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Aim & Scope

Aims to enhance the level of published articles by improving integrity, morals and keeping papers in high professional standards to spread the good knowledge to all up-coming researches, scholars and scientists. So, the main objective of MECS is to advance the professionalism level of existed research, and to enhance the focus on new emerging trends.



Cloud Accounting As a New Business Model and Its Influence on Accounting Process

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Abstract

With cloud computing transforming the Information Technology industry, the business sector has equally received a major boost coming from the creation of cloud accounting. New Zealand was the first to use a smart system to manage finance and accounting, where in the year 2006 an emergent company, Xero demonstrated the possibility of having accounting done in line with the cloud computing frameworks. Looking at the vicious competition in the market today, it has become necessary for businesses aiming to achieve their goals in carrying out both internal and external analyses, which enable a smooth transition with the ever-dynamic market trends. Accounting, as a critical area behind the growth of any business, has not been left behind in this evolution, with technological innovations availing accounting software that was unimaginable in the past years. This is basically; a cloud technology based accounting system, which avails numerous services, revolutionizing the accounting industry as all the traditional and cumbersome paperwork oriented system is replaced by a more convenient and equally reliable cloud-based accounting set up. This wake in accounting, despite being new in the market has received positive feedback with close to half of modern business setups embracing the approach. This paper aims to revisit cloud accounting from spectrum possible spectrum as illustrated herein.

Keywords: *Cloud computing, Cloud accounting, Models.*



Introduction

The field of accounting has for so many years stood the test of time and remained applicable to businesses in their regular operations. According to Yonghong (2007), accounting is the area that manages essential business procedures, like record keeping, this made accounting integral to many organizations, as accounting strategists are able to tell whether the business is heading the intended direction. Looking at the rapid technological advancements, which have created a complete turnaround in everyday living, the business world has not been spared forcing organizations to make the necessary adjustments in light of the ever-changing market dynamics (Pacurari & Nechita, 2013). By this accord, the innovation of cloud accounting, which is described as cloud-technology based advancements that have spearheaded the formation of software, hosted on mobile servers, which enhance storage, transfer, and access of information over the internet. According to Christauskas & Miseviciene, incorporation of the same into business has revolutionized operations, as needed data can be retrieved when, if and where required meaning accountants have been forced to rethink their approaches as cloud accounting is the gateway to even more advanced future innovations. This essay takes all the aforementioned issues into consideration seeking to point out how cloud computing is modeled scoring on its concept, benefits, delimitations and impact on accounting among others.



Concept

It is important to note that cloud accounting has roots in cloud computing technology, which facilitates networking; whereby resources are organized and attached to the internet over terminals meaning users need only the internet to access the resources. The idea of cloud accounting was put forth in the year 2011, where technological innovators merged their cloud technology into business developing virtual accounting data storage and processing platform (Christauskas & Miseviciene, 2012). To garner insight on cloud accounting, note a number of factors that facilitate the procedure. To begin with, it is of an essence to comprehend that cloud avails services in three formats which include; SaaS (Software as a Service), PaaS (Platform as a Service) and finally, IaaS (Infrastructure as a Service). SaaS is a type of service in which software sourced from the internet is installed as an application availing the needed services to the consumer who renews a subscription, as designed by the manufacturer (Zissis & Lekkas, 2012).

On the other hand, PaaS allows users the cloud capacity to access resources they need for application development and execution of software programs, thereby eliminating the need for the alternative hardware-software approach, which is difficult to manage. Additionally, IaaS which seeks to eliminate the purchasing and management of software for end users availing more enhanced User Interface (UI) interactions between the service and the user. In other words, installing software to facilitate command executions and relevant responses is no longer needed; instead, everything is virtualized and hosted over networks to vail the services when and if needed. Harnessing the skills of experts, these services are merged into an organizations process, and inclined to function in accordance to accounting needs (Dimitriu & Matei, 2014).



Deployment models for cloud in business

In this context, models are used to represent the various channels through which the incorporation of cloud accounting into organizations can be achieved. There are four models according to Arsenie-Samoil (2011) include;

Private Cloud Accounting. In this model, cloud resources are directed towards creating cloud services, which are sourced and operated within the constrictions of a single organization. In other words, the single premise structuring permits only internal access and management of the information stored over specific channels. Significantly also, this method is regarded as the most secure as chances of third-party compromise are limited (Zissis & Lekkas, 2012).

Public Cloud Accounting Model: As suggested by the name, this model evokes capacity for the larger public to access the cloud services, which is made possible for organizations aiming to get more consumers as well as giant institutions to efficiently manage accounting operations for instance; government agencies, schools, hospitals and public service provider centers just to name a few.

Community Cloud Accounting Model: The cloud service avails interconnections between different organizations. This enhances exchange and storage of information over cloud channels which is critical in the creation of vertical markets (Zhang & Gu, 2013). For like driven organizations cloud connectivity that mothers accounting makes it easier for idea sharing, in turn boosting businesses as organizations get to learn to utilize market analysis grasping what is working for the organization and what is not.

Hybrid Cloud Accounting Model: Is the combination of two or more of the aforementioned models, which, is designed to avail a wider scope of services to organizations. By use of cloud computing, it becomes easier for organizations to manage portable media and other virtually enabling platforms (Pacurari & Nechita, 2013).



Cloud Accounting Software Providers

The issue of software provision is at the heart of the cloud accounting. The software sets in motion the wheels behind the whole cloud accounting concept. Over time, technological advancements have seen new software make way into the market, each with its own unique element that sets it aside from competitors. This paper identifies the following software providers;

Xero

Xero, founded in New Zealand, has grown to become one of the most preferred accounting software providers, having amassed great influence in the business world to garner over 250,000 active users on the global scale. The software providers have laid emphasis on the small business sectors availing efficient accounting services to more than 100 countries. Referred to as the “Apple of cloud accounting,” Xero has displayed massive potential and capacity to surpass geographical limitations growing to become one of, if not the best cloud accounting (Du & Cong, 2010). Importantly also the accounting software provider has remained true to its mission and showcased objectivity to achieving its vision, which is, to “be the global leader in matters cloud accounting.” In line with this, the company has availed a number of cloud solutions, key ones being; facilitating client-centered accounting options that ensure business goes on as usual, anywhere and anytime. Significantly also, by facilitating report and final management the business has created a brand for itself in the cloud computing industry (Christauskas & Miseviciene, 2012).

Sage One

This cloud accounting software Provider Company lays emphasis on making the experience more efficient through the introduction of smarter services day after day. Among the areas the service provider focuses on is enhancing organization-consumer conversation made possible through the creation of interactive cloud software, where clarifications between the two parties can be made instantly (Treves, 2017). Notably also, Sage One enhances the management of finances by availing secure channels, which are not only user friendly but also fluid to consumer needs, meaning a single organization for instance, a hospital can create a working software that can facilitate storage and processing of patients’ records as per the Wings or type of treatment they require (Alali & Yeh, 2012).

KashFlow

KashFlow depends on the preface of making it simple to manage large and smaller businesses alike weighing in on the advantage that the individuals harnessing and taking charge of the idea need not have deep accounting skills.



In order to achieve this, the software provider company KashFlow has incorporated almost a hundred systems including inventory management, branch monitoring, User Interface virtual interactions and e-commerce just to mention a few (Youssef, 2012). On the other hand, the developers have created email oriented and cloud and crypto store systems which induce all operations giving the company a major advantage as compared to its vicious competitors in this line of business (Feuerlicht, 2010). Importantly also, KashFlow has invested a lot of resources in their products is investing in hosting, where an emphasis is put on enhancing system's multiple data integrations hence making it a preferred choice for large organizations.

FreeAgent

The Software provider company was set up in 2007, and sought to bridge the gaps that the original creators had identified in cloud accounting. The company grew to become multinational company specializing in not just the normal inventories and payrolls but as well as developing time track systems, which execute operations as programmed automatically. These services coupling up with the way that their services are easy to use has allowed the company garner positive feedback from consumers growing to become a multinational company estimated to be offering services to over 40, 000 freelancers alongside other small and large businesses(Christauskas & Miseviciene, 2012). Located in Edinburg. FreeAgent has traversed local business operations leading in microbusiness management which have made it a preferred choice amongst small business enterprises, and finally, the fact that their team is consumer needs driven, where they show concern in growing the business has given it a good brand name amongst customers (Youssef, 2012).

QuickBooks

This company poses a big competition to the small-scale software company rivals as it is driven towards enhancing account on small-based businesses. Boasting in peer to peer (P2P) connectivity the company has taken slow but sure strides and builds up a reliable software provider partner that meets HM Revenues and Customs (HMRC) requirements. This certification has made it a consumer base as people are assured that their information and data is kept safe (Dimitriu & Matei, 2014). In addition, by offering an easy setup process where new users receive systematic guidelines have facilitated its brand development, as it is renowned for its user-friendliness.

Factors to Consider When Choosing Cloud Accounting Software

Machine Learning (ML): This basically refers to the software capacity to advance its algorithms giving the software the capacity to auto modify (Rosten, Porter & Drummond, 2010). For instance when YouTube avails the recommended videos based on user searches, the modification to facilitate such is what is referred to as ML. For an organization, the fact that given software can advance with the advancements in internal accounting structure is an added advantage.

Artificial Intelligence (AI). Artificial Intelligence capacity is what allows systems and machines to operate normally minus human oversight (Russell & Norvig, 2016). For a growth-oriented organization to have software that solely avails market trend graphs and information to an organization that has been picked from the internet, that is AI in play.

Integrations and Extensions, this basically refers to the ability to integrate data sets from one department to another, allowing instant conveying of information (Pacurari & Nechita, 2013). Expressively, for a company's human resource department to be able to pull employees details from their sale graphs over media and incline them in the HR systems to determine pay, demonstrates integration and extension capacity.

Benefits of Cloud Accounting

Analyzing the cloud accounting operations and services it is undeniable that it can foster a number of advantages to the organization. They include;

Cloud Accounting is Less Costly

This is made possible by the many available annual and monthly subscriptions which greatly save on costs, as compared to the traditional methods of accounting. Moreover, due to the recent advancements in cloud computing, virtual User Interface interactions have been intensified making it easier for persons with basic computer skills to access the services (Pacurari & Nechita, 2013). To companies and small-scale business enterprises, this is critical as it eliminates the need for technical experts who would have otherwise been expensive. Additionally, by the mere fact that the tax waivers could be introduced in the future as well as unstable hosting dynamics, the responsibility to incur set costs is incurred by the manufacturer insulating organizations. All a company has to do is pay the required monthly or annual subscriptions on the computing software's and have the cloud accounting debt lifted off their shoulders (Youssef, 2012).

