

# GLOBAL JOURNAL

OF MANAGEMENT AND BUSINESS RESEARCH: A

## Administration and Management



Involvement and Style of Parents

Effect of Academic Causal Factors

Highlights

Development of a Conceptual Model

Smart Agri-Preneurship Dimensions

Discovering Thoughts, Inventing Future

VOLUME 21    ISSUE 1    VERSION 1.0

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT

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VOLUME 21 ISSUE 1 (VER. 1.0)

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## GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A ADMINISTRATION AND MANAGEMENT

Volume 21 Issue 1 Version 1.0 Year 2021

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Smart Agri-Preneurship Dimensions and Food Accessibility in South-West, Nigeria

By Ajike E. O., Egwakhe A. J. & Omodanisi E. O

*Babcock University*

**Abstract-** Climate change, lack of resources and little market accessibility are current threats to food production, food accessibility, and food security. Climate-smart Agriculture is the way to turn around the situation to more resilience and higher Agricultural productivity leading to improved food accessibility and security status. This paper utilized a cross-sectional survey research design and primary data to examine the effect of smart Agri-preneurship dimensions on food accessibility in South-West, Nigeria. The study adopted Cochran, Hatzes, Butler and Marcy formula (1997) to ascertain the sample size. A reliable and valid questionnaire was administered to 558 Agri-preneurs. The regressed constructs revealed a positive and significant effect of smart Agri-preneurship on food affordability (Adj.  $R^2=0.642$ ,  $F (6551) =167.442$  and  $p=0.000$ ). The study concluded that smart Agri-preneurship dimensions affected food accessibility in South-West, Nigeria.

**Keywords:** *food accessibility, greenhouse farming, nutrient cycling, and smart agri-preneurship, soil analysis.*

**GJMBR-A Classification:** JEL Code: M19



SMARTAGRI-PRENEURSHIP DIMENSIONS AND FOOD ACCESSIBILITY IN SOUTHWEST NIGERIA

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# Smart Agri-Preneurship Dimensions and Food Accessibility in South-West, Nigeria

Ajike E. O. <sup>a</sup>, Egwakhe A. J. <sup>a</sup> & Omodanisi E. O <sup>b</sup>

**Abstract-** Climate change, lack of resources and little market accessibility are current threats to food production, food accessibility, and food security. Climate-smart Agriculture is the way to turn around the situation to more resilience and higher Agricultural productivity leading to improved food accessibility and security status. This paper utilized a cross-sectional survey research design and primary data to examine the effect of smart Agri-preneurship dimensions on food accessibility in South-West, Nigeria. The study adopted Cochran, Hatzes, Butler and Marcy formula (1997) to ascertain the sample size. A reliable and valid questionnaire was administered to 558 Agri-preneurs. The regressed constructs revealed a positive and significant effect of smart Agri-preneurship on food affordability (Adj. R<sup>2</sup>=0.642, F (6551) =167.442 and p=0.000). The study concluded that smart Agri-preneurship dimensions affected food accessibility in South-West, Nigeria. The research recommends smart Agri-preneurship adaption to address food insecurity and most especially food accessibility, preferably within the South-South part of Nigeria where farmlands are affected by the oil population.

**Keywords:** food accessibility, greenhouse farming, nutrient cycling, and smart agri-preneurship, soil analysis.

## I. INTRODUCTION

Food accessibility challenge has been attributed to be tied to the economic and physical access of the people to staple meals (Metu, Okeyika, & Maduka, 2016). Blekking, Waldman, Tuholkske, & Evans, (2020) opined that a decrease in income, unemployment, and underemployment causes downturn inaccessibility to food. Though the price of food varies in developed countries of the world, it is at least accessible to most people. Bondemark, (2020). Nigeria has been affirmed by the world poverty clock report, as the country with the largest extreme poverty population as of June 2018, with an estimate of 86.9million out of a 170million people (Kazeem, 2018). Also based on the assessment of 109 countries by Global Food Security Index (GFSI) (2015), with an index score of 37.1, Nigeria was 91st position based on indices of food availability, affordability, quality, and safety. This further explains that the average Nigerian may be too poor to economically access foods grown within the country's low purchasing power. This is further aggravated by the infrastructural conditions needed for the production and distribution of food, such as

transportation (road and rail), environmental degradation and non-sustainable Agricultural production arising from flooding (Metu, Okeyika, & Maduka, 2016).

Achieving food security around the world has remained major and continuous constraint encounter by different economies of the world due to continuous increase in population, high volatility of food price, low farm yield and poor Agricultural innovation investment. Food insecurity is a continuous persistent challenge to human growth and development, most of the scientists, experts and analysts allocate the majority of human development hindrance to food insecurity. Eliminating hunger and malnutrition and achieving global food security more widely, is among the most intractable problems farmer faces. However, according to the Food and Agricultural Organization (FAO) (2018), the level of food security achievement at the global realm is unimpressive and academic questions are being asked regarding why the dwindling farmer's returns. This perspective is actual and topical throughout all last century and the beginning of the 21st century.

There is evidence of food insufficiency in developed countries and severe food insufficiency in less developed countries (Nyambayo, 2015). Both situations, equally detrimental to the nutritional status of the populations and have led to malnutrition over-nutrition and undernutrition, respectively (Nyambayo, 2015). Food insecurity pre-existed in developed countries such as the United State of America and Canada (Walker, Block & Kawachi, 2012) for decades earlier than 2008. In the United States of America, FAO (2018) reported that there is a low dietary nutrient intake of families with food insufficiency when they compared the serum nutrient levels of food sufficiency and food insufficiency families in the American population. In Canada, there is a nutrient inadequacy in Canadian adults and adolescents with food insecurity and food insufficiency due to high price volatility and poor smart Agricultural investment (Lambie-Mumford, Crossley, Jensen, Verbeke & Dowler, 2014).

The Agriculture and food sector is facing multiple challenges. With the global population projected to grow from 7.6 billion in 2018 to over 9.6 billion in 2050, there will be a significant increase in the demand for food (DESA, 2019). At the same time, the availability of natural resources such as freshwater and productive arable land is becoming increasingly

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constrained. The performance of Nigeria's Agribusiness is tied to macro-development issues, for example; the average maize productivity in Nigeria is 2 tons per Hectare across the country which is well below the average observed in other countries with similar climate patterns, the yield deficit is calculated to be as low as - 80% of the potential yield (Global Yield Gap Atlas [GYGA], 2018). Another macro-economic performance challenge is the structure and behaviour both regionally and nationally, of land fragmentation by members of large families which increases transaction costs and limits mechanization. The weak Agricultural support services for farmland aggregation limits large plantations that should have cost benefits of economies of scale (Popp, Olah, Kiss & Lakner, 2019). Also, limited infrastructure, low access to credit, poor access to fertilizers and very low knowledge on how to fight food insecurity has affected affordable nutritious food supply to the population (FAO, 2018).

The diagnosis from research points to smart Agri-prenuership as the potential to become an engine of inclusive growth through private and public investments at different scales that increase food security output and creates a network of poverty reduction across the population (Thornton, Aggarwal & Parsons, 2018). Despite a large number of studies (Khatri-Chhetri, Aggarwal, Joshi & Vyas, 2017; Cochrane, Cundill, Ludi, New, Nicholls, Wester, Cantin, Murali, Leone, Kituyi & Landry, 2017; Eme, Onyishi, Uche, & Uche, 2014) on smart Agri-prenuership and food accessibility, there remain a lacuna yet to be filled. The studies of Sakyi (2012) and Wekesa, Ayuya and Lagat (2018) recommended that further studies investigate the relationship between smart Agri-prenuership (greenhouse farming, hydroponics, geo-mapping, drone Agriculture, soil analysis, nutrient cycling) and food accessibility among Agribusinesses in developing countries (AGRA, 2018) like Nigeria. The food accessibility challenge in the country has been attributed to the economic and physical limited access of a vast majority of the population to nutritious food (Metu, Okeyika, & Maduka, 2016).

Although Nigeria prides itself as the largest economy in Africa, it has been affirmed by the world poverty clock report, as the country with the largest extreme poverty population as at June 2018, with an estimate of 86.9million out of a 170million people (Kazeem, 2018) which is more than 50% of the population. Also, further outcries from Gates (2019) have advocated that the Federal Government swings to action based on the Goalkeepers Report, as the country is predicted to have over 152m people in extreme poverty out of a projected population of 429m people by 2050. Also based on the assessment of 109 countries by Global Food security output Index [GFSI] (2015), with an index score of 37.1, Nigeria was 91st position based

on indices of food availability, affordability, accessibility, and safety. This further explains that the average Nigerian may be too poor to economically access foods grown within the country due to low purchasing power. This limited food accessibility is further aggravated by poor infrastructural conditions for the distribution of food, such as transportation (air, road, and rail) and environmental degradation arising from flooding (Metu, Okeyika, & Maduka, 2016) which have affected food security output. Therefore, this study aims to examine the effect of smart Agri-prenuership dimensions on food accessibility anchored on the Lewis theory. The Lewis theory focused on how the traditional farmer can employ innovation and become modern farmer which enhance farmer creativity, creation of wealth and increase in productivity

## II. LITERATURE REVIEW - SMART AGRI-PRENEURSHIP

FAO (2018) defined Smart Agri-prenuership as an Agricultural activity that: Sustainably and efficiently increases productivity and income (adaptation), reduces or removes Greenhouse Gases (mitigation) and enhances the achievement of national food security output and development goals. This concept was generally meant to strike a balance between food production and environmental stability without compromising any of the two. Smart Agri-prenuership entails biotechnology and applies its technique in nutrient cycling, greenhouse farming, geo-mapping, soil analysis, and hydroponics by using living organisms or substances from these organisms to make or modify a product for a practical purpose (Abah, Ishaq & Wada, 2010; Fasiha, Kaleem, Aleem & Shujahah, 2017). These improved plants or animals or develop microorganisms for specific uses, become an edge or unique selling point to prolong farm produce shelf life and improved yield, besides the traditional genetic breeding techniques (Fasiha, Kaleem, Aleem & Shujahah, 2017).

Agribusiness and biotechnology cut across several fields, and smart Agri-prenuership seems to be in deer need in proffering a wide range of innovations in solving many problems that have tackled Agriculture before the advent of the modern-day Agri-prenuer. More so, it is even more crucial in African countries characterized by poor research and poor farmers, whose sole livelihood depends on Agriculture (Fasiha et al., 2017). Smart Agri-prenuership is more like a blue ocean strategy which is the simultaneous pursuit of differentiation and low cost to open up a new market space and create new demand. It is about creating and capturing uncontested market space, thereby making the competition irrelevant. It, therefore, is seen as one of the unique ways of creating an atmosphere for sustainable Agribusiness growth, even amid competition and climate change.

The discipline of smart Agri-prenurship combines elements from many disciplines, such as genetics, microbiology, accounting, business administration, marketing, engineering, Agriculture and environmental science (David, 2016). Modern Agribusiness includes a range of tools that Agri-preneurs employ to understand and manipulate the healthy high farm yields for use in the production or processing of agricultural products in the value chain. Smart Agri-prenurship is being used to address problems in all areas of Agricultural production and processing (Fasiha et al., 2017). This includes plant breeding to raise and stabilize yields, improve resistance to pests, diseases and abiotic stresses such as drought and cold and to enhance the nutritional content of foods. Smart Agri-preneurs now use technology to speed up breeding programs for plants, livestock, and fish. Due to wash away of nutrients by erosions, most lands of the earth are becoming unbearable but some crops have been hereditarily altered by smart entrepreneurs to make them more liberal of conditions like salinity, cold and drought (Gaffney, Challender, Califf & Harden, 2019). Some progress toward increased food security output has been made, as insect-resistant, drought resistant and herbicide-tolerant varieties are reducing the risk of crop losses. One of the developments in the identification of a plant gene from *Arabidopsis thaliana* (tiny weed) shows tolerance to salt, drought and the heat and cold in plants. When this gene was inserted into tomato cells, these cells withstood these conditions far better than ordinary cells (Kropff, Pilgrim & Neate, 2019).

#### a) Food Accessibility

Food accessibility is defined as when individuals have adequate income or other resources to purchase or barter to obtain levels of appropriate foods needed to maintain the consumption of adequate diet or nutrition. The World Food Summit defines Access as having physical, economic and social contact. Accessibility is still not commonly accepted as an essential part of food security output. The ability to access food rests on two pillars, economic and physical access (FAO, 2012). Food accessibility and availability are strongly linked; food availability is fundamentally dependent on food production, but this can be local or distant. If distant, local food availability also depends on trade systems, packaging, transport and storage (Ingram, 2011). A key factor determining access to food is its affordability (Ingram, 2011). Food affordability and accessibility are dependent not only on food costs but also on the disposable income that can be spent (FAO, IFAD & WFP, 2013; Ingram, 2011). Access to food is primarily determined by the incomes, food prices and the ability of households and individuals to obtain access to social support. Individuals' access to food is

also heavily influenced by social variables, including gender positioning and power hierarchies within households (FAO et al., 2013).

The establishment of human communities always depended on access to food. Food accessibility refers to people's ability to obtain the food they desire. Food accessibility can be described by three elements: affordability, allocation, and preference. The three elements of food utilization are nutritional value, social value, and food safety (Baffes, Kshirsagar & Mitchell, 2019). The ability to access food rests on economic and physical access (Timmer, 2012). Economic and physical access to food is an important component of food and nutrition security. Food accessibility and food availability are strongly linked. Food availability is fundamentally dependent on food production, but this can be local or distant. If distant, local food availability also depends on trade systems, packaging, transport, and storage. This adds to the cost for the consumer unless the cost of production at the distance is so much less than locally to off-set these additional costs (FAO, 2012).

According to Edrish and Neema (2019), poor access to reasonably priced, nutritious and good quality food may lead to poor diet with low consumption of fruits and vegetables and high consumption of energy-dense, nutritionally inferior food. Clark, Rouse, Sehgal, Bailey, Bell, Pike, Sharpe and Freedman (2019) stated that Low-income communities often have less physical access to food they desire due to the high cost of transportation and bad road infrastructure. Low accessibility of healthy food in some geographic location and demographic groups, increases the risk of health problems such as obesity, diabetes, and cardiovascular diseases and this has increasingly become a severe public health concern (Wiki, Kingham & Campbell, 2019). People with better access to providers of healthy (high-quality, fresh, low-fat and nutritious) foods; however, persons who can access affordable food tend to have healthier diets and lower levels of obesity with less growing health concern due to smart Agri-preneurs meeting their demands. Lack of food access or adequate nutrients weakens the immune system which reduces the life span in developing countries (Wright, Gupta & Yoshihara, 2018).

#### b) Smart Agri-Preneurship and Food Accessibility

The eradication of hunger is one of the topmost priorities in the Sustainable Development Goals especially in developing economies. Branca, McCarthy, Lipper, and Jolejole (2011) and Suberi, Tiwari, Gurung, Bajracharya, and Sitala (2018) found that smart Agri-preneurship positively attempts to use scientific research and technology to improve the Agribusiness space and farmland management, thus increasing food accessibility and farm productivity. McPherson, Wang, Marsh, Mitchell, and Schachtman (2018) and Sakyi



(2012) showed that soil analysis and climate change management through modern Agriculture technology to manage soil erosions and deforestation have significantly improved Agribusiness farmland management and food accessibility. Wekesa, Ayuya, and Lagat (2018) found that drone Agriculture, nutrient cycling, GeoMapping, and soil analysis have significantly increased food accessibility. Kropff, Pilgrim, and Neate (2019) opined that greenhouse farming with variable shading for the optimization of Agricultural and energy production are introducing new thinking towards addressing food insecurity and food accessibility.

Ponisio and Ehrlich (2018) showed that smart Agri-preneurship measures significantly increase food accessibility. Similarly, Obiero (2013), Ponisio and Ehrlich (2018) and Rogers, Lassiter, and Easton (2014) revealed that there is a positive and significant relationship between green-house farming, Hydroponics, geo-mapping and food accessibility as farms need not be too far anymore. This shows that sufficient investments in the Agribusiness sector would give better yields and enhanced productivity. Pandey, Tripathi, and Shankar (2018) and Oyakhilomen and Zibah (2014) showed that there are positive and significant effects and the relationship between smart Agri-preneurship measures food accessibility. On the contrary, However, Cai and Leung (2006) and Dauphin, Lubroth, and Jobre (2016) showed that geo-mapping and drone Agriculture analysis does not significantly increase food accessibility. Also, Kira and Sumari (2019) revealed that a geospatial approach insignificantly affects food accessibility.

### III. METHODOLOGY

This study adopted a cross-sectional survey research design. This research design is appropriate because it enables the researcher to collect data that will represent the perception and view of people across a large geographical area, which in this case are the selected registered Agribusinesses across South-west, Nigeria. The adoption of this design is consistent with the studies of (Tammo, Ellen, Gersom & Eunice, 2017; Suryabagavan, Asfaw & Argaw, 2016; Steven & Anne, 2016; Shoji, KerobimLakra, Kushwaha, Meena & Pravin, 2014; Kuforiji, Egwakhe & Binuyo, 2019). The unit of analysis of the sample for the study was the Agri-

$$Y = f(X)$$

$$FA = f(GHF, HP, GM, DA, NC, SA)$$

SAP = (GHF, HP, GM, DA, N)

y1 = Food Accessibility (FA)

X= Smart Agri-preneursh

$$X = (x_1,$$

Where;

X1 = Green House Farm

$$x_2 = Hy$$

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preneurs who own or manage the Agricultural firms. The justification for this unit of analysis is based on the fact that; (1) the smart Agri-preneur is at the top of the leadership team responsible for vision, innovation and effective communication of the ideas.

A total population of six hundred and thirty-two (632) Agripreneurs within the South-Western states in Nigeria was further filtered to reflect only duly registered with the Ministry of Agriculture of the respective states that have kept proper records of their farm production output. Based on these event exclusion criteria, the population was further filtered to arrive at a finite population of the size of five hundred and fifty-eight (558) and also adopted as the sample size of the study using the Cochran (1997) formula. A structured questionnaire was adapted from previous studies (Singh, 2017; Amone, 2017; Al-Houti, 2017; El Ghoumari, Tantau, and Serrano, 2005; Kibiti and Gitonga, 2017; and Admane, 2013; Harrell, 2014; and Peuralahti, 2014; Al-Arab, Torres-Rua, Ticiavilca, Jensen, and McKee, 2013; and Hafsal, 2016; Gordon, 2004 and Pettersen, 2014) along the constructs with sections capturing demographic information, Smart Agripreneurship dimensions (greenhouse farming, hydroponics, geo-mapping, drone Agriculture, nutrient cycling, and soil analysis) and farm productivity which was measured as a whole using a Likert scale ranging from very high (6) to very low (1).

Pilot testing was carried out to test the content of the research instrument and validation and reliability were confirmed through Kaiser-Meyer Olkin (KMO)  $> 0.6$ , Bartlett's test  $< 0.05$ , Composite reliability  $> 0.7$  and Average Variance Extracted  $> 0.5$  and scores from Cronbach's Alpha Coefficients  $> 0.7$  respectively. The pilot study was undertaken in selected farms within the North central area of Nigeria, covering Kwara State and Benue State, largely because these Agriculture firms were outside the study area. Afterwards, primary data for the study which was retrieved by well-trained research assistants from the field was treated to conform to the assumptions of regression as well as minimize errors in the data collected and provide for better results. The researchers developed a structured model for the study using the main constructs, and the data were analyzed using multiple regression analysis. Econometric model specification of the study

## Functional Relationship 1

x3= Geo-Mapping (GM)  
 x4= Drone Agriculture (DA)  
 x5= Nutrient Cycling (NC)  
 x6= Soil Analysis (SA)

Where:

$\beta_0$  = the constant term which defines the food security output without inclusion of independent variables.  
 $\beta_1 - \beta_7$  = the coefficients for the individual influence of the respective smart Agri-prenurship variables on the food security output dimensions.

$\epsilon_i$  = Error term

#### a) Results and Discussion of Findings

To test a hypothesis (There is no significant effect of smart Agri-prenurship dimensions on food accessibility in South-West, Nigeria), multiple linear regression analysis was used. The independent variable of the study was smart Agri-prenurship dimensions while the dependent variable was food accessibility. Data from five hundred and fifty-eight (558) respondents were gathered and analyzed using SPSS version 23 software. The results of the multiple linear regression analysis are shown in Table1.

