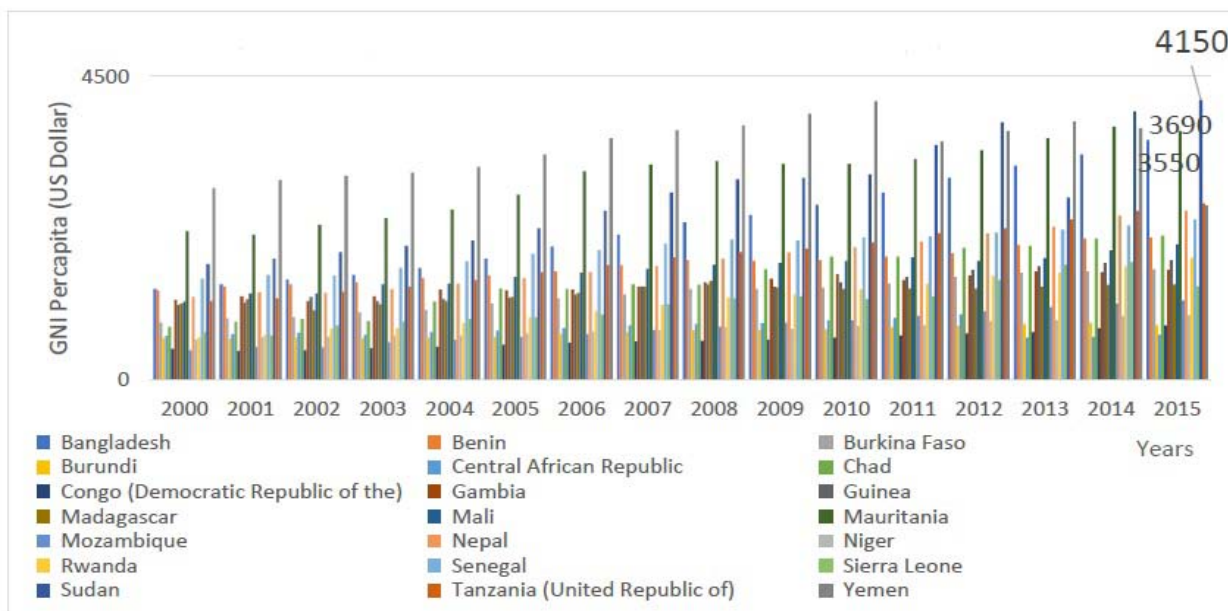


Source : World Bank Data 2018, processed by the author

Figure 2: GNI per capita (PPP) in LDCs 1990-2017

Figure 2 shows that in 2017, the average GDP percentage in LDCs only USD 2,722. The Highest GNI Percentage LDCs in 2015 are Sudan (4,150 US Dollar),

Mauritania (3,690 US Dollar) Bangladesh (3,550 US Dollar). Majority LDCs have a GNI percentage below 2,000 USD. This can be seen in figure 3.



Source: World Bank Data 2018, processed by author

Figure 3: GNI per capita in LDCs (21 Countries) 2000-2015

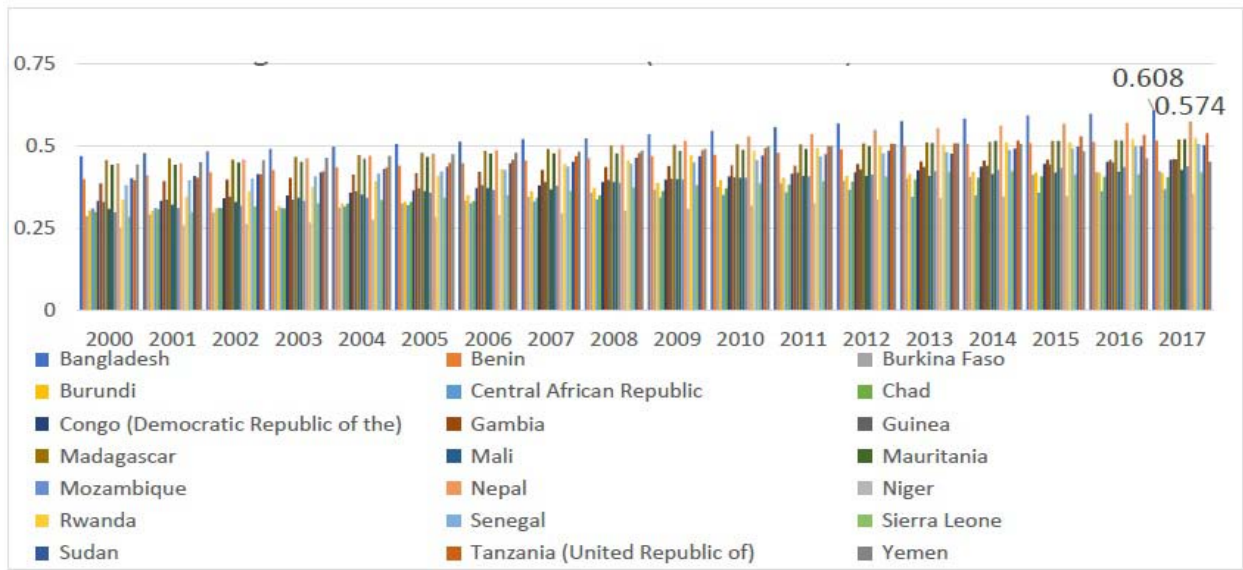
Table 1: HDI and its component 2017 LDCs, Developing Countries, and OECD

