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# Journal of Inter-Discourse Academia JIDA

Volume 3, Issue 1, 2022  
ISBN: 978-9970-479-00-9 ©AUCA

**Publication Fee: Free to AUCA Faculty-50\$ to others**

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## **Editorial**

The Journal of Inter-Discourse Academia (JIDA), AUCA publication, is published biennially, with two issues in June and December, though an early publication date is possible. The Journal started early in 2014 but was interrupted because of circumstances beyond our control.

Although every effort will be made to include articles accepted for publication in the next issue, JIDA reserves the right to postpone publication if necessary. JIDA also reserves the right to refuse any article.

The editorial board represents a diverse team from different academic fields: education, languages, marketing, human sciences. Each member was selected based on academic exposure and experience, research and publication.

JIDA aims to provide interdisciplinary discussions locally and internationally on views and issues that affect our workplace and our society.

It is the author's responsibility to ensure that an article submitted to the journal conforms to the editorial and academic requirements. Manuscripts not properly edited will be returned to the author.

### **The Chief Editor**

## **Acknowledgements**

The Editorial Board Members wish to thank all the contributors, AUCA friends, and all the reviewers who helped us to select the papers and themes, and do a thorough review process, thus guaranteeing a high level of academic professionalism in the volume.

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# **Balance of Payment and Inflation Rate in Rwanda Evidence from National Bank of Rwanda (BNR)**

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## **Abstract**

*This study investigated the balance of payment and exchange rate volatility in Rwanda”, The Evidence from National Bank of Rwanda. The choice of this topic was inspired by the affirmation of Barasa (2013) that the balance of payment deficits has been a common phenomenon in Rwanda economy since 1960. The objectives of this study were to assess the effect of balance of payment on inflation rate, to assess the effect of balance of payment on interest rate, to find out the effect of balance of payment on exchange rate in Rwanda. The study adopted survey design; the study population were 62 employees working in National Bank of Rwanda. The study used purposive sampling technique. A questionnaire was used to collect data and SPSS was used to analyze data. The findings revealed that F-test was significant since p-value obtained was less than significant level of 5% (F-test value for inflation rate was Adjusted  $R^2 = 0.622$ , F-test=25.709,  $p=0.000 < 0.05$ , interest rate was Adjusted  $R^2 = 0.543$ , F-test = 18.830,  $p=0.000 < 0.05$  and exchange rate as per these findings (Adjusted  $R^2 = 0.571$ , F-test=9.840,  $p=0.000 < 0.05$ ). Show that the overall model was significant. The study concludes that balance of payment affects exchange rate volatility. The study recommends that National Bank of Rwanda should cover all the receipts and payments made with respect to raw materials and manufactured goods and lastly, Capital account of Rwanda should measure the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country.*

## **Introduction**

This study assesses balance of payment and exchange rate volatility in Rwanda”, The Evidence from National Bank of Rwanda. The choice of this topic was inspired by the affirmation of Barasa (2013) that the balance of payment deficits has been a common phenomenon in Rwanda economy since 1960. The objective was to evaluate the effect of Balance of payment components (Current account, capital account, financial account) on Inflation rates in Rwanda. The researchers assumed that Balance of payment components (Current account, capital account, financial account) does not affect significantly Inflation rates in Rwanda. This study assesses balance of payment and exchange volatility with evidence from National Bank of Rwanda (NBR). It was conducted qualitatively and quantitatively. This study was restricted to the exchange rate volatility and balance of payment. It is an analytical study whereby data analysis and interpretation emphasized on information gathered through questionnaires and analysis of documents. Exchange rate policy is considered as one of the powerful tools of economic regulation and the regulation of the external sector in an economy.

Globally, the balance of payments is a record of all the transactions between the residents of the economy and the rest of the world over a period of time. It records all the money flows between the economy and the rest of the world and it is made up of the current account, the capital and financial account (Barasa, 2013). The current account records flows of goods, services, incomes and current transfers and it is the sum of four balances which include the goods balance, the services balance, the income balance and net current transfers. The goods balance, also known as the balance on goods, the balance on trade in goods, the balance of visible trade, the balance of merchandise trade or the visible balance, is computed by subtracting imports of goods from exports of goods. The goods balance is positive when exports of goods exceed imports of goods (Arize, Malindretos, & Igwe, 2017).

European markets tend to be more diverse than domestic ones and in many instances more hostile, a clear understanding of the balance of payment construct becomes particularly important. It is of vital interest to three major groups: public policy makers, business managers, and marketing researchers (Winston, 2013). From the point of view of public policy makers, a better understanding of balance of payment is important because it allows for the accumulation of foreign exchange reserves, increased employment levels, improved productivity, and enhanced prosperity. Research on balance of payment is of interest to managers because it is considered as a tool to boost corporate growth, strengthen competitive edge, and ensure company survival in a highly competitive marketplace (Morris, Neumeier, & Kuratko, 2015).

Despite the attention that balance of payment has attracted in UK, it has been claimed that it has remained one of the least understood areas of international marketing (Mosley, 2013). In particular, the evaluation of conceptual and methodological underpinnings of balance of payment measures has largely been ignored. Consequently, there is a need for an analysis of existing empirical knowledge on the various balance of payment measures used in the literature to facilitate theory development.