Table 1 shows the result of the analysis on smart Agri-prenurship dimensions (green house farming, hydro phonics, geo-mapping, drone Agriculture, nutrient cycling and soil analysis) on food accessibility. From table 1, the result of the analysis revealed that green-house farming ( $\beta = 0.197$ ,  $t = 4.386$ ,  $p < 0.05$ ), hydro phonics ( $\beta = 0.134$ ,  $t = 3.019$ ,  $p < 0.05$ ), geo-mapping ( $\beta = 0.106$ ,  $t = 2.965$ ,  $p < 0.05$ ), drone Agriculture ( $\beta = 0.050$ ,  $t = 2.922$ ,  $p < 0.05$ ), nutrient cycling ( $\beta = 0.198$ ,  $t = 5.372$ ,  $p < 0.05$ ) and soil analysis ( $\beta = 0.256$ ,  $t = 6.846$ ,  $p < 0.05$ ) have positive and significant effect on food accessibility in South-West, Nigeria. This finding indicated all dimensions of

$$FAC = 0.238 + 0.197GHF + 0.134HP + 0.106GM + 0.050DA + 0.198NC + 0.256SA \dots \text{eq. iv}$$

Where:

FAC = Food Accessibility; GHF = Green House Farming; HP = Hydroponics; GM = Geo-Mapping; NC = Nutrient Cycling; SA = Soil Analysis

The regression model presented above revealed that when smart Agri-prenurship dimensions are at constant zero, food accessibility would be 0.238. This informs that without smart Agri-prenurship dimensions, food accessibility would be at a positive value of 0.238. Furthermore, the regression model explains further that when green-house farming, hydro-phonics, geo-mapping, drone Agriculture, nutrient cycling, and soil analysis are improved by one unit, food accessibility would also increase by 0.121, 0.190, 0.161, 0.200 and 0.248 units respectively. This implies that an increase in smart Agri-prenurship dimensions (greenhouse farming, hydro-phonics, geo-mapping, nutrient cycling, and soil analysis) would lead to a subsequent increase in food accessibility in South-West, Nigeria. The result of the multiple regression analysis revealed that smart Agri-prenurship is very important in

smart Agri-prenurship are significant in improving food accessibility in South-West, Nigeria.

Furthermore, the result of the multiple regression analysis showed the model summary ( $R^2$  and adjusted  $R^2$ ) of the effect of smart Agri-prenurship on food accessibility in South-West, Nigeria. The coefficient of determination ( $R^2$ ) value in the analysis is 0.646 which indicates that smart Agri-prenurship dimensions have a moderate positive and significant effect on food accessibility in South-West, Nigeria. The coefficient of multiple determination, adjusted  $R^2$  is 0.642 ( $F(6, 551) = 167.442$ ,  $p = 0.000$ ) revealed that smart Agri-prenurship explained 64.2% of the changes in food accessibility in South-West, Nigeria while the remaining 35.8% could be attributed to other factors not included in this model. Also, the F-statistics ( $df = 5, 551$ ) = 167.442 at  $p = 0.000$  ( $p < 0.05$ ) indicates that the overall model is significant in predicting the effect of smart Agri-prenurship dimensions on food accessibility. This means that smart Agri-prenurship has a significant effect on food accessibility in South-West, Nigeria. The multiple regression model is expressed as thus:

the realization of food accessibility in South-West, Nigeria. In light of the foregoing, the null hypothesis ( $H_0$ ) which states that there is no significant effect of smart Agri-prenurship dimensions on food accessibility in South-West, Nigeria was therefore rejected.

The findings of this study with the findings of Shoji, KerobimLakra, Kushwaha, Meena, and Pravin (2014) and Rogers, Lassiter, and Easton (2014) revealed that there is a positive effect between greenhouse farming and gas emission that helps the climatic environment and Agribusiness space and thus increase holistically farm productivity and food accessibility. Sharon, Choudhary, and Kumar (2010) empirically emphasized that the application of smart Agri-prenurship significantly improves overall farm productivity and soil fertility which in turn increases farm product accessibility. Eliopoulos and Potamitis (2017)



empirically showed evidence that Agribusinesses who failed to adopt smart Agri-prenuership practices would be more severely negatively affected by weather changes than those adapting smart Agri-preneurship.

Yi-Hsuan, Ssu-Pei, and Ting-I (2019) examined the application of organic hydroponics on homegrown urban Agriculture in Taiwan. The study showed that for the inorganic nutrient solution, the farm yields of treatment with aeration are higher than those without aeration. On the contrary, for the organic nutrient solution, the farm yields from the treatment without aeration were higher than those with aeration. This confirms that nitrification is necessary for an organic hydroponic system which in turn significantly increases its farm product accessibility and output. Zaccardelli, Pane, Villecco, Palese, and Celano (2018) examined the environmental impacts of urban hydroponics in Europe. The results of the study show that the hydroponic farm performs better than cultivations in heated greenhouses, and similarly to conventional open-field farms. Nyambayo (2015) and Sharma, Acharya, Kumar, Singh, and Chaurasia (2018) studied how hydroponics as an advanced smart Agri-prenuership technique for vegetable production profiting Agribusiness. The study revealed that for the successful implementation of a commercial hydroponic technology, it is important to develop low-cost techniques that are easy to operate and maintain; require less labour, lower overall setup and operational cost and significantly increase food availability and accessibility.

#### IV. CONCLUSION

In this study, the researcher presented the concept of smart Agri-prenuership and food accessibility. The outcomes revealed that smart Agri-prenuership dimensions provided constructive and significant effects on food accessibility. Conversely, an examination of the smart Agri-prenuership dimensions revealed that most dimensions were critical due to the use of advanced smart technologies. The outcome of the study established the apriori expectation of the study. The study hence concludes that undeniably smart Agri-prenuership dimensions are imperious for the exponential development in food accessibility, which in turn improves pricing as well as the fresh delivery condition of food to the average person in South-West, Nigeria.

Physical and economic access to Agricultural produce is positively influenced by smart Agri-prenuership constituents as deduced from this research but critical attention to the Icarus paradox should be observed. When an Agribusiness opportunity is huge and Agri-preneurs invest in expensive sophisticated specialized equipment in Nigeria for increased food quality, a period of apparent success may be enjoyed as upper strata of the population is serviced but by the

very elements that led to their initial success may fail due to political instability, inconsistent policy, galloping inflation, change of taste or lack of economic access. The research recommends smart Agri-prenuership adaption to address food insecurity and most especially food accessibility. Also, other smart Agri-prenuerial pointers not considered in this study could be examined to confirm their influence on food accessibility, preferably within the South-South part of Nigeria, where oil pollution has affected farmland.

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#### Tables

**Table 1:** Summary of multiple regression analysis foreffects of smart Agri-preneurship onfood accessibilityin South-West, Nigeria.

Coefficients <sup>a</sup>						
Model Four $y4 = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \epsilon$		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	0.238	0.141		1.691	0.091
	Green House Farming	0.197	0.045	0.188	4.386	0.000
	Hydro phonics	0.134	0.044	0.139	3.019	0.003
	Geo-Mapping	0.106	0.036	0.117	2.965	0.003
	Drone Agriculture	0.050	0.017	0.080	2.922	0.004
	Nutrient Cycling	0.198	0.037	0.208	5.372	0.000
	Soil Analysis	0.256	0.037	0.268	6.846	0.000

a. Dependent Variable: Food Accessibility  
b.  $R = 0.804^a$   $R^2 = 0.646$   $Adj. R^2 = 0.642$   
c.  $F (6, 551) = 167.442 (p=0.000)$

Source: Field Survey (2020)



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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT  
Volume 21 Issue 1 Version 1.0 Year 2021  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Involvement and Style of Parents on Student Motivation towards Student Performance with the Moderating Effect of Academic Causal Factors: Development of a Conceptual Model

By Deegoda Gamage Indu Ramira Sumanasekera, Junainah Abd Hamid,  
Ali Khatibi & S. M. Ferdous Azam

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**Abstract-** Parents play a vital role as social actors in the development of children's academic achievement by motivating them. Their active participation in children's learning process is quite important for them to influence their children for a better learning outcome. Parental involvement in literature has been defined in a variety of ways. It is generally the involvement of parents in the children's education process with the aim of improving their academic as well as social wellbeing. These include various activities such as supporting and monitoring homework at home, attending school activities and attending parent and teacher interaction sessions, communicating with teachers, volunteering activities at school, and working with the community. For an every child, the school is often called as the second home, which helps molding a child to become a global citizen.

**Keywords:** *parental involvement, parenting style, student motivation, academic causal factors, student performance.*

**GJMBR-A Classification:** *JEL Code: M00*



*Strictly as per the compliance and regulations of:*



# Involvement and Style of Parents on Student Motivation towards Student Performance with the Moderating Effect of Academic Causal Factors: Development of a Conceptual Model

Deegoda Gamage Indu Ramira Sumanasekera <sup>a</sup>, Junainah Abd Hamid <sup>o</sup>, Ali Khatibi <sup>p</sup>  
& S. M. Ferdous Azam <sup>o</sup>

**Abstract-** Parents play a vital role as social actors in the development of children's academic achievement by motivating them. Their active participation in children's learning process is quite important for them to influence their children for a better learning outcome. Parental involvement in literature has been defined in a variety of ways. It is generally the involvement of parents in the children's education process with the aim of improving their academic as well as social well-being. These include various activities such as supporting and monitoring homework at home, attending school activities and attending parent and teacher interaction sessions, communicating with teachers, volunteering activities at school, and working with the community. For an every child, the school is often called as the second home, which helps molding a child to become a global citizen. The children are taught moral values and standards through interactions at school, also aiming at developing the knowledge and skills required for the labor market in future.

Findings of research done on influence of parental involvement towards the academic performance of the children shows that there is a significant relationship between the parental involvement and the performance of the children. Active involvement of parents appears to have a greater impact on students' performance, reviles that the variables parental involvement and learning motivation has direct relationship. A child's parental involvement begins at nursery schooling level and then continues through the primary, the secondary and at the high school. Further, some studies revealed that there's a significant mediation effect of student motivation in the relationship between the parental involvement and student performance. Several studies have shown that parenting styles indirectly and positively related to academic outcome through the motivation significantly. Some researchers have depicted a significant mediating effect of student motivation in the relationship between parenting styles and academic performance among students. The analysis showed that parenting styles indirectly and positively related to academic outcome through the motivation.

Positive significant relationship appeared between the teacher's teaching experience and performance implied that teachers who have developed greater cognitive abilities tend to generate better learner performance. Studies have shown that through the teaching practice, positive teacher-student relationships can lead to a warm classroom environment that facilitates successful adaptation to school

and thereby moderates student motivation to learn significantly. Therefore, it is crucial to understand the effects of the quality of teacher-student interaction on students' motivation to learn.

According to the literature, there is a significant impact of parental involvement and parenting styles on student performance. Student motivation significantly mediates these relationships and academic causal factors significantly moderate the relationships. On this contextual, a Conceptual Model was introduced. This conceptual model could be used by future researchers to examine the impact of involvement and styles of parents on student motivation towards student performance with the moderating effect of academic causal factors in deferent perspectives.

**Keywords:** *parental involvement, parenting style, student motivation, academic causal factors, student performance.*

## I. INTRODUCTION

Parental involvement has been defined in a number of ways in the literature. Largely, parental involvement is the participation of parents in children's educational process with the purpose of improving their academic and social well-being, which includes a diverse set of activities, such as assisting and monitoring learning at home, attending school activities and parent-teacher interactions, volunteering at school, communicating with teachers and collaborating with community (Zong, Zhang & Yao, 2017, Liu, Sulaimani & Henning, 2020). Previous research suggests that there is a growing concern about the degree of which parents are involved in their child's education (Bempechat, 1992; Fan & Chen, 2001; Hill et al, 2004; Hill & Taylor 2004; Jeynes 2003, Lee & Bowen, 2006; McIntyre et al, 2007; Muir, 2012; Sui-Chu & Willms 1993; Wilder, 2014).

For an every child, the school is often called as the second home, which helps molding a child to become a global citizen. The children are taught moral values and standards through interactions at school, also aiming at developing the knowledge and skills required for the labor market in future (World Bank, 2015). Findings of research done on influence of parental involvement in the academic performance of



the children shows that there is a significant relationship between the parental involvement and the student performance of the children (Yaseen, Zaman, & Rasheed, 2017). Active involvement of parents appears to have a greater impact on students' performance. A child's parental involvement begins at nursery and then continues through primary, secondary and to the high school. Although it is important at every grade and throughout, yet it is known to be critical at the secondary schooling stage. There's a tendency of parents getting less involved in their children's education when their children becoming young adolescents (Oates, 2017; Wijsman, Warrens & Saab, 2015).

Parenting styles are the manner in which parents rear their children. Parents want their children to grow into socially mature individuals. To discover the best way to accomplish this they adopt varying parenting styles. Baumrind (1965, 1971, 1978, 1996) has identified three parenting styles as authoritative, authoritarian, permissive. Motivation is defined as the process that initiates, guides, and maintains goal-oriented behaviors (Cherry, 2016). There are five different constructs reflecting motivation (Deci & Ryan, 2000; Weiner, 1990) namely intrinsic, extrinsic, amotivation, self-efficacy and achievement. Intrinsic motivation is defined as motivation in which the source is the "inherent satisfaction" an individual derives from the behaviour (Deci & Ryan, 2008). Extrinsic motivation relates to a wide variety of behaviours from external sources and these behaviours are engaged in as a means to an end and not for their own sake (Deci, 1975). Academic performance refers to a student's success in achieving educational goals and reflects how well students achieve the standards set by an academic institution or by the local educational authorities (Steinmayr, Meißner, Weidinger, and Wirthwein, 2014). Academic casual factors includes learning environment and teaching practices fields where which includes teacher's classroom management skills, teaching methods applied, managing student behaviour, communicating with students, engaging students in learning, school environment has an influence on students' performance (Yilmaz, Sahin, Turgut (2017).

Active involvement of parents appears to have a greater impact on students' performance. A child's parental involvement begins at nursery level and then continues through the primary, the secondary and at the high school. Although it is important at every grade and throughout, yet it is known to be critical at the secondary schooling stage. There's a tendency of parents getting less involved in their children's education when their children becoming young adolescents. Many countries have examined the impact of parental involvement, parenting styles on student motivation towards student performance. As per the literature, lack of research attention has been given to the theoretical blend of parental involvement, parenting style on student

motivation towards students' academic performance in developing countries. Therefore, further research needs to be carried out.

## II. PROBLEM STATEMENT

Little research attention has been given to the theoretical blend of parental involvement, parenting style, student motivation and students' academic performance in a single research work (Amponsah et al., 2018). Parents are usually very much involved in their children's early education but it tends to decrease when children proceed to secondary education (Oates, 2017; Wijsman, Warrens & Saab, 2015). Although declining trends in parental involvement towards the students' performance as children proceed to high school is questionable because of the inconsistent findings of studies related to this relationship (Wijsman et al., 2018). According to Nauzeer and Jauny (2016) more research is needed to understand about the student motivation for the purpose of enhancing the parental involvement towards student performance. Further, at present, there's also dearth of empirical studies carried out in Sri Lanka focusing on the student performance in science and mathematics.

Fewer studies have been considered academic causal factors as a moderator to facilitate relationships between student motivation and students' academic performance (Yilmaz, Sahin, Turgut, 2017) and recommend integrating these factors into future research. Furthermore, there is a gap in knowledge relating to the parental involvement and student performance (Juma, Muramdu, Colins, 2019). Thus, there is a need for research to explore further. As highlighted by the literature, whether the educational success of children relates to parental involvement, parenting styles, student motivation and academic causal factors? If so, to what extent these variables affect the academic performance of the children? It is important to analyse how such parental involvement on the performance of education of children could be enhanced.

### III. LITERATURE REVIEW

a) *Parental Involvement*

Parent involvement is the volunteer service of parents at school or at home for the purpose of improving a child's education. Parent participation is a critical component of academic success and social development (Mautone et al., 2015; Yingqi, 2015). Parents that are active in their child's schools has shown positive effects including increased academic achievement, positive social behavior, augmented resources and social networking opportunities (Garbacz et al., 2015).

Parental involvement refers to a situation where parents are directly involved in the education

of their children, they involve themselves and are involved by the school and teachers in the learning process of their children, and they fulfill their duties as parents in making sure that the learner is assisted in the process of learning as much as they possibly can. It does not just refer to parents enquiring about the performance of a learner in schools, but also in them taking a role in communicating with their children with the aim of having a healthy relationship with them, so that the process of encouraging, mentoring, leading and inspiring may be genuine (Clinton & Hattie, 2013). The transition to secondary school is a period with several developmental tasks, involving academic challenges, decision making processes, regulation of peer socialization and important vocational decisions (Brkovic, Kerestes, & Levpuscek, 2014; Diogo, 2007; Ginevra, Nota, & Ferrari, 2015), and for an adaptive transition, parents can act as and as protectors facilitators (Gordon & Cui, 2012). In fact, parental behaviours (e.g. warmth, acceptance, support, involvement) as well as parent-child relationships (e.g. openness, closeness, warmth) have been touted as powerful tools to promote a positive socio-emotional, behavioural, and academic development (Garthe, Sullivan, & Kliewer, 2015; Ginevra et al., 2015).

Joyce Epstein as a researcher has drawn six types of parental approach, coined as a model, and they are parenting, communication, volunteering, learning at home, decision-making, and collaborating with community (Epstein, 1987, 1995, 2001, and 2011). Further, through the model Epstein emphasizes the importance of parental involvement to be effectively developed in a child and it also make out the diversity of actions needed to be taken by parents in supporting the process of their child's development (Peiffer, 2015). Parents' involvement in school life was frequently related to academic success, especially in the first levels of schooling, and parents recognized that "the greater the presence and involvement of parents in school the greater the percentage of success". However, parents also assumed that there was a great decrease of involvement in secondary school and explored some of the reasons for this; parental involvement was quite different. Parenting also helps that the school could provide to the families, aiming to increase parents' understanding about their children's development and academic achievement (Costa & Faria, 2017).

#### **b) Parenting Style**

A parenting style is a psychological construct representing standard strategies that parents use in their child rearing. There are many differing theories and opinions on the best ways to rear children, as well as differing levels of time and effort that parents are willing to invest. One of the best known theories of parenting style was developed by Diana Baumrind. She proposed

that parents fall into one of three categories: authoritarian (telling their children exactly what to do), permissive (allowing their children to do whatever they wish), or authoritative (providing rules and guidance without being overbearing). The theory was later extended to include negligent parents (disregarding the children, and focusing on other interests).

Some empirical studies show that the authoritative parenting style was associated with adolescents academic achievement (Checa and Gutierrez, 2018). In some, the association between parenting and academic achievement differed from maternal and paternal reports: mothers' parenting styles were not associated significantly with adolescents' academic achievement. It is clear that the parenting style adopted within the family has an impact on children and adolescents academic achievement. The attitudes that parents have towards their kids have an effect on the involvement they show in the school, as well as in the development of skills and abilities needed to cope with school demands. Parenting styles are also a reflection of the society parents belong to, which transmits values, expectations, behavior patterns, belief system and guidelines about optimal and deficient parenting (Checa and Gutierrez, 2018). Baumrind (1991) retained that authoritative parenting style is more balanced parenting style and creates a supportive home environment for children's academic and psychological development compared to authoritarian and permissive parenting styles (Rabgay, 2015).

#### **c) Parental Involvement and Student Performance**

Most parents assumed that their children could not be educated merely on the school environment and that home environment would have a lasting impact on school education (Daniel et al, 2016, Muir, T. 2012). Therefore, many parents recognize the importance of school and home collaboration in educating their children (MacDonald and McFarland-Piazza, 2014, Carmichael et al, 2014). Findings of research done on the influence of parental involvement in the academic performance of the children shows that there is a significant relationship between the parental involvement and the student performance of the children (Yaseen, Zaman and Rasheed, 2017, Ambachew, Amare and Geleta, 2018, Simweleba & Serpell, 2020).

However, parents' active involvement is more influential with students' performance than the other socioeconomic factors. While parental involvement is important at every grade level, it is critical at the secondary school stage because parents of young adolescents have a tendency to become less actively involved in their children's reach upper secondary stage in their education (Oates, 2017). Moreover, the existing researches have revealed the importance of parental involvement towards student performance. Mutodi and Ngirande (2014) argues Three parental involvement

constructs, that is, parenting, parent-teacher communication and home and family support were found to be positively related to performance. Studies conclude that the home and family support is the most significant factor that determines a learner's performance.

The parents who involve themselves in the children's education at home, their children as a result, show good performance at school. Akbar, Chisthi & Younes, (2017) stated that the Parental involvement is found statistically significantly contributing towards the outcome of Student Performance. The study helps us to accept that there is a relationship between parental involvement and their children's academic achievement. Furthermore, studies carried out by Hussain, Javaid, Parveen & Iqbal (2018) and Ambachew, Amare, & Geleta (2018) revealed that there is a strong positive and significant relationship between parental involvement and academic performance of students. Similarly, studies carried out Akbar (2015);, Topor et al., (2010) reviles that Parental involvement (PI) is found to be statistically significantly contributing towards the outcome of Students' scores. Research studies carried out by Jaiswal and Choudhuri (2017) suggests that when parents are actively involved in their children's educational activities, show affection to their children, participate in school events, democratic and responsive in nature, and keep positive educational expectation then students' academic performance becomes higher.