HDI and its components	LDCs (47 countries)	Developing Countries	OECD
Human Development Index(values)	0.524	0.681	0.895
Life Expectancy Birth (Years)	64.8	70.7	80.6
Expected Years Schooling(Years)	9.8	12.2	16.2
Mean Years Schooling (Years)	4.7	7.3	8.4

Source: UNDP data 2018, processed by the author

Table 1 shows that the average HDI Index LDCs is 0.524, life expectancy birth 64.8 years, expected years schooling 9.8 years, and mean years schooling 4.7 years. It means that LDCs are lagging compared to developing countries and OECD, where the indicator value is higher than LDCs. In a developing country, the average HDI index is 0.681, average life expectancy birth is 70.7 years and average expected years schooling is 12.2 years. While in OECD all indicators value is more than LDCs and Developing Country, HDI Index is 0.895; average life expectancy birth is 80.6 years, an average expected years schooling is 16.2 years, and average mean years schooling 8.4.



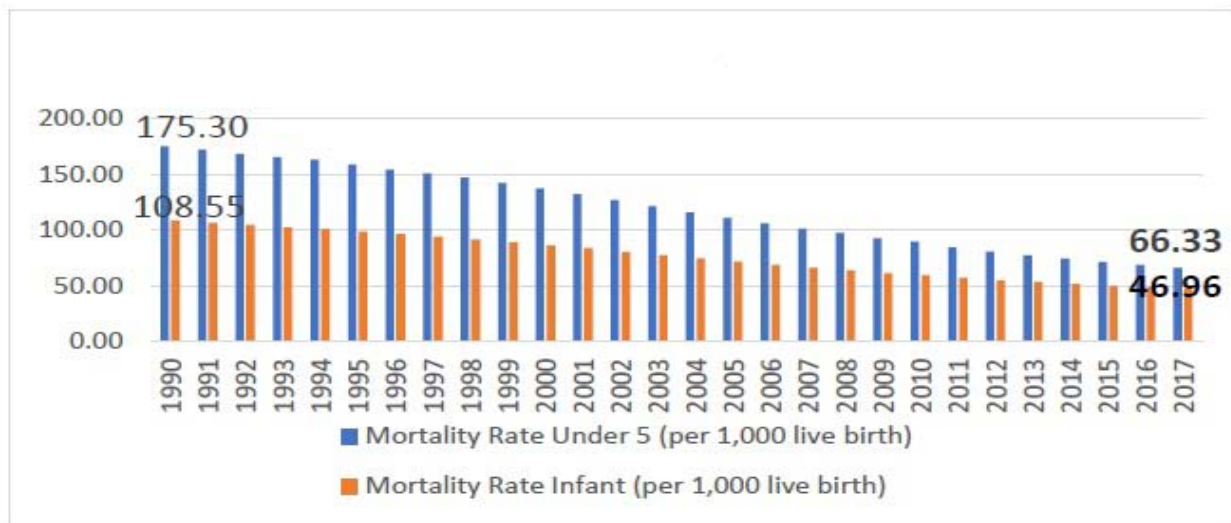


Source: World Bank Data 2018, processed by the author

Figure 4: HDI Index in LDCs (21 Countries) 2000-2017

Figure 4 shows that the highest HDI index in 21 LDCs in 2017 is Bangladesh at 0.608 and Nepal at 0.574. The majority of LDCs countries have HDI index

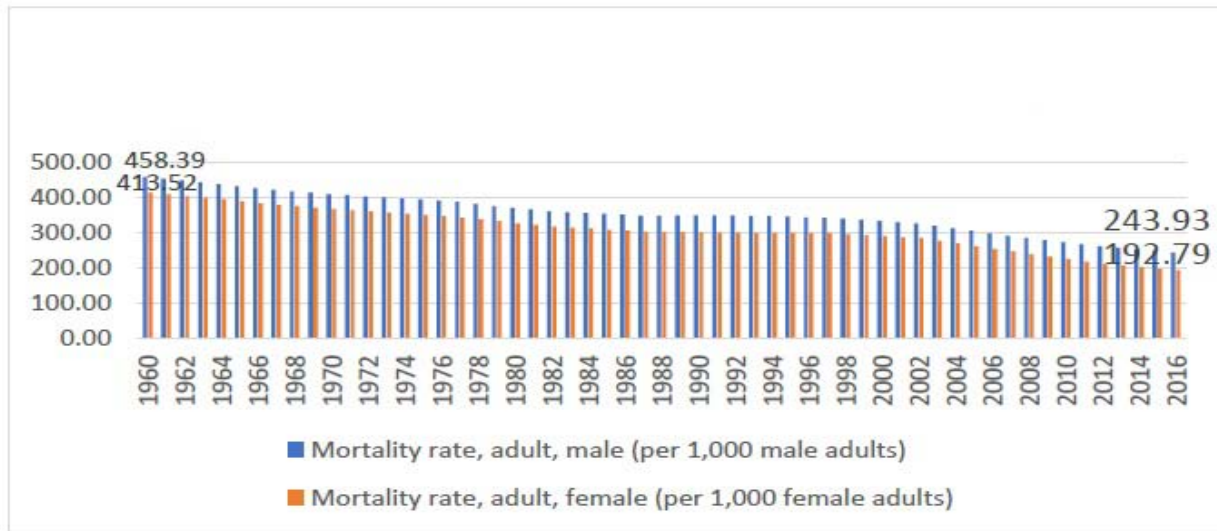
below 0.4. HDI Index of Central African Republic and Niger is the lowest in all LDCs, which values 0.367 and 0.354 are respectively.