Enables Real-Time Updates

Traditional accounting required the use of voluminous paper storage strategies to ensure that data and information were recorded when and where it was required. Take up an instance where due to unavoidable circumstance or forethought irregularities, a change needed to be made and yet about fir hundred pieces had the error recur in them. Cloud computing is aimed at eliminating hassles of this nature, whereby, by use of programs the service provider only has to adjust the contentious variables and in no time have the host working as should. Furthermore, by incorporation of cloud computing services where organizations pay for software on a monthly or annual basis, updates can be designed to accompany both manufacturers as well as end-user organizational needs (Treves, 2017).

Access of information anytime anywhere

Cloud accounting allows storage of information, which is hosted on cloud, which makes it easier for the authorized or required parties to retrieve the information that they desire. This is as opposed to the traditional methods of accounting where single computers and users were tasked with the mandate of enhancing information retrieval. This meant that in their absence their colleagues upon needed vital urgent information had no alternative but to wait or summon them from other activities, which may have been of importance to the organization. However, with the coming of cloud computing technology, which was later merged into the business as cloud accounting, companies can even go the extra mile of availing products to be showcased to potential customers through utilization of the internet, which saves time on both parties (Weinhardt, et al. 2009).

Security of the Information stored

Tales have been told of how critical information tom companies was lost, to the many threats that information is susceptible to including; virus attacks, hard disk crashes and physical human alterations among others. In many times, this unfortunate turn of events has created a major problem in the system, zeroing companies that had made major steps (Rosten, Porter & Drummond, 2010). This is very devastating especially for small business enterprises

where it happens the entrepreneurs invested a lot to guarantee the success of their businesses. Cloud accounting aims to remedy all these challenges providing a guaranteed secure storage system of critical files and information that the company cannot afford to lose. This ensures that even in the unfortunate loss of information stored in the physical memories of hardware elements, the cloud avails the information which can be retrieved setting operations back to normal (Pacurari & Nechita, 2013).

Time-Saving

Think of a network, fully sufficient to the extent all authorized parties have been connected through cloud induced networks to retrieve the information they need wherever and whenever they may be. A person in point A for instance updates vital information like the market analysis report directed to interconnected employees to utilize in strategic development. People in point B have travelled for a business convention but in their hotel rooms, they have been availed with WIFI networks. Even if the meeting is scheduled, the next day it becomes easier for them to instantly access the information, just like the people in point A. The next time all the required members are meeting, the time that could have been used in shedding light on the unformed can be utilized in strategy development as everyone is in the loop of what is going on. This is the exact manifestation of the revolution that cloud accounting seeks to trigger, where information remains the least of organization's worries, availing more time for developmental projects within the organization (Feuerlicht, 2010).

Prompt detection and fixing of bugs

In cloud computing, every bit of information is accounted for in a structured way. Unlike the traditional paperwork accounting systems, where error detection leaves alone fixing took ages, cloud accounting utilizes automated "Imonitor" services to detected irregularities and unwanted fragments in the files stored over the cloud. In the event an error has been detected, correction is prompts can be achieved, through updating of software and having IT experts resolve the issue, which based on the Imonitor services is very easy to detect (Zhang & Gu, 2013). Additionally, looking at the protection protocols put in place by the server managers it is difficult for software as through debugging, mechanisms ate put in place that detects and contain the bugs till the next updates.



Efficient for organizational improvements

Every futuristic organization seeks to maximize on strategies that will elevate it to the next level in operations, starting from harnessing local, regional, and finally aiming for the global spectrum. With this in mind, a strategy from all pivotal point is embraced in the quest to realize the set visions alongside missions. Cloud accounting avails a number of services ranging from storage to utilization of cloud technology to carry out market research and design on consumers' feelings and needs (Weinhardt, Anandasivam, Blau, Borissov, Meinl, Michalk & Stöber, 2009). Furthermore, through the software companies that avail services on subscription, it enables the company ample time to resolve financial challenges if emergent, bearing in mind that despite being cut back from access, cloud account information is still. This is as opposed to traditional methods whereby small businesses could be put on the edge due to insufficiency in funds to cater for IT specialists. Concisely aside, cloud accounting availing accesses to vast beneficial business resources, pay as you go software services eliminates stress in financial difficulties (Rosten, Porter & Drummond, 2010).

Enables Automated Data Back Up

Regardless of how careful people managing businesses are, the truth is mistakes are unprecedented and unplanned for, meaning you never know when things will go wrong. Amidst these challenges, cloud computing through its auto back synchronization alongside the user-initiated ones ensures that in the event primary stored data is compromised, other secondary and tertiary back up locations facilitate recovery (Treves, 2017). Additionally also looking at the vast amount of storage space that is available in the cloud, organizations can develop and embrace and upload and management plans at specific times (Pacurari & Nechita, 2013). For instance everyday midnight, when computers are not in use, they can be set to carry out upload intricate information to the unlimited cloud space.

Cloud Accounting Related Drawbacks

Taking a closer look at the incorporation of cloud accounting some drawbacks were also uncovered. it includes, one, due to the fact that cloud accounting is made possible through networks, it depends heavily on internet connectivity scoring out organizations and enterprises that may be lacking the capacity to have a stable connection, due to factors they cannot resolve (Du & Cong, 2010). Additionally, despite the many efforts to safeguard data from third-party hijacking, the truth is there are hackers who keep advancing their techniques using Trojan, Malware incision, phishing among other unethical methods who through trial and error can be lucky to gain unauthorized access to business information, crippling down organizations. Finally, on the part of software developers, who are behind the creation of the cloud account services, hacking of voucher codes for upgrades, in so doing causing major losses (Yang & Lai, 2009)

Conclusion

Cloud accounting utilizes software to avail immense accounting services to organizations wishing to make the transition. Weighing on the above-expressed arguments, it is an undeniable fact that cloud accounting is a “here to stay” concept. It stands as the gateway from traditional accounting to the technologically advanced modern accounting, where considering the benefits it has fostered so far, the future of cloud accounting looks bright. However, most businesses clouded by fear of having their information compromised have shied away from embracing this major milestone, this means software providers should work on strategies to address this shortcoming. The fact remains, cloud accounting will take over very soon, meaning businesses should adapt if at all they want to triumph this vicious competition storm.



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Investigating the Effectiveness of Teaching Methods for People with Learning Disabilities

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Abstract:

This study aims to investigate the teaching methods and its effectiveness in teaching a child with learning disabilities. The descriptive method was used through reviewing several literatures that are connected with the study topic. The study clarified that a child with learning difficulties is a child with normal intelligence, above average and maybe high, and who have a higher level of sense of responsibility and failure fair. The main results of this study is that there are two main types of learning difficulties which are development and academic learning disabilities. The study also resulted that there are many teaching methods and strategies that can be used with students with learning disabilities, and that training is one of the main these strategies.

Keywords: teaching methods, learning disabilities, child, development.

1. Introduction

It seems that the whole world has made up its mind to reconsider the concepts of education, teaching and learning in order to be able to keep up with the global changes.

"Specific Learning Difficulties" means a defect in one or more of the common mental processes in understanding or using language, either spoken or written, which can appear as a lack of ability to listen, think, speak, read, write, spell or perform calculations.

This term includes sensory difficulties, brain injuries, limited disfunction of brain, dyslexia, developmental dysphasia, but does not include children with learning problems which resulting mainly from visual, auditory or motor disabilities, or from mental retardation, emotional disturbance or environmental, cultural or social imperfection (US Federal Government definition).

A child with learning difficulties is a child with normal intelligence, above average and maybe high, and have a higher level of sense of responsibility and failure fair.

2. Definition of a child with learning disabilities:

He is Is a child who does not suffer from mental or sensory (auditory or visual) impairment, cultural or environmental deprivation or emotional disturbance, but is a child who is suffering from a disorder in the basic mental or psychological processes that include attention, perception, formation the concept and remembering. There is a segment of children with learning difficulties who have intelligence average ranging between 70 % to 85 %, some see that proportion as between 20 % and 30 %, and they have inability to concentrate for a long-term (Holt,2016). The problem is reflected in the inability to learn reading, writing and calculate and the consequences of it, whether in primary school or later deficiencies in the learning of different subjects, so parents and teachers note that this child does not reach the same level of education that his colleagues of the same age reach , despite the fact which he has mental abilities and a medium or high intelligence average.

3. Types of Learning Difficulties:

The basic two types of learning difficulties are (Bradley et al., 2002):

a. Developmental learning disabilities:

This kind of disabilities includes that the child's needs to learn in the study subjects, and the initial disabilities and secondary disabilities are the main two kinds of this learning disabilities types. Whereas, initial disabilities include attention, memory and cognition which are basic functions nested with each other, while, Secondary disabilities deal with the oral language, and thinking.

b. Academic learning disabilities:

This kind of disability basically focuses on academic learning disabilities as in this kind, disorder is happened to the child in the psychological processes (developmental disabilities), and he/she is unable to compensate them through other functions, where the child has difficulty learning to write, spell, read or perform calculations.

4. Diagnosis methods of the Learning Difficulties:

The basic condition for diagnosis of the learning difficulty is observed in delaying at learning abilities, such as to obtain an academic average less than of expected learner's natural average compared to those who are in his/her age, and there is no organic or mental reason for this delaying, and because the learner has no problems in reading and writing, the reason of this phenomenon may be because the learner needs more training courses by the teacher until his/her ability become better in math than reading or anastrophe.

Diagnosis the learning difficulties may not appear until after the child enters the school, and the child shows a low learning from the expected average of his peers – who are in the same age and social, economic and health conditions – whereas the learner shows an observed delaying in studying skills of reading, writing or calculating (Shore, 1998).

The delaying of the child in these skills is based on the learning difficulties, and what appeared later of difficulties in other subjects, this is because the child does not have the ability to read or write texts of the

other subjects, and not the inability of the child to understand and absorb the information of those subjects specifically. The mental abilities of children with learning disabilities are often natural or closer to natural and these children may be talented.