Based on Parka and Holloway (2017) studies, stated that the effects of school-based parental involvement on academic achievement at the child achievement in mathematics significant. Parental involvement became more strongly related to mathematics and reading achievement as children move through the grades. Providing information on how schools function, how to support learning, and how to access educational resources is another way to encourage parents to become more involved in school-based activities (Park and Holloway, 2013). Further, the studies confirm that parental involvement as the most powerful predictor of, particularly for low socioeconomic families, is the creation of a school environment where parents feel welcomed and valued by educators (Walker, Hoover-Dempsey, & Sandler, 2007; Hoover-Dempsey, & Sandler, 1997; Park & Holloway, 2013; Baquedano-Lopez, Alexander, & Hernandez, 2013)

There are various studies which provide empirical evidence on the positive impacts of the parental involvement and the student performance, in developing countries as well. In a study carried out in Ghana by the researchers Amponsah, Milledzi, Ampofo and Gyamrah (2018) reviled that there is a significant positive relationship between parental involvement and students' academic performance. Their findings revelries that parental involvement through homework, creating a learning environment for studying at home,

motivating and setting realistic and high expectations for children enhances academic performance. Hence, parents as the prime educators and the first agents of socialization and exposing children to the social and academic world should play a leading role in supporting their children's education. Thus, for their children's educational attainment parents should set high and realistic expectations, to motivate their children to perform well academically. However, some of the previous studies on the relationship between parental involvement and student performance have delivered mixed and weak findings. Several studies have shown that parental involvement in children's academic education tends to decrease across schooling, moreover parental involvement changes throughout school (Jeynes, 2011; Costa and Faria, 2017; Wijsman et al., 2018). While parental involvement has been found to be related to increased academic performance, the mechanisms through which parental involvement applies its impact on a student's academic performance are not yet fully understood (Collins, Juma and Murundu (2019).

#### *d) Parenting Style and Student Performance*

Over the years parenting styles and behaviors has evolved. The three parenting styles namely; authoritative, authoritarian and permissive (Baumrind, 1966, 1967, 1978, 1991) are used to determining academic success in literature from western cultures (Masud et al., 2015; Pinquart, 2016; Checa et al., 2019). Evidence from cultural similarities with Pakistan shows varied findings. A study from Iran shows support for the authoritarian parenting style similar to Pakistan (Rahimpour et al., 2015). Determining academic performance of students in the West and European countries the authoritative parenting style is the dominant and most effective style applied, while Asian countries show more favorable results for academic performance for the authoritarian style (Masud et al., 2015). However, high parenting style of the father adds a significant contribution to obtain higher academic grades by their children. Thus, father's role plays an important part in determining their children's academic outcome in Asian cultures (Masud et al., 2015).

A number of studies have been conducted on the relationship between parenting style and student academic performance (Kösterelioglu, 2018). Most scholars have found a positive impact of parenting styles on student performance. Lerdponkulrat et al. (2012) reported students who perceived their parents as authoritarian had higher performance. Mahasneh (2014) reported positive relationships between parenting style and academic success on authoritarian and permissive parenting styles and, the authoritative parenting style is the best predictor of academic achievement.

According to Purificación C, Alicia (2018) and Orhan-Özen (2017) parenting style has a positive effect

on student performance. Jeunes (2010) indicated that parenting style is an important component of parental involvement because it helped to produce a positive home life for the child. The home-to-school relationship is significant because it can expand and redefine the whole concept of parental involvement (Seginer and Mahajna, 2018). Xu, Dai, Liu and Deng (2018) examined how children at near adolescents' age perceived parental psychological control and autonomy based on their parenting style towards academic achievement. Study carried out in Bhutan (Rabgay, 2015), found that there were differences in students' academic performance due to differences in parenting style. It revealed that, out of the three parenting styles, namely authoritative, authoritarian and permissive, found that authoritative parenting results in better students' academic performance compared to students whose parents had an authoritarian and permissive style of parenting). In the same way, Uma and Manikandan (2014) noted that parents style play a significant role in determining the level of academic performance among adolescents. Thus, it is essential that parents should be equipped with appropriate knowledge and skills so that they can provide better guidance for their adolescents' positive development especially in academic aspects.

e) *Student Motivation*

Motivation is defined as the process that initiates, guides, and maintains goal-oriented behaviors (Cherry, 2016). It is considered as a crucial factor that affects human behavior and performance (Kian et al. 2014; Turan 2015). The educational researchers and practitioners point out that motivation is one of the most important factors in student performance and in ensuring continuous achievement (Alkış 2015). Further Küçüközkhan (2015) has defined motivation as the sum of the efforts made for driving the individual towards one or more particular goals and for ensuring the continuity of this movement. In addition, many concepts, such as interest, values, attitude and desire of the individual towards an action, affect the process of motivation as well (Akpur 2015). Therefore, motivation has a multi-dimensional structure. In this regard, each individual may have a different amount of motivation. Based on the literature, there are five different constructs reflecting motivation (Ryan & Deci, 2002, 2006, 2016; Weiner, 1990) namely intrinsic, extrinsic, motivation, self-efficacy and achievement of motivation.

Intrinsic motivation involves engaging in a behavior since it is personally rewarding; essentially, performing an activity for its own sake rather than the desire for some external reward. Behavior comes from his own inner world leading to his own reward, thus no additional motive or punishment is needed (Şen 2006, Ural 2009). The main sources of intrinsic motivation are the interest, curiosity and needs of the individual. Actions which are performed through intrinsic motivation

and which originate from these sources are inherently rewarding for the individual; In this case, the individual is expected to display behaviors such as volunteerism, willingness and making a choice (Deci and Ryan 2000, 2006, 2016). Therefore, these actions usually generate intrinsic results as personal experiences which have a meaning for the individual (Erdoğan 2013). A study stressing the importance of intrinsic motivation indicated that students will learn a topic more easily if they are willing to grasp and understand it (Çelen 2010). to grab the economic shocks (Hashim, Raza and Minai, 2018).

Extrinsic motivation occurs when the individual is motivated to perform a behavior or engage in an activity to earn a reward or to avoid punishment. Şen (2006) express that engaging in such behavior not because you enjoy it or because you find it satisfying, but in order to get something in return or avoid something unpleasant. The behaviors which originate from external sources, such as rewards, punishment, and social support, are behaviors which are linked with the result of the individual's action (Erdoğan 2013). Some actions which are considered to be important for the students by teachers and parents are triggered by extrinsic motivation, and, therefore, they do not draw the intrinsic attention of individuals (Deci and Ryan 2016).

Apart from the above mentioned motivation types, literature provide additional motivational components that give signs about the nature of the motivation of the individuals, of which some of them are directly related to the academic performance of the individuals; these are intrinsic goal orientation, extrinsic goal orientation and the value of the subject, control of learning beliefs, self-sufficiency and test anxiety (Bates et al. 2016).

According to Suhag et al. (2016), motivation has several effects on the learning and behavior of students: Firstly, motivation leads behavior to specific goals. Motivation sets specific goals that people strive for and, thus, influences the choices of students. Motivation as a prerequisite for learning showed that the literature is mostly focused on the factors that make individuals to act and to pursue these actions (Liu et al. 2016). In particular, the studies underlining the importance of motivation as a factor that facilitates the learning achievements of the individuals (Karagüven 2012 and Kaya 2013) have argued that learning achievement and effectiveness may vary according to motivators such as interest, desire and need (Tahiroğlu and Aktepe 2015).

f) *Parental Involvement, Student Motivation and Student Performance*

Motivation is an important factor influencing learning and achievement. The human behavior believed affect by various situation like; thinking, learning, feelings, creativity, and perceptions. Many students cannot learn effectively as a result of not been encouraged. The finding of the studies shows that the

Parental involvement (parenting, communicating, learning at home, decision making) has a positive partial mediation towards student performance (Ubale, Abdurrahman and Abdullah, 2015). Since the motivation deals with the human behavior and cognitive development parents should be involved in the educational development of their children that will eventually enable them to be more productive in the society (Ubale et al., 2015).

Sharma and Sharma (2018) found that there were significant correlations between motivation and academic performance among students. Núñez, Regueiro, Suárez, Piñeiro, Rodicio & Valle (2019) study reveals the total mediation of student motivation in the relationship between the parental involvement and student performance. A study conducted by Alyssa et al., (2005) reviles that the variables parental involvement and learning motivation has direct relationship. Brittany and Mary (2005) study investigating a correlation between parental involvement and student's motivation as well as academic achievement, of which findings showed that a correlation between student's motivation and academic achievement is also direct.

Perceived parental involvement contributes to children's motivation essentially conveying confidence in their abilities and showing interest in their progress and schoolwork (Rodríguez et al., 2017). Many studies have scrutinized the influential factors of academic achievement (Miñano & Castejón, 2011; Miñano, Gilar, & Castejón, 2012). Hence, parents' contribution towards the motivation of their children provides the confidence in their abilities, and to make an interest in their progress of achievements. Student achievements are influenced by many people, parents, extended family members, schools, institutions peer groups, clubs and societies etc. Tarekegn et al. (2015) suggested that there is statistically significant relationship between parent involvement and student motivation towards their learning outcomes. Thus, parental support is essential to students' academic success (Simpkins et al, 2015).

g) *Parenting Style, Student Motivation and Student Performance*

Parenting styles have significant influence on children's academic motivation (Tang et al., 2015, Reeves et al., 2020). The study assessed Students' academic motivation within the school environment. It indicated that, firstly, mothers' authoritative parenting styles were related to enhance the intrinsic motivation. Secondly, mothers' authoritarian parenting styles were negatively related to intrinsic and extrinsic motivation. Finally, both mothers' and fathers' permissive parenting styles were positively related to student motivation. Similarly, Mahama et al., (2018) studies examined the relationship between parenting styles (authoritative, authoritarian and permissive) and student's motivation. It depicts that majority of parents perceived them as

authoritative, followed by authoritarian and permissive. The findings revealed that mothers were more permissive than fathers. The results also did confirm a positive correlation between paternal parenting styles and children's motivation (Hamid, Shakil, Ali and Ahmad, 2019).

Hejazi (2018) confirm the mediating effect of student motivation (intrinsic motivation) in the relationship between parenting styles and academic performance among high school students. The analysis showed that parenting styles indirectly and positively related to academic outcome through the motivation. Hence, there's a mediating effect of intrinsic motivation in the relationship between parenting styles and academic resilience. Based on the self-determination theory Stavrulaki, Li and Gupta (2019) examined college students' motivation as a mediator of the relationship between parenting style and academic outcome. The results indicate that both perceived parenting style and motivation types are important as both intrinsic and extrinsic motivation act as partial mediators Stavrulaki, Li and Gupta (2019). Similarly, Masud et al., (2016) conducted a study on the mediating role of self-efficacy theory of motivation with respect to Pakistan. The finding show only authoritative parenting style mediates the relationship between parenting style and academic performance.

Although there is an agreement about the importance of parental involvement in students' academic success (Eccles, 2007), there are still some ambiguities in the literature about the type of parental styles that contribute to school success (Fan & Williams, 2010). Zong, Zhang and Yao (2018) investigated the relationship between children's perception of different dimensions of parental involvement, where parenting style play a key role. Parents' associate with their children at home, involve at school and at the academic socialization, where parenting style is vital predictor towards the achievement in academic success. Different parents' use different parenting styles (Baumrind, 1991) to guide and motivate their children (Trzesniewski, 2018). Based on Baumrind's model of parenting styles, the majority of studies conclude that the authoritative parenting style is the most efficient to enhance academic achievement (Checa and Abundis-Gutierrez, 2018).

#### *h) Academic Causal Factors*

There are factors affecting student motivation and student academic achievement/performance considerably on the basis of establishing effective and efficient learning-teaching process in education systems (Suhag, Larik, Tagar and Solangi, 2016). The studies show many motivational factors (psychological, social and cultural): Intrinsic and extrinsic motivation, parental involvement and styles, peer pressure, self-efficacy expectations, effort, learning strategies, teaching style

and school environment (Brophy 1998; Singh, Granville and Dika, 2002). Researches indicates that teachers' knowledge and skills, motivation level, qualifications, forms of evaluation, teaching style, quality of enthusiasm and enthusiasm can contribute to the motivation of the learners (Yulianti et al., 2020). The more enthusiastic, motivated and qualified teachers are in teaching and evaluating, the greater the capacity to increase learners' motivation to learn (Williams and Williams, 2011). Borich (2011) argues that positive feedback can be a motivating factor in his research, and teacher praise motivates him to imitate what he sees in his students, so getting positive feedback is a confidence building. For this reason, a student will want to praise again when he is praised by a teacher, and he will continue to be more willing to do the same.

Academic causal factors includes learning environment and teaching practices fields where which includes teacher's classroom management skills, teaching methods applied, managing student behaviour, communicating with students, engaging students in learning, school environment has an influence on students' performance. Yilmaz, Sahin, Turgut (2017), revels that these factors considerably affect the student motivation and student performance establishing effective and efficient teaching-learning process in education systems. Mubeen and Reid (2014) argue that there is almost an implication that motivation can be managed by the class teacher and learning environment. Although teachers can influence motivation of a student, but the other factors cannot be managed by the class teacher. Thus, teaching practice as dimension of the academic causal factors, has a significant relationship with student motivation and student performance.

#### i) *Student Motivation, Student Performance and Academic Causal Factors*

One of the most important areas affecting student motivation is the factor of classroom management skills of the teacher Elliot (2017). According to Evertson and Weinstein, (2016) effective classroom management is a practice that enhances the students' independent learning abilities, productivity and achievement, and the most important purpose is to prevent teaching and learning process from being interrupted and to continue in a well-organized teaching and learning environment. Yilmaz, Sahin and Turgut (2017) revealed that significant correlation between academic causal factors and student motivation in the relationship towards student performance and which moderates the relationship. Teachers may serve as social agents, and they can contribute to students' intellectual and socio-emotional experiences by creating a classroom setting that stimulates student motivation and learning. Studies have shown that through the teaching practice, positive teacher-student relationships

can lead to a warm classroom environment that facilitates successful adaptation to school and thereby moderates student motivation to learn (Baker, 2006; Davis, 2006; Koca, 2016). Therefore, it is crucial to understand the effects of the quality of teacher-student interaction on students' motivation to learn.

According to Bayraktar's research (2015), in order to create an effective teaching and learning atmosphere in a classroom, it has been achieved that teacher's effective use of methods, techniques, tools and materials in relevant teaching field has an important effect on student motivation. By using exciting and unique teaching techniques during training, the trainers better adapt the students to the lesson, which enables them to get the motivation for success (Bolkan and Goodboy, 2010). Anna, Davula and Bellamkonda (2016) have proved that the students have a direct positive effect on satisfaction, loyalty and motivation. Hence, learning environment at school and student motivation has been associated with continuous academic achievement. Positive significant relationship appeared between the teacher's teaching experience and performance implied that teachers who have developed greater cognitive abilities tend to generate better learner performance. Mubeen and Reid (2014) argue that there is almost an implication that motivation can be managed by the class teacher and learning environment. Although teachers can influence motivation of a student, but the other factors cannot be managed by the class teacher. Thus, teaching practice as dimension of the academic causal factors, moderates student motivation and student performance.

#### j) *Student Performance*

Performance in school is evaluated in a number of ways. For regular grading, students demonstrate their knowledge by taking written and oral tests, performing presentations, turning in homework and participating in class activities and discussions (Arulmoly and Branavan, 2017). Teachers evaluate in the form of letter or number grades and offer comments to describe how well a student has done or back up the specific grade that was given. Additionally, in a written assignment, the teacher may also offer feedback and guidance on improving the writing. At the state level, students are evaluated by their performance on standardized tests geared toward specific ages and based on a set of achievements students in each age group are expected to meet. It is very important for all stakeholders in the educational system to identify the factors affecting student's academic success. The study revealed that parental factors and student self-studying/motivation as the most influential factors at student level (Damayanthi, 2018). Arulmoly and Elankumaran (2017) examined that parental involvement has a significant relationship with the student motivation towards their children's performance at the school.

#### IV. DEVELOPMENT OF A CONCEPTUAL MODEL

Towards a better performance of a student, parental involvement plays a key role in students learning journey (Zong, Zhang & Yao, 2017, Liu, Sulaimani & Henning, 2020). Ubale, Abdurrahman & Abdullah (2015) found that there's a significant relationship between parental involvement and student motivation. Rodríguez et al. (2017) concluded that parental involvement positively contributes to the motivation of their children. Alyssa et al. (2005) in their findings indicate that there is a beneficial relationship between parental involvement and the motivation. Several studies found that parenting style has statistically significant relationship with the development of children education and their academic performance (Zahedani et al., 2016; Gafoor, K., Kurukkan A., 2014). Akbar, Chisthi & Younes, (2017) stated that the Parental involvement is found statistically significantly contributing towards the outcome variable Student Performance. The study helps us to accept hypothesis that there is a relationship between parental involvement and their children's academic achievement. Amponsah, Milledzi, Ampofo & Gyamrah, (2018) also stated that there is a significant positive relationship between parental involvement and students' academic performance. Furthermore, Hussain, Javaid, Parveen & Iqbal (2018) and Ambachew, Amare, & Geleta (2018)

revealed that there was strong positive and significant relationship between parental involvement and academic performance of students. Sharma s. and Sharma d. (2018) found that there were significant correlations between motivation and academic performance among students. According to Azizoğlu et al. (2015) and Orhan-Özen (2017) motivation has a positive effect on student performance. Nauzeer S. and Jaunky V. (2019) have shown that there are causal relationships between motivation and student academic performance. Yilmaz, Sahin and Turgut (2017) revealed that significant correlation between academic causal factors and student motivation in the relationship towards student performance and which moderates the relationship. Núñez, Regueiro, Suárez, Piñeiro, Rodicio & Valle (2019) study reveals the total mediation of student motivation in the relationship between the parental involvement and student performance. Chen, Kong, Gao & Mo (2018) reveals the mediation of student motivation in the relationship between the parental socioeconomic status and student performance. Hamid, Shakil, Ali, Ahmad (2019) reveals in their study that the total mediation of student motivation in the relationship between the parenting style and student performance.

Based on the review of literature, involvement and style of parents on student motivation towards student performance by considering academic causal factors, the following conceptual framework was developed.

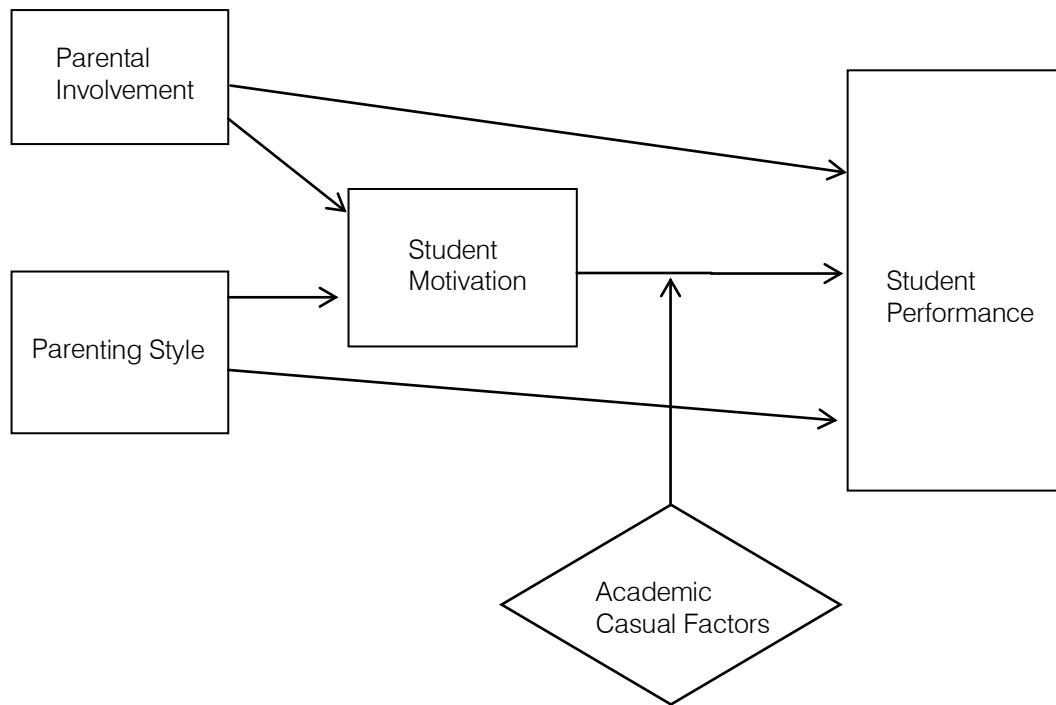


Figure 1: Conceptual Mode

## V. CONCLUSION

Parental involvement is partaking of parents in their children's educational process with an aim of improving their academic and social well-being. Education is a power that influences individuals' lives. Parents' participation in the education process can increase the performance of their children. The more parents engage with their children, the higher scores their children achieve.

Parenting has been one of the main focuses in developmental and educational fields and much theories has been advanced about parents' personal and social factors that better foster children's growth and development. Particularly in adolescence there are several developmental and contextual transformations as well as challenges that affect not only adolescents but also their parents. As per the literature, parental involvement is represented by six dimensions such as parenting, parenting, facilitating learning at home, communicating with the school, volunteering at the school, participating in school decision making and collaborating with the community, are well documented.

Parenting styles are the manner in which parents rear their children. Parents want their children to grow into socially mature individuals. To discover the best way to accomplish this they adopt varying parenting styles. As per the literature, parenting styles have identified as three dimensions, namely; authoritative, authoritarian and permissive. These three dimensions such are well documented in the literature.