Source: World Bank Data 2018, processed by author

Figure 5: Under five year age Mortality Rate and infant mortality Rate (per 1,000 Live Birth) in LDCs 1990-2017

The average infant mortality rate in LDCs was at 108.55 per 1,000 live births in 1990, and every year decrease, but still high at 46.96 per 1,000 live births in 2017. And the average under-five mortality rate was at 175.30 per 1,000 live births in 1990, and every year decrease, but still high at 66.33 per 1,000 live birth since 2017. We can be seen in the Figure number 5.

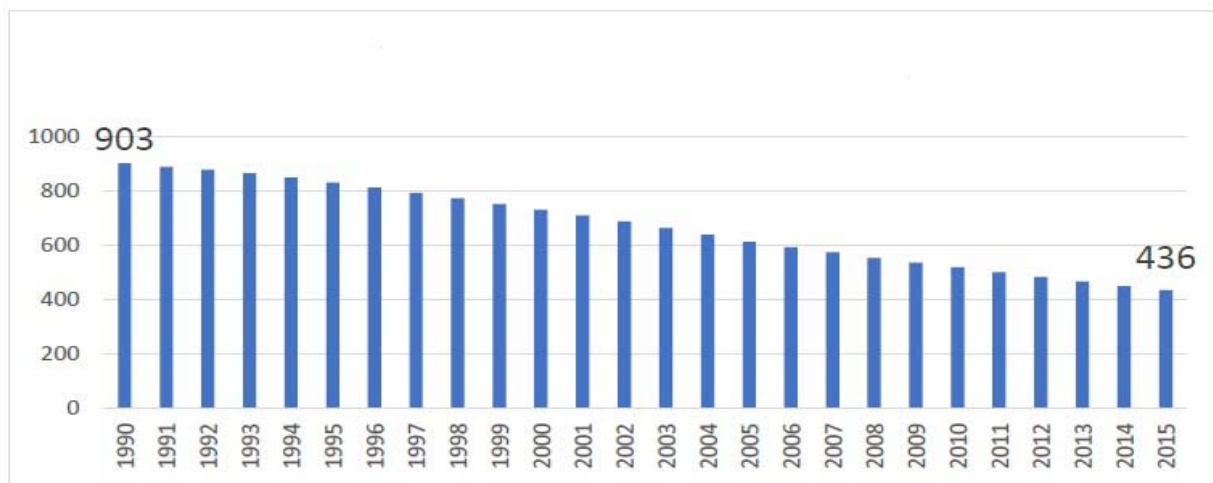


Source: World Bank Data 2018, processed by the author

Figure 6: Mortality Rate, Adult Male and Female (Per 1,000 Live Birth) in LDCs 1990-2017

Figure 6 shows that the average female mortality rate for an adult was at 192.72 per 1,000 live births in 2017, and every year decrease but still high (In 1960 at 458.39 per 1,000 live births). Mortality Rate Adult

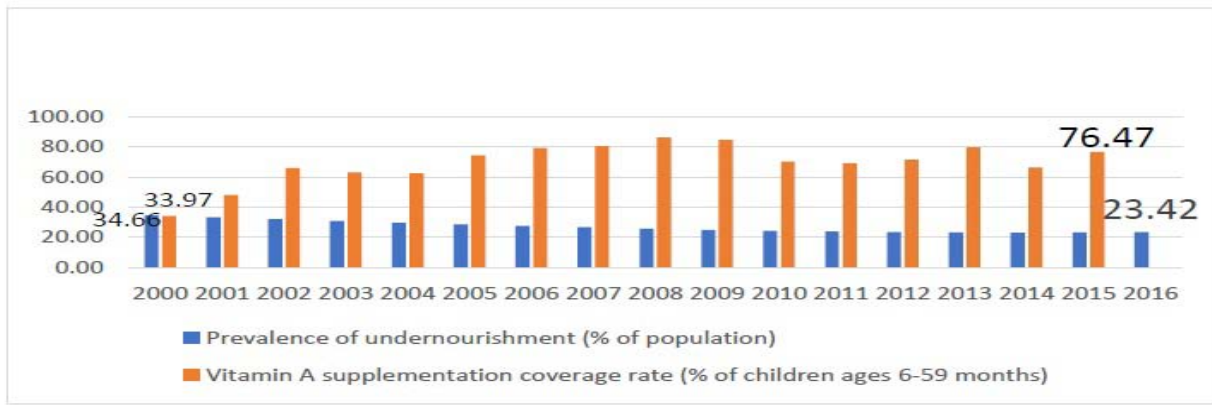
Male was at 243.93 per 1,000 live births in 2017, and every year decrease but still high (In 1960 at 413.54 per 1,000 live births).



Source: World Bank Data 2018, processed by the author

Figure 7: Mortality Ratio in LDCs 1990-2015(Modeled Estimate, per 100,000 live birth)

The average maternal mortality ratio in LDCs was estimated at 436 per 100,000 births in 2015. From figure 7, we can see that the maternal mortality ratio is decreasing over time, but still higher.