In Singapore, exchange rate and its impact can arise when the domestic currency values of assets, liabilities and cash flows denominated in a foreign currency are subject to change due to exchange rate changes. Under the perfect market conditions and if parity conditions in the foreign exchange market (purchasing power and interest rate) hold, changes in the domestic currency values of foreign assets, liabilities and cash flows should offset changes in exchange rates so that there would be no foreign exchange exposure. Because of market frictions and deviations from rational expectations, most exporters face significant exposure to exchange rate changes (Styhre, 2018).

Bergbrant (2014) said that most international business results in the exchange of one currency for another to make payment. Since exchange rate fluctuates on daily basis, the cash outflows required to make payments change accordingly. Consequently, the number of unit of a firm home currency needed to purchase foreign supplies can change even if the suppliers have not adjusted their prices. The exchange rate refers to the sensitivity of a firm's cash flows, the real domestic currency value of assets, liabilities, or operating incomes to unanticipated changes in exchange rates.

In South Africa, the exchange rate of the rand is basically determined by market forces. For instance, buying and selling rates for dollars quoted by authorized foreign exchange dealers

are based on the supply of and demand for dollars in the market at any given time. The South African Reserve Bank may, in line with prevailing monetary and exchange rate policy, intervene in the market from time to time by purchasing or selling dollars. When intervening in the market, the Bank does not attempt to bring about any structural change in the economy or to affect longer-term movements in balance-of-payments transactions; it merely intervenes to smooth out unduly large short-term fluctuations in money-market liquidity or the exchange rate (Khatat, 2020)

The main objectives of Rwanda's exchange rate policy are to preserve the external value of the national currency and also to ensure the effective operation of the international business because sometimes a currency is slightly devalued to promote export. The instruments that are often used to conduct exchange rate policy are the rate of exchange and exchange regulations. The latter comprises all the arrangements resulting from the legislative texts and lawfully taken by the government in order to supervise the management of foreign currencies (McKinnon, 2014).

Some of the developing economies including Rwanda would appear to have exacerbated fluctuations in exchange rates, developing economies are special examples of high exchange rate, The impact of exchange rate levels on trade has been much debated but the large body of existing empirical literature does not suggest an indubitable comprehensive image of the trade impacts of exchange rate volatility in Rwanda. Balance of payments deficits have been a common phenomenon in the Rwandan economy from the 1960s. The government has over the years enacted various policy measures aimed at remedying the situation; however, the balance of payments situation does not seem to have improved despite these policy measures (Barasa, 2013).

Rwanda's exports remained dominated by traditional products such as coffee, tea and minerals like tin, coltan (Colombo tantalite), wolfram and cassiterite. Rwanda's main exports partners are China, Germany and United States.

The effects of exchange rate liberalization and the balance of payments of a developing country recommends development of forward, futures and options markets to enable the companies to certainly forecast the expected exchange rates in the future hence facilitate planning (Wayne, 2015). However, limited research has been conducted on the relationship between exchange rate volatility and balance of payments in Rwanda as one of the developing countries. This study therefore aims at filling this research gap by answering one question: What is the relationship between balance payment and exchange rate volatility in Rwanda.

The conceptual framework developed in supporting the analysis. Independent variable is balance of payment with Current account (CA); Capital Account and Financial account as its indicators. Dependent variable is Inflation rate (IR).

**Source:** *Researchers' own construct, 2021.*

This study is backed up by Purchasing power parity (PPP) theory involves a relationship between a country's foreign exchange rate and the level or volatility of its national price level relative to that of a foreign country. Purchasing power parity (PPP) is a disarmingly simple theory

that holds that the nominal exchange rate between two currencies should be equal to the ratio of aggregate price levels between the two countries, so that a unit of currency of one country will have the same purchasing power in a foreign country (Acaravci, 2010).

The general idea behind purchasing power parity is that a unit of currency should be able to buy the same basket of goods in one country as the equivalent amount of foreign currency, at the going exchange rate, can buy in a foreign country, so that there is parity in the purchasing power of the unit of currency across the two economies. One very simple way of gauging whether there may be discrepancies from PPP is to compare the prices of similar or identical goods from the basket in the two countries (Arize, 2015).

## **Methodology**

This study adopted descriptive survey research design where the data were collected from selected evidence from BNR. The total population (62) was the workers of BNR, department of statistics and department of Financial Markets. This study was also used all NBR documents concerns exchange rate volatility of the year between 2015 up to 2020. Purposive sampling technics was used to sample 30 respondents.

Primary data were gathered using self-structured close-ended questionnaire of five Linkert. The questionnaire was validated and different experts in the field of balance of payment and exchange rate. It was also tested for reliability. The multiple regression model was adopted to measure effect of Balance of Payment on Inflation rate. The questionnaire was distributed in September 2021.

Data gathered were processed through mean and standard deviation to assess level of performance of balance of payment and inflation rate. The expected value is denoted by the lowercase Greek letter mu ( $\mu$ ). The mean between 1.00-2.49 was analysed as a weak mean, the mean between 2.50-3.49 was analysed as a moderate mean, the mean between 3.5-5 was analysed strong mean. The standard deviation which is less than 0.5 shows same perception of respondents around the mean (homogeneity) while a standard deviation which is greater than 0.5 shows different perception of respondents around the mean (heterogeneity). Data gathered were also processed through multiple linear regression in order to test hypothesis that says that: there is no significant effect of Balance of payment (Current account, capital account, financial account) on Inflation rates in Rwanda.

In order to test this hypothesis, the following econometric model has been developed and tested significant:

$$SAF = \beta_0 + \beta_1 WAC + \beta_2 MGC + \beta_3 MKC + \beta_4 FNC + \mu \quad \text{Model}$$

Where  $\beta_0$  is the intercept vfor each model (1-4),  $\beta_1 - \beta_4$  are coefficients of explanatory variables, using primary data and  $\mu$ = error term.