Both parental involvement and parenting styles affect student performance as per the literature. Further, it significantly predicts student academic achievement. Parents as the prime educators and the first agents of socialization and exposing children to the social and academic world should play a leading role in supporting their children's education. Lack of parent's attention affects better performance of their children at examinations. If children are motivated by their parents by getting involved in their learning journey, children tend to continue to perform successfully at their educational attainments. Since the motivation deals with the human behavior and cognitive development parents should be involved in the educational development of their children that will eventually enable them to be more productive in the society. Academic causal factors includes learning environment and teaching practices fields where which includes teacher's classroom management skills, teaching methods applied, managing student behavior, communicating with students, engaging students in learning, school environment has an influence on students' performance.

Less research attention has been given to the theoretical blend of parental involvement, parenting style, student motivation, academic causal factors and

students' academic performance in a single research work. Although declining trends in parental involvement student performance as children proceed to high school is questionable because of the inconsistent findings of studies related to this relationship. More research is needed to understand about the student motivation for the purpose of enhancing the parental involvement towards student performance.

Several countries have examined the impact of parental involvement and parenting styles on student performance. Yet, as per the literature, lack of research attention has been given to the theoretical blend of parental involvement and parenting style towards students' academic performance in developing countries. Student performance is viewed as one of the key elements in developing the human capital of a country. Therefore, further research needs to be carried out, especially in developing countries.

A conceptual model was introduced by following the above discussed background. Future researchers can use this conceptual model to investigate the impact of involvement and style of parents on student motivation towards student performance with the moderating effect of Academic Causal Factors.

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT

Volume 21 Issue 1 Version 1.0 Year 2021

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Competencies and Orientation of Entrepreneurs on Dynamic Capabilities towards Organizational Performance by Considering External Environment: Development of a Conceptual Model

By Indika Priyantha Kaluarachchige, Mohd Shukri Ab Yajid, Ali Khatibi  
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**Abstract-** Entrepreneurship is a process of creating a new business to produce and market new, innovative or existing product. Small business is a bridge for entrepreneurs to perform. Even though entrepreneurial competencies and entrepreneurial orientation have been considered separately on small business performance, little research attention has been given to the theoretical mix of entrepreneurial competencies and entrepreneurial orientation in a single research work. Very few studies have been considered dynamic capabilities as a mediator and external environment as a moderator to facilitate the relationships between entrepreneurship and business success.

**Keywords:** entrepreneurial competencies, entrepreneurial orientation, dynamic capabilities, external environment, organizational performance.

**GJMBR-A Classification:** JEL Code: L26



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**Abstract-** Entrepreneurship is a process of creating a new business to produce and market new, innovative or existing product. Small business is a bridge for entrepreneurs to perform. Even though entrepreneurial competencies and entrepreneurial orientation have been considered separately on small business performance, little research attention has been given to the theoretical mix of entrepreneurial competencies and entrepreneurial orientation in a single research work. Very few studies have been considered dynamic capabilities as a mediator and external environment as a moderator to facilitate the relationships between entrepreneurship and business success.

Each person has unique entrepreneurial competencies and entrepreneurial orientation. Entrepreneurial competencies are known as distinct assembly of competencies that are associated with the exercise of effective entrepreneurship. Strategic, opportunity, relationship, commitment, conceptual and organizing competencies are well documented in literature as main entrepreneurial competencies. Entrepreneurial orientation is one of the most regularly applied organizational constructs in entrepreneurship research. The dimensions of entrepreneurial orientation such as innovativeness, risk-taking, pro-activeness are well documented in literature. The success of entrepreneurship depends upon the entrepreneurial competencies of entrepreneurs. Thus, entrepreneurial competencies are significant contributor to entrepreneur business success. Besides, the entrepreneurial orientation positively relates to the firm performance. Therefore, entrepreneurial orientation also contributes positively to the performance.

Small businesses are essential to adopt the approach of dynamic capabilities. Sensing capability, seizing capability and reconfiguration capability are main dimensions of dynamic capabilities. Those are crucial to enhance the business performance. Dynamic capabilities mediate the relationship between entrepreneurial competencies and small firm performance. Besides, it plays a mediating role on the relationship between entrepreneurial orientation and small firm performance as well. Business performance can differ significantly with changing external environment. PESTEL analysis works best to examine the environment. Business environment significantly moderates the relationship between entrepreneurial competencies and business success. Besides, external environment plays a moderating role to the

relationship between entrepreneurial orientation and performance as well. Entrepreneur performance can be explained by using two main dimensions such as financial and strategic factors.

As per the literature, there is a significant effect of entrepreneurial competencies and entrepreneurial orientation on organizational performance. Dynamic capabilities significantly mediate this relationships and external environment significantly moderates the relationships. Based on this background, a Conceptual Model was introduced. Future researchers can use this conceptual model to investigate the impact of competencies and orientation of entrepreneurs on dynamic capabilities towards organizational performance by considering external environment in small business in deferent contexts.

**Keywords:** entrepreneurial competencies, entrepreneurial orientation, dynamic capabilities, external environment, organizational performance.

## I. INTRODUCTION

Entrepreneurship is the process of creating new product or services through the creation of new company or innovation of an existing organizational product (Sajeena, 2020). Small businesses are regarded as the platform for entrepreneurs (Heinicke, 2018). The majority of countries in the world rely heavily on the performance of these firms to boost and growth of their economy (Hallam et al., 2017). Entrepreneurial activities are so important that they can foster the growth-oriented performance of these firms (Sok et al., 2017). An entrepreneur is a person who develops and grows the enterprise over innovative and creative actions, through the introduction of new products or services and through the improvement of existing production or service methods (Tehseen and Ramayah, 2015). Each person has exclusive entrepreneurial orientation and entrepreneurial competencies which are hard to be followed by competitors due to the ambiguity of their origins and embeddedness (Tehseen and Ramayah, 2015). Entrepreneur competencies are recognized as a distinct group of competencies that are related to the



exercise of effective entrepreneurship. (Carayannopoulos, 2017). Besides, entrepreneurial orientation is characterized by the opportunity to pursue the firm's behavior through innovation, proactiveness and risk taking (Dada and Fogg, 2016; De Clercq et al., 2015; Reijonen et al., 2015).

Small businesses are needed to adopt the dynamic capabilities approach (Hashim, Raza and Minai, 2018). Dynamic capabilities provide an integrative mechanism for organizations to integrate, build and reconfigure internal as well as external competencies to cope with rapidly changing environments (Lagat & Frankwick, 2017; Wang et al., 2015). External environment is also important for small businesses. Small firms' business performance can vary significantly with changing external environment (Khan et al., 2019). Relationship between Entrepreneurship and business performance is dependent on supportive external environmental factors. Business organizations will benefit more for undertaking entrepreneurial activities if the environment is dynamic and competitive (Otache and Mahmood, 2015).

## II. PROBLEM STATEMENT

Little research attention has been given to the theoretical blend of entrepreneurial competencies and orientation in a single research work in existing scientific investigations (Ibidunni et al., 2018). Hashim, Raza and Minai (2018) stated that the relationship between entrepreneurial competencies and performance of small business is questionable due to the incompatible results of studies connected to this relationship. Mitchelmore & Rowley (2013) stated that there is a basis for further investigation into entrepreneurial competencies that affect performance of small businesses. Studying the empirical relationship between entrepreneurial competencies, dynamic capability and performance of small business can be seen as a stepping-stone towards a new path in determining this vital link for future researchers (Hashim, Raza & Minai, 2018). As stated by Parida et al. (2016), additional research is required to realize the dynamic capabilities for the purpose of improving the existing body of knowledge. Very little studies have been considered the external environment as a moderator to assist the relationships between entrepreneurial competencies and business success (Ahmad, 2007; Ahmad & Seet, 2009). Khan, et al. (2019) recommended to integrate the external environmental factors into future research. Furthermore, there is a knowledge base gap related to entrepreneurial competencies of entrepreneurs (Yusuff et al., 2016). Hence, there is a necessity for research to explore more on the relationship between entrepreneurial competencies and entrepreneurial performance (Hashim, Raza & Minai, 2018). The performance of small businesses ensures the economic soundness

particularly in developing countries where entrepreneurship research is scarce (Coder et al., 2017; Hyder & Lussier, 2016). For this reason, there is an urgent need for conducting research in small businesses in the field of entrepreneurship (Hashim, Raza and Minai, 2018). Similar studies should be replicated to validate the findings and similar studies should be conducted possibly in developing countries (Ibrahim & Abu, 2020).

## III. LITERATURE REVIEW

### a) *Entrepreneurial competencies*

Entrepreneurial competencies are the strategically important resources of businesses, and many valuable benefits can be derived from these valuable competencies (Omar et al., 2016; Tehseen & Ramayah, 2015). The success of entrepreneurship depends upon the entrepreneurial competencies of entrepreneurs (Sajeena, 2020). According to Bacigalupo et al. (2016), entrepreneurial competencies denote the ability to turn ideas and opportunities into action by assembling resources.

Entrepreneurial competencies constructs are represented by strategic, conceptual, opportunity, relationship and technical categories (Man et al., 2002). Ahmad (2007) identified twelve competencies i.e., strategy, commitment, opportunities, knowledge, organizing, decision making, relationships, learning, personal, technical, risk taking, and social responsibility. Man (2001) identified ten groups of competencies: opportunity, relationship, analytical, conceptual/innovative, organizing, operational, human, strategic, commitment, learning and personal strength. Ahmad (2007) added four other areas of competency: technical, ethical, social responsibility and familism to ten clusters identified by Man (2001). The conceptual competencies stated by Man (2001) were separated into analytical competency and innovative competency, and after that stated as a one competency cluster by Ahmad (2007).

According to Man, Lau and Chan (2008); Noor, Hasliza and Siti, (2010); Aruni, Akira and Hironori (2014) there are six significant areas of entrepreneurial competencies; they include strategic, commitment, organizing, relationship, conceptual, opportunity competencies. So far, researchers have investigated different kinds of entrepreneurial competencies, namely, conceptual competency, strategic competency, opportunity competency, learning competency, personal competency, networking competency and ethical competency (Man et al., 2002; Osagie et al., 2016; Yusuff et al., 2016; Stephen et al., 2017; Nakhata, 2018; Quagrainie, 2018; Suhaimi et al., 2018).

### b) *Entrepreneurial Orientation*

Entrepreneurial orientation is one of the most frequently applied firm-level constructs in entrepreneurship research (Anderson et al., 2015).

Entrepreneurial orientation is a key factor which is one integrating, building and reconfiguring the external and internal competencies to deal with rapidly changing environments among the small and medium firms (Darwis, 2017).

Entrepreneurial orientation is known as a strategic posture of the organization that exhibits innovative attitude, proactive and risk-takers (Wales, 2016). It characterizes the opportunity seeking behavior of the firm distinguished by innovativeness, proactiveness and risk-taking (Dada and Fogg, 2016; De Clercq et al., 2015; Reijonen, et al., 2015). Besides, Haider et al. (2017) point out that entrepreneurial orientation is represented by three dimensions. These are innovativeness, proactiveness and risk taking. The dimensions of entrepreneurial orientation such as innovativeness, risk-taking, proactiveness, autonomy and competitive aggressiveness are well documented in literature (Nwachukwu, Chladkova and Zufan, 2017). In the same way, adopting entrepreneurial orientation as a means of a strategic approach through which business managers can act as more proactive, creative and risk-taker that would certainly differentiate them from the market rivals (Hossain & Asheq, 2019).

Entrepreneurial orientation can be considered as a prominent concept in the literature (Wales, 2016; Zahra, Wright and Abdelgawad, 2014). It has received considerable attention in the literature as many studies from various countries have sought to make conceptual and empirical progress in this area (Gupta and Batra, 2015). Covin and Miller (2014) also stated that entrepreneurial orientation has become one of the most frequently mentioned topics which have been investigated by scholars and practitioners.

### c) *Entrepreneurial Competencies and Performance*

Entrepreneurial competencies have been viewed as essential for entrepreneurs to perform successfully and transform businesses (Mohsin et al., 2017). Omar et al. (2016); Tehseen & Ramayah (2015) claim that the success of any firm depends on several important resources that make entrepreneurial competencies more critical and intangible. These competencies are perceived as the capability to complete a task using the resources that enhance enterprise performance (Al-Mamun et al., 2016). Entrepreneurial competencies were valuable and intangible ability for firms to accomplish exceptional performance (Al-Mamun et al., 2016; Tehseen and Ramayah, 2015).

Grimmer et al. (2017) stated that the performance of a small business is influenced by several strategic factors, but the most important thing is entrepreneurial competencies. According to Peric et al. (2017) entrepreneurial competencies can enhance business success. Effective entrepreneurs develop their businesses through competencies of them.

Entrepreneurial competencies are associated with the growing and sustainability of firms (Sajilan et al., 2016; Sajilan and Tehseen, 2015; Owusu-Acheampong, 2014).

In entrepreneurial endeavours, competencies reflect in the extent to which entrepreneurs are willing to take risks so as to enable the enterprise succeeds (Oyeku et al., 2014). Rahman et al., (2015) stated that entrepreneurial competencies are significant contributors to entrepreneur business success. Entrepreneurship competencies play a key role in the survival and expansion of enterprises (Khan et al., 2018). On the other side, inadequate entrepreneurial competencies in SMEs could constitute a major problem and barrier toward achieving a better performance in SMEs (Pulka, Ramli & Mohamad, 2018).

In general, the results of conceptual studies on entrepreneurial competencies and organizational performance literature show a significant positive correlation (Yusuff et al., 2016; Tehseen and Ramayah, 2015). Many studies have argued that a lack of entrepreneurial competencies impedes success of SMEs (Tehseen and Ramayah, 2015). Entrepreneurial competencies are very critical for the firms' success. Previous studies on the association between entrepreneurial competencies and firm performance propose a positive linkage (Nwachukwu, Chladkova and Zufan, 2017). A review of relevant entrepreneurial competency literature has identified that the most of empirical studies that consider entrepreneurial competencies as a holistic approach have confirmed its significant effect on performance of firms (Kabir et al., 2017). To be a successful entrepreneur, development of entrepreneurial competencies is important as they are central to the success of small and medium size organization (Sajeena, 2020).

### d) *Entrepreneurial Orientation and Performance*

A number of studies have been conducted on the relationship between entrepreneurial orientation and organizational performance (Jia et al., 2014). Most scholars have found a positive impact of entrepreneurial orientation on firm performance (Covin & Miller, 2014; Lomberg et al., 2016). Similarly, Lisboa, Skarmeas, and Saridakis, (2016), pointed out that most prior research on entrepreneurial orientation aggregates its features into a gestalt construct to investigate its influence on firm performance. Recently, Ahmad, et al., (2019) stated that previous scholarly studies have concluded the entrepreneurial orientation positively relate to firm performance.

Radulovich et al. (2018) explored that entrepreneurial orientation directly influences the performance of SMEs. Entrepreneurial orientation often related to organizational performance (Musthofa et al., 2017). Similarly, Tingko and Wenyi, (2017) also found in their study that entrepreneurial orientation has a significantly positive influence on performance.

Matchaba-Hove et al. (2015) found that a direct association between entrepreneurial orientation and firm performance. The significance of entrepreneurial orientation in achieving performance of SMEs is extensively acknowledged in the literature (Brouthers, Nakos & Dimitratos, 2015; Covin & Miller, 2014; Gupta & Batra, 2015). In the same way, the findings facilitated entrepreneurial orientation construct empirically, related to business performance of SMEs (Haider Asad and Fatima, 2017). Entrepreneurial orientation has an overall positive effect on firm performance (Gupta and Batra, 2015). According to recent research, entrepreneurial orientation contributes positively to the performance (Alalawi, 2020). Similarly, entrepreneurial orientation affects small and medium scale business performance (Igweh & Stephen, 2019). Furthermore, positive relationship exists between the overall entrepreneurial orientation and the performance of small business (Oni, Agbobli and Iwu, 2019). The entrepreneurial orientation is a predecessor of small firm's business performance (Khan et al., 2019). There is a significant influence between entrepreneurial orientation and performance capabilities (Sulistyo & Ayuni, 2020).

e) *Dynamic Capabilities*

Dynamic capabilities are the integrated mechanism by which organizations can integrate, build and reconfigure internal and external competencies (resources) to be adopted in the rapidly changing environment to achieve better performance compared to competitors (Lagat & Frankwick, 2017; Wang et al., 2015). For the inclusion of dynamic capabilities, it is proposed that dynamic capabilities are deliberated as the higher level capabilities (Dangol & Kos, 2014). Small businesses generally thrive in highly competitive, volatile and unpredictable markets. In addition, it is imperative that small business adopt the dynamic capability approach since small business cannot make any influence or control over the markets to grab the economic shocks (Hashim, Raza and Minai, 2018). According to Khan et al. (2019), dynamic capabilities involve adaptation and change, because these capabilities can be regarded as a transformer for converting resources into improved performance while creating competitive advantage. As such, having resources is not sufficient for superior performance, businesses must have dynamic capabilities to combine, grow and exploit these resources (Ferreira & Fernandes, 2017). According to Tutueanu & Serban, (2013), there is an influence of dynamic capabilities in the entrepreneurial enterprises. This makes it possible to transform resources into competitiveness (Lin & Wu, 2014).

SMEs should be able to reformulate capabilities in order to become more objective and effective, becoming more dynamic (Dias, et al., 2020). Business owners must have agility in facing market dynamics and

respond as soon as possible so that they become always the first movers. Without the ability of rapid innovation, it is very difficult for SMEs to gain business performance and competitive advantage (Sulistyo & Ayuni, 2020).

f) *Entrepreneurial Competencies, Dynamic Capabilities and Performance*

The literature shows that dynamic capabilities can serve as a relation between resources and firm performance (Hashim, Raza and Minai, 2018). The small firm performance can be determined by variety of strategic factors, but entrepreneurial competencies are highly significant (Grimmer et al., 2017) and the dynamic capabilities that are essential to enhance the business performance (Agyapong & Acquaah, 2016; Wang et al., 2015). Since the entrepreneurial competencies as the contributing factor to business performance, another significant factor for dynamic capabilities needs to be explored as it is also vital in predicting firm performance (Rice et al., 2015; Wang et al., 2015).

Entrepreneurial competencies need to be exhibited with dynamic capabilities. Although firm resources can be used as an originator of dynamic capabilities and this path association can also lead to firm performance (Aminu & Mahmood, 2015). In line with the above argument, Wang et al. (2015); Eriksson (2014) recommended that individual competencies determine, guide and support the firm's dynamic capabilities and further dynamic capabilities are essential for the performance of businesses. Consequently, to improve the performance of small businesses, entrepreneurial competencies and dynamic capabilities are considered as forward-looking solutions. Moreover, the economic fluctuations with the volatile and unpredictable markets, the dynamic capabilities are seen as a necessary factor in influencing the small businesses performance (Hashim, Raza and Minai, 2018). They suggested a conceptual framework for examining the performance of small firms that are influenced by entrepreneurial competencies and mediated by dynamic competencies. Due to Lin & Wu (2014), dynamic capabilities can be considered as a linkage between firm resources and firm performance. The link signifies the mediating effect of the dynamic capabilities. The research study by Hashim, Raza and Minai (2018) also attested the mediating part of dynamic capabilities to improve the business performance. Accordingly, it demonstrates the significance of dynamic capabilities in mediating the relationship between entrepreneurial competencies and small business performance. Nasuredin et al. (2016) conducted a research on the mediating role of dynamic capabilities in the association between entrepreneurial competencies and performance of SMEs. The results show that dynamic capabilities are one of the key analysts for improving the connection between entrepreneurial competencies and SME performance.

However, according to Hashim, Raza & Minai, (2018), there is a platform for doing a study to investigate the dynamic capabilities as the missing link in the association between entrepreneurial competencies and performance of small business.

*g) Entrepreneurial Orientation, Dynamic Capabilities and Performance*

Implementation of entrepreneurial orientation and dynamic capabilities is critical for firm survival in a competitive environment (Kim, 2019). Dynamic capabilities and entrepreneurial orientation directly impact on performance (Monteiro, Soares & Rua, 2019). Both Entrepreneurial orientation and dynamic capabilities enhance the performance in dynamic markets (Kim, 2019). Similarly, entrepreneurial orientation and dynamic capabilities are very important to SMEs survival (Hongyun et al., 2019). Entrepreneurial orientation and dynamic capabilities investigate their interaction effects on firm performance. Interaction effects of Entrepreneurial orientation and dynamic capabilities on firm performance demonstrate a positive relationship (Kim, 2019). Entrepreneurial orientation and dynamic capabilities positively affect (directly and indirectly) on performance (Monteiro, Soares and Rua, 2017).

Monteiro, Soares and Rua (2017), confirmed the mediating effect of dynamic capabilities on performance. They proposed and tested a model in which entrepreneurial orientation has a positive direct or indirect influence on organizational resources and enhances the development of dynamic capabilities, which mediate the effect of entrepreneurial orientation on performance. However, despite many studies regarding this title the contribution of dynamic capabilities to competitive advantage and firm performance remains unclear (Pezeshkan et al., 2016).