5. Basic symptoms of the students with learning disabilities (Roster, 1979):

A. Weakness of Focus that can be noticed as:

This can be seen as following practices:

1. Difficulty in completing a particular activity to the end.
2. The ease dispersion and absentmindedness, what we call the straying.
3. Difficulty of perseverance and endurance incessantly.
4. Owning a short-term memory and having a difficulty in remembering past events.
5. Losing things and forgetting them.
6. Lack of organizing ;as they often move from one activity to another without completing the first.
8. wipe off (wiping) continuously.
9. Most of these symptoms appear in more than one place, such as: home, school and for more than three months.
10. Nonexistence emergency reasons such as birth of a new baby or transition from the house; as these circumstances can cause a temporary setback for child if he did not ready for it.

B. The weakness of the capacity of remembering:

Children with learning disabilities often take longer time than others to memorize and learn the information, such as remembering the color and days of the week. They also can not provide information about themselves or their families. They also may forget their tools and books or forget to complete their assignments.

C.The weakness of the capacity for the organization:

This can be noticed as follows:

1. The difficulty of figuring out where or how to begin when having a specific task to do.
- 2.They may have a difficulty in realising how to learn and understand the right and the left, above and below, the first and the last, after and before, yesterday and today, etc.
- 3.The lack of awareness of the extent of the space. For instance, the table limits, so he put the objects on the side which causes the fall of these objects, also collision of the child with objects during the movement. May be they also recognised as an inactive (haveless movement) children when comparing them with others.
4. They also may have a violent reaction which is not compatible with the situation, for example, he screams suddenly and violently when he becomes frustrated.
- 5.They may write their duties quickly but incorrectly, or write them slowly without completed.

D.proplem solving issues:

It may be difficult for him to learn the successive stages which he needs to solve mathematical problems such as multiplication, long division and algebraic equations, and may he does not only have one way to solve the problem and he is not looking for other ways.

6. Five main arbitrators to identify learning children, and can be summarised as follow (Barton, 1996):

1.Spacing Test: This means that the student's achievement level in a subject is different from the expected level according to his condition, and has two aspects:

- a) The disparity between the mental capacity of student and achievement level.

b) The disparity manifestations of achievement development of the student in courses or subjects.

He may be superior to mathematics in ordinary in languages and he suffers from learning difficulties or social studies and may be the disparity in achievement between parts of a single course, for example, in the Arabic may he may be tongue-free a fluent reader in the expression, but he has difficulties in the absorption of the grammar lessons or memorising literary texts.

2.Exclusion test: When diagnosing and determining the learning disabilities category, the following cases are excluded: (Mental retardation, sensory disabilities, the blind, the visually impaired, the deaf, the hearing impaired, those with severe emotional disorders such as impulsivity, hyperactivity, lack of learning opportunities or cultural deprivation).

3.Special education test: It is related to the previous test to the effect that the ordinary teaching methods are not suitable for children with learning difficulties as well as the incompetence of the methods which used with disabled, but should provide a sort of special education in terms of (Diagnosis, classification and education) different from the previous categories.

4.Test of problems related to maturity: We note that growth rates differ from one child to another, which led to difficult preparing for learning processes, what is known is that the growth of male children progresses at a slower rate than females, which makes them at about five or six years unwilling or cognitively ready to learn distinguishing alphabets in reading and writing, which impedes their learning of the language, therefore must provide educational programs the correct the lack of growth that hinders of the learning processes, whether this deficiency attributes to genetic, composition or environmental factors, and this test reflects the individual differences between both genders in the ability to achieve the goal.

5.Feasibility test:The learning difficulties can be inferred by the simple organic damage in the brain that can be examined by the electrocardiogram, the simple disturbance in the brain functions (Minimal Dysfunction) reflected in cognitive disorders (visual, auditory, spatial, hyperactivity, mental disorders, difficulty of functioning) (Fathi Mustafa El Zayat, 2001, 2000).

It is worth mentioning that the disorders in the brain functions affect negatively the mental processes, which hinders acquisition the educational experiences and application and utilisation them, but it leads to a lack in emotional and social growth and the growth of public personality.

7. How to deal with these students:

There are several thoughts regarding the ways to deal with learning disabilities children and this can be as follow (Birch & Ladd, 1997)

First: Put these students in the regular classroom, this is the direction applied in Egyptian schools.

Second: Put these students into special classes within the regular school.

Third: The distribution with the ordinary children in some subjects and the isolation of them in other subjects

There are several directions for preparing the theapeutic programs:

1.Using books which are especially designed:

Appropriate private books are designed to take into consideration their low achievement, so the content is smaller than that of ordinary students' books.

2.Using smaller steps (Analysis the task).

3.Adapt the program to ensure the success: That includes:

- a) Develop the mind through sensory and manual experience.
- b) Make the course easy at the beginning of learning for all leaners.
- c) Make homework and exercise easy to ensure the success.
- d) Provide each difficult task separately.
- e) Adopting the principle of work by the teacher according to each learner and according to the level of his growth level (Muhabbat Abu Ameerah, 2001, 28).

8. Teaching methods in dealing with people who has learning disabilities:

There are many teaching methods and strategies that can be used with students with learning disabilities such as (houinard, 1997):

a) **The training which based on analysis and the simplification of the task:**

Supporters of this strategy assume that there are no developmental defect or disability in children and that their suffering is limited to a lack of training and experience in the task itself. This method uses the technique of analysis the task to allow the child to master the simple elements of the task and then install these elements or components, which helps to learn and master all of the educational tasks in a systematic sequence. This method can be applied in academic subjects such as reading, mathematics and writing, these complex tasks are simplified and that help to master their components in an acceptable way.

b) **Multi-Sensory Strategy:**

This strategy focuses on that the child uses his different senses in the training process. The Vernald' method which is called (VAKT) method which means using the vision (visual), hearing (auditory), movement (kinetic) and touch (tactical) .

Brown and others (Brown & Palincsar, 1989) have emphasized using the teaching strategies for students with learning difficulties such as: multisensory input, demonstration, modeling the desired behavior, short daily feedback, visual representation by the learner, presentation the information they need only, and he cleared that the traditional knowledge of slow learner indicates his need for teaching patiently, so through that they can learn more, and in small steps

c) Constructive Learning Method:

This method based on the student's effectiveness and non-his negativity and interaction with the lesson and the teacher and he did the necessary activities, and perhaps the tongue of the student when he addresses his teacher "Tell me and I will forget and show me and I will remember, and entrust the task to me and I will understand".

d) Direct Instruction:

This method introduces teaching activities aimed at academic matters with clear objectives for the student, which give the student enough time to cover the content, also monitors student performance, and compose questions with a low intellectual level so that the correct answers are multiplied, and the teacher provides immediate feedback which directed at the academic material and he controls the teaching objectives, and selects the appropriate material for the student's abilities, and while the teaching is under the tutelage of the teacher, it is conducted in a comfortable academic environment.

This method includes defining the procedural objectives of the teaching the course which the students who suffers from difficulty in learning to be achieved, and identify the sub-skills that we need to achieve the goal, and determine the educational requirements and chart the steps to reach the goal.

e) Aboveboard Learning:

It includes reading the issue aloud, identifying the request aloud, mentioning the information gathered aloud, indentifying the issue aloud, providing the solution'assignments, reaching the solution aloud, calculating and writing the solution and verifying the solution.

f) Advanced Expertise Organizations:

Whereas, introductory materials are served for students with learning disabilities by a way of generalization, abstraction and comprehensiveness, and it is a contribution in processing the phenomenon of the difficulty of learning in some issues, and helps students with learning disabilities for the organization of their ideas.

g) Individual Learning Style:

This method requires access to the level of mastery at each lesson of the proposed remedial program before moving on to the next lesson. If the student is unable to reach the level of mastery (final grade), the lesson will be re-examined.

It is based on the following principles and steps:

- Individual learning according to the educational needs of each student.
- Unstoppable learning time for all students.
- Diversify the methods of dealing with the contents of the material.
- Writing the curriculum in the cards taught it in the classroom or at home under the supervision of the teacher and follow it.

h) Games Method:

It is a meaningful and interesting activity which the learner or group of learners do to accomplish a specific task in the light of the game rules with the availability of motivation of the student to continue the activity and that method characterized by the following:

- Increase the motive of the student to learn.
- Increase the understanding, application and retention the mathematical skills.
- Achieving cognitive goals (understanding / application) etc.
- Achieving sentimental goals (increase the tendency towards the material).
- Using determinators that help to consolidate the concepts and methods of solution.

i) Diagnostic Teaching Methods:

It provides children with a large list of behavioral goals, and tests the students to determine their level and diagnosis weaknesses, and then select educational activities that treat the weakness of a child. Therefore this goes according to the following steps:

- Determination the goals.
- Test the content.
- Put diagnostic tests.
- Put therapeutic activities.
- Put standardized tests to determinate the extent of achieving the goals.

j) Using the Computer and Calculator in Teaching:

This method has emerged because the computer is characterized by patience with the learner and individual learning and differences in abilities between learners with learning disabilities and the possibility of teaching the student according to his own speed, which is consistent with the nature of learners with learning disabilities, and has used the computer programs (CAI)to help learners and students with learning difficulties. It uses various programs such as: training, practicing and game programs and educational programs. This is also in line with the difficulties which are encountered by the student, so the training and practicing programs aim to master the learning of the skills, especially the skills of the computational processes, and it provides the training issues in a gradual way from easy to difficult, and it is easy to choose the types of issues that correspond with the abilities of students and learners with learning disabilities and game programs as well as what they ensure of fun and they help in representing issues visually, and simulations programs help to mimic natural situations across the computer screen such as sales and purchase issues and others. And because of the student did not job inside accounts which may help him to focus on steps to resolve the issue. Many studies and references used hand calculator to facilitate the implementation of the calculations and it has included references which exposed to calculator for teaching how to use the calculator.

k) Constructivism:

Structural entrance refers to treatment or run math or process math or activity based on mathematics, as well as using the illustrations. these ways are based on information transmission and direct teaching for skills, it becomes the role of the teacher to innovate and design the educational attitudes which allow the opportunity for kids to discover the sports relations and solve the true problems, and is believed that the constructivism develops the upper cognitive skills and strategies.