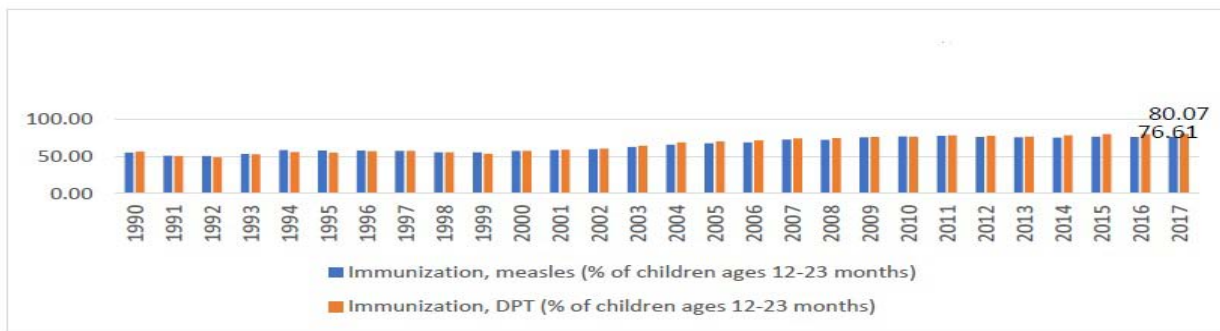


Source: World Bank Data 2018, processed by the author

Figure 8: Prevalence of undernourishment and Vitamin a supplementation coverage rate in LDCs 2000-2016

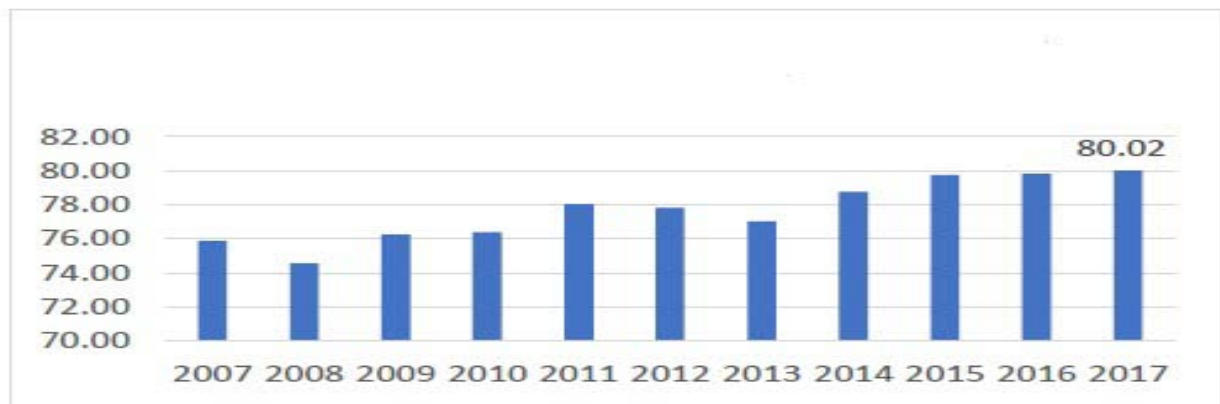
In figure 8, we can see that the average prevalence of undernourishment in LDCs is a very deep concern; there is 23, 42% of population undernourishment. It means, close to a quarter of the population does not have to require nutrition. The

Supplementation of Vitamin A in LDCs do not cover all children age 6-59 months, just 76,47% is covered and close to a quarter child do not have to require vitamin A supplementation.



Source: World Bank Data 2018, processed by the author

Figure 9: Measles Immunization and DPT Immunization in LDCs 2000-2016

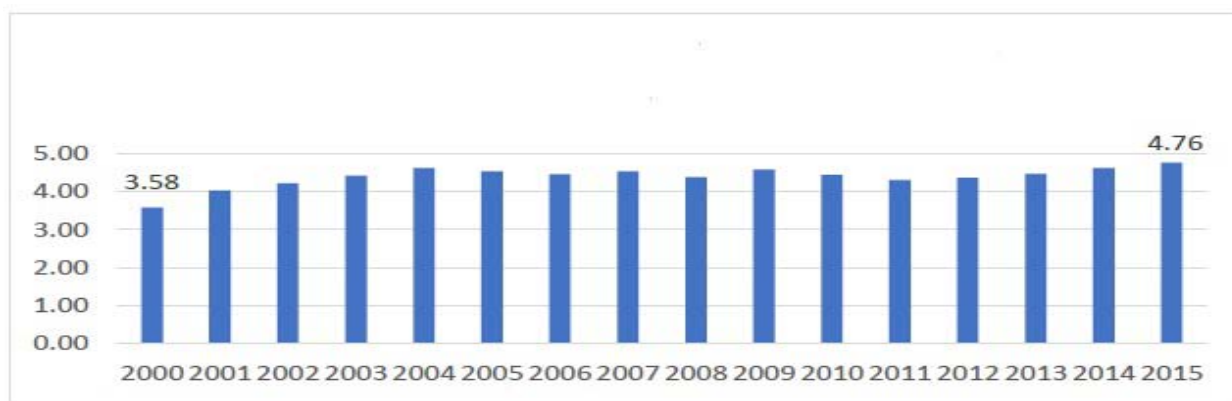


Source: World Bank Data 2018, processed by the author

Figure 10: HepB3 Immunization in LDCs 2007-2017(% of one-year-old children)