*h) External Environment (Business Environment)*

The SME's competitiveness depends on the environment. The external environment which is complex and unstable, is influencing the small and medium sized business competitiveness (Nicolae and Diana, 2019). Business organizations will benefit more from entrepreneurial activities if there is a dynamic and competitive environment (Otache and Mahmood, 2015). The ability to analyze the environment and its decisions is strengthening the courage to take risks (Sulistyo & Ayuni, 2020).

External environment affects both entrepreneurship and business performance (Otache and Mahmood, 2015). Existing literature (Gathungu, Aiko & Machuki, 2014) claims that rapid changes within the external environment enhance uncertainty and decrease the capability of firms to anticipate the changes. Managers have to be well-skilled and competent in determining the influence of environmental challenges to their organization (Kara, 2018). Small

firms' business performance can vary significantly with changing external environmental circumstances. Therefore, it recommends integrating external environmental factors into future research (Khan, et al., 2019).

According to Sammut-Bonnici, Galea and Cooper (2015), PEST analysis works best when it studies the environmental factors from the perspective of the firm's resources, capabilities and core competencies. External environment is sometimes analysed in the literature as PESTEL, where the environment and legal factors as independent. It also takes other variant forms such as SLEPT, which adds legal elements, STEEPLE and STEEPLED, which add ethics and demographic factors, DESTEP, which adds demographic and ecological factors, PEST-GD, which adds demographic and global factors (Nandonde, 2019; Saracoglu et al., 2018; Song, Sun & Jin, 2017; Zikos, Zaires & Karadimas, 2017).

*i) Entrepreneurial Competencies, Performance and External Environment*

Entrepreneurial competency is proven to be positively and significantly influenced business success. Meanwhile, perceived business environment is extremely subjective, yet it is important and influential (Permana and Apriyanto, 2015). The competencies allow an entrepreneur to well align with external business environment to achieve business growth in the long run (Aquilani et al., 2017; Goldman and Scott, 2016; Hu et al., 2016; Sandada, 2015; Tafti et al., 2017). According to Sajilan and Tehseen (2015), in a competitive and rapidly changing business environment, SMEs need entrepreneurial competencies to succeed. The results indicated that entrepreneurs who possessed a higher level of the measured competencies performed better than entrepreneurs with a lower level of these competencies in situations where the environment was perceived as being hostile and dynamic (Ahmad, Ramayah, Wilson & Kummerow, 2010). In other words, entrepreneurs with strong entrepreneurial competencies appear to be in a better position than their less competent counterparts to face a turbulent and uncertain business environment (Ahmad, Ramayah, Wilson & Kummerow, 2010). There is an inconsistency in views of scholars, some of whom emphasize that the influence of internal factors on the success of a business (Smigelska, 2016), while others support the external environment for business success (Mole, North & Baldock, 2017).

The existing literature has also exposed the vital role of the business environment as a moderator to expand the association between entrepreneurial competencies and firm success in various contexts (Sajilan and Tehseen, 2015). Ahmad, Ramayah, Wilson & Kummerow (2010) found that business environment significantly moderated the relationship between

entrepreneurial competencies and business success. The role of environmental turbulence will be revealed as moderating variables between the entrepreneurial competencies and SMEs business success (Khan et al., 2018).

Sajilan and Tehseen, (2015) explained that the empirical testing of their suggested model would provide a valuable insight about the significance of environmental turbulence as a moderator to enable the link between entrepreneurial competencies and businesses performance of SMEs. Ahmad et al (2010) and Tehseen (2017) also examined the relationship between entrepreneurial competencies and business performance by using external business environment as a moderator. Likewise, Sajilan and Tehseen (2015) explored a strong relationship between entrepreneurial competencies and venture success with the moderating effect of the turbulent environment.\

External integration moderates the effect of entrepreneurial competencies on the performance of enterprises (Tehseen and Ramayah, 2015). Ha, Lo and Ramayah (2016) explored a negative moderating effect of environmental turbulence. Entrepreneurs in SMEs may have the ability to minimize the negative impact of a turbulent and hostile environment on business success via the display of appropriate competencies (Ahmad, Ramayah, Wilson and Kummerow, 2010). It suggests that future empirical studies need be conducted to investigate the effect of external integration as a moderator between entrepreneurial competencies and firm performance (Tehseen, Ramayah, 2015).

j) *Entrepreneurial Orientation, Performance and External Environment*

Recent studies have analyzed the influence of external environment on the relationship between entrepreneurial orientation and firm performance. These studies revealed that the external environment plays a both direct and indirect role in this linkage. Moreover, the studies proposed further to explore on the indirect influence of the environment on the performance (Okeyo, Gathungu & Kobonyo, 2014).

External environment significantly moderates the relationship between entrepreneurial orientation and performance (Okeyo, Gathungu and K'Obonyo, 2016). This finding contributes in literature (Goll & Rasheed, 2004; Okeyo, Gathungu & Kobonyo, 2014) which report that external environment tends to moderate the firm performance. Similarly, competitive environment moderated the association between entrepreneurial orientation and innovation performance of SMEs (Musawa and Ahmad, 2019). In this study, the role of competitive environment and entrepreneurial orientation on innovation performance was investigated. The results indicated that competitive environment has a full moderating role between entrepreneurial orientation and innovation performance.

However, Shehu and Mahmood (2015) stated that it is not supported the moderating effect of the business environment on the association between entrepreneurial orientation and enterprise performance. Milovanovic and Wittine (2014) also revealed that the external environment does not affect the relationship. This result is consistent with earlier research by Aziz and Yasin (2010), the external environment is not a moderator for the association between entrepreneurial orientation and business performance. Similarly, Abd Aziz & Mahmood (2010) investigated the influence of external environment on entrepreneurial orientation and performance linkage with the dimension of external environment. The study's findings showed that dimensions of external environmental were not important as a moderator on the connection between entrepreneurial orientation and business performance

Previous studies have observed the moderating effect of external business environment on the firm performance. The findings vary and showing a lack of convergence (Okeyo, Gathungu and K'Obonyo, 2016). In the literature, there are many studies have investigated the relationship between entrepreneurial orientation and performance, but the research area examining the moderating effect of environment on the relationship between entrepreneurial orientation and performance is nearly empty and has not been studied deeply (Musawa and Ahmad, 2019).

Entrepreneurial competencies help to sustain internal operations of the firm. However, external environmental challenges are also required with internal operations for firms' managers to adopt the appropriate entrepreneurial orientation. The mix of entrepreneurial competencies and orientation is strategic to the firm's performance (Ibidunni et al., 2018).

#### IV. DEVELOPMENT OF A CONCEPTUAL MODEL

To be a successful entrepreneur, development of entrepreneurial competencies is important as they are central to the success of small and medium size organization (Sajeena, 2020). Moreover, entrepreneurial orientation also contributes positively to the performance (Alalawi, 2020). It is important for small businesses to pursue the approach of dynamic capability. There is a statistically significant influence of dynamic capabilities on organizational performance (Al-Qahtani, 2020). The intervening part of dynamic capabilities will enhance the firm performance. The importance of dynamic capabilities is to mediate the relationship between entrepreneurial competencies and small firm performance (Hashim, Raza & Minai, 2018). And, a high level of dynamic capabilities mediates between a high level of entrepreneurial orientation and firm performance (Pukkinen, 2018). Business environment is also important for small businesses. Small firms' business performance can vary significantly with changing

external environment (Khan, et al., 2019). Ahmad, Ramayah, Wilson & Kummerow (2010) found that business environment significantly moderates the relationship between entrepreneurial competencies and business success. As per the Okeyo, Gathungu and K'Obonyo (2016), external environment plays a moderating role to the relationship between entrepreneurial orientation and performance.

Based on the review of literature on competencies and orientation of entrepreneurs on dynamic capabilities towards entrepreneur performance by considering external environment, following conceptual framework was developed.

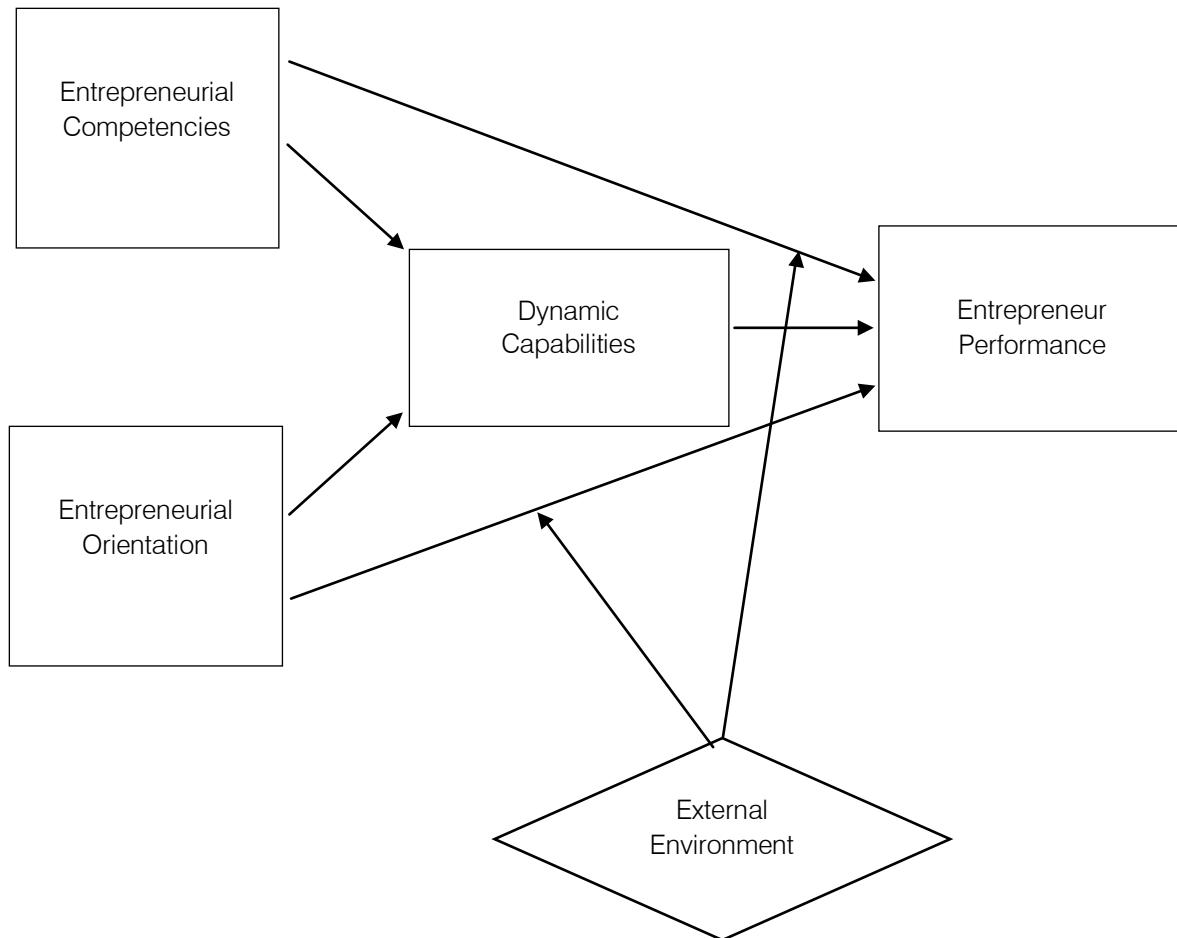


Figure 1: Conceptual Model

#### a) Extended Conceptual Model

According to above conceptual model, entrepreneurial competencies and entrepreneurial orientation are two independent variables and entrepreneur performance is the dependent variable. Dynamic capability is the mediating variable and moderating variable is external environment.

As per the literature, strategic competency, opportunity competency, relationship competency, commitment competency, conceptual competency and organizing competency are main dimension of entrepreneurial competency. Innovativeness, pro-activeness and risk taking are main dimensions of entrepreneurial orientation. External environment can be

explained by using PESTEL model and political, economic, social-cultural, technological, environmental and legal are the main dimensions of the external environment. Sensing capability, seizing capability and reconfiguration capability are main dimensions of dynamic capabilities. Entrepreneur performance can be explained by using two main dimensions such as financial and strategic factors. Basic financial factors are profitability, growth and market value etc. and basic strategic factors are customer satisfaction, employee satisfaction, social performance and environmental performance etc. based on this background, following Extended Conceptual Model was introduced.

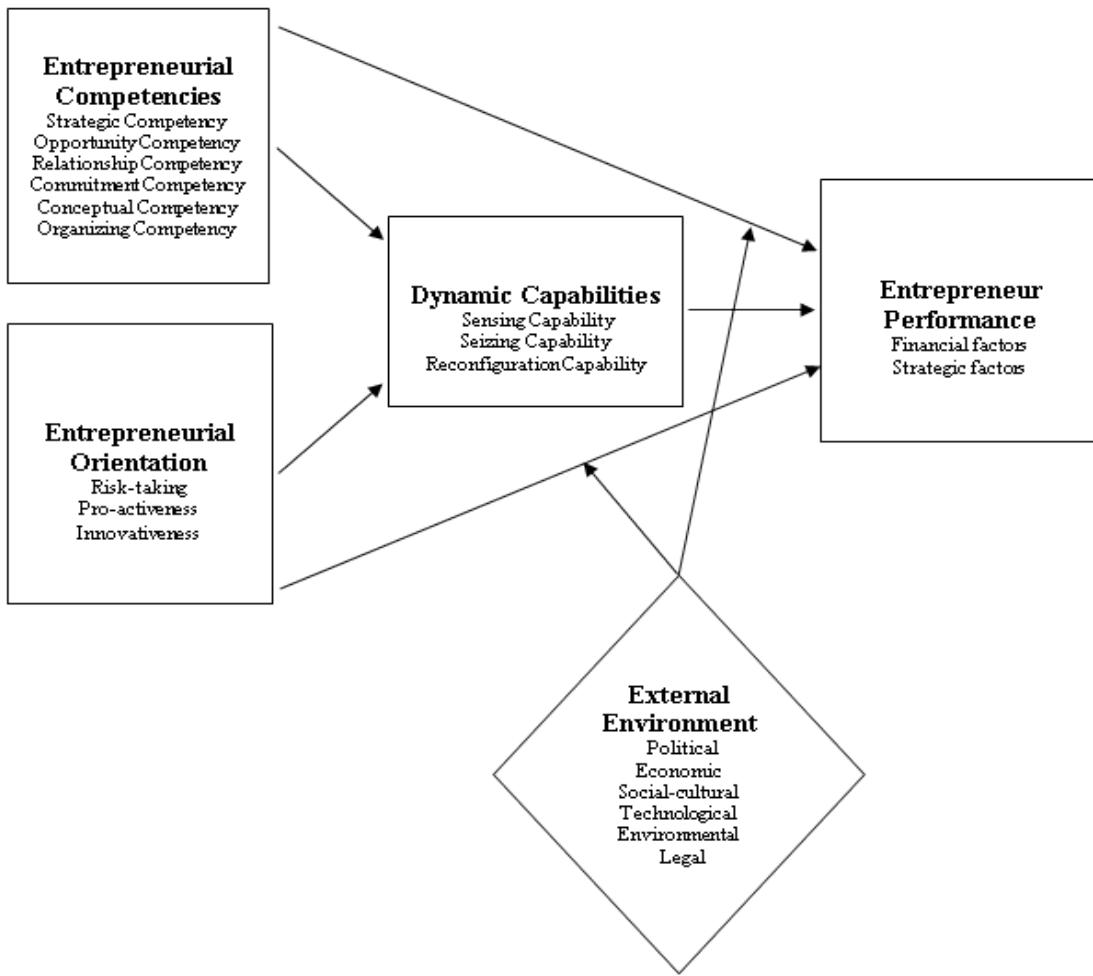


Figure 2: Extended Conceptual Model

## V. CONCLUSION

There is a rapid expanding of entrepreneurship worldwide. Small businesses are viewed as a platform for entrepreneurs. Although the entrepreneurial competencies and entrepreneurial orientation have been considered separately towards small business performance, little research has been focused the theoretical merge of entrepreneurial competencies and orientation in a single research work in existing scientific studies. Very few studies have been considered the dynamic capabilities as a mediator and external environment as a moderator to investigate the relationship between entrepreneurship and business success.

Entrepreneurial competencies enable the execution of ideas and opportunities by gathering relevant resources. Strategic, opportunity, relationship, commitment, conceptual and organizing competencies are well documented in the literature as main entrepreneurial competencies. Entrepreneurial orientation is regarded as the opportunity to track the organizational behaviour through innovation, pro-

activeness and risk-taking. Entrepreneurial competencies are vital for entrepreneurs to perform effectively. Development of entrepreneurial competencies is critical to be a successful entrepreneur as they effect to the performance of small enterprises. Besides, lack of entrepreneurial orientation in small businesses can be a big challenge to achieving better performance. Thus, entrepreneurial orientation is a predictor of small firm's business performance.

Small businesses are necessary to adopt the dynamic capabilities approach. Sensing capability, seizing capability and reconfiguration capability are main dimensions of dynamic capabilities. They are important to enhance the business performance. Significance of dynamic capabilities mediates the relationship between entrepreneurial competencies and small business performance. Dynamic capabilities mediate the entrepreneurial orientation towards firm performance relationship as well. If the environment is dynamic, business firms can get more benefits from entrepreneurial activities. The business environment is important for small businesses and the competitiveness of small businesses depends on the environment.

PESTEL analysis works best to investigate the environmental factors such as political, economic, social-cultural, technological, environmental and legal as main dimensions in the external environment. Business environment significantly moderates the relationship between entrepreneurial competencies and business success. External environment has a moderating role between entrepreneurial orientation and performance as well. Entrepreneur performance can be explained by using two main dimensions such as financial and strategic factors. Basic financial factors are profitability, growth and market value etc. and basic strategic factors are customer satisfaction, employee satisfaction, social performance and environmental performance etc.

Based on this background, a conceptual model was introduced. Future researchers can use this conceptual model to investigate the impact of competencies and orientation of entrepreneurs on dynamic capabilities towards entrepreneur performance in small business by considering external environment in deferent contexts.

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT  
Volume 21 Issue 1 Version 1.0 Year 2021  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Business Analysts' Education Needs and its Impact on their Employment Opportunities

By Hulugalle C. B, Seneviratne H. S, Galaboda G. G. D. C.  
& G. G. C. M. K. Abeyratne

**Abstract-** Business analytics is a highly trending job role in modern world and demand is creating for quality business analysts day by day. Sri Lanka is developing country which is creating valuable job opportunities in the corporate business environment. Graduates and undergraduates are seeking demanding job roles such as business analysts and they are willing to acquire the education needs which demanded for those job roles.

In Sri Lanka many universities and institutions provide business analytic related modules to their undergraduates. But the problem is whether actually the modules they provided and knowledge they have given are sufficient for their students to be successful in business domain. Because of this problem, this study has been conducted and it is about exploring the education needs testing how those education needs make impact to employment opportunity of a business analyst.

**Keywords:** business analyst, sri lanka, graduates and undergraduates.

**GJMBR-A Classification:** JEL Code: M10



*Strictly as per the compliance and regulations of:*



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According to the literature it has identified ten common variables which might impact on employment opportunities of business analysts. And using results of the respondents it has concluded that only problem-solving ability, domain knowledge and analytical skill have impacted on getting analytics jobs for business analysts. According to the industry specialists' opinion, they have given an overall opinion on which factors impact mostly. Some of the responses from two parties were match and some were not. According final results it shows that there are common factors which may impact and some critical factors such domain knowledge and analytical skill important to get into business analytics job.

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## I. INTRODUCTION

Today there is a rapid development in the world almost all of the areas including businesses field.

So, the competition between the companies in the business world getting increased as the technological development. Not only keeping touch on the latest technological updates it is also important businesses to have good data analysis in order to predict future trends. So, business analytics in companies now have become very urgent field in developed countries including U.S.A, Australia and UK (Anon., 2020). But in developing countries like Sri Lanka it is now becoming a trending job. Requirement for business analytics and demand for business analysts will surely increase in Sri Lanka within next couple of years.

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Sri Lankan universities now trying to provide business analytics related degrees to their undergraduates after considering this industry expectations. Students who are studying in business administration, information technology or related degree programs are looking forward to find jobs related to their specialization. But issue is that students who are studying from this field do not find specific career paths like students in medicine, law or teaching. The study areas are wide ranged and career opportunities are not defined in specific way. For professions such as business analyst, industry expectations may different from organization wise, society or some other related aspects. Graduates or undergraduates from different degree programs may have the chance to enter the field or there might be chance for those who are not graduated but highly experienced in cooperate.

## II. LITERATURE

### a) Role of business analysts

The business analyst's role is very difficult to define but a business analyst can mention as a person who is working with an organization that helps to solve problems by using different skills as well as business analysis techniques. Using business analysts' wide knowledge and skills they need to cover three areas. Business, interpersonal and professional are those areas. It has also found that business analysts can make a huge impact on information system growth of organizations (Paul & Tan, 2015).