We should note that the entrance of the practical mathematics discovery ways look unsuccessful with student who faces difficulties with math, and that some students do better when they study with direct show, and then the math must be provided by a balanced entrance which includes clear teaching , activities and attitudes which are treated manually and refer to the constructivism.

l) Method of Laboratory Individual Learning (Manipulatives):

This method uses equipments such as clips Dienes MAB, bars Cuisenaire Unifix and Mortensen which are recommended in the early stages, and the items which addressing manually are useful and important for pupil with learning difficulties, they help him to keep the visual formations for a number of relationships, also using the hardware and instruments is useful to make the verbal matters visible and concrete and this tool can be used effectively if the student was able to link between them and the concept or the process that they clarify, and the problems occur when the student work on hardware and tools a lot. Children can help each other through using the games and tools and hardware and using the multisensory, and are taken concepts in a concrete or visible represent, and used the concrete means like, blastic tubes, bottle stoppers and paper clips and games, such as the Tinkertoys game which used in clarify some engineering concepts such as: ray, balkline, point and parallel two-lines, and triangle, quarter shapes and instruction of the straight lines and some of commerce means such as: blastic counting pieces, fractures parts, pieces of wood, dice stone and chess panel, using the materials that are handled manually is old relatively, and what is developed is the electronic tools.

m) Working in Groups (Teamwork):

Using of the direct teaching method does not mean that the teacher can not use the teamwork or cooperative teaching, the studies have shown that the method of well-planned work groups helps students with learning difficulties increase motivation of learning . The group of activities introduces student in discussions and shares him in ideas which help the group members for learning about governance concepts and processes, and the groups must be organized so that all students participate in activities.

n) Problem Solving Strategies:

Learners with learning disabilities are bringing out the confusion and disconcertion when confronted with solving the problem (Parmar & Cawley, 1994). They have difficulty reading the words of the issue and understanding the meaning of terms, and they do not ensure about processes that they will use to solve the problem and they fail in extracting generalizations that moves them from one issue to another, and then the researchers sought to teach the students how to enter the issue without fear and frustration.

In respect of the experienced of the students with learning disabilities and the weakness of their educational processes, the research has direct to think about the way student think about solving problems and what is known as Meta Cognitive and using the graphs and explanatory chart to solve problems and exercises to represent and expect the solution of the problem, in terms of the quality of the issues, it interduces issue solve by one step, and some solve by two steps and others by multi-steps, also it suggested using games and exercises to teach students with learning disabilities.

Conclusions:

This paper concluded that specific Learning Difficulties can be defined as a defect in one or more of the common mental processes in understanding or using language, either spoken or written, which can appear as a lack of ability to listen, think, speak, read, write, spell or perform calculations. A child with learning difficulties is a child with normal intelligence, above average and may be high, and who have a higher level of sense of responsibility and failure fair. There is a segment of children with learning difficulties who have intelligence average ranging between 70 % to 85 %, some see that proportion as between 20 % and 30 %, and they have inability to concentrate for a long term. The study clarified that the basic two types of learning difficulties are development and academic learning disabilities. The study also resulted that there are many teaching methods and strategies that can be used with students with learning disabilities, and that training is one of these strategies.



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Green Architecture & sustainability

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Abstract:

Green architecture is a contemporary direction in the architectural design, which seeks balance with the surrounding environment through employing the skills used by the architect in a better way. This study investigates the main concepts that directly related to the green architecture & sustainability norms. A descriptive method was used in this study through investigating several literatures on the study topic. The study concluded that there is a lack of understanding of the phenomenon of sustainability among the local architects and caring for the direct literal meaning of sustainability and green architecture, looking at it through the eyes of climatic considerations and traditional social values concepts. The study recommended enhancing the environmental awareness in general and planting awareness towards sustainability culture in particular, Studying the local traditional architecture and knowing what could be aspired and developed from it to support the foundations and culture of sustainability.

Keywords: Green architecture, sustainability, environment, environmental awareness

1. Introduction:

Green architecture is considered as a contemporary direction in the architectural design, which seeks balance with the surrounding environment through employing the skills used by the architect in a better way. Recognizing Green architecture gives the architect a chance to know the best ways to treat nature through introducing designs that takes in its account the prolonged environmental effect.

The varied environmental issues such as pollution and using up energy and resources- pushed the sustainability phenomenon to occupy a considerable part of the contemporary global directions, and at the level of theoretical and practical applications levels, as a way to discover solutions of the impacts and subsequences of environmental stress on a global level. Sustainability aims to establish a balanced and inclusive analysis of the available potentials in a specific environment and directing them through certain strategies that work in the environmental system to preserve the balance of the natural resources through the principle of warranting and efficient usage of the resources in the different applications along the sustainable designing process.

This research has been found to simulate this concept by studying the possibility of applying sustainability principles in the architecture of the local environment. As the main problem that could be recognized in previous studies in this field is the lack of a certain mechanism which revitalizes the patterns of sustainable architecture locally, and to find sustained methods and mechanisms in the local contemporary and future architecture.

2. Sustainability Phenomenon and the Correlated Systems:

Sustainability as a phenomenon involves many scopes and various levels of eco-systems. Once we see it through the lexicon of the ecological system, another through the economical system, and sometimes through the lexicon of the social systems that related to culture, awareness and human conduct, taking different tools in the state of action like technological, economical and environmental tools (Rogers, 1997, p. 7, 8). Its entries are classified on various systems, such as; the environmental systems, the ecological systems, power systems and options, the systems of culture and awareness of the environmental issues, technological systems, social systems and the nature-respecting technological concept and the organizing policies and its importance in achieving the economical balance (Adams, 2003, p. 10, 13). These levels interrelate with each other in light of the fact that they do not work separately, and its effectiveness is linked to the surrounding conditions (economical, social, environmental, cultural...etc) of the environment in case. Most of the known studies in the subjects of architectural sustainability showed the nature of the relation between sustainability phenomenon and the local environment in general, the local architecture in specific, and clears out the fact that principles of sustainability are already there in the historical dimension of the traditional communities life, and that these principles contributed in the making of these traditional communities and its cities and architecture (Fathi, Hasan, 1988, p. 9).

Other studies have evinced that the Islamic teachings assured the principles of sustainability and determined the human conduct towards the environment that surrounds him (Jamil, Akbar, 1996, p.22).

The studies have also assured the importance of implementing the modern technologies in what suits the traditional values and the specialty of the local environment to invest the local potentials in producing a sustainable, modern local architecture.

3. Sustainability in Architecture- Elements and Relations.

a. Sustainable Development:

The first definition of sustainability was first taken into consideration as it was talked through the world conference for environment and development known as (WCED) in 1987 as fulfilling the needs of the society at present without affecting the future generations in fulfilling their future needs. This means using the multi natural resources without minimizes them or their renewable benefits for the coming generations, this protect the stock of consumable natural resources such as: water, power, and living things (SABD, 2002, p. 2) and (kharofah, 2006, p. 11).

b. Sustainable Development Dimensions:

We can refer here to three determining and interacted dimensions, which are the economical, social and environmental dimensions. This is a sustainability framework based a content that is interrelated with the economical schemes. John Elkington, who is an economist, specialized in ecology, introduced in 1997 the term of the TBL Triple Bottom Line to describe how far the economical, social and environmental dimensions are interrelated. Elkington was able through this term to assure that the environmental, social or economical sustainability can never be achieved separately. On the contrary, the three sides should be taken into consideration at the same time to enhance the quality of the environment and the economical welfare and social justice (The Economist, Website).

4. Sustainable Architecture:

The building process uses huge quantities of materials, produces tons of debris and sets out gases and pollutants of the environment. It also requires a huge power during operating and along the lifetime of the building. So, if architecture in the past sought the Vitruvius trilogy: strength, function and beauty, nowadays it is seeking to have an effective role to develop the environment level not only in the site, but also on the regional and global levels (Earth Pledge Organization, a website).

James Steel showed that sustainable architecture is the architecture which aims to fulfill the requirements of the society at the present time in a way that saves the potentials for the upcoming generation's needs (Steel, 1997, p. 3). Another definition recognized by the Organization of Economical Cooperation and

Development) OECD; where it defined sustainable architecture as the architecture with the least negative impacts on the natural and the constructed environment whether on the level of the local environment or the regional and the global levels. Also, it is the one that involves the quality integration of the economical, environmental and social performance (OECD, Websites). The goals of the sustainable architecture are to enhance the effectiveness of Resources, Energy efficiency and nature compatibility (Ibraheem, Mohsen, 2006, p. 5).

4.1 Sustainable Architecture Principles and Entries:

Fisher identifies five basic principles of the sustainable environmental architecture:

- The healthy inner environment.
- Energy efficiency.
- Good structural materials.
- The environmental shape; clarifying the relation between the shape and the designing process with the location.
- Good design. (SABD 2002, p. 7).

The entries for sustainable architecture are represented by the cultural and social factors, in addition to health and environmental considerations. Some of these factors are linked to the environment and some others are linked to the human being as an effective element in the motion of the environment and in its continuity (Kunszt, 2003, p. 7).

In order to achieve the concept of sustainability in the scope of architectural work, two basic points should be concentrated on: 1- working on re-qualifies old architectural productions and raising its performing efficiency for certain purposes. 2- producing new models that are considered successful in the standards of modern time, but their main goal remains directed to the future, and establishing what could be called (sustainable future) (Corcoran, 2001, p. 1,2).

The steps of the designing process depend on three basic levels, coming subsequently from top to bottom like this: Principles, Strategies and Means.

4.2 Sustainable Design:

It is identified as the mental integration between architecture and each of the integral engineering specializations (electrical, mechanical, constructional) in addition to the beauty concepts and proportionality, assemblage, light, shade and the integral studies like the future cost of different aspects (environmental, economical, human) (Ibraheem, Mohsen, 2006, p. 6).

Sustainable design is the one that harmonize with the surrounding environment by applying the principles of sustainability, strength, longitude and the construction materials plus a sense of the place.

This design dealing with resources in an inclusive way because sustainability is a principle that includes many components like energy, environment, the ecological system and the society in a system of interrelated and grading relationships which can all enroll under the shade of sustainability. (Edwards, 2005, p. 52).

The basic principles of the sustainable design that should be rooted in the sustainable designing process have been set as follows:

- Studying the location.
- Connecting to nature.
- Realizing the natural processes.
- Studying the environmental impact.
- Integration of the designing climate and supporting the processes.
- Studying the human nature. (Ibraheem, Mohsen, 2006, p. 6-7).