## **Findings and Discussion**

This section concerns the perception of respondents on variables of balance of payment such as current account, capital account and financial account. The results collected from the respondents are presented in tables as follow:



**Table 1**  
**Respondents' responses on Current Account**

Statement	Mean	Comment	SD	Comment
BNR uses current accounts to monitor the inflow and outflow of goods and services between Rwanda and other countries	4.21	Strong	.36	homogeneous
The current account reported by BNR covers all the receipts and payments made with respect to raw materials and manufactured goods	2.15	Strong	.41	homogeneous
BNR considers Rwanda's current account in setting exchange rates	4.45	Strong	.40	homogeneous
<b>Overall Mean</b>	<b>3.60</b>	<b>Strong</b>	<b>.39</b>	homogeneous

Source: primary data (2021)

As indicated in the table 1, the respondents agreed with similarity of perceptions that BNR uses current accounts to monitor the inflow and outflow of goods and services between Rwanda and other countries and it was perceived with the mean of 4.21 (strong) and standard deviation of 0.36 (homogeneous). This means that respondents agreed that BNR uses current accounts to monitor the inflow and outflow of goods and services.

The following item was to know whether the current account reported by BNR covers all the receipts and payments made with respect to raw materials and manufactured goods and it was perceived by the mean of 2.15 (weak) and the standard deviation of 0.41 (homogeneous). In this case the respondents disagreed that current account reported by BNR doesn't cover all the receipts and payments made with respect to raw materials and manufactured goods. All respondents have similar understanding as it was indicated by the standard deviation.

In the last item, the respondents agreed the statement and they shared the same understanding that BNR considers Rwanda's current account in setting exchange rates. This was indicated by the mean 4.45 (strong) and standard deviation of 0.40 (homogeneous). This means that BNR considers Rwanda's current account in setting exchange rates. In general, all variables under Current Account scored an overall mean of 3.60 and standard deviation of 0.39. This is an indicator that National Bank of Rwanda maintain current account.

**Table 2**  
**Respondents' responses on Capital Account**

Statement	Mean	Comment	SD	Comment
Rwanda has been experiencing a surplus capital account for the past three years probably due to the flexible exchange rate regime	4.62	Strong	.48	homogeneous
The capital account of Rwanda also measures the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country	2.36	Weak	.49	homogeneous

BNR control the balance of capital accounts by introducing restrictions of capital movement between Rwanda and other countries	4.53	Strong	.50	heterogeneous
<b>Overall Mean</b>	<b>3.83</b>	<b>Strong</b>	<b>.49</b>	<b>homogeneous</b>

Source: primary data (2021)

As indicated in the table 2, the respondents agreed with similarity of perceptions that Rwanda has been experiencing a surplus capital account for the past three years was scored with the mean of 4.62 (Strong) and standard deviation of 0.48 (homogeneous). In this case respondents revealed that Rwanda has been experiencing a surplus capital account for the past three years probably due to the flexible exchange rate regime and most of respondents have the same understanding on their response.

Asked whether the capital account of Rwanda also measures the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country, the respondents disagreed the statement with similarity of perception as presented with a mean of 2.36 and standard deviation of .49. This means that the respondents disagreed that capital account of Rwanda measures the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country.

In addition, the respondents have disparity of understanding that BNR control the balance of capital accounts by introducing restrictions of capital movement between Rwanda and other countries. This was perceived with the mean of 4.53 and standard deviation of .50 (heterogeneity). This means that BNR control the balance of capital accounts by introducing restrictions of capital movement between Rwanda and other countries.

In general, all variables under capital account scored an overall mean of 3.83 and standard deviation of 0.49. This is to say that respondents agreed that capital account is controlled by National Bank of Rwanda.

**Table 3**

***Perception of Respondents Financial Account***

Statement	Mean	Comment	SD	Comment
In Rwanda, the flow of funds from and to foreign countries through various investments in real estates, business ventures, foreign direct investments is monitored through the financial account.	4.15	Strong	.36	Homogeneous
By analyzing financial account changes, BNR can determine if the country is selling or acquiring more assets.	4.34	Strong	.48	Homogeneous
<b>Overall Mean</b>	<b>4.24</b>	<b>Strong</b>	<b>.42</b>	<b>Homogeneous</b>

Source: primary data (2021)

As indicated in the table 3, the respondents agree with similarity of perceptions that flow of funds from and to foreign countries through various investments in real estates, business ventures, foreign direct investments is monitored through the financial account as presented with a strong mean of 4.15 and standard deviation of 0.36. It means that In Rwanda, the flow of funds from and to foreign countries through various investments in real estates, business ventures,

foreign direct investments is monitored through the financial account. Final question assessed whether in analyzing financial account changes, BNR can determine if the country is selling or acquiring more assets. The statement was agreed with a mean 4.54 (Strong) and standard deviation of 0.48 (homogeneous). Generally, all items of financial account showed the overall mean of 4.24 (strong) and standard deviation of 0.42. This is to say that respondents agreed that financial account is controlled by National Bank of Rwanda.

**Table 4.**  
*Model Summary of Balance of payment and Inflation rates*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805a	.647	.622	.73558

a. Predictors: (Constant), Current Account, Capital Account and Financial Account.