Not all children in LDCs get Measles, DPT, and HepB3 Immunization. In 2017, just 76.61 % of children age 12-23 months got Measles Immunization and 80.07% got DPT Immunization. Also,

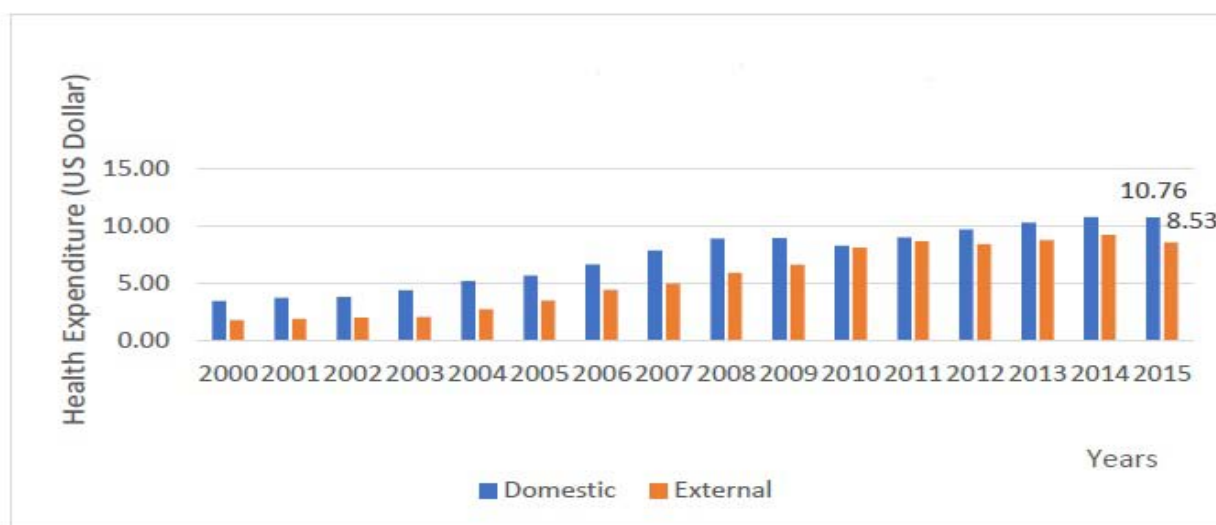
HepB3Immunization covers 80.02% of one-year-old children. This can be seen in Figures no. 9 &10.



Source: World Bank Data 2018, processed by the author

Figure 11: Current health expenditure (5% of GDP) in LDCs 2000-2015

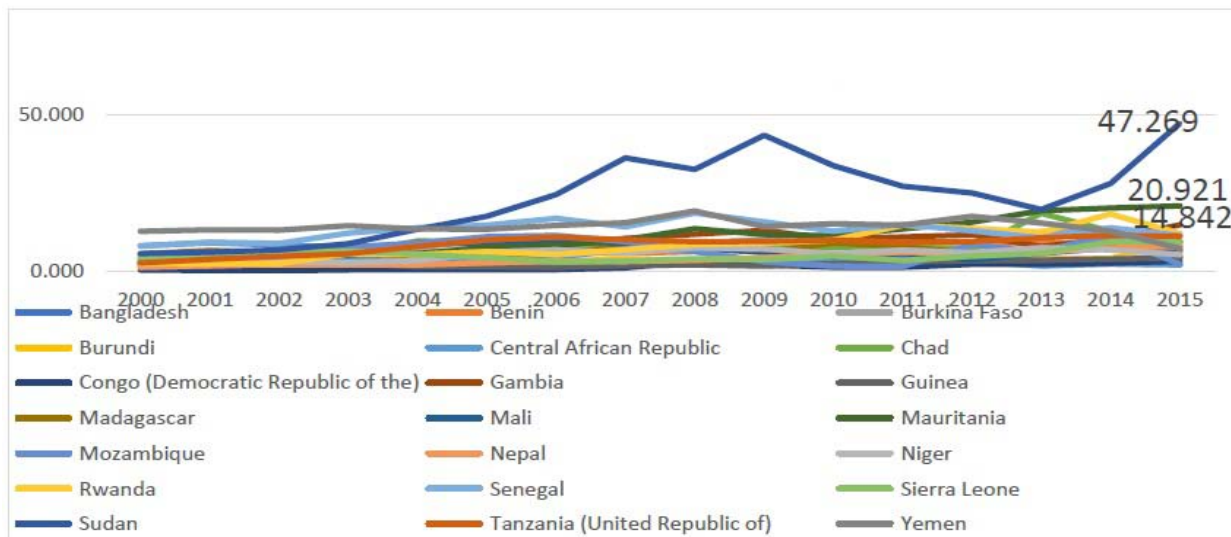
Figure 11 shows that LDCs spend less than 5% of their GDP on health. In 2015, just 4.76% of GDP allocated for current health expenditure.