Researchers have classified two types of buildings according to how far they meet the terms of sustainable design. The name (Healthy Buildings) is given to those buildings whose interior climate fits the considerations of human comfort (Knuszt, 2003, p. 7). There is also an inclusive term for those buildings which suffer from lack in these standards or in which the previous principles have not been taken into consideration in the designing process. These buildings are called (Sick Buildings) which described as depending on unsustainable sources of power (non-renewable), and its dependence on natural ventilation and lighting is so little compared to the artificial methods of lighting and ventilation. (Smith, Peter, 2005, p. 197).

So many names have been given to the healthy buildings, which were designed according to the principles of sustainable design like the solar buildings, green buildings, ecological buildings and smart buildings. All

these are sustainable buildings but are different in the method of interpreting the sustainable principles or technology in their construction. (Waziri, 2003, p. 55).

5. Green Architecture Concepts:

To understand green architecture better, we must recall some of the basic concepts of green architecture as follow [Edwards, 2005]:

- **Ken Yeang** discussed green architecture from an environmental perspective; he identified green architecture as a designing process where the designer massively reduces the negative impact of the materials used in the design so that it won't affect the eco-system or disrupt the system.
- **William G. Reed** identified green buildings as structures that are designed, constructed and operated in an environmentally compatible way, through reducing the contrast between the buildings and the surrounding environment, and minimizing the production and construction costs.
- **Deborah K. Dietsch** sees that the real green architecture is an entry to a design that cares for the interrelation between the buildings and the used materials with what surrounds them, plus its administrative systems. However, in order to achieve a perfect idea like this, architects have to consider some factors like the fronting of the site and consuming the energy generated from the materials.
- **Douglas Pollard** mentioned that the green design in architecture should be working on finding solutions that lead to cutting down on energy consumption, and working at the same time on raising the efficiency of the buildings and the inner systems inside them.
- (**Brenda and Robert Vale**) also identified the green entry of the constructed as an inclusive entry for designing buildings where all the resources whether materials or energy should be taken into consideration [Waziri, 2003].

Through the previous concepts, it becomes clear that green architecture is a multi-faced theme, but they all agree that the green architecture is a highly efficient system that adapts to its vital environment with the least collateral damages. The call for (Green Architecture) is a call for a better nature treatment.

5.1 Green Assessment Foundations of Architecture:

Cheryl Walker and Gail Lindsey mentioned that the green design is (balanced, healthy, and environmental, of an architectural spirit); in a way that every project should respect 6 main determinants as follow (Ryhan, Ryman and Ghada, 2006):

1. Respecting the features of the site.
2. Minimizing energy consumption.
3. Adapting with the climatic environment.
4. Economizing the use of resources.
5. Reducing garbage and pollutants.
6. Using local building materials.

The following is a description of some these determinants;

- Respecting the features of the site:

This principle aims at non-disturbing of the land on which the building is going to be built; Consequently, if it was removed or moved from its location, the location would come back the way it used to be before the construction; i.e. this principle focuses on not making essential changes to the features of the location and never disrupting with the natural land physically, ecologically and socially.

- Minimizing energy consumption:

This principle points at minimizing the use of energy or even do away with it, replacing it with natural resources for energy, and some processes could be done about that, such as:

- A tight thermo design to reduce the use of air conditioning appliances.
- Economizing on fitting buildings with luxury appliances like fridges, heaters and stoves and replacing them with natural means.
- Fitting the building with devices that can absorb the natural power and turn it into electricity.

- Adapting with climatic environment:

Adapting with the climatic environment of the location plays a big role in the work of the green design through the constructed environment design, where the building's effect on nature is reduced.

- Economizing the use of resources:

Economical resources represent all what can be extracted of natural resources and the wind and water power. In term of the intellectual development in dealing with the environment, there has been a tendency to

preserve the vital surrounding of the natural environment; where most resources are dealt with in a more economical way through reusing them by the different processes of recycling; water, for example, a purifying grid for the used water could be done to reuse it once for the purposes of washing, watering plants and other similar activities (Nursk, 1966, p. 4)

- Minimizing waste and pollutants:

Trying to cut down on the different types of garbage (organic, garden waste and trash, sewage water, etc) by eliminating them or reusing them.

6. Sustainability Structure and Mechanism:

As for Doumar's Vicious circles of poverty, the structure shape of the relations inside it depends on the continuation of the negative phenomenon (like poverty in the circles of underdevelopment phenomenon) and consume up the power repeatedly. The characteristics of variety, inclusiveness, continuation, and balance apply on these circles but lack the characteristics of renewability and non-consuming of the power, so they are back warding the ecological circle as it is a (sustainable or non-sustainable) circle.

In this way, the phenomena that include a similar circular system could be explained and from a sustainable point of view as a (sustainable circle) if they were positive, and (non-sustainable circle) if they were negative. The principle of cause and effect in the first circle depends on terms like (keeping, warranting, transforming, renewability, investment, existence, etc), while the second circle has got terms like (consumption, draining, wasting, reducing, non-existence...etc) as they are in the samples of the vicious circles of poverty.

If the elements sustainability like (Environment, Energy, Economy, and Human) were compared to each other we see that the same relation is applied to them. The environment, for example, is the milieu that contains the sustainability process, and it is the source of the materials from which the design process has its raw materials to start with the steps of the designing process then construction and operating which must not have negative outcomes on the environment itself like (draining, random consumption of the resources, minimizing pollution and waste, keeping the healthy environment). This is how the environment can be a

method for sustainable designing and an end at the same time; the same thing applies to all the other sides. Figure 1-1 clarifies this concept.

All the previous models show the existence of a case of sustainability (sustainable circle). The opposite case comes in the case of negating (the non-existence). However, the basic elements still form a means and an end. The state of negation applies to the mechanisms and strategies and not on the basic elements. The environment, for instance, is already there, and it is the source of the materials, but if the design is not sustainable, this will lead to the non-keeping and non-warranting in the natural resources and elements. The thing which leads to an unhealthy environment and draining the resources and an environmental misbalancing, when the circle, is repeating as time passes. And the circle is directed to another path, which is the path of non-stability. As shown clearly in figure 1-1 a and b. We can note from the figure that the negation case has not happened to the environment, or on the resources of the environment, but it did on the designing process; the thing which led to back warding the possibilities that followed to reach in the end to consuming the environment up and draining its resources and the appearance of pollution problems and the like.

Because the environment along with its resources and natural powers, it formed a mutual point between the two circles. Then it is possible for them to be put together as it appears in figure 1-1 a and b, which shows the synchronization case between a sustainable design and another non-sustainable one and the effect of each one of them within the circle. This is because the application of sustainability in a building or an environment will be timely graded and synchronized with the non-sustainable design as it was assured by the previous studies.

It has become clear that the negation elements (the non-existence) lead to the increase of another positive element gradually because human nature always seeks replacements. Due to the environmental problems and the economical stress represented in the high cost of energy resources, construction and the deterioration of the infrastructure, which leads to a raise in the costs of sustainability, because of the negative usage of the natural resources and powers, all these lead to forming a motive in the society towards finding solutions and changing to other non-experimented methods which can lead to a gradual constructing of the awareness of troubles and the level of the needed solutions, in addition to a simple understanding of the human relationship with surrounding environment and the impact of his activities on it (The Concept of Sustainable Education, Mouran, 1995, p. 6).

Depending on the same notion, we see that this level of knowledge needs nutrition of the society with a better knowledge about solutions levels and the abilities of sustainability to make a change. If there was no nutrition, the previous environmental circle comes back to the point of unsustainable designing (the traditional designing) which turns the circle path to a (non-sustainable path). On the other hand, by feeding with additional knowledge, the path will move from the awareness point to understanding the change process to sustainability, meaning understanding the sustainability enablement requirements. And here, enablement requires an awareness of sustainability plus an economical support. The circle here also has two paths to go on. The path of a society, which does not hold the foundations of enablement, and the path that can lead to building the foundations of sustainability culture from which the initiation of an implementation program of sustainability (sustainable designing) can result, and which returns with good benefits on the environment as well. Figure 1-1 a, b, c, d clarifies the details of these sections.

6.1 Mechanism for Activating Sustainability Circle Locally:

It has been referred to previously that the suggested sustainability circle involves effective variables that guarantee the continuation of the sustainable designing process. The research points that the first step to determine these variables is to look into the general circle of sustainability in a general way without separating the two circles (sustainability and non-sustainability). Generally, there are two points (nodes) which form two movable joints to reverse the path of the circle, which are:

- 1- Looking for new styles represented by new directions and modern technologies.
- 2- Enabling sustainability represented by economic support and social behavior activation to make use of the data and potentials after figuring out problems. The first needs an environmental awareness, as it has been mentioned before, the past attempts and directions (innovated in the local environment) without awareness nutrition to understand its strategies will lead to the inability to benefit from these directions so that they can be effective in the designing process. That is why the methodology used here is unsustainable. The second needs at first an awareness process of all the problems and solutions , which resulted from comprehending the experiences, and the local attempts toward sustainability; this is where the role of the assessment process comes to determine the negative and positive sides and to identify the problems).

Second, it needs a financial support to provide the tools (techniques and technology) needed to start the change towards the methodologies of the sustainable design. This is called a positive attitude.

Summary of the conclusions:

The most important indicators and results concluded from this study could be summarised as follow;

1. Lack of understanding of the phenomenon of sustainability among the local architects, and caring for the direct literal meaning of sustainability and green architecture, looking at it through the eyes of climatic considerations and traditional social values concepts.
2. The unclear vision of the local architect and its contradiction in the field of the changes related to the environmental issues from which the local environment and architecture are suffering, especially when taken in the perspective of sustainability.
3. Applying sustainability principles on the local architecture will affect the ideologies (thoughts and practices) of the modern local architecture, by affecting the design considerations, the way of dealing with building materials and the data of the surrounding environment.
4. Sustainability culture represented in (awareness and knowledge) formed an important factor towards applying sustainability, and its absence showed a big effect in the unclearness of many of the indicators. It has also been shown that raising knowledge of the visibility of the costs effectiveness and distributing them (initial, operational and sustainability costs) has got a great influence on understanding the relationship between the energy variable and the economical factor within the framework of sustainability.
5. Assuring the principle of the need to find solutions for the reality of the modern local architecture. And the need of the right and inclusive cognitive nutrition to enrich the local architect's vision of the nature of the problems and the horizons of possible solutions within the framework of sustainability.
6. Because the issues of architectural sustainability repeat itself accumulatively, every variable is the cause and effect of a case as it is in the concept of the circle of non-sustainability in the local environment previously mentioned.
7. Absence of planning for studying the visibility for such housing projects, which are characterized by the high costs that do not solve the problem of the housing need.