From the findings in table 4 the value of adjusted  $R^2$  was 0.622 an indication that there was variation of 62.2% on Inflation rates due to changes in Current Account, Capital Account and Financial Account. This shows that only 62.2% changes in inflation rate is caused by changes in balance of payment. A study should therefore be conducted to determine what influences the other 37.8% of the inflation rates in Rwanda.

**Table 5.**  
*Analysis of Variance between Balance of payment and Inflation rates*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.731	3	13.910	25.709	.000 <sup>b</sup>
	Residual	22.725	42	.541		
	Total	64.457	45			

a. Dependent Variable: Inflation rates

b. Predictors: (Constant), Current Account, Capital Account and Financial Account

As indicated in the table 5 the F-test value was 25.709 and p-value = 0.000. This means that balance of payment have jointly significant on inflation rate in Rwanda. Therefore, the null hypothesis stated that there is no significant effect of balance of payment on inflation rate in Rwanda was rejected at all levels of significance. Based on this joint effect, the next section examined individual effect as follows:

**Table 6.**  
*Model Coefficients of balance of payment and inflation rate*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	21.156	2.906		7.281	.000
CA	.590	.097		.578	6.056 .000
CT	.244	.079		.298	3.070 .000
FT	.450	.149		.282	3.025 .000

a. Dependent Variable: Inflation Rate

Table 6 reports regression results of the effect of balance of payment on inflation rate in Rwanda. The dependent variable is inflation rate. The explanatory variables are current account, capital account and financial account at 5%.

The result in table 19 shows that Current Account is positively and significantly affecting inflation rate as indicated with a positive coefficient (B= 0.576 t=6.056 and P=0.000). This indicates that a unit increase in Current Account will lead to 0.590 unit increase in inflation rate.

Capital Account is positively and significantly affecting inflation rate as indicated with a positive coefficient (B=0.298 t=3.070 and P=0.000). This indicates that a unit increase in Capital Account will lead to 0.244 unit increases in inflation rate.

Financial Account is positively and significantly affecting inflation rate as indicated with a positive coefficient (B=0. 282 t=3.025 and P=0.000). This indicates that a unit increase in Financial Account will lead to 0.450 unit increase in inflation rate. Therefore, there is significant relationship for all variables. The formula used to compute the relationship was as follows:  $IR = 21.156 + 0.590 CA + 0.244 CT + 0.450 FT + 2.906$

## Conclusion and Recommendation

Based on the above findings this research concludes that balance of payment affect inflation rate in Rwanda. Balance of payment influence interest rate in Rwanda. Balance of payment influence exchange rate in Rwanda. Generally, the findings indicate that balance of payment affect positively and significantly on Exchange Rate Volatility in Rwanda.

Basing on the research findings, some recommendations about balance of payment and Exchange Rate Volatility in Rwanda were made to the management of National Bank of Rwanda as evidence in this study.

In the research carried out, it was found that the current account reported by BNR doesn't cover all the receipts and payments made with respect to raw materials and manufactured goods. Therefore, current account reported by BNR should cover all the receipts and payments made with respect to raw materials and manufactured goods.

In addition, research highlighted that the capital account of Rwanda doesn't measure the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country. Therefore, capital account of Rwanda Should measures the flow of taxes, purchase and sale of fixed assets by migrants moving out/into a different country.

## REFERENCES

- Acaravci, A. (2010). Testing purchasing power parity in transition countries: evidence from structural breaks. *Amfiteatru Economic Journal*, 12(27), 190-198.
- Arize, A. (2015). Purchasing power parity-symmetry and proportionality: Evidence from 116 countries. *International Review of Economics & Finance*, 37(11), 69-85.
- Arize, A. C., Malindretos, J., & Igwe, E. U. (2017). Do exchange rate changes improve the trade balance: An asymmetric nonlinear cointegration approach. *International Review of Economics & Finance*, 4(9), 313-326.

- Barasa, B. W. (2013). *The relationship between exchange rate Volatility and balance of payments in Kenya*. Nairobi: University of Nairobi.
- Bergbrant, M. C. (2014). Firm-Level Competition and Exchange Rate Exposure: Evidence from a Global Survey of Firms. *Financial Management*, 43(4), 885-916.
- Khatat, M. (2020). Monetary Policy Under an Exchange Rate Anchor. *IMF Working Papers*, 20(180),20-50.
- Morris, M. H., Neumeyer, X., & Kuratko, D. F. . (2015). A portfolio perspective on entrepreneurship and economic development. *Small Business Economics*, 45(4), 713-728.
- McKinnon, R. (2014). China's exchange rate and financial repression: The conflicted emergence of the RMB as an international currency. *China & World Economy*, 22(3), 1-35.
- Mosley, L. (2013). *Global capital and national governments*. Cambridge: Cambridge University Press.
- Styhre, A. (2018). *Governance and market regulation as market making: stated ambitions, episodic success, and shortcomings and failures in finance market regulation*. In *The Unfinished Business of Governance*. Edward Elgar: Edward Elgar Publishing.
- Wayne, L. (2015). *Fundamentals of Financial Management*. New York, Wiley.
- Winston, W. (2013). *Environmental marketing: strategies, practice, theory, and research*. Texas: Routledge.