Source: World Bank Data 2018, processed by the author

Figure 12: Health expenditure per capita in LDCs (5% of GDP) 2000-2015

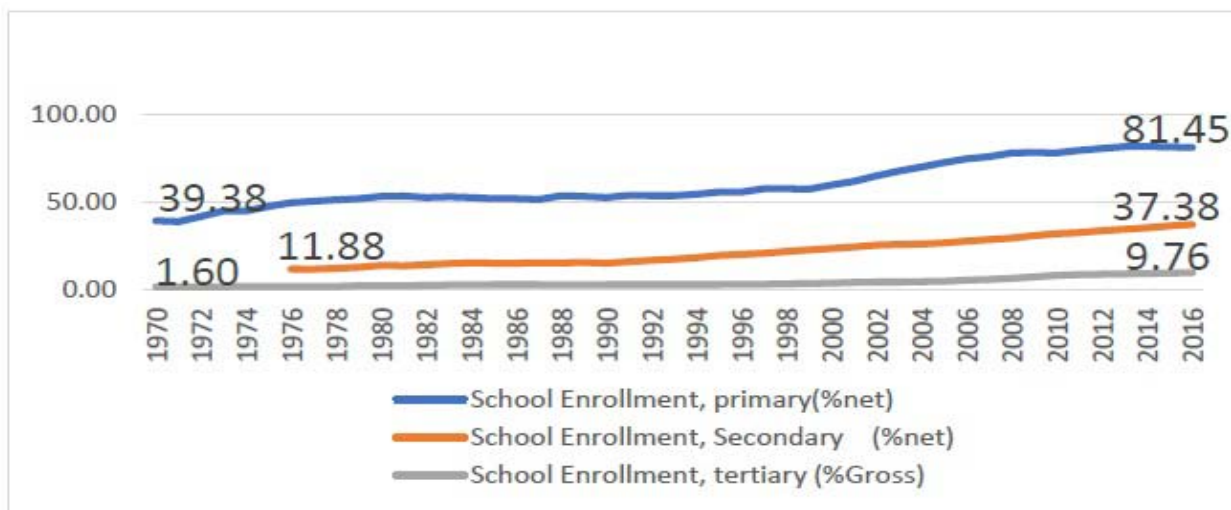
In figure 12, the average health expenditure per capita is very low in LDCs from 2000-2015 and depend on an external donor. In 2015, domestic health expenditure per capita is 10.76 US dollar and external health expenditure per capita is 8.53 US dollars.



Source: World Bank Data 2018, processed by the author

Figure 13: Domestic General Government Health Expenditure (DGGHE) Per capita in LDCs (21 Countries) 2000-2015

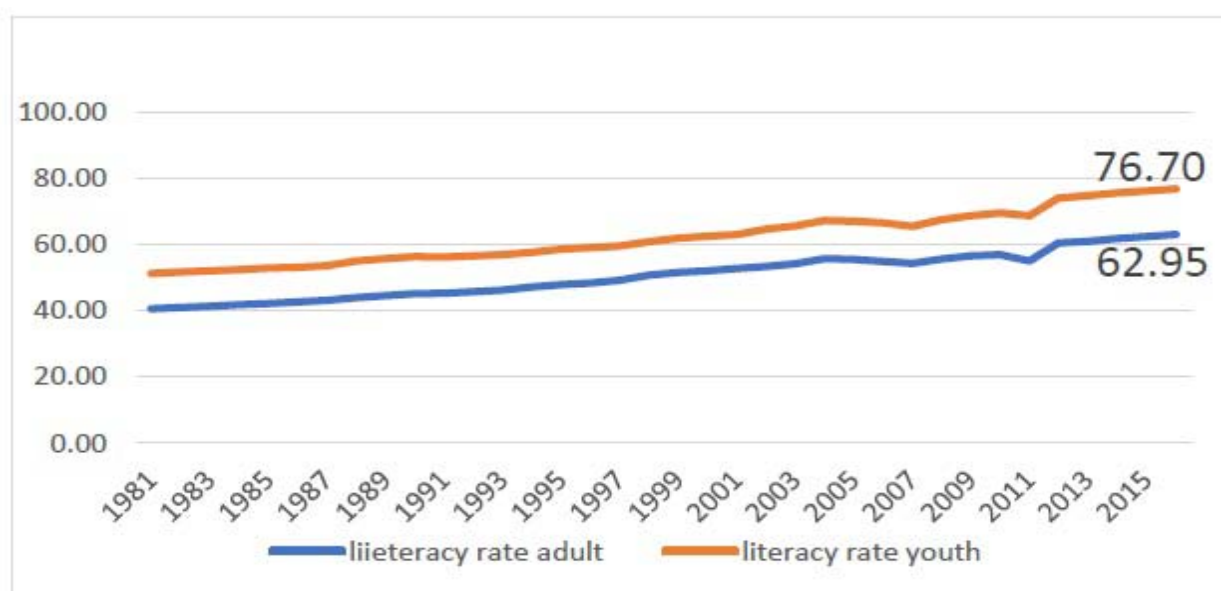
Figure 13 shows that almost all LDCs have Domestic General Government Health Expenditure (DGGHE) per capita are very low. The highest DGGHE in LDCs is Sudan (47.269 US Dollar), Mauritania (20.9 US Dollar) Gambia (14.842 US Dollar).



Source: World Bank Data 2018, processed by the author

Figure 14: School Enrollment in LDCs 1970-2016

Figure 14 shows that in 2016, 81,45 % of the population (of the corresponding primary official school age) in LDCs are enrolled in primary school. Its means, close to 20% are not enrolled in primary school. At the secondary school level, just 37.38% are enrolled and more than 60% of the population (corresponding secondary official school age) are not enrolled. This is a very high concern. Similarly, in tertiary schools, just 9.76% are enrolled.