8. Limiting the design and treatments of the environmental considerations on temperatures and thermo comfort (though not efficient for the sustainability standards), which were applied through the upper surface of the building and the artificial ventilation and air-conditioning systems that are non-sustainable. The same thing appears in the issue of rain and rainfall by using diagonal roofs without taking into consideration the effectiveness of directing the falling water for example.

If the previous indicators were compared to the characteristics of the local environment through the potentials and determinants; they refer to no crossing over of the environmental determinants and not finding effective solutions for the environmental and economical issues in particular, not mentioning their being insufficient ways to reach good levels of sustainability...and they could not make an effective use of the potentials available in the local environment that is dedicated to the environmental features.

Recommendations:

Basing on what has been mentioned and concluded of the previous studies, this research puts a set of steps and procedural recommendations as a methodology towards preparing the right ground to apply the principles of sustainability in the local architecture. These steps are:

1. Increasing environmental awareness in general and planting awareness towards sustainability culture in particular.
2. Studying the natural environment and identifying its components with its two side's potentials and determinants.
3. Studying the local traditional architecture and knowing what could be aspired and developed from it to support the foundations and culture of sustainability.
4. Setting environmental standards for the architectural projects; this thing that depends on the second and third terms.
5. Distributing the application of the assessment process of sustainability in the private and public projects and determining the offices responsible for that.

6. Economical support of the sustainable applications in all the levels of development and the economical and architectural development is part of it.
7. Supporting innovations (economically and culturally) and directing them to enter within the steps of the designing process which depend on using the potentials and determinants of the local environment.

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Security Mechanisms and Challenges in Wireless Sensor Networks

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Abstract

With the emerging trends in technology that are aimed at making the world a global village, various moves have been made to bridge communication gaps as well as simplify overly complex tasks. Among those innovations, the introduction of Wireless Sensor Networks has been welcomed from all quarters based on the many advantages it brings forth (Perrig, Stankovic & Wagner, 2004). This paper explores Wireless Sensor Networks (WSN) as an emerging technology with an immense capacity to completely transform daily experiences, ranging from risky military environments, traffic control, surveillance to accident detection just to name a few. For the WSNs to achieve their intended goals, it is necessary that security is prioritized to reduce the risk of compromise, looking at the intricate roles the technology plays, for instance, military applications (Gungor, Lu & Hancke, 2010). Furthermore, by considering the nature of WSNs operations, which revolves around detecting very intense threats, false alarms would negate the essence of embracing the WSN oriented systems. In a nutshell, the sensing technology bears many futuristic oriented ideas, if well explored will make life easier for generations to come (Romer & Mattern, 2004). Addressing the current and potential challenges guarantees that this crucial WSN technology is taken as seriously as should. The purpose of this paper is to explicate the security mechanisms and challenges in Wireless Sensor Networks, scoring on the threats as well as proposed solutions for the WSN related drawbacks. This is achieved by embracing a holistic approach as presented herein.

Keywords: Security Mechanisms, emerging technology, Wireless Sensor Networks

1. Introduction

As suggested by the name, the term Wireless Sensor Network represents a network that is made up of a number of sensors incorporated in a given base station. The network is founded on a number of sensor nodes that are set up in a specified sensor field and thus enhance the capture and routing of the desired information back to the aforementioned base station. In recent years, the Wireless Sensor Networks (WSN) have seen to be embraced in many departments, like the military where they are stationed to identify enemy troops, and also the weather focus department, where meteorologists make use of the wireless sensors to detect and compute humidity, temperature among other uses (Perrig, Stankovic & Wagner, 2004). To enhance the communication between the sensors, developers incorporate transceivers that make use of Radio- Frequency (RF) technology to facilitate the in-range connectivity. Despite the numerous advantages the WSN have availed , it has been noted that the technology comes with a number of issues, that researchers have shownimmense dedication to resolve by coming up with counter mechanisms (Karlof & Wagner, 2003). This paper is dedicated on pointing out the challenges that are inhibiting the application of WSN, alongside the mechanisms, both adopted and proposed aimed at resolving the drawbacks.

2. Requirements in Wireless Sensor Networks

By design, the sensors are formulated in a way that they meet certain requirements that enhance security by guaranteeing that security protocols are observed (Ye, Luo, Cheng, Lu, & Zhang, 2002). As a result, the moment a breach as well as compromise of the requirements is witnessed, the impact of the same is tremendous, from giving inaccurate feedback to complete destruction of the set up networks. The requirements revolve around;

A. Data Integrity

Integrity is a major framework behind the adoption and use of the WSN, looking at the intricacy of operations that are carried out using this technology. Data integrity is the guarantee that the sender sends whatever it is exactly what is received by the receiver, inasmuch as there may exist third parties with malicious intent to hijack the data packets transferred. In other words data integrity is all about packet congruence, where what has been conveyed is exactly what is reflected on the other end (Karlof & Wagner, 2003).

B. Confidentiality

Confidentiality narrows down the focus to network and is driven by the tenet of security of the data being conveyed. The unwelcome third party access in question is barred from not only making adjustments but also reading the data that is being transferred. For instance, in state intelligence operations, whereby if the information falls into the wrong hands can create a catastrophe and even jeopardizing critical military operations. By this accord, WSN is set up with secure end to end encryption capacities to minimize the threat of vital data and information compromise (Khan, Shah & Sher, 2011).

C. Authentication

In the WSN context, authentication is used to represent the measures put in place to ensure that the person or device embracing the sensor technology is permitted to do so. Furthermore, authentication tones down to the message itself, making sure that retention of the original properties of the conveyed message regardless of the sophisticated means that may have been used to enhance the communication. This is made possible through the WSN nodes manifesting high encryptions with primary keys and signatures only known to the sender and receiver, that flagship the authentication (Gungor, Lu & Hancke, 2010).

D. Self-Organization

Based on the variety of applications, the WSN models are designed to manage sensor nodes are a city designed to have the capacity to adjust their properties according to the specific environments (Romer & Mattern, 2004). For instance, in the transport industry, the WNS technology can be tweaked to not only detect accident risks but also, point out the driving under influence (DUI) individuals. The rationality behind this framework guides researchers to develop sensor nodes that can be able to hold together the emergent situations.

E. Data Freshness

Data freshness refers to the initiative to ensure prompt transfer of the intended packets, as they get to the desired situations. Based on the fact that the WSN technology is used in areas where prompt updates area is necessary. for example, looking at the computations in meteorological studies markedly temperature and humidity, the data is fresh to enhance the robustness of the data collected (Khan, Shah & Sher, 2011). Taking a closer look on the issue presents the vulnerability, this data freshness requirement elicits as an

attacker can go ahead and tamper with packets to expire creating contention and as a result stale communication, which may stand in the way of effective functionalism.

F. Availability

The availability requirement is developer oriented, and thus explores the ease access to the sensory nodes, when and if required. In instances where nothing much is happening within the designated environment, the nodes can be left to energy save whereas in high tone activities, the nodes should express willingness to carry out the intended functions (Romer & Mattern, 2004).

G. Flexibility

The nature of WSN environments dictates that from time to time changes are made to the sensor devices in place to ensure that they allow the sought network (Karlof, & Wagner, 2003). For instance, the uncertainty of weather conditions, whereby due to the application areas like battlefields the users have no other use but to stick with the WSN, it is only sane that the devices are flexible in order to retain their properties which will ensure they yield the desired results.

H. Secure Localization

The WSN technology is radio frequency bound; meaning that the places the nodes are set up determine the receivership of the desired packets in the base stations (Romer & Mattern, 2004). Researchers have been able to establish over time that in order to identify the most appropriate point to set up the sensor nodes, it is crucial that they establish mechanisms that will allow data forwarding alongside having trust that in the physical location. Also important is the fact that there are two types of localization markedly; range freebased and range based. In the WSN context, developers have adopted the range-based ones, due to the certainty in the areas where the data transfer is expected to take place in.

3. Challenges in Wireless Sensor Networks

In the application of WSN it has dawned on researchers, engineers, and all the concerned stakeholders, that despite the efficiency the technology accords man, there are still a couple of drawbacks that are inhibiting the full adoption of the WSN ideals. This section lays emphasis on the series of attacks on the WSN that cripple operations, focusing on their nature and impact in the wireless sensor networks arena.

A. Active attacks

Active attacks are the physical alterations on the setup devices, which may include damages, blockage of data flow just to name a few. Considering the physical alterations caused by this type of attacks, it is easier to identify when the attack has taken place making it easier for the host party to make the necessary adjustments to deal with the potential setbacks arising from the data compromise before the challenges further heighten (Gungor, Lu & Hancke, 2010). Moreover, in this kind of attacks, the attacker seeks to dismantle some functions in the system with the aim of preventing the data packets transfer that the party carrying out the attack considers hazardous for them. In military operations for instance, the moment troop A. realizes that its operations are being tapped by enemy troop B. by the use of WSN technology, they can opt to use their expertise to hunt and then bring down the enemy sensor nodes mirroring their intelligence back to their enemy's base station (Karlof & Wagner, 2003). This susceptibility of nodes to physical destruction has for a long period of Time-proven challenge for innovators, who are working dedicatedly with the aim of coming up with untraceable nodes by people with malicious intents (Perrig, Stankovic & Wagner, 2004).

B. Passive attacks

Passive attacks are the type of attacks where the attacker is careful not to cause physical alterations as they may evoke detection. The rationality is simple, employ patience and learn the weak links in the WSN system and then wait to attack when and if appropriate to do so. In a nutshell, the fact that the passive attacks take time and planning their impact is weighty as the attackers seek to attack the intricate areas (Culpepper & Tseng, 2004). Furthermore, the passive attackers that revolve around information sabotage and back channeling sometimes pave way for the active attacks, as the attacker identifies the hubs along which specified WSN operations revolve. This means that by attacking, the attacker has a better chance of causing bigger damages, which may take a long time to resolve and worst of all retain anonymity in the whole experience (Gungor, Lu & Hancke, 2010). This is to say, in the passive attack frameworks, a system can be attacked and completely brought to its knees, but then it becomes a big issue to establish who triggered the mishap. As a result, the system can be completely vulnerable as the attacker could have accorded themselves with loophole capacity for future attacks (Ye, Luo, Cheng, Lu, & Zhang, 2002).