(Robert Half, 2020) Has stated that a business analyst should carry out certain works including identifying and implementing business solutions that help to achieve business goals, forecasting and budgeting financial performances using resources available that will help to decrease the chances of financial crisis in future. Furthermore there are some other responsibilities on the hand of business analysts. Financial modeling, reporting and defining business requirement, pricing, planning and monitoring various analysis and reporting business analyzations to stakeholders also in business analysts' job profile.

### b) Education needs of business analyst

Educational needs a business analyst should have identified by a study and it has described about the skills that business analyst should have to

successful in their careers as well as to find relevant career related to their studies. It says a business analyst should have skills like fundamental, analysis as well as technical skills. Where the fundamental skills have divided in to problem solving, communication, management and research skills. Technical skills like knowledge of IT skills and domain knowledge. Business analysis skills such as requirement elicitation, documentation, decision making and analytical skills (Anon., 2019).

*c) Problem solving skills*

Problem solving skills helps to find out why the issue is happening and how to solve the problem. If a person having good problem-solving skills, then he/she able to solve a problem quickly and effectively. Problem solving skill is a soft skill and in the process of problem solving there are five steps. They are analysing causes, generating alternative interventions for the problem, evaluation of best solution, implementation of the plan and finally assess the effectiveness. If a person good at going through this process he/she is having good problem solving skills and nowadays it has been proven it is the one of important skill that employers seek from candidates when hiring for jobs (Doyle, 2020).

*d) Communication skills*

According to (Hubble, 2018) business analysts are constantly communicating. Good communication of business analysts will help to keep touch with stakeholders and according to him verbal, non-verbal communication as well as writing skills also important for a business analyst. So according to this statements business analytical students that who are going to work in the industry tomorrow should develop their communication skills when they were in universities because according to literature given communication skills are one of most consequential skills for them to find relevant business analysis job in future.

*e) Analytical skills*

Analytical skill is some person's ability of identifying and solving unstructured problems and giving judgments based on unfocused facts. Analytical skills should also be developed throughout the students staying at university and it is a foundation for other skills as well (Banderlape, et al., 2006). (Alison Doyle, 2020) describe include ability of detecting patterns, data interpretation, and brainstorming, theorizing and giving decisions based on options available. Analytical skills can be divided in to several sections. They are communication, critical thinking, creativity, and research and data analysis. If a person is excellent in above mentioned sections, he/she has good analytical skills.

According to (Wilder & Ozgur, 2019) both business analytics and business intelligence both needs set of skills and software and in the process of business analytics and business intelligence there should be

gathering and transformations of raw data in to actions that gives insights. According to him the responsibility of preparing students for business environment by developing business analytics and business intelligence is in the hand of business schools. There are three main business analytics jobs and they are data scientist, business analyst and business users. If we consider about business analyst specially, a business analyst should have the ability of data management and knowledge of statistics. However, a business analyst should not need to have a high knowledge in mathematics but he/she should have considerable computer knowledge as well as mathematical and statistical knowledge that will help to analyze data and help to make decisions.

*f) Research skills*

According to (Anon., 2020) research skills are the ability of searching, collecting, analysing, evaluating and interpreting information that are available for studying a subject. Research skills can be gained by using tools such as internet, interviews, books, surveys, books, studies, experiment and articles. Research skills are a "must" because nowadays when recruiting employees for a job because many companies related to business field are expecting their workers to have good research ability because it will help companies to remain valuable workers.

*g) Decision making skills*

Decision making is about choosing and identifying the best among alternative choices available to give a solution to a problem. The decision is based on the value and beliefs of the decision maker uses and the decision of the decision makers for same problem may differ from each other for a same problem. To make decisions more effectively the relevant information and should be gathered first. Then by developing different alternatives and identifying pros and cons of each alternative best alternative can be selected and implementation can be done. Delaying decision making maybe sometimes good as it will help to gather more information available that help to make the decision more successfully. (Parcon , 2006).

*h) Requirement elicitation*

According to (Modern Analyst.com, n.d.) the requirement elicitation is about quickly gathering information for a project. But this process cannot be done very quickly. And if any mistake made in elicitation process can cause a project or work failure. The requirement elicitation process includes identifying business needs, assumptions and risks associated with any project.

*i) Documentation skills*

The most important of good documentation is inviting as possible. Documentation is comprehensive. It means all aspect of the project are documented. It helps

to users find the content they need quickly. Documentation include use clear heading, bullet list and links. Large project document can clear navigation, table of content. Good documentation should give the idea they wanted to tell very clearly, precisely and concisely and also needed to use appropriate tools that can be presented worldy as well as visually. (Anon., 2018).

j) *IT skills*

According to (Heinrich, 2017) people who are working in business domain needs IT skills such as Microsoft office, database knowledge, SQL, CRM software, programming languages and cloud computing tools. According to him due to the growth of technology the competition in business domain has been increasing day by day and the business students need to develop the knowledge of IT because when recruiting for jobs they need to have expected knowledge that companies are looking for.

k) *Domain knowledge*

this website describes about various kinds of options to gaining more and more domain knowledge. Exploring more and more on Google, discuss with different people working on the similar domain, reading blogs and articles, gain more ideas through applicable websites are the main options in there. However, there are some different ways to develop domain knowledge in business analysis. They are Do research in the particular domain and gain more knowledge, Interview key stakeholders, Gain more experience. There are important skills needed in the business analysis domain Communication skills, Business knowledge and critical thinking, Problem solving skills, Technical skills, Methodology skills (Anon., 2017).

l) *Management skills*

We can simply define management as the administration and coordination of tasks to obtain a goal. When we talk about administration it includes setting the organization's strategy and coordinates the efforts of the staff. And there are 5 main functions to identify they are planning, organizing, staffing, directing and controlling. When we talk about planning function there are several activities to do they are; Analyzing the current situation, Anticipating the future, Determining the organizational objective, Choosing strategies (indeed career guide, 2020).

m) *Employment Opportunities of business analyst*

(Anon., n.d.) Describes business analysts as a person who gather and analyse big data to take a good use of them in decision making processes. There are five demanding business analysts' jobs nowadays and they are, data analyst scientist, IT business analyst, business analyst manager, system analyst and computer science data analysts. According to (Carpenter, 2020) business analyst mostly works in

industries such as health care, development area in businesses, manufacturing, information system management and supply chain management fields. There are some organizations hiring business analysts for planning assistance in execution and planning of projects as well. He also states that many business analysts start working in companies when they are undergraduates and he also states that if this entry level business analyst have enough experiences and good performances, they can easily move in to junior analyst and senior analyst positions. According to observations it has also approved that companies expect entry level analyst should have at least a bachelor degree in business analytics and for senior business analyst there should be at least master's degree.

### III. PROBLEM STATEMENT AND OBJECTIVES

a) *General Objective*

To assess how the Business Analysts education needs impact on their employment opportunities.

b) *Sub Objectives*

- To determine education background of a Business Analyst.
- To assess Business analyst's education needs and employment opportunity of graduates and undergraduates.
- To determine the impact of working experience of graduates and undergraduates on their employment opportunity for BA job roles.
- To assess Industry specialist's perception for Business analyst's education needs and employment opportunities.

c) *Statement of the Problem*

There are some researches that have been conducted all over the world about employment opportunities for graduates in different fields and some had researched on roles and practices of Business Analysts. But few had given their attention on Business analytics field and job opportunities for the field. Business analyst has become a key role in recent business opportunities. Therefore, organizations are seeking highly qualified and skilful people for their BA roles. However, to be ideal business analyst he or she should possess many skills & experiences.

When it comes to Sri Lankan context Business Analytics practices only in major organizations and their willing to hire highly qualified persons as in global. There are state universities and private institutes which produce Business Analytics graduates every year. Past researches had found that in Sri Lankan context there is a gap between graduate's qualifications and industry expectations when recruiting (Weligamage & Siengthai, 2003). A recent study done by (Ariyawansa, 2013) state that most of the graduates in Sri Lanka wait for a long period to find a suitable job for their background of



study and the reason for this crisis is mainly the mismatch between graduates degree and industry demands for job roles. There are many graduates and undergraduates who are willing to enter business analytics field. But the issue is industry is not welcoming most of them for the roles. There is a need of finding what the skills & experiences graduates are lacking to enter for BA roles and also, what the industry is expecting from applicants for their employment opportunities

#### IV. RESULTS AND DISCUSSION

In the quantitative data analysis data set were analysed with 95% confidence level and to test whether each variable significantly impacting or not significance of the coefficient should be less than 0.05. Logistical regression model results shown as follow.

Out of ten variables tested only three made significant impact on the employment opportunity. Problem solving ability significance of the coefficient was  $0.002 \leq 0.05$ , domain knowledge significance of the coefficient was  $0.044 \leq 0.05$  and analytical skill significance of coefficient is  $0.02 \leq 0.05$  are the variables which make significant impact. These variables make a positive impact which shown in  $\beta$  column if the education needs are high employment opportunity as business analysts also will be high.

When data set tested with working experience it gives results as management skill, domain knowledge and decision-making ability relationships between employment opportunities are positively impacted by work experience. As shown in the table 2 other variables were not significantly impacted by work experience.

In the narrative analysis done on industry specialists' responses it had found that problem solving ability, knowledge of IT, communication, domain knowledge, management skills and documentation skills are important for to be an analyst. But deep analyzing of it shows that problem solving skill is really essential to case in business analytics. Statement from respondent A justifies that.

*"First of all, communication skills, good communication skills is a key factor, negotiation, problem solving ability to immediately change according to situation, that is adoptability then I also look at willingness to learn."*

Also, two of the respondents (A & C) stated that domain knowledge is really essential to have high opportunity to get a business analytics job role.

#### Response from specialist A

*"I look at it as a must I also look at other studies they have done like diplomats, SLIM or whatever other courses where they have got exposed in to other domains. Also, when it comes to education needs, I look at in to different certification related to business*

*analyst. There are different tools and techniques that are important for business analyst to do their work. I also check whether they have got basic statistical knowledge."*

#### Response from Specialist C

*"If you have domain knowledge like HR, Finance, Telco knowledge, finance technology knowledge it will add an advantage. example say if you coming to a general IT project which related to mobile application, I think IT knowledge is the key aspect of that and say you are going for a Telco organization so in that case you need to have Telco knowledge as well."*

For the Analytical skill it has not mentioned in terms it is important but one of the respondents (specialist A) have stated that statical knowledge and working with analytical tools is required for an analyst.

*"Also, when it comes to education needs, I look at in to different certification related to business analyst. There are different tools and techniques that are important for business analyst to do their work. I also check whether they have got basic statistical knowledge."*

Excepting significantly impacted factors according to industry specialist it key factor which need to have IT skill. But some it won't be need much in some analytical positions. It depends on the domain area.

#### According to specialist D:

*"If the candidate is applying to position in that system we will look for an IT degree but there are some system they don't need lot of technical knowledge, as an example the system which I'm working we don't need lot of IT knowledge, so my business degree specializing in business analytics is enough."*

Other factors also which may not show impact on regression model but according industry specialists management skills, documentation skills, communication also important for an analyst. Also, most of the respondent's state that there are number of opportunities for business analysts and as shown in the results it depends mostly on domain area of, they are going to work. According specialist D,

*"It also depends on what type of job they have to do. Some system they don't need lot of information technology, so system like that there more chance for a business analyst to be working there, we don't have IT analysts from what I know all are business analysts, with in that we have people who are very technical, we don't call them IT analyst all of them call Business Analyst only."*

#### V. CONCLUSION

According to results from 230 respondent's quantitative data and 5 respondents' qualitative data

there are important education needs to be covered by business analyst to find a job. IT skill, communication, management skill, problem solving ability, domain knowledge and analytical skill are common factors which are important for an analyst. Management skill, domain knowledge and decision-making skill can be affected based on person work experience. However out of the common variables problem solving ability, domain knowledge and analytical skill have found as significantly impacted factors when graduates and undergraduates find analytics job roles.

Finally, we can suggest that those who willing to be business analysts need to find degree programmes which created with wide areas of domains and modules which can cover about analytical techniques and tools. Also, universities can develop their programmes with giving deep knowledge domain areas such as HR analytics, marketing analytics or social media analytics, etc.

Further, this research has given considerable and important outcomes about educational needs of business analysts as well as employment opportunities of them. Future researchers can conduct their researches using the theories and results generated from this research. Even so it is better to conduct future researches related to this topic for different levels of business analysts. Because different level of business analysts need different education needs and having different employment opportunities it had been quite difficult and complicated for the researchers of this research to define the sample of the population.

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## GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A ADMINISTRATION AND MANAGEMENT

Volume 21 Issue 1 Version 1.0 Year 2021

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# Using Artificial Intelligence for Quantifying Strategic Business-It Alignment

By Bassel Diab

**Abstract-** This paper aims to test an artificial model and a calculator the author developed based on deep learning, Neural Networks, and machine learning, Random Forest. The “Diab BITA Model” and the “Diab Calculator” are generated to enable organizations of any size and in any industry, of calculating the value of Strategic Business-IT Alignment (BITA) following a scale of 7 degrees. Principally, the same sample of one of his previous papers is addressed in which top Managers subjectively assessed the BITA maturity; the current paper targets to empirically prove the accuracy of managers’ perceptions using both the model and the calculator. Findings show an 89% accuracy rate in estimating those organizations’ BITA levels using the model and 92% using the calculator.

**Keywords:** deep learning, machine learning, diab BITA model, diab calculator.

**GJMBR-A Classification:** JEL Code: C45, M15, D83



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# Using Artificial Intelligence for Quantifying Strategic Business-It Alignment

Bassel Diab

**Abstract-** This paper aims to test an artificial model and a calculator the author developed based on deep learning, *Neural Networks*, and machine learning, *Random Forest*. The "Diab BITA Model" and the "Diab Calculator" are generated to enable organizations, of any size and in any industry, of calculating the value of Strategic Business-IT Alignment (BITA) following a scale of 7 degrees. Principally, the same sample of one of his previous papers is addressed in which top managers subjectively assessed the BITA maturity; the current paper targets to empirically prove the accuracy of managers' perceptions using both the model and the calculator. Findings show an 89% accuracy rate in estimating those organizations' BITA levels using the model and 92% using the calculator.

**Keywords:** deep learning, machine learning, diab BITA model, diab calculator.

## I. INTRODUCTION

Till date, there is no consent on one definition of Strategic Business-IT Alignment. Henderson & Venkatraman (1993) simply define it as the integration level between business strategy & infrastructure and IT strategy & infrastructure. A wide literature is available; however, BITA is still neither found on particular theories nor practically validated. Also, a serious gap actually exists in literature although BITA is one of the top challenges facing organizations in the contemporary business world. On the other hand, some strategic alignment models have been developed and

tested in order to evaluate strategic alignment in an organization. For instance, models include SAM (Strategic Alignment Model), the Generic Framework Alignment Model and SAMM (Strategic Alignment Maturity Model).

Moreover, most of the investigations which have studied the enablers and inhibitors of BITA focus mainly on the cooperative work of business and IT executives, based on various factors linking business with IT technically and "businessically" like "senior executives support for IT" or "IT understands the business". Furthermore, the Control Objectives for Information and Related Technology (COBIT), being one of the leading IT governance frameworks, is fundamentally concerned with BITA. "The COBIT business orientation includes linking business goals with its IT infrastructure by providing various maturity models and metrics that measure the achievement while identifying associated business responsibilities of IT processes" (Simplilearn, 2020).

Oppermann (2019) defines deep learning to be "a subset of Machine Learning, which on the other hand is a subset of Artificial Intelligence... Deep Learning, on the other hand, is just a type of Machine Learning, inspired by the structure of a human brain... deep learning uses a multi-layered structure of algorithms called neural networks" (Fig. no. 1).

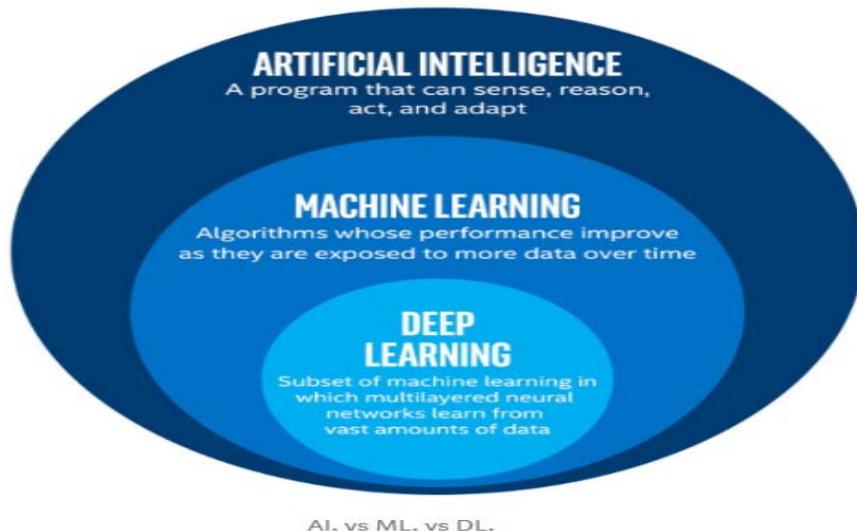


Figure 1: AI. vs ML. vs DL. (Oppermann, 2019)

### a) Motivation for this Study

In his PhD research journey, one of the core motivations of the author is to provide self-developed metrics written in simple words and expressions so that top managements could be able to numerically measure the level and maturity of BITA at their organizations. Besides, this work is expected to facilitate the communication of BITA assessment results as well as its discussion with subordinates or other departments (i.e. IT, finance, production, etc.), taking into account that one of the major problems encountering business and IT people is their mutual communication. They either engage in weak communication practices or speak two different, business and technical, languages (Edmead, 2016). Equally, cultural and social drivers falling under organizational culture and communication are incorporated; this contributes to narrowing the gap found in the majority of other BITA models which neglect to a far extent such types of factors.

Due to time and budget constraints, the author bootstrapped the primary data originally collected and applied SPSS, Neural Networks, and RStudio programming language, Random Forest. He came out with a model comprising 31 independent variables and

only one dependent variable which is BITA. The model consists of four modules which intend to evaluate the points of view of top managements based on a 7-point Likert scale. The first three modules, organizational communication-organizational culture-organizational performance, include 8 indicators each and the fourth module, BITA, includes 7 indicators. The ultimate goal is to convert raw data into a scientific instrument governing the contribution of those independent variables to BITA maturity. To illustrate for this paper's benefit, the author is going to focus on SPSS he used and Neural Networks, Multilayer Perceptron, he adopted as a modeling tool to minimize error and to ensure accurate predictions for a better decision making.

The model was trained with 70% of data (703 observations) and the remaining 30% of data (296 observations) was tested using that model which eventually reached a 3.4% "Percent Incorrect Predictions" which implies a 96.6% accuracy rate. Therefore, the model was successful in predicting the BITA level of 96.6% of the surveyed organizations (Fig. no. 2).

<b>Model Summary</b>		
<b>Training</b>	<b>Cross Entropy Error</b>	<b>71.742</b>
	<b>Percent Incorrect Predictions</b>	<b>3.3%</b>
	<b>Stopping Rule Used</b>	<b>1 consecutive step(s) with no decrease in error<sup>a</sup></b>
<b>Testing</b>	<b>Training Time</b>	<b>0:00:02.38</b>
	<b>Cross Entropy Error</b>	<b>32.726</b>
	<b>Percent Incorrect Predictions</b>	<b>3.4%</b>
<b>Dependent Variable: Strategic alignment in your organization is ranked as high.</b>		

a. Error computations are based on the testing sample.

Figure 2: Diab BITA Model Summary (Diab, B., PhD 2020)

That excellent accuracy rate urged the author to make extra empirical testing for the novel model. He perceives this testing as a starting point prior to approving the launching of model into research and academic area by converting the model into a managerial applicative tool, the "Diab Calculator" (Fig. no. 3). The calculator is going to be built in the format of a mobile application with open-access rights to render it much smooth for end-users. In this application, the

potential user (e.g., GM, senior executive) is requested to insert as input his/her ranking of 31 independent variables covering major organizational aspects (i.e., organizational communication, organizational culture, organizational performance & strategic alignment) so as the application computes the estimated importance of each variable. The overall "Estimated Importance" could reach a maximum score equal to "1" (Fig. no. 4).

Please rank your answers on the following statements based on a 6-point Likert scale:

1: Totally disagree - 2: disagree - 3: Slightly disagree - 4: Slightly agree - 5: Agree - 6: Totally agree.