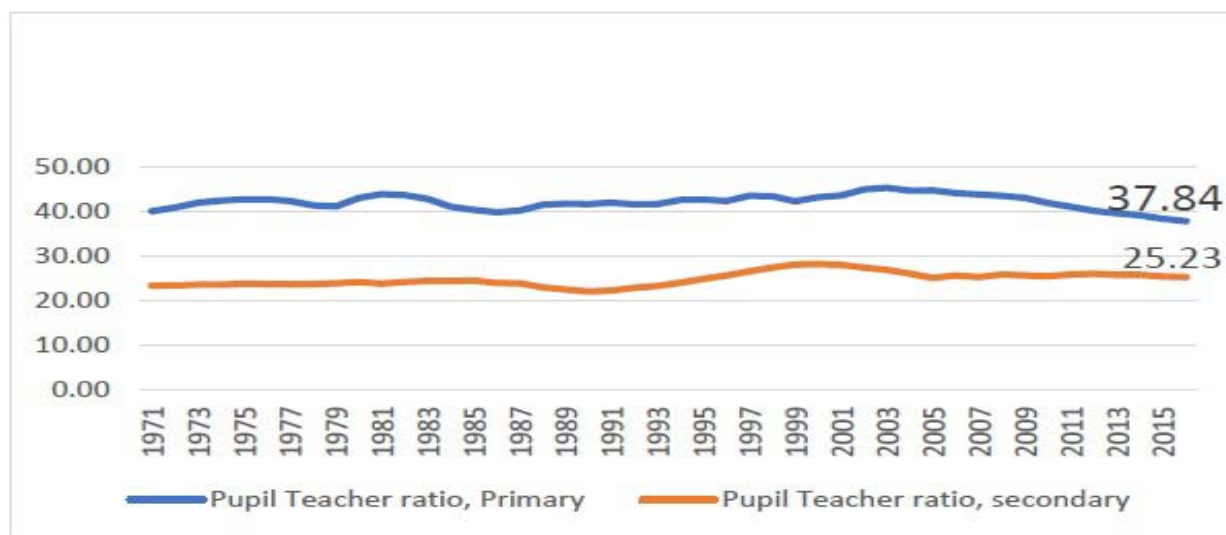


Source: World Bank Data 2018, processed by the author

Figure 15: Literacy Rate in LDCs 1981-2016

Figure 15 shows that in 2016, the adult literacy rate in LDCs is 62.95%. It means close 40% of people ages 15 and above cannot both read and write with understanding a short simple statement about their

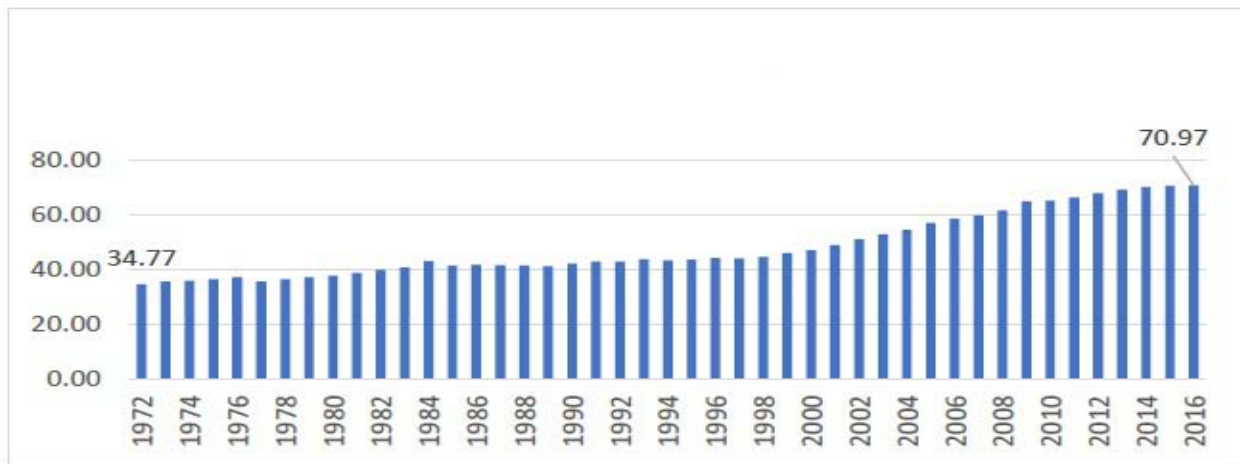
everyday life. Also in figure 15, the youth literacy rate in LDCs is 76.70%. It means 23,3% of people ages 15-24 cannot both read and write with understanding a short simple statement about their everyday lives.