C. Flood Attacks

According to Karlof and Wagner (2003) flood attacks can be defined as a distributive denial of service threats that are intended to compromise the authenticity of a given data or information. The concept of flood attacks was induced in wireless sensor networks in 2003, which have been a major challenge to operationalization as the series of commands prompted on the setup networks can be overwhelming. The attacker auto sends an automated flood of Hello messages that trick the system into adopting the new network as an ally and even begin sending data packets blindly without knowing that the new network that has been introduced into the connection media is that of an attacker with ill motives. Furthermore as the attacker would have analyzed the system and detected the weaknesses linking new nodes in what the paper had earlier on aforementioned as localization creates the illusion that the new node is interlinked and thus not dangerous, which is not normally the case. Subsequent surprise attacks on the exposed WSN cripple down the system, from all corners leading to the collapse of the system as the host cannot pinpoint the exact node ,which by now would have replicated the properties of the others, that is behind the attack (Culpepper & Tseng, 2004).

D. Black hole attack

According to Culpepper and Tseng (2004), black hole attacks can be identified as the type of attacks in which the attacker designates nodes that comes across as black holes meaning that the nodes can be able to derive information that is transmitted over host network through retrieval of data packets. Additionally, by using the information collected, the attacker node can create a fake data and information aimed at steering the host into a sink hole. It is critical to note that upon the creation of these vulnerabilities, any node is transmitting data to the host base station, also replicates the exact same packet data to the attacker stations (Zhang, Cheng, Shi & Chen, 2016). Armed with the packets the attacker is set in a better position to extract the desired information in relation to the needs of him. Notably, the attacker can choose two methods to disempower the host completely whereby; one, the packets recovered can routinely be dropped to host on the already compromised network, and two, the attacker can opt to selectively embrace a greyhound attack sequence, dropping n attacks at t seconds. This is made possible using the shortest possible paths (Ye, Luo, Cheng, Lu, & Zhang, 2002).

E. Denial of Service Attacks

This type of attack was made prominent by Gregg, Blackert, Heinbuch & Furnanage (2001) who defined the essence of the DoS attack as to facilitate the wastage of time and resources in the target attack network. The concept of this type of attack is distinguishable as the attacker with malicious intentions uses nodes to convey extra packets with no need at all besides flocking the base station with traffic. This in turn, makes it difficult for the authentic users to be able to send and receive data and information over the affected network (Perrig, Stankovic & Wagner, 2004). Therefore, it is correct to hold that the intent of the DoS attack is to inhibit smooth utilization of the WSN enabled networks, by declining the host and validated users the opportunity to conduct their intended tasks. Significantly, also, the DoS attacks assume variance from layer to layer in the Open System Interconnection (OSI) model. For instance, it appears in form of delays and sometimes is manifested through collision of frames in data link layers and irregular data in the network (Zhang, Cheng, Shi & Chen, 2016).

F. Sybil Attack

This attack is characterized by the node changing the IDs which heightens resource utilization while in so doing discrediting data integrity. Moreover, the attacker uses the above identified multiple IDs to request authentication and permission which creates suspicion that slows down connectivity, as the Sybil attack center scores on data aggregation. Due to the vicious nature in which Sybil attacks cripple WSN applications in the recent years, researchers have shown efforts to identify the challenge areas with significant counter steps made in the right direction. Khan, Shah & Sher (2011) argue that the attacks can be controlled, especially in WSN where the base station acts as the command hub eliminating false node requests for permission. Additionally, Raspotnik (1998) opine that Radio Frequency (RF) technology can be used to detect Sybil attacks, eliciting the use of countermeasures.

4. Security Mechanisms

Looking at the security threats mentioned above as well as the rest that keeps cropping every single day, developers and researchers in the Wireless Sensor Network spectrum have come up with mechanisms over the years that seek to address the threats. This section identifies the prevention mechanisms as discussed herein

A. Denial of Service Attack

Denial of service attacks aims to jeopardize the operationalization of the network, whereby more resources than necessary are requested, that causes jamming of the networks. Over time, WSN strategy have established that the first step towards resolving the jamming contention is to identify jammed segment of the sensor network, allowing correction of the unavailable portion (Culpepper & Tseng, 2004). The nodes are set up in such a way that incase of any jamming, they can auto detect the discrepancy and transmit the reports to the neighbor nodes. As a result, the node regions along the network can collectively pinpoint the affected region hence creating the necessary physical insulation to counter further DoS attacks (Zhang, Cheng, Shi & Chen, 2016).

B. Sybil Attack Remedy

The Sybil attacks as identified triumphs with multiple ID creation which in turn slows down the authentication hence triggering lagging in WSN applications. In order to counter the Sybil challenge, the system should be configured in such a way that the session primary key keeps changing in that set time. Taking these measures invalidates the commands sent by the attacker nodes, as it would prompt them to enter the primary key they do not have. Moreover, by physically enabling protection on the networks, the attacks can be identified and resolved before they yield serious consequences (Khan, Shah & Sher, 2011).

C. Spoofing and traffic analysis

Spoofing in the Wireless Sensor Network can be defined as the tendency of an attacker to masquerade or falsify data while aiming to have an illegitimate advantage that mainly revolves around back channeling with malicious intent (Yang, Chen, Trappe & Cheng, 2013). This practice is vicious in the WSN context as it elicits loopholes for regular attacks like the ones discussed in this paper. Armed with this knowledge, it has become important to seek understanding of the spoofing and traffic ideals to be better positioned to counter spoof related drawbacks (Gungor, Lu & Hancke, 2010). By monitoring all the sensory nodes, and also conveying dummy packets instead of the real ones, the host is able to derail the attacker. Furthermore, the system can be set up in such a way that whenever multiple incorrect entries are made, the system denies permission.



D. Detection of Node Replication and Intrusion Detection

According to Venkataraman (2007) node replication can be identified and inhibited if two procedures are followed. The former makes use of line multicast and the latter, randomized multicast. The former creates unique keys and protected paths that inhibit duplication, meaning that the moment an attacker replicates a given node and attempts to trick the base hub into packets sending, the administrator managing the WSN is notified and can take the appropriate measures. Conversely, the latter randomly acts to identify inconsistencies in replicated data and raise the intended alarms. Shifting gears to the intrusion detection aspect, the emphasis is put on behavior. This is to say, an intruder node has the tendency to demonstrate abnormal and discrepant behavior that does not sync with normal nodes. Identifying the illegitimacy facilitates identification and aversion of malicious intents.

Conclusion

Wireless Sensor Network is future-oriented technology that is commendable looking at the shortcomings the technology is laser-focused on overcoming. WSN acts as the bridge between current and future human lifestyles; due to the efficiency it elicits (Romer & Mattern, 2004). However, the technology has been inhibited by limitations, most of them stemming from security hitch backs. As illustrated in this paper, various mechanisms have been adopted to address the issue, most of them are being encryption and cryptography motivated (Gungor, Lu & Hancke, 2010). With the advent rise of data insecurity cases, innovators should seek to look beyond these measures to guarantee attainment of the infinite potential WSN accord.

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TQM as an Enabler of Organization Performance and Sustainability

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Abstract

The Total Quality Management (TQM) is defined as an integrated management model that serves vitality in the nonstop advancement of the products, processes, as well as the methods that meet the customer's prerequisites in the market segment. The paper is concentrate at the processes that influence significant organization performance and sustainability through examining the role of TQM. The execution of the TQM initiative has been effectively assessed on its role in influencing great changes in many organizations performances and sustainability. Its effectiveness has been strongly manifested in both internal and external measures. Majority of the research surveys postulates that TQM as an enabler of performance, has a robust effect on the operation performance and overall sustainability of organizations. In addition, the TQM has attributed to having a partial impact on the external measure of sustainability that takes into account the business growth, competitive benefits as well as transformation management.

Keywords:Total Quality Management,organization performance,sustainability.



1. Introduction

Quality concepts have remained a distinct competitive benefit instrument and thus many of the organizations have been compelled by the need to execute commodities and services that aid in the unending success. Implementation of the appropriate quality systems has influenced many organizations to erect a strict direction for the organizations to institute a situation that also involves workers to work towards the direction of the common goal. Typically, the major objective of a business is to attain long-term profitability. As such, the utilization of the quality tools and styles offer an opportunity for long-term dividends through a lower cost as well as product management. The concept of the Total Quality Management (TQM) was incepted since the 1980s. Since then, the majority of the researchers and professionals uncovered the benefits of the TQM on the organization performance and sustainability. In the global industry, the role of TQM in enabling organization performance and sustainability can be determined with holistic principles. In regards, the principles reflect the basis of the odd business that aspires to advance its scrutiny in the contemporary economy. The effectiveness of the TQM relies on the unification of the diverse subsystems of management. In addition, such principles facilitate quality products and services. Consequently, there is a reduction in cost, improvement in financial performance as well as a high level of employees and customer's satisfaction (Rajan& Kumar, 2017). Due to the existing business competition, organizations have to provide an improved products and services that attribute to quality. On this occasion, products, and services that attribute to quality vests a business to attract more and retain a good number of clients.

The dynamic business world has proved to be sophisticated due to the influence that the clients hold in the business segment. In the contemporary setting, customers are subject to diverse product and services and they are well versed with the changing kinds of services and products. In this regard, the business should place quality at the center of their operations and activities in order to remain relevant in the business industry. An organization that analyzes quality in the production of goods and services is attributed to have a high competitive advantage and prosperity as opposed to those that do not value quality. Adopting TQM prompts the organizations to acclimatize with the customer satisfaction, influences the workers to take decisions that are in line with the job (Mahajan& Suresh, 2017). Optimum proficiency in the performance



and sustainability requires organizations to stick to international practices as well as sustaining a system that pursues management quality. More importantly, many kinds of the organizations, both private and public have minimized costs, increased efficacy and advanced the quality of commodities and services through working to sustain the necessities of the clients they serve. Such organizations can achieve this through the application of the principles of the Total Quality Management.