Metrics	Normalized Importance	Weight/unit	Actual	Estimated Importance
Strategic Business-IT Alignment	28.94%			0.29
IT understands the business environment of the organization (e.g. production cycle).	100.00%	0.012	6	0.07
Performance is ranked as high at organizational level.	74.60%	0.009	6	0.05
Strategic business planning is formally conducted with effective IT involvement.	68.90%	0.008	6	0.05
Top mgt considers significant IT and business decisions of equal impact in the org.	50.90%	0.006	6	0.04
Business executives understand the environment of IT (e.g. systems, resources).	42.00%	0.005	6	0.03
Strategic IT planning is formally conducted with business executives involvement.	31.90%	0.004	6	0.02
A committee, consisting of IT and business executives, exists to make shared decisions.	26.10%	0.004	6	0.02

Metrics	Normalized Importance	Weight/unit	Actual	Estimated Importance
Organizational Communication	26.15%			0.28
Modern communication technology is used to communicate time-sensitive info.	62.80%	0.007	6	0.04
IS facilitates the communication of org. culture elements (e.g. collaboration).	61.50%	0.008	6	0.05
IS ensures mgt a great amount of high quality info. from the surrounding community.	54.10%	0.006	6	0.04
IS supports executives in motivating employees to estimate the role of culture in business.	42.80%	0.005	6	0.03
IS contributes to abolishing distances when communicating sensitive info.	42.50%	0.005	6	0.03
IS leads to enhancing the quality of info shared among all levels of organizational members.	40.40%	0.005	6	0.03
IS increases the level of non-managerial staff's involvement in the decision making process.	31.60%	0.004	6	0.03
IS leads to underestimating the Middle Management Gap (i.e. mid-level managers).	20.60%	0.003	6	0.02



Metrics	Normalized Importance	Weight/unit	Actual	Estimated Importance
Organizational Culture	20.87%			0.18
IS (e.g. Cloud computing) enables employees to promote their work-life balance.	63.80%	0.009	6	0.05
Management prioritizes information sharing over other organizational values.	62.80%	0.007	6	0.04
Management continuously makes enough investments in the IT infrastructure.	36.30%	0.004	6	0.02
Management sets a manual of rules and procedures in order to support the workflow of IS.	32.00%	0.004	6	0.03
IS supports executives in driving culture change.	30.00%	0.004	6	0.02
Mgt involves lower levels of org. members in the design, selection or development of IS.	26.60%	0.004	6	0.02
IS increases the readiness of the org. for institutionalization & true corporate governance.	24.80%	0.004	6	0.02
IS supports the organization in adapting to fast changes in business environment.	8.10%	0.001	6	0.01

Metrics	Normalized Importance	Weight/unit	Actual	Estimated Importance
Organizational Performance	24.04%			0.25
IS directs the work of top executives toward strategic planning.	55.70%	0.007	6	0.04
IS provider is highly interested in a long lasting relationship with the organization.	55.40%	0.006	6	0.04
IS supports mngs in maintaining coherent historical data for a better forecast.	46.90%	0.005	6	0.03
Training on IS provided by top mgt enables employees to optimize its full capabilities.	40.00%	0.005	6	0.03
IS contributes to exceeding competitors with higher budgets (i.e. better mgt of resources).	38.50%	0.005	6	0.03
IS positively impacts the quality of managerial decisions.	36.80%	0.005	6	0.03
IS helps to at least retaining current customers (e.g. customized products &/or services).	31.80%	0.003	6	0.02
Org. makes benefit of IS (e.g. data science, machine learning) to promote its R&D activities.	22.50%	0.003	6	0.02
				1.00

Figure 3: Diab Calculator (Diab, B., PhD 2020)

Rating	Scale	Range	Outlook	Brief Description	Recommendations (Trend)
A	6	0.9 - 1.0	Positive ↑	Alignment maturity is extremely strong.	More strategic thinking (e.g. keep IT infrastructure up-to-date, innovation, R & D).
B	5	0.80 - 0.89	Positive ↓	Alignment maturity is strong.	Search for deficiencies and drawbacks (e.g. form or promote business-IT committee).
C	4	0.60 - 0.79	Under Review	Alignment maturity is adequate.	Work very fast to redefine BITA, IT processes, etc. to avoid severe problems.
D	3	0.50 - 0.59	Risky	Alignment maturity is extremely weak.	Set up metrics to reconstruct all business & IT processes, educate senior staff on BITA, etc.
Z	2	0.00 - 0.49	N/A	Alignment does not exist.	Make fundamental decisions e.g. hire new IT directors/business executives

A non-bias factor is automatically computed and added to each one of the 4 sets of metrics

as a trial to minimize users' bias.

Figure 4: Diab Calculator Criteria (Diab, B., PhD 2020)

Simultaneously, the author seeks to experiment his model and calculator while verifying the potency of transparent and unbiased managers to assess the level of BITA in their organizations depending on their own specific metrics which could be one, more than one or even without having any. Details are explained in the research methodology section.

## II. LITERATURE REVIEW

Iansiti and Lakhani (2020) argue that companies all over the world are forecasted to spend \$98 billion on artificial intelligence (AI) in 2023 while its spending was \$38 billion in 2019. The Business World IT, a website specialized in innovative technologies, defines the role of AI in business as it “simply involves the use of intelligent computer software with human-like capabilities to boost revenue, improve customer experience, increase productivity and efficiency, and drive business growth and transformation” (2020). For instance, Larry Page asserts that “Artificial intelligence would be the ultimate version of Google. The ultimate search engine that would understand everything on the web”. He adds that “Companies that do not want to miss out on the revolutionary future of business must, inevitably, embrace the use of AI as a guiding light”. Also, AI has extensively become adopted and implemented in numerous business sectors mainly the financial services one. Forrester, the research group, concludes that “About two-thirds of finance firms have implemented or are adding AI in areas from customer insights to IT efficiencies” (Financial Times, 2020). Other sectors include but not limited to high tech and communications, transport and logistics, travel and

tourism, healthcare, energy and resources, and education.

However, a business must redesign its overall corporate business strategy (i.e. processes, tasks, human resources, etc.) in a way allowing it to adopt AI successfully. To give a clear example, a speaker in the FT forum explains that her company adopted a tool “to eradicate inefficiencies in manufacturing processes”. AI completely met the expectations and goals set, but “the companies were not ready to act as their entire workflows would have to change” (2020). As well, the corporate IT strategy must be subject to an entire overhaul to properly operate within the AI environment. As a result, both of organizational business and IT strategies & infrastructures must be perfectly integrated so as to cope with the adoption of AI as well as to avoid any potential confusing and fast changes.

Furthermore, some scholars argue that the current business world is controlled by *Data*. Hence, “The current era of data has stimulated the rise of many applications of artificial intelligence in business including data analytics, personalized business offerings and automation” (The Business World IT, 2020).

Nevertheless, the author could not find theoretical nor empirical attempts relying on AI and leading to practical models or instruments that are capable of measuring the maturity level of BITA. Therefore, this paper could serve to the best of his knowledge as the first managerial tool enabling companies to benefit from the never stopping increase in the amount of data available to train and test deep learning and machine learning algorithms to fulfill this aim.



### III. RESEARCH METHODOLOGY

To achieve the purpose of this paper, the author looks forward to proving the authenticity of his model and calculator through randomly targeting the same sample formed by 250 big organizations and SMEs which participated, in year 2019, in his paper titled *“Modeling the impact of information system on organizational culture and Business-IT strategic alignment”* (ISSN 1453-1305). In one part of that paper, participants were asked to rank the leading enablers

Table 1: Data set

Respondent	Business executives highly involved in IT	IT executives highly involved in business	Efficient & effective communication btw business & IT	A committee formed by IT & business executives is very necessary	Strategic alignment level ranked as high
1	6	6	6	6	6
2	5	5	5	5	5
3	6	6	6	6	6
4	5	5	5	5	5

(Source: *Informatica Economica* 2019)

The fast deteriorating economic and monetary situations in Lebanon have been leading a big number of organizations to cutting back their operations or to shutting down. Therefore, the author first contacted all of the 250 companies and sent them pre-notifications; only 89 responses were received expressing their interest to participate in the new survey where 64 were SMEs and 25 were big organizations. In this paper, a 7-point Likert scale was used while the above mentioned paper used a 6-point Likert scale. Thus, level "6" or "7" of strategic alignment in the current study was classified as equivalent to level "6" in the previous paper. In exchange, the participated organizations were given a word to keep them up-to-date whenever future amendment or further development is applied on the model and calculator. In addition, the author promised them to have an endless right of using it and its subsequent modifications upon request.

The answers of participants on the 31 independent variables were gathered and, thereafter, the data was introduced into the model, using SPSS software, and the calculator aiming to verify the managers' initial perceptions regarding their organizations' BITA rating. In other words, the author sought to find out the accuracy of subjective assessment done by senior managers on a specific qualitative subject such as Strategic Business-IT Alignment.

boosting the maturity of BITA in Small and Medium-sized Enterprises (SMEs) compared to large enterprises operating in Lebanon. Also, they graded the strategic alignment level following a 6-point Likert scale. Results yielded in a classification of these enablers based on their potential influence on the BITA level.

A sample of the data set utilized to study the correlation between BITA and the four enablers is presented in the table below (Table no. 1).

Here, it is worth mentioning that the author decided to make this test despite the risk it involves with respect to the possibility of blasting previous judgments and evaluations of top managers included in the earlier paper.

To test the goodness-of-fit of the model, a Chi-square ( $\chi^2$ ) test was done and concluded that  $356.000 > 30.6$  with 15 degree of freedom at a critical value of 0.01. This means that the model greatly fits the data.

#### IV. FINDINGS AND INTERPRETATIONS

The Cronbach's Alpha was calculated to test the reliability of the artificial model and its constructs. Cronbach's Alpha of the model is  $0.96 > 0.70$  which means it is reliable and valid.

Figure no. 5 illustrates the output of applying the model in the current study.

54 observations representing 60.7% of the overall sample were trained and 35 observations representing 39.3% of sample were tested. The "Percent Incorrect Predictions" was 11.4%. For example, the model precisely projected a BITA level "6" in 14 organizations out of 15 ones, a level "5" in 10 organizations out of 11 ones, a level "4" in 2 organizations out of 3 ones, a level "3" in 5 organizations out of 5 ones, but it missed level "2" in the one and only organization. This is in comparison with the preceding judgments of the executives.

Also, the top 5 important independent variables concluded by SPSS are as follows:

1. Strategic IT planning is formally conducted with effective business executives involvement = 100%.
2. IS increases the readiness of the organization for institutionalization, transition to professional management and true corporate governance = 38.4%.
3. IS supports the organization in adapting to fast changes in business environment (e.g. major changes/switch to a new hierarchy) = 36.6%.
4. IS supports executives in motivating employees to estimate the role of culture in business (e.g. knowledge sharing) = 36.3%

5. The training on IS provided by top management enables employees to optimizing the system's full capabilities = 35.0%.

The factor which is judged to be the most influential promoter of BITA level is the "*Business involvement in strategic IT planning*"; it is one of the variables included in the strategic alignment module. Whereas the least affecting factor is the "*Impact of information system on the quality of information shared*" which is, in turn, an organizational communication module's variable.

		Classification						
Sample	Observed	Predicted						Percent Correct
		2	3	4	5	6		
Training	2	0	2	3	0	0		0.0%
	3	0	3	2	0	0		60.0%
	4	0	3	5	0	0		62.5%
	5	0	0	0	20	0		100.0%
	6	0	0	0	0	16		100.0%
	Overall Percent	0.0%	14.8%	18.5%	37.0%	29.6%		81.5%
Testing	2	0	1	0	0	0		0.0%
	3	0	5	0	0	0		100.0%
	4	0	1	2	0	0		66.7%
	5	0	0	1	10	0		90.9%
	6	0	0	0	1	14		93.3%
	Overall Percent	0.0%	20.0%	8.6%	31.4%	40.0%		88.6%

Dependent Variable: BITA

Figure 5: Output of Study (self-developed)

Consistently, data of the 89 participants were processed via the BITA calculator which is currently in its final stage of innovation. Results were astonishing as it demonstrated to be successful in estimating the BITA level at 82 organizations with 92% accuracy rate. Thus far, the calculator showed that 7 senior managers, representing the missed 8%, overestimated the maturity of their organizations strategic alignment. 4 managers assessed BITA to be "6" while the calculator stated it should be "5" and 3 managers assessed BITA as "6" but the calculator stated "4". Additionally, 27 executives underestimated the BITA maturity in their businesses; for example, 13 managers evaluated BITA to be "5" while it should be "6" and 3 managers to be "3" while the calculator showed it as "4".

In the Test Dataset, BITA level "2" and "4" have only one observation and three observations each. In this case, the available data is biased which causes deep learning to confront high distraction in making correct predictions resulting in the overall 89% accuracy rate using the model and 92% using the calculator. This bias is related mainly to lack of data as the algorithms seriously demand very large data sets to conduct training and subsequently testing. However, the author believes that these drawbacks and consequently the accuracy rates could be much higher if he becomes able to accomplish such requirement in future.

## V. CONCLUSIONS

This paper seeks to examine the managerial significance of a model and a calculator recently produced relying on artificial intelligence in order to allow top executives to evaluate the maturity of strategic alignment based on objective criteria and indicators. The Diab BITA Model tested on the selected sample was successful in predicting the maturity level of BITA in 89% of the engaged organizations. 89% of senior executives were capable of subjectively estimating the degree to which their organizations' business strategy & infrastructure integrate with their IT strategy & infrastructure. Moreover, Diab Calculator achieved a 92% accuracy rate which is almost equal to the rate of the model. Generally speaking, the model supports the ability of highly experienced executives in quantitatively judging a qualitative critical business concern, the BITA.

Managers require 15 minutes on average to rate the 31 variables completely while no one complained about wording, complexity, length or any other aspect of the model.

Finally, this paper serves as a further proof on the value of generated model and calculator which seriously form a practical validation for BITA measurement. It should likewise direct the author toward additional experiments for the model and calculator in a specific industry or another country with the cooperation of other researchers. Over and above, this study's output stimulates the author to work harder on the BITA calculator which he anticipates to constitute a milestone in the field of Strategic Business-IT alignment measurement.

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GLOBAL JOURNAL OF MANAGEMENT AND BUSINESS RESEARCH: A  
ADMINISTRATION AND MANAGEMENT  
Volume 21 Issue 1 Version 1.0 Year 2021  
Type: Double Blind Peer Reviewed International Research Journal  
Publisher: Global Journals  
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

# E-Banking Adoption in Bangladesh; Present Status and Customer Satisfaction: An Evaluation

By Fardin Khan, Md. Shahnur Azad Chowdhury, Anamul Haque,  
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**Abstract-** *Research Aims:* This paper aims to explore the adoption of E-Banking in Bangladesh, expose the present status, and discover the individual aspect.

**Design/methodology/approach:** A structured questionnaire utilized to collect the core primary data as well as secondary data has also been collected from different journals, literature, and annual reports of the selected banks. The results have been organized and analyzed mostly through descriptive statistics.

**Research Findings:** This paper found that a significant number of respondents agreed; E-Banking has improved service efficiency and cost-efficiency. Besides, this paper identified a few critical aspects of present banking status, addressed for further value addition.

**Keywords:** *electronic banking in bangladesh, e-banking adoption, e-banking status, banking sector, customer satisfaction.*

**GJMBR-A Classification:** JEL Code: M19



*Strictly as per the compliance and regulations of:*



# E-Banking Adoption in Bangladesh; Present Status and Customer Satisfaction: An Evaluation

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**Abstract- Research Aims:** This paper aims to explore the adoption of E-Banking in Bangladesh, expose the present status, and discover the individual aspect.

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**Research Findings:** This paper found that a significant number of respondents agreed; E-Banking has improved service efficiency and cost-efficiency. Besides, this paper identified a few critical aspects of present banking status, addressed for further value addition.

**Theoretical Contribution/Originality:** The study is beneficial in determining the shortcomings of E-Banking practices in Bangladesh and making a bridge between customer perception and service quality.

**Practitioner/Policy Implication:** The findings suggest different dimensions of customer satisfaction that Govt. & Bank should consider for the digitization of banking, reforming the security framework to develop trust with a higher acceptance rate amongst the customer.

**Research limitation/Implications:** The investigation is only limited to customer perception of the Chattogram region.

**Keywords:** electronic banking in bangladesh, e-banking adoption, e-banking status, banking sector, customer satisfaction.

## I. INTRODUCTION

The emergence and essence of technology have changed banking services like opening an account, authorizing customer, and transaction processing and recording (Irechukwu, 2000).

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With that transformation, the banking sector became digitized with E-Banking, also known as internet banking, online banking, virtual banking, and electronic fund transfer (EFT). Distinct E-Banking products and utilities come forth, namely Automated Teller Machine (ATM), Tele-Banking, Digital Card and Wallet, Electronic Bill Payment, e-cheque, etc. (Daniel, 1999; Mols 1998; Sathye, 1999).

E-Banking is regarded as the cheapest delivery channel mostly, PC, Telephone, Internet, and other electronic media, thereby saving time and cost both for the bank and customer (Markku, 2012 and Al-Smadi and Al-Wabel, 2011). Moreover, E-banking is beneficial to the environment as electronic transmissions un necessitate paper, vehicle traffic, and physical branches. In terms of adoption level, it is evident that because the early embracement of e-banking by the developed countries made it benefited and experienced it (Zhao et al., 2008). It is transparent that the acceptance and exertion of e-banking in most developed countries have matured considerably.

Developing countries like Bangladesh are also quickly adopting and have reached far in Electronic banking service efficiency as experts found it a cost-efficient system that enables better bank services. Bangladesh experienced a transitional period in the banking sector with digitization, eliminating the drawbacks faced by customers earlier, such as limited accessibility, time consuming customer service, higher cost, etc., (Ali and Akter, 2010).

Despite the progress, e-banking is less or to somehow unknown concept to a noticeable number of customers, choose to go with the traditional way, and not all the branches of banks are fully functional to this system. Researchers tried to understand what made people uncomfortable to put a deal with it. Besides less awareness, inadequate training on using electronic media and the internet, Poor marketing effort, etc. could be the barrier to the advancement of E-Banking here. This paper aims at surveying customer satisfaction and attitude over e-banking performance in Bangladesh as well as explore the history and current scenario of it in Bangladesh.



The key research question of this paper is to understand the extent of customer satisfaction concerning the adoption of E-banking in Bangladesh. To facilitate the main objective, few supporting objectives have been considered. They are to provide an overview of the existing e-banking infrastructure of Bangladesh, the exhibition of the current scenario, the expansion of e-banking in Bangladesh, and outline recommendations for the concerned. Section two deals with the current status of e-banking practices in Bangladesh, section three is about literature review and research methods used, section four discusses the analysis and findings and section five summarizes conclusion remarks, and relevant recommendations.

*a) The Status of E-Banking in Bangladesh*

The banking industry of Bangladesh, structured with 57 scheduled banks as of December 31, 2017. During the early 1990s, the FCBs took pioneering steps regarding cutting edge mechanization in retail banking. Accordingly, other banks came forward to introduce a new e-banking system as well as developing existing ones. Eastern Bank Limited is the first bank in

Bangladesh to initiate online banking. Dutch Bangla Bank Limited (DBBL) played the pioneering role in launching Mobile banking on March 31, 2011. And Standard Chartered Bank launched telebanking and ATM for the first time in the country. Nowadays, almost all the (SCBs), (PCBs) and (FCBs) follow information technology and digital strategy for banking. Most importantly, Dutch Bangla Bank Ltd., Standard Chartered Bank, BRAC Bank Limited, and City Bank are remarkable.

Bangladesh Bank, the Central bank of Bangladesh which act as the regulator and protector of the country's monetary and financial system, embraced advanced ICT to facilitate digital operation in areas like monetary policy, banking supervision, and internal management. More than 3500 PCs are installed with an active LAN/WAN network to create computerized banking offices and branches, banking supervision, and internal management. To create computerized banking offices, more than 3500 PCs installed with active LAN/WAN network.

*Table 1: Internet and Mobile/SMS Banking In Bangladesh*

Type of Bank	No. of Total Accounts	No. of Total Internet Banking Accounts	% of Total Internet Banking Accounts	No. of Total Mobile/ SMS Banking Accounts	%Of Total Mobile/ SMS Banking Accounts
SCBs(06)	40,254, 155	61	0.00%	536,51 9	1.33%
SDBs (02)	14,102, 311	0	0.00%	1,863	0.01%
PCBs (40)	45,251, 153	2,680,555	5.92%	19,123, 606	42.26 %
FCBs (09)	404,51 0	184,57 3	45.63 %	256,49 5	63.41 %
G. Total	100,01 2,129	2,865,1 89	2.86%	19,918, 483	19.92 %

Source: *Quarterly Review Report (2017), Bangladesh Bank*

*Table 2: Online Banking and ATM in Bangladesh*

Types of Bank	No. of ATM (own)	No. of ATM' (Shared)	No. of Total Branches	No. of Branches with online coverage	% of Online Branches
SOCBs(06)	204	14,753	3,732	3,004	80.49%
SDBs(02)	0	0	1,410	70	4.96%
PCBs(40)	9763	84873	4826	4825	99.98%
FCBs(09)	168	4,207	66	66	100.00%
G. Total	10,135	103,833	10,034	7,965	79.38%

Source: *Quarterly Review Report (2017), Bangladesh Bank*

Also, the dynamic website of BB offers open data sources. To mobilize payment and settlement systems, the Payment Systems Department (PSD) of Bangladesh Bank functions with an automated processing system, national payment switch, Real-time

gross settlement, mobile financing, e-commerce, m-commerce, payment systems strategy. In most recent, BB has launched the Interbank Internet Banking Fund Transfer or IBFT service.