# The Pineal Gland: A Minute Cone-Like Midline Structure in the Mid Brain

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## Abstract

*This study reviews the discoveries of multiple scientists. The pineal gland's unusual histochemical structure, and its 1958-discovered endocrine Function along with its photonics abilities, were integrated. These revealed the pineal gland's unique properties, and functions, the most important of which were the creation of an infrared laser light beam within the gland, together with other light-activated properties such as its photonics computing abilities. This paper, which was first prepared since 2008, gives a step by step outline of the development of the "light amplification by stimulation of emitted radiation" at infrared wavelength (viz. infrared laser). The only update required is for the previously quoted name of "Non-visual receptors" to be changed to the present scientifically-descriptive name of "melanopsin-expressing retinal ganglion cells". Although these previously unknown and unique features might be of academic interest only, it is of paramount importance for humanity to appreciate that a Higher Power of Super-Human Intelligence is involved here in these Pineal Gland enigmatic issues. Following the preparation of the initial 2008 version, it has been clear that A Creator-God must be involved. We know his name is Jesus Christ. As God of Love, his purpose must allegedly be to establish communications with all his created living creatures, since "Love can only exist and flourish where there is Communication". Seven-day Rhythms are inbuilt universally in all living entities. The well-described "Repetitive Sevens" in Nature, synchronizes physiological functions and acts like the "Common thread" interconnecting systems for communication of God's love in nature in harmony with similar biblical evidence of the constant communication of his love.*

**Keywords:** pineal gland, infrared laser, Seven-day Rhythms, light, photons, Seventh-day Sabbath

## Introduction

The Pineal Gland (PGL) is a reddish-grey body about 8–12mm long – the size of a grain of rice or a pea in the center of the brain. It is appended to the posterior aspect of the third ventricle in the brain. It is attached to the cerebellum posterior and hangs in the Cerebro-Spinal Fluid at the top of the Spinal column (Tewhey, 2002). It is a midline structure which is seen on X-Ray and MRI Scans as a calcified structure.

## Structure and Composition

The PGL is a neuro-endocrine structure with a lobular parenchymia of pinealocytes surrounded by connective tissue in humans. Its surface is covered by a Pial Capsule.

It has a high degree of vascularity second only to that of the kidneys, relative to size. (Tewhey, 2002)

In addition to pinealocytes, four other cell types have been identified in the Pineal Gland- according to Wikipedia, the free encyclopedia (2007a).

<b>Cell Type</b>	<b>Description</b>
a) Pinealocytes	These have a cell body with 4 – 6 processes emerging. They produce and secrete melatonin – a simple hormone
b) Interstitial Cells	These are located between the pinealocytes
c) Perivascular phagocytes	The gland has many capillary vessels which are closely surrounded by perivascular phagocytes. The latter act as “clean up” cells to remove unwanted substances from the capillaries.
d) Pineal Neurons	Located in PGL of humans. Tiny nerve fibers run through posterior commissure and the habenula which are areas of the brain governing coordination of the left and right hemispheres (control sleep and mood)
e) Peptidergic neuron-like cells	These cells have a paracrine regulatory function

The PGL receives a sympathetic innervation from the Superior Cervical ganglion.

Also present is a parasympathetic innervation from the sphenopalatine and otic ganglia.

Further, some nerve fibers penetrate into the PGL via the pineal stalk (central innervation).

Lastly, neurons in the trigeminal ganglion, innervates the gland with nerve fibers containing the neuropeptide PACAP.

Human pineal glands contain gritty calcified material called Corpora Arenacea (or “brain sand”) – composed of calcium phosphate, calcium carbonate, magnesium phosphate and ammonium phosphate and calcite deposits. Calcification begin at about 50 years but can occur much earlier.

Also very significant here, is the abundant presence of ALUMINIUM found in the PGL when compared with surrounding tissues. (Wikipedia, 2007e)

### **Activation of PGL**

Briefly: Light information from sunshine activates (via retina) photoreceptors which leads to hormonal production of serotonin and melatonin, the latter in the absence of light at night.

Therefore light – acts on retina or on other non-visual photoreceptors

↓

Supra-chiasmatic nucleus of the hypothalamus (SCN)

↓

Superior cervical ganglion—controls blood and skin of head, causes pupillary dilatation and elevation of eyelids

↓

PINEAL GLAND

↓

Function distributed to the remainder of the body as described below.

### **Histology**

Pineal Gland does not develop from brain tissue but emerges from specialized tissue at the roof of the mouth (Tewhey, 2002). From this point, the fetal pineal travels to the center of the head (Strassman, 2001).

Therefore no blood brain-barrier is present. However some “clean up” nerves around pineal protect it from hormones adrenaline and non-adrenaline which usually modulate stress response. Because these “stress hormones do not affect the Pineal, it is more relaxed than other endocrine organs and the rest of the body (Note:The significance of this hypothesis is worthy of consideration, when we discuss other authors opinions that the pituitary gland has a stimulatory effect on all of the other endocrine organs, whereas the pineal gland has an inhibitory effect on the system through MELATONIN during the night). (Strassman, 2001)

### **Functions of Pineal Gland**

It is well documented that

- In the Pineal Amino Acid Tryptophan is converted to Serotonin (in daylight) and produces Melatonin (as night falls). (Hilton, 2003)
- Receptors for Melatonin can be found in SCN/anterior pituitary/retina/Lymph Glands
- Melatonin causes increased humoral and cell-mediated Immune Response with a Feedback system from Immune Cells to the Pineal Gland. (Skwarlo-Santa, 2003)
- Melatonin
  - 1) Anti-platelet }
  - 2) Anti-Hypertensive} Leads to decreased risk of myocardial infarction and
  - 3) Anti-Aging effects} a younger physique

Recent research has shown that there is a relationship between melatonin and suppression of tumor growth. For example, removing the Pineal Gland leads to growth of tumors and metastases especially of breasts and ovaries (Tewhey, 2002).