1.1 Problem Statement

The majority of the organizations across the world employ the Total Quality Management for effective performance and sustainability. In addition, the organization utilizes the TQM to facilitate quality goods and services and to attain prolific success. Implementation of the TQM plays a vital obligation on ensuring effectiveness in the organization. In other dimensions, the TQM may not always attribute to success because other firms consider it bureaucratic, dreary and inflexible. Particularly, small entities have failed to execute TQM due to the sense that they are hesitant and skeptic about the outcome of TQM implementation. A comprehensive understanding of the TQM as an enabler of organization performance and sustainability, is a robust and effective step along the course.

1.2 Research Objectives and Aims

The research investigation aims to achieve the following objectives:

1. To describe the need for the organizational leaders to understand the Total Quality Management as an enabler of performance.
2. To understand how organizations can effectively attain business quality through the adoption of the TQM practices.
3. To understand the connection between the TQM and the organizational sustainability

Aim: To understand the concept of TQM as an enabler of performance and sustainability.

2. Total Quality Management (TQM) as an Enabler of Performance

The TQM is defined as the administration course as well as a clear set of systems that are unified to sustain the organization ability to meet the client's prerequisite in the market segment. In this way, the TQM is attributed to a management process that relies on the work procedures and the individuals. The robust concern of the Total Quality Management is to embellish the performance of the organization as well as to facilitate the client's satisfaction. It also encapsulates an appropriate synchronization of the procedures and approaches, which are capable of influencing a continuous advancement across all sectors of the organization with a core objective of attaining the client's customers to the larger extent (Pun & Yiu, 2018). The tool TQM facilitates the aspect of quality across departments of the organization. It is recognized as an enabler of the performance and sustainability of the organization in the manner that reduces the rate of rework and waste. In this case, it tends to advance efficiency as well as minimize the cost of production in the organization. As stated earlier, any organization in the business industry is liable to adopt the Total Quality Management (TQM) (Reddy, Reddy&Takhelmayum, 2017). Many of the public-sector organization have exhibited maximum adoption of the TQM in order to meet the necessities of the public demands.

Nevertheless, the execution and implementation of the TQM require a strict adherence to TQM objectives and principles. Through this pursuance, the organizations tend to remain customer-focused which also increases its performance. The highest top leaders integrate all the strategy as well as operations on basis of the customer's desire and also come up with principles that allow customer involvement. In essence, companies that are associated with the TQM are engrossed in the systematic management of information in the entire course as well as observe that tend to avert waste and trigger continuous improvement course (Pun et al. 2018).

The chief aim of such is to offer the best value for the customer at the least cost through attaining a continuous economic stability and profit for the organization. Besides, the top leaders must ensure a huge commitment to the organization vision that is holistically demonstrated through the mission statement, configure, and empower the workers to work towards the direction of the mutual goal and objective of the organization. In order to achieve this, a diverse team of workers should work towards the advancement that influences efficacy and react to client's requirements. The enduring relationship with clients, suppliers and workers emphasize the quality that is beyond the benefits accrued in a short-term basis (Aquilaniet al.2017).

In a nutshell, the TQM amends the manner in which an organization ponders about work and all the systems that are connected to the organization as it effects of each function of the organization.

Leaders and the top management are charged with an obligation to compel innovation in the business industry. In the organization context, workers tend to look up to the top management for proper guidance and the style to amend key advancement in the firm. The business industry has profoundly changed and there is decentralization of roles across the all levels of the organization technology revolution in the business industry have put in place dynamics in the operations of the businesses (Aquilani et al. 2017). As such, in the course of executing the TQM, it is always appropriate to accommodate the hurdle of delivering modernization and upgrading the style in which organization completes work.

Therefore, top managers are required to be aware of the customers' needs both internally and externally. In this way, the leader whom everybody in the organization looks up to configure and advance resources that entails technical and human to meet client's necessities, a move that created a huge difference in the organization victory. Quality gains take place when the leaders of the organization take into consideration both the internal and external clients. In relation, the internal customers are those clients situated within the organization and are subject of the results of the work. The proficiency and the quality of the reactions to the inner customer in the long chain of the customer chain stimulate the extent of external customer's satisfaction (Ellitan&Perdana, 2017). It is worthy that a company, which meets its customers' needs, and desires to the latter is attributed to quality at every level of performance and operation.

3. Total Quality Management Principles in Relation to Sustainability

Attaining the organization sustainability is not a prompt course. The process of pursuing organization sustainability requires bold dedication and working diligently. Upholding the organization sustainable is a process that requires a consistent effort as well as integration of purpose that is in line with the collective objective and goal. It is an incessant process that needs a short-term, medium-term and a long-term preparation. In addition, the process necessitates competent as well as enough management and staff, quixotic leadership as well as continuing strategic development process.

As such, the process of sustainability requires the analysts to avail resources, and to put in place the necessary resources and the manner in which the process will be undertaken. This process is boldly related to the Total Quality Management (TQM) which forms the systems that are structured in the direction of the



common goal that designs activities to fit the client's interests and desire. Just like Total Quality Management and organization performance, organization sustainability is also defined in terms of optimum quality which also shows its relevancy through an evocative solution that has a measurable effect (Siva et al. 2016). Sustainable organizations are self-sufficient, devoted to their mission as well as engaged in the incessant development. Organizational sustainability is described as the foundation of the invention and creativity and thus quality falls along the course to increase performances.

According to Androniceanu (2017) looking at the evolution of quality, there is a cost consideration whereby the institution of TQM alongside sustainability has yielded a prolific result to the most essential extent. To realize sustainability in the organization, leaders are then charged with a role of advancing the level of the Total Quality Management past the commodity pursuance into proper actions and behavior. Also, the organization sustainability is perceived as the performance on basis of the triple bottom line of dynamics such as the environment, the economy and the social responsibility. In the course of integrating Total Quality Management (TQM) as a facilitator of the sustainable development in the organization, the need to also incorporate quality indicators in the economic segment is an imperative move in the whole process.

Essentially, the system-base process approaches can be employed to describe the interactions between the TQM and the sustainable development in the context of the organization, which also influence performance to the larger extent. TQM suggests a great integration of systems in advancing the products, processes, culture and services in the organization (Dubey&Gunasekaran, 2015). Therefore, the organization must consider positioning itself at a better sustainable position to achieve meeting customer's satisfaction in the organization. The principles of the total quality management that determines the organization sustainability in almost all sectors are also factored in.

Basing on the TQM principle customer focused which asserts that the client is the main determinant of the quality of the organization. No matter what processes and activities an organization does to influence better quality in the organization through training workers, unifying quality into structure course as well as upgrading devices software and so forth and so on, the customer is the most prolific evaluators of whether the efforts are prudent or not. In this case, quality may exhibit of the organization pursues personnel sustainability. It is the responsibility of the organization to fully recognize that it should empower its personnel to best under the job, the commodities, programs and services in order to achieve effectiveness in

the organization operations (Dubey&Gunasekaran, 2015). If personnel sustainability is not enhanced in the organization, the organization tends to make less money in it which does not attain the expected amount of profitability.

Personnel sustainability can be achieved through strict training and supervision. The principle of absolute worker's involvement is also key in the TQM process. It is vital that all workers work in the direction of the collective goal and objectives. To aspire to absolute worker commitment towards work, fear must be eliminated in the working conditions. Employee empowerment must also take place and the management must provide better working conditions to the larger extent. Better performance work systems must put into consideration the continuous advancement efforts alongside with the business operations. To determine a self-managed workforce in the organization, the process of employee empowerment is crucial. Through strong worker's involvement, strategic sustainability is also facilitated to the latter (Goharshenasan&Shahin, 2017).

As such, the organizations tend to realize that there exist realistic objectives and visions through putting into play realistic actions and behavior in the organization. A critical section of the TQM is the process of thinking. To illustrate a process-centered, there must be a pattern of inputs from suppliers which are entirely transformed into substantial output ready to be channeled to the customers. This step is key as it requires the process being demarcated, performance measures should be consistently supervised in order to get rid of the unanticipated differences in the organization working. The TQM principle of process-centered serves vitality in ensuring product and program sustainability which thus facilitates high quality of commodities, programs and services. The paucity of quality products, programs and services in the organization also affects the customer participation and eventually, low profit will be realized in the organization. As such, financial sustainability of the organization is enhanced to settle off the deficits that exist in the organization.

The principle of the integrated system is of the essence in that it defines the kind of culture that is cultivated in the organization, which influences activities and behavior. In the organization, the goals, vision, and mission determine the kind of activities that the parties pursue and it is identified as a critical stage in the whole organization. It also provides the need for effective communication as the way of influencing business performance. The incorporation of the ISO 9000 standards is a proper approach to integrate the business system (Barata& Cunha, 2017). Despite the fact that every organization is attributed



to a unique culture, it may be difficult for the organization to attain effectiveness in the production of goods and services.

In this case, a sound organization culture should be enhanced to realize high performance in the organization. The significance of integrated system is to link organization situation of order to advance beyond the expectations of the clients, stakeholders, and workers. Other principles such as the strategic and systematic approach tend to set up a strategic plan that now assimilates quality as a core component in the organization. In addition, continual improvement is also a canon that initiates organizational sustainability to the deep extent (Gómez, Martínez Costa & Martínez Lorente, 2017). The principle compels the organization to locate new ways of becoming analytic and creative in the competitive business industry in order to structure effective activities to meet shareholder's speculations.

In addition, fact-based decision making defines a process of information survey that is employed to advance the decision-making accuracy based on the prior history. Finally, the principle of communication is appropriate to tend to instill morale and motivation towards its workers across all levels of the organization. Communication principle in the entire TQM in that it defines the stratagems, timeliness, and method (Bouranta, Psomas & Pantouvakis, 2017). Overall, the implementation of the TQM is a bold procedure that should be pursued without contemplation as it facilitates both performance and sustainability in the organization.

4. Conclusion

The study emphasized the concept of the Total Quality Management (TQM) as the chief enabler of the performance and sustainability. The study research expresses the need for top management to commit organization goals, mission and visions in order to satisfy client's expectations in the organization. In essence, the leaders are supposed to direct changes within the organization using appropriate quality control measures to realize excellence performance and sustainability. In addition, the use of TQM principles is uncovered as the best set of rules that guides organizational processes and activities to the larger extent. Also, the study survey unleashes the need for an integrated system in the organization that is capable of facilitating the continuous process in all the organization activities and processes.

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