*Table 3:* Electronic Banking Services/Products in Bangladesh

Product/Service	No. of bank	% of Bank
Internet Banking	40	78.43%
Online Banking	38	74.51%
Mobile Banking	41	80.39%
Automated Teller Machine	48	94.12%
Debit Card	46	90.20%
Credit Card	47	92.16%

*Source: Calculations done by the Researchers based on Secondary Data*

Table-3 shows that most of the banks offer ebanking services, where ATM service provided by almost 94.12% of the total banks. Online banking is the least by 74.51 %. This table extracts the data about the type of e- banking services/products provided by 50 commercial banks of Bangladesh, including the Private commercial bank (31), Islamic shariah based commercial Bank (8), foreign commercial Bank (7), and State owned Commercial Bank (4).

## II. LITERATURE REVIEW

The e-banking system has evolved in different ways; branched on the ground of the instruments used. By using a telephone connection, electronic banking, categorized as Phone Banking, Automated Telephone System, Mobile Banking (SMS banking, GSM Toolkit, whereas Home Banking, Internet banking, Online Banking, Mail Banking falls under electronic banking with Personal Computer. (Chovanová, 2006). E-Banking services are carried through versatile electronic means collectively called Electronic delivery channels, which are: Electronic Fund Transfer, Any Branch Banking, Point of Sale (POS), KIOSK, SWIFT, and Magnetic Ink Character Recognition (MICR), open online, Money Link, Phone Link, ATM, Credit Cards, Debit Cards (Bashir et al., 2015).

The banking sector of Bangladesh has adopted several policies and instructions integrated by Bangladesh Bank, the central bank of Bangladesh, in all possible areas under sustainable banking (Bangladesh Bank, 2016). Green banking is one of three broad categories of sustainable banking, and this category has achieved a high status in the era of e-banking services. 100% of banks in Bangladesh have

now online branches, and 72.9% of these are fully online (Bangladesh Bank, 2016). Undoubtedly, e-banking has brought a revolutionary flavor to banking customer services. But the success of such a paramount program is not possible until the demand section finds it fit. The customers' satisfaction in e-banking services receives consistent attention from the researchers as technology and service patterns change daily.

A large volume of researches focused to understand the variety of dimensions of e-banking services (Markku, 2012; Al-Smadi and Al-Wabel, 2011; Sharma, 2011; Huda et al., 2004; Ahmed and Islam, 2008; Chandrasekhar and Sonar, 2008; Shamsuddoha, 2008; Islam et al., 2009; Nyangosi et al., 2009; Shah and Clarke, 2009; Rashmita and Sahoo, 2013; Buffam, 2000;).

E-Banking services have been proved as an efficient service delivery channel (Markku, 2012 and Al-Smadi and Al-Wabel, 2011 and Shah and Clarke, 2009) as it improves the banker customer relationship (Sharma, 2011), creates new market opportunities, and brings cost efficiency (Bashir et. al. 2015). Bankers also welcomed this trend and many innovative developments in their product lines (Huda et al., 2004; Ahmed and Islam, 2008; Chandrasekhar and Sonar, 2008; Shamsuddoha, 2008).

But, researchers do not even respond to customers' satisfaction seems about e-banking services throughout developing countries. Researchers found that electronic banking service channels have gained a positive impression in India and Kenya (Nyangosi et al., 2009) as well as the failure of achieving customers' responses (Rashmita and Sahoo, 2013). To some extent, insisting on products and services become more important rather than a better customer experience



cause of the marketing strategy (Rashmita and Saho, 2013). But, service quality and informational trust are the keys to deliver satisfactory customer services (Islam and Yang, 2009). Bangladesh is a growing economy, with 58 scheduled banks (Bangladesh Bank, 2017). In such a competitive situation, this research aims at revealing the customer's experience of e-banking products and services.

### III. RESEARCH METHOD

#### a) Research Technique

Both quantitative and qualitative methods are applied to the utilization of primary and secondary data. The Survey research strategy, the most suitable technique for gathering descriptive information, is used in this study. This research technique covered targeting the population and getting the responses in the questionnaire. The target population here covers specifically users and prospective users of E-Banking services. The researchers picked respondents mostly from the Dutch Bangla Bank Limited, Prime Bank Limited, and Bank Asia Limited in the Chattogram. The majority of the respondents are customers, although the questionnaire also took an informal interview with bankers and other experts. Both convenience and purposive sampling techniques were applied for data collection, in this research.

#### b) Data Collection Procedure

With the combination of closed and open-ended questions, the researchers prepared a structured questionnaire to collect data. As the most versatile method to yield clean data, "Multiple choice questions" applied, and respondents were allowed with optional answer. The questionnaire also contained an additional "other" option with a comment field so that respondents can write down responses that were not available in the given options. Though, different write in responses made the researcher do some extra work about separating each which, helped to get unbiased

responses because the respondents were not bound to a fixed number of answering options. There is also the inclusion of some open-ended questions to let respondents provide their suggestions and recommendations.

#### c) Data Processing and Analysis

After assembling and organizing data by the structured questionnaire, the researcher coded, cleaned, and filtered those through Microsoft Excel and Google Analytics. Besides, statistical analysis applied by the software to show alliance among variables, and frequency distribution is used as a statistical analytical method for displaying descriptive statistics. The consistent data has been then manifested in a standard model using tables, frequencies, and percentages to analyze and interpret the data. Besides, the mean/average score is considered in determining the ranking of some multiple answer options. Finally, the results are illustrated by charts and tables for a better understanding of the analysis.

### IV. RESULT AND DISCUSSION

The researchers at first tried to find out customers' bank selection. 88% of respondents unveiled the bank name where they maintain the accounts. Most of the respondents have an account in more than one bank. Therefore, the table is arranged so that we can derive how many times the responses are opted on an individual bank name and their ranking in terms of average score. However, people have mentioned about 16 different banks. Most of the respondents have the account in both IBBL and DBBL; thus, in the table, we can see that 27% of the responses has been provided on both DBBL and IBBL, and they ranked first with the highest average score (1.1875). Besides the combination of Govt. Bank got the second-highest responses with an average score of (0.625).

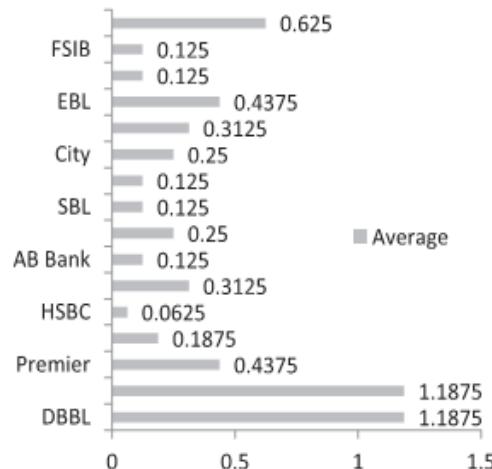


Figure 1: Ranking of the bank by the respondent's preference

Secondly, the researchers aimed at exploring customer's perceptions of different types of service delivery channels. 98% of respondents expressed their preferences. It is visible that most of them responded (43.84%) opted for "Electronic Banking" as their

preferred Banking system, which is not up to the expectation. The response on only "Traditional banking" is relatively lower. However, both the banking system option (41.10%) is pretty close compared to the option "Electronic Banking."

*Table 4:* Respondent's Preferences on Service Delivery Channels

Banking System	Frequency	Percent
Electronic Bank	32	43.84%
Traditional bank	11	15.07%
Both	30	41.10%
Total	73	100.00%

Thirdly, 68% of the total respondents defined E-banking in 5 different ways. According to most respondents (29.41%), E-banking is banking with Electronic Media and the internet. They added that banking services, provided through mobile, PC and internet are called E-banking. Whereas (27.45%) of the respondents defined it as "Internet-Based Banking." They think that all types of banking procedure facilitated

by the internet are said to be E-Banking. (27.45%) of the respondents understood it as "Online Based Banking. In their view, E-banking refers to the banking system which depends on online activities, and (7.84%) of the respondents referred to e-banking as "Real-Time Banking" which is easy and convenient, time saving and can be operated remotely.

*Table 5:* Respondent's view on E-Banking

View of E-banking	Percent
Electronic Banking	15.69%
Banking with Electronic Media and internet	29.41%
Internet-Based Banking	27.45%
Online Based Banking	19.61%
Real-Time Banking	7.84%
Total	100%

Fourthly, the researchers tried to understand what form of e-banking services is mostly demanded in the market. Almost 36% of total respondents prefer the Combination of (Internet Banking + Online Banking + Mobile Banking) has a response rate of 28.07%. Be-

sides, 24.56% of the respondents chose only "Online Banking" as the form of E-Banking they use.

Moreover, the combination of (Internet Banking + Online Banking) and only Mobile Banking have limited demand.

*Table 6:* Customer's Preference in E-Banking Services

Form of E-Banking	Percentage
ATM + Debit Card + Credit Card	35.09%
Internet Banking + Online Banking + Mobile Banking	28.07%
Online Banking	24.56%
Internet Banking + Online Banking	10.53%
Mobile Banking	1.75%
Total	100.00%

Then, there should be rationality for e-banking services. Almost 58% of total respondents find E-Banking facility as efficient and admit the option "ALL" (Convenience, Easy Access, Time Saving, No need to stand in line, Cost saving) for the reasons/advantage of using E-Banking Facility. At the same time, other combinations of choices got the nearer percentage of responses from the respondents.

*Table 7:* Reason for choosing E-Banking Facility

Advantage	Percent
Convenience	1.56%
Easy Access	3.13%
Convenience + Time-Saving + No queuing	3.13%
Convenience + Time Saving + Easy Access	3.13%
Cost-saving + Time-Saving +Easy Access	3.13%
No need to stand in line	4.69%
Time-Saving	4.69%
Time-Saving + Easy Access	6.25%
Time-Saving + Easy Access +No Queuing	6.25%
Convenience + Easy Access +Time-Saving + No queuing	6.25%
All	57.81%
Total	100.00%

Still, a remarkable section of our population is Not interested in E-Banking services. Majority of the non-interested respondents (55.74%) addressed that they have no clear idea about the security system in e-banking. At the same time, some respondents (19.67%)

found as "Lack of Technological knowledge" for their reason for not choosing this service. The combination of "Security Issue and Lack of Technological Knowledge" has 9.84% response, and 6.56% have chosen the option "ALL" as the reason for not choosing E-Banking service.

*Table 8:* Reason for not choosing E-Banking Facility

Disadvantage	Percent
No Idea about Security	55.74%
Lack of Technological Knowledge	19.67%
Speed Issue	1.64%
Security Issue and Lack of Technological Knowledge	9.84%
Other	6.56%
All	6.56%
Total	100.00%

Finally, the researchers checked the customer's recommendation on e-banking services and patterns. Despite the growth, experts claim that e-banking is still in its infancy in Bangladesh. In this case, maximum respondents (31.25%) recommended that the security should be enriched by ensuring that the computer system is used only by the trusted people, creating a security framework, etc. At the same time, 14.06% of the respondents emphasized the training of both employees and customers. They suggested trained IT experts should be employed, and basic training to be given to the customer by the friendly employees. Ensuring education with technological knowledge is inevitable for the growth of E-banking, 12.50% of the respondents suggested about this. They added that without education level people would be unable to use the internet and operate electronic devices. The same percentage (12.50%) of respondents claimed that E-Banking would be accepted to a larger extend only when it becomes flexible, easy, and convenient to use for all kinds of clients. Moreover, some other recommendations provided by the respondents are creating intense awareness about e-banking, especially

in a rural area, building a robust infrastructure and regulatory framework, reducing the prices of internet and additional e-banking charges finally, enacting government law such as information security law.

Table 9: Customer's recommendation for E-Banking development in BD

Recommendation	Percent-age
Government Steps	4.69%
Strengthen Security system	31.25%
Ensuring Education with tech. knowledge	12.50%
Creating Awareness about E-banking usage	6.25%
Training to employees and Customer	14.06%
Developing infrastructure and regulatory framework	9.38%
Easy and Flexible E-Bank-ing system	12.50%
Reducing E-Banking charge	9.38%
Total	100.00%

## V. CONCLUSION

Digitalization of the banking industry is one of the elements of the "Digital Bangladesh" Vision. The rapid growth of smartphone penetration, and the rise in internet users, will further influence the adoption of E-Banking in our country. In this study, it is evident that the majority of the bank in our country are adopting information technology to render services. The survey focuses that majority of the respondents are concerned about E-Banking. People accept it beneficial in terms of quality, time, access, etc. However, the tendency of the practice is mostly inoperative and sluggish still. Indeed, banks are integrating different E-banking services and features through marketing, advertisement, and raising awareness. Several "Security breaching" events in the banking sector of Bangladesh made people puzzled. Therefore, both the government and the Banks should come forward to save this prospective banking system from the cold static situation by ensuring literacy level, developing infrastructure, enacting a security law framework, creating skilled and trained workforce, and considering the recommendations mentioned in this study. Promoting financial literacy, availability of cheaper network facilities, sufficient ICT infrastructure, and workforce development, strict compliance maintenance, etc., could accelerate E-Banking adaptation more efficiently and satisfactorily. Regulations also need to be active to check money laundering chances through E-banking platforms.

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## APPENDIX

### Demographic information of Respondent

#### 1. AGE

*Table 10:* Frequency distribution of Age category of the respondents

Age Category( In Year)	percent
18-26	43.06%
26-34	30.56%
34-42	13.89%
42-50	8.33%
50-58	4.17%
Total	100.00%

#### 2. Gender

*Table 11:* Frequency distribution of Gender of the respondents

Gender	Percentage
Male	89.04%
Female	10.96%
Total	100.00%

#### 3. Educational Status

*Table 12:* Frequency distribution for Educational Status of the respondents

Educational Status	Percent
Primary	2.74%
Secondary	4.11%
Higher Secondary	9.59%
University Graduate	83.56%
None	0.00%
Total	100.00%

## 4. Occupation

Table 13: Frequency distribution of profession / Occupation of the respondent

Occupation/ Profession	Percent
Government Service	12.16%
Private Service	28.38%
Business (Me-dium)	17.57%
Self-Employed	33.78%
Housewife	8.11%
Total	100%

## 5. Which E-Banking Service/services do you enjoy most?

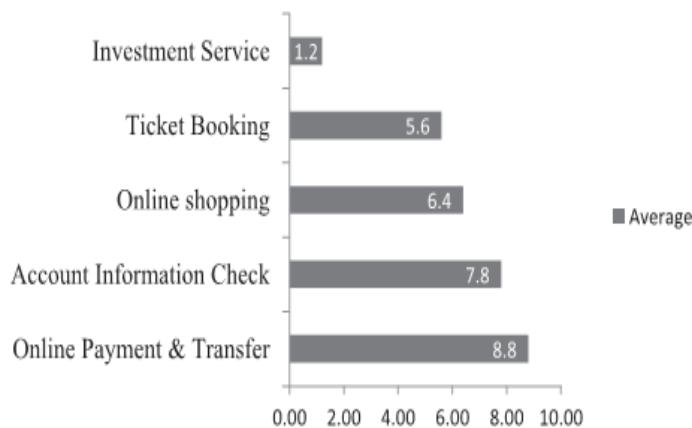


Figure 2: Types of E-Banking services used by respondents

## 7. Have you heard of E-Banking?

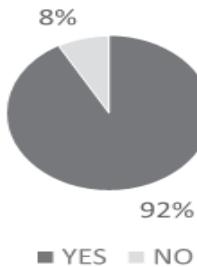


Figure 3: Respondent's concern about E-Ban

## 8. Do you think E-Banking provides better customer service than traditional banking?

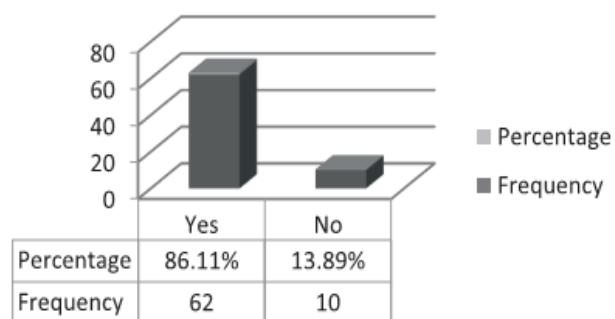


Figure 4: Respondent's preference for the banking system in term of customer service

9. Do you feel safe using the E-Banking service?

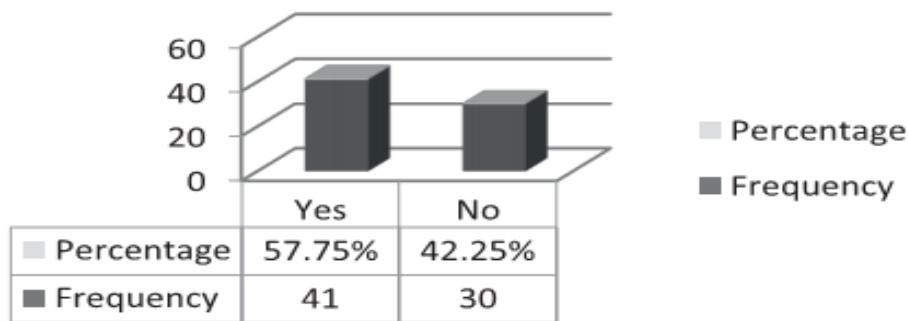


Figure 5: Respondent's view on the security of E-Banking

10. Do you think E-Banking should be adopted in Bangladesh as a whole?

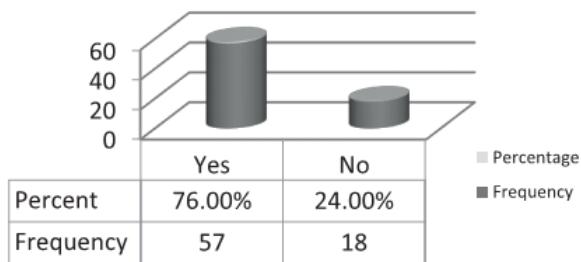


Figure 6: Respondent's view on the adoption of E-Banking in Bangladesh

## QUESTIONNAIRE OF THE STUDY

Age:

Gender: Male / Female

Education: Primary / Secondary / Higher Secondary /University Graduate

Occupation: Government Service / Private Service / Business / Student / Housewife / Other

Form of Question	Answer
1. What kinds of bank account do you use?	Current / Saving / Fixed / Other
2. Which Bank or Banks do you use to maintain an account?	DBBL /BRAC/Prime/Premier / Govt./ Other.....
3. Have you heard about E-banking?	Yes / No
4. If Yes, please define E-Banking in your view?	
5. What kinds of E-banking services/products do you use?	Telebanking/ Online Banking/ ATM/ Debit Card/Credit Card / EFT/ Mobile Banking /All
6. Advantages / Reasons for using E-Banking Service:	Convenience / Cost saving /Time Saving / Easy Access / No need to Stand in Line / All Other.....
7. Disadvantages/Reasons for not using E-banking Service:	Security Issue/speed Issue / Lack of Technological knowledge/ All Other.....

8. Which Banking system do you prefer?	Electronic Banking /Traditional Banking/Both
9. Do you think E-Banking provides better Customer service than traditional banking?	Yes / No Please explain your choice in short:
10. Do you feel safe using the e-banking service?	Yes / No <i>Please explain your choice in short:</i>
11. Which service/services do you enjoy most provided by E-Banking?	Online Payment & Transfer/ Account Information check/ Online Shopping/ Ticket Booking/Investment Service Other .....
12. What security measure/measures are taken by your bank?	Encryption / Firewall/ Session management / Login & Pin Verification /all / Other.....
13 . Do you think the adoption of E-Banking in Bangladesh will Develop the Banking system?	Yes/ No <i>Please explain your choice in short:</i>
14. What is your recommendation/suggestion to develop an E-Banking system in Bangladesh?	

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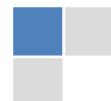
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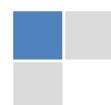
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A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining,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

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

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

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

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

### **Numerical Methods**

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

### **Abbreviations**

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

### **Formulas and equations**

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

### **Tables, Figures, and Figure Legends**

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



## Figures

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

## PREPARATION OF ELECTRONIC FIGURES FOR PUBLICATION

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

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

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

## TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

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



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

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

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

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

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

### **Final points:**

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

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

### **The discussion section:**

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

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

### **General style:**

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

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

### **Mistakes to avoid:**

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

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

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

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

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

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

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

#### **Approach:**

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

#### **Introduction:**

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

*The following approach can create a valuable beginning:*

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



**Approach:**

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

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

**Procedures (methods and materials):**

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

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

**Materials:**

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

**Methods:**

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

**Approach:**

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

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

**What to keep away from:**

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

**Results:**

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

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

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



**Content:**

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

**What to stay away from:**

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

**Approach:**

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

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

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

**Figures and tables:**

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

**Discussion:**

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

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

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

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

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



**Approach:**

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

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

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**CRITERION FOR GRADING A RESEARCH PAPER (COMPILED)**  
**BY GLOBAL JOURNALS**

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

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

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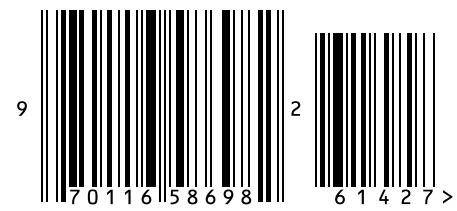


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ISSN 9755853

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