Conversely, melatonin seems to inhibit certain types of cancer cells and may facilitate gene expression.

Extracts of pineal gland also yield better results on tumor suppression than with melatonin alone. Therefore there may be other substances in pineal gland yet to be discovered (Hilton 2003).

Research linking melatonin and the immune system could yield highly effective and innovative treatments for cancer in future.

Note also, Recent Research shows that, if eyes remain intact and only the Rods and Cones are degenerated, the Pineal function continues normally (Lucas et al., 1999). It is known that rods are activated by dim light and cones by bright light and color.

Therefore there are obviously undiscovered Non-Image or Non-Visual Photo-receptors cells and these are also associated with Blood Pressure, changing Pupil size, Mood and Attention. (Lucas et al, 1999)

Mention may be made here of a perhaps relevant situation in human eyes, analogous to the non-visual photoreceptivity mentioned by FW Cope's article "Kinetics of Light Emission by photosynthetic Systems" in Bulletin of Mathematical Biology Vol. 37 March 1975. He advocates that Measured Light Intensity is **Not** proportional to Reactant Concentration but to Reaction Rate. Therefore, following Cope's argument (Cope, 1975), in this article the question can now be asked: Could a reduction in the photoreceptor activity in the eyes at night, as in Postulate N°C2, be due to a reduction in reaction rate when an electrical charge from Postulate B is absent.

It is also important to notice here that S.B. Lang et al in article Piezoelectricity in the human pineal gland, discovered that aluminum was consistently observed in the Pineal Gland using independent methods of measurement. (Lang et al, 1966)

Now aluminum is corrosion resistant with a 98% reflectance of photons, it is strong and light in weight. This situation is analogous to recent attempts to make photonic computers using silver oxide materials. It is ironic that aluminum is known to be neuro-toxic and is probably involved in Alzheimer's disease, whereas its presence in the Pineal Gland is abundant and shows no harm. It is hypothesized therefore that aluminum has an integral function in the Pineal Gland as opposed to the surrounding hypothalamus and pituitary tissue where it is seldom present. The explanation could be that the pineal gland is embryologically formed from tissue at the roof of the mouth and is innervated by the sphenopalatine nerve, and the otic ganglia, with an abundant blood supply from the internal carotid arteries. (Tewhey, 2002) The presence of aluminum with its high reflectance of 98% could be integral to the formation of an Infrared laser – type situation in the pineal gland as indicated in Day light hours chart attached, when there is accentuated amplification of photon activity between these virtual mirrors.

### **Purpose of Proposed Study**

By reference to the accompanying Schematic Diagrams, it can be quickly and clearly seen that there are three (3) main Postulates A, B and C with C divided into C1 and C2. The inter-

relationships of these postulated systems may affect the PGI with a Serotonin Stimulatory effect during daylight and melatonin inhibition effect at night.

These systems should work, if it is first established that in or around the eyes, there are:-

- 1) Piezo-electric or Ferro-Electric crystals present and adjacent to the Optic Nerves (Wikipedia 2007d)
- 2) Spontaneous Electro-luminescence in phosphors-type materials in juxtaposition to the Optic Nerves. (Electroluminescence, 2007)
- 3) Intrinsic Electro-luminescence after an Electrical Charge Injection into Electro-luminescence materials or phosphors in eyes. (Electroluminescence, 2007)
- 4) Peri-Neural analog Data Transmission along nerves as discovered by Becker (1974). It is hypothesized here that this analog beta transmission traveling parallel to the digital neuronal Data Transmission is actually achieved by photonic transmitting mechanism.
- 5) Electron-Phonon (trapped photon) coupling and infrared coaxial transmission line theory of energy transport in Optic Nerve. (Cope, 1973)
- 6) Collagenous (fiber-optic like) tissue harnessing photonic transmission in body (Simanonok, 2006).

At this stage in the discussion of the purpose for proposed study, it is critical to ask a few questions:-

- 1) Could spiralling configurations and Electron-Phonon coupling be the all-important factors for data and energy transfer causing the harmonization of some communication control mechanisms discussed previously? Perhaps these information transfer transmission requirements may allow for the transmission of specific frequency, wavelength and resonance parameters, necessary for the health of body cell which have special pre-programmed memories for communication the absence of which lead to disease. (Garrone, 2007) and (Cope, 1973)
- 2) Does collagenous Tissue, which envelopes every cell of the body, exert a fibre-optic effect, transmitting important photons/light for Energy and Data whose distortion may cause disease? (Simanonok, 2006)
- 3) If question 1 and 2 are valid, could it be that light transmission in specific configurations and frequencies be the most important factors responsible for energy Transfer for RAPID Photonic switching and computing characteristics and for Life itself?
- 4) Conversely could it be that our previously held opinions that all energy was from glucose derived from food eaten is only partially true and that nutritive substances were mainly for re-building, restoration and maintenance of tissues?
- 5) The ultimate question therefore is:- Could a properly-functioning Pineal Gland, with perfect dissemination of Photons, Electrons and Hormones, act as a central communication control center for transmission of Data and Energy, permitting optimal health for the whole individual? When all of the above ideas are associated with ideals established in the Acronym “NEWSTART” and are followed then good health may be maintained and restored, thus eradicating the necessity for several expensive and dangerous drugs currently in use!!
- 6) Can we using “NEWSTART” principles described below, help to rejuvenate / control the functions of the Pineal Gland and its connections (a) to support the Humoral and Cell-

mediated Immune System. (b) to provide adequate hormones to the Endocrine Organs. (c) to exert an appropriate Electron/Photon Control on cells in order to suppress or prevent disease in our bodies.