Source: World Bank Data 2018, processed by the author

Figure 16: Pupil-Teacher Ratio in LDCs 1971-2016

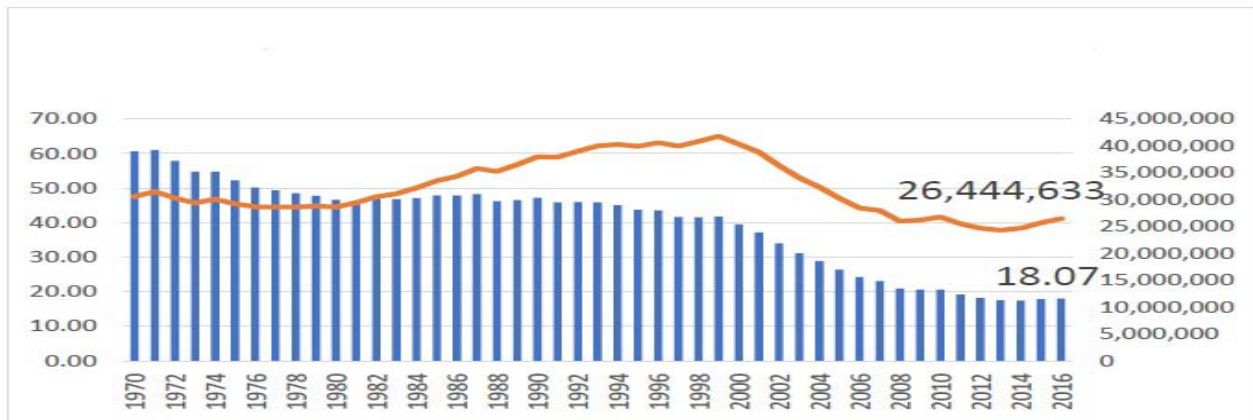
Figure 16 shows that in 2016, the pupil-teacher ratio in primary education in LDCs was 37.84 students per teacher, and in secondary education, the ratio stood at 25.23 pupils per teacher in LDCs.



Source: World Bank Data 2018, processed by the author

Figure 17: Primary completion rate in LDCs 1971-2016

Figure 17 shows that in 2016, 70.97% of children of primary school age in LDCs can completion until the last grade primary education and close to 30% cannot complete.



Source: World Bank Data 2018, processed by the author

Figure 18: Children out of Primary School in LDCs 1971-2016

Figure 18 shows that in 2017, 26.44 million children of primary school age in LDCs are not enrolled in primary education or 18,07 % of children are out of primary school.

II. CONCLUSION AND RECOMMENDATION

Forty-seven countries in the list of LDCs have serious problem in economic, health and education situations, which need to be a common concern. 13.28 % of the population in the world or one billion people live in LDCs, which high dependency ratio (78.05 per 100 people), low GNI per capita (2.722) US. Dollars, low HDI index (0.524), and low life expectancy birth (64.8 years). Also, low expected years of schooling (9.8) , its mean your schooling (4.7 years). Under 5 mortality ratio, infant mortality ratio, maternal mortality ratio, male adult mortality rate, and female adult mortality rate in LDCs is high, respectively 66.33 per 1,000 live births (2017), 46.96 per 1,000 live births (2017), 436 per 100,000

(2015), 243.93 per 1,000 males (2016), 192.79 per 1,000 females (2016). 23.42 % of the population in LDCs is undernourishment (2016), 23.5 % of children age 6-59 months does not have to require vitamin A supplementation (2016).

In 2017, just 76.61 % of children age 12-23 months got Measles Immunization, 80.07% got DPT Immunization, and HepB3 Immunization covers 80,02%. Current Health Expenditure in LDCs very small, Domestic health just 4.76% of their GDP. Population health in the developing world has the potential to benefit from efforts to improve social capital. Expenditure per capita and External Expenditure per capita are also very low, respectively ,10.76 and 8.53 US dollars. The situation of education in LDCs also very concern, in 2016 close to 20% population's primary school age are not enrolled in primary school. At the secondary school level, more than 60% of the

population (corresponding secondary official school age) are not enrolled. Similarly, in tertiary schools, just 9.76% are enrolled.

Adult and youth literacy ratio in LDCs shows that in 2016, close 40% of people ages 15 and above cannot both read and write and 23.3% of people ages 15-24 cannot both read and write with understanding a short, simple statement about their everyday life. The pupil-teacher ratio in primary education in LDCs was 37.84 students per teacher, and in secondary education, the ratio stood at 25.23 pupils per teacher. In 2016, 70.97% children of primary school age in LDCs can get completion until the last grade primary education and close to 30% cannot complete and in 2017, 26,44 million children of primary school age in LDCs are not enrolled in primary education or 18,07 % children are out of primary school.

The governments of Last Developed Countries must go away from (Non-Profit Organization) NGO style and free of charge clinic health care service condition and evolution people to market-rate health insurance strategies. Cohn & Rossmiller (1987) have investigated in developed and less developed countries (LDCs) and presents a few guidelines and implications for educational policy in LDCs. The research presents no source for closing that LDCs should decrease their plane of expenses for education or be indifferent about educational services. This research does recommend that notice must gradually more be directed to how capital is used in the educational process. In order to give confidence for policy-makers and development support organizations to spend money in inventive ways to build up social resources, it is essential to construct a proof base for the result of social capital on health in developing countries, principally for multifaceted health matters such as HIV and AIDS (Thomas-Slayter & Fisher, 2011). Future research on social capital and health in the developing world should focus on applying hypothetical conceptualizations of social capital that can be contrasted across backgrounds in the developing world, acclimatizing and validating tools for measuring social capital, and designing sampling strategies to collect multilevel data on social capital in developing countries.

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Conflicts of Interest

The authors declare no conflict of interest.

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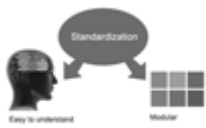
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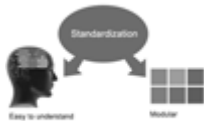
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The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



FORMAT STRUCTURE

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

TIPS FOR WRITING A GOOD QUALITY SOCIAL SCIENCE RESEARCH PAPER

Techniques for writing a good quality homan social science research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of homan social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow [here](#).



6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

THE ADMINISTRATION RULES

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Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.



CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals

Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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