### **Proposed Methodology for Testing Hypothesis**

We know that there are at least two (2) (or perhaps three (3) ) systems affecting the Pineal Gland via the eyes, that is, visual and non-visual photoreceptors. The latter mechanism has not been identified nor published to date.

The proposal then is to initially examine specimens of human eyes and surrounding tissues to look for:-

- 1) Piezo-electric crystals – using second harmonic generation technique, analogous to those used by S.B. Lang et al of the Pineal Gland Tissue. (Lang et al 1996)
- 2) Ferro- electric crystal
- 3) Phosphors- type materials exhibiting electro-luminescence both by (a) spontaneously with UV light and (b) when an electric charge is injected on the crystals, in solid or in fluids. (Electroluminescence, 2007)

After establishing the presence of these, then checks may be made for possible transmission of infrared Coaxial trapped photons by Electron-Phonon coupling in the optic nerve of beyond. The checks of the Pineal Glands activity can be made by

- (1) Melatonin blood levels assay.
- (2) Changes in blood pressure.
- (3) Pupillary Dilatation examinations.
- (4) Eyelids Elevation examinations.
- (5) Changes in rectal temperature.

The primary objective here then, is to investigate the ocular region for PE and EL materials and analogous to the second harmonic generation studies of P.E. materials in PGL (SB Lang et al).

As in A, it is presumed that energy as Infra-Red trapped photons with Electron-phonon coupling is transported along the optic nerve by an Infra-Red coaxial transmission line mechanism as mentioned by Freeman W. Cope in Bulletin of Mathematical Biology Vol. 35 (1973). This type of coaxial transmission apparently seems to fit the established method of energy transfer in a spiral-shaped configuration which seems so essential for life. Spiralling seems to be important for transmission in

(A) cosmic energy

(B) spiral shaped DNA molecules which cannot function if their base pairs are arranged in a linear fashion, and metabolic changes for life take place only when the spiralling re-occurs.

(C) Other shapes of natural substances such as shells, leaves, etc.

The question must be asked at this point:- In addition to the other control mechanisms of the PGL discussed, could it be possible that most diseases occur as a result of the loss of vital information transmitted by this Spiraling Effect of Coupled Photons and Electrons. Thus many distorted resonance characteristics for which the cells of the body have been pre-programmed to function and could be caused by (a) distorted information from a mal-functioning PGL or (b) from diseased collagenous tissue which fails to transfer proper PHOTONIC data by fibre-optic health-promoting resonance effects to somatic and brain cells altering essential spin and vibration?

Conversely, could a properly functioning PGL plus the establishment of “NEWSTART” ideals, restore and maintain good health and therefore eradicate the need for several drugs now currently in use?

### **Proposed Methodology for Testing Hypotheses**

We know that there are at least two (2) (or perhaps three (3)) systems affecting the PGI via the eyes, that is Visual and Non-Visual Photoreceptors.

The Proposal then, is to initially examine specimens of the eyes and surrounding tissues to look for:-

- 1) Piezo-electric crystals using Second Harmonic generation techniques analogous to that used by S B Lang et al on the Pineal Gland tissues.
- 2) Ferro-electric crystals
- 3) Phosphors-type materials exhibiting electro-luminescence both (a) spontaneously with UV light and (b) when an electrical charge is injected on to the crystals solid or in fluids.

When the presence of these may be established, then checks can be made for possible transmission of IR Coaxial Trapped Photons with electron-Phonon Coupling in Optic Nerve and beyond.

Then checks on PGL activity can be made by:

Melatonin blood levels assay

Changes in Blood Pressure

Pupillary Dilatation Exams

Eyelid elevation Exams

Changes in Rectal temperature

Following this initial assessment, then several other hypotheses as outlined will need to be validated. Moreover, there are other important considerations to be made and further questions to be posed: for example in the New Scientist (Iran Daily) IBM researchers in the USA noted that in “Electroluminesce” on the topic of “Photons Trapped by Trick of Light.” Optical microchips that can store light for short periods of time before sending it on its way have been constructed for the first time.

Two important points were that:

1. Light is good at transmitting data
2. Can signal on/off switching.

But light is difficult to store because they interact only weakly with each other and with transparent materials. Therefore light data has to be converted to an electronic form for storage, processing and movement around on the microchip.

Note: an intriguing question regarding the analogous situation in the Pineal Gland is this: While some IR Photons in the Pineal Gland are converted to electrons, is it possible that a longer than normal data storage is allowed due to Photons being reflected back and forth between a 98% reflectance Aluminum Crystals which are so prevalent in Pineal Gland thus acting as an “Optical Buffer” and causing initial processing of data even before it is transmitted to the Cerebral Hemispheres for further detailed processing in the hippocampus, Then during sleep the data is transmitted to the long term memory (LTM) storage in the Frontal cortex of the Brain.

Furthermore to emphasize the importance of light we can note in Wikipedia, the free encyclopedia on Photonic Computing (2007) that recent research has demonstrated that temporary trapping of light in crystals is a necessary element to replace electronic storage for computer logic by photonic logic - using light in logic gates (i.e. AND, NAND, OR, NOR, XOR, XNOR). Switching is obtained using non-linear optical effects when two or more signals are combined. The question here is :- is possible spiraling as a non-linear optical effect a critical factor in this situation.

We may also note is passing the resonators are especially useful in Photonic logic, since they allow a build up of energy from constructive interference, thus enhancing optical non-linear effects.

Other approaches currently being investigated include Photonic logic at a molecular level using photoluminescent chemicals, (Wikipedia, 2007b) which is possibly exactly what is taking place in the Pineal Gland supported by aluminum mirrors rebounding photons and thus increasing their energy level and wells as that of electrons.

Another important question is:- What relevance does the presence of calcium-aluminum inclusions – which are the oldest compounds thought to be formed near the New Sun (néos **helios, novus solis**), (Amethyst Galleries Inc., 2007) thousands of years ago, and which are found in the Pineal Gland, have in this case. With all embryological knowledge that the Pineal Gland is formed from specialized (Non-Brain) palatine tissue i.e. at the “Roof of the Mouth”, (Strassman, 2001) is it not possible that these old calcium- aluminum inclusions would have two important and essential properties for the Pineal Gland

- 1) Almost perfect reflectance characteristics.
- 2) High heat resistance possibilities.

Perhaps, much more investigation is needed here.

Note:

Below is an outline of the maintenance or restoration of healthy brain and bodily characteristics by the eight established principles with the acronyms called **NEWSTART**. It will be shown how each of these principles is important or even mandatory for Health in league with a proper formatting Pineal Gland.

- N :** Nutrition
- E:** Exercise
- W:** Water
- S:** Sunshine
- T:** Temperance
- A:** Air (Fresh)
- R:** Rest (Adequate)
- T:** Trust in God (for mental, physical and spiritual health)

## **NEWSTART**

Since about 100 years ago the principles of “NEWSTART” as outlined below, were enunciated by author E G White. However, only today are scientists proving the veracity and importance of those admonitions for a healthy lifestyle as a whole.

Here are the principles advocated:

### **Nutrition**

A well-established view among scientists and people of the world in general is the importance of a proper diet.

The use of proper foods keeps the heart and blood vessels healthy. A good diet also influences the immune system, thus preventing the onset of cancer and the combating of most diseases. For example, fresh vegetables, fresh fruits, whole grains, legumes with unrefined foods low in sugar, salt and fat content are particularly advisable to eat.

### **Exercise**

This strengthens the Immune System, maintains the heart and blood vessels in a healthy condition, lowering blood sugar, cholesterol and blood pressure. Moreover, exercise triggers the release of endorphins which are morphine-like in action, giving individuals a sense of euphoria or well-being.

### **Water**

Most of the body is made of water, so that for proper metabolic processes and for replacement of loss from lungs, urine and faeces, it is important to drink 6 – 8 glasses of water per day.

### **Sunshine**

This is obviously very important for:

The Pineal Gland functions as has been described in detail.

- a) Energy production is from sunlight and water, explained in the H R Manek’s experiments by NASA and other International Scientists.
- b) Production of vitamin D

- c) Prevention of depression in Season Affective Disorder (SAD) Syndrome during winter months.
- d) Triggering of the release of endorphins (the feel-good hormone) in the brain.

## **Temperance**

This is the avoidance of harmful substances and the moderate use of “good” substances; e.g. harmful effects of saturated fats, alcohol, caffeine, and smoking are the most well known harmful substances.

## **Air**

The value of inhaling negatively ionized air is well known to stimulate beneficial cerebral biochemical substances. Also Oxygen is needed by all cells for oxidation to complete energy production.

## **Rest**

The observation of every living organism shows the cycles of work or exercise and REST. Constant overexertion negatively impacts the Immune System.

## **Trust in God**

The complexity of systems in our brains and bodies generally would indicate some Intelligent Design; moreover what occurs in our bodies are affected by Planets and the energy from the Cosmos as a whole.

The positive influence on our minds, possibly via the Pineal Gland would obviously influence our bodily conditions and so this Intelligent Designer could help if we trust in Him.

## **Conclusion**

This paper is designed to stress the following:

- a. The Feedback Control between the Pineal Gland and the Immune System is all-important in the Prevention and for Control of Disease, since Melatonin positively impacts both Humoral and Cell-mediated Immunity. Melatonin also controls sleep-wake or the work – rest cycle.
- b. Most of the Principles of NEWSTART are concerned with the Maintenance of the cell metabolic processes and the Re-constitution of damaged tissues.
- c. However, most important is the view that the actual propagation, delivery and processing of “Vital” Energy mechanisms is controlled by Light, which seems to be more significant for energy production than for example nutritive substances.
- d. Moreover, Data transmission from the Environment to the body cells via the Pineal Gland and the Brain as a whole seems to be mediated and controlled primarily by Light Signaling correct Information, and by changing states of “excitement” and movement of electrons.
- e. Lastly in this regard, it is interesting and educational to read “the search for new applications for laser light beams” by Irati Kortabitarte (2006). As he explains, Photons

created by an electrical or light stimulus reach a state known as “Active Species”. Then following a process in which electrons in an excited state spontaneously return to their fundamental level, then the accumulated energy liberates extra Photons with greater energy and longer wavelength than the initial photons, thus creating a laser light beam. The “Active Species” photons are released in all directions but is trapped by two mirrors “judiciously juxtapositioned”.

It is not difficult to conjecture therefore, that is the case of the pineal gland where there are multiple mirror-like effects from aluminum and calcium-aluminum inclusions, that a to-and-fro movement is initiated with photons bouncing back and forth from one “mirror” to the other. While these photons are trapped, they continue to influence other electrons thus creating even more high energy photons, that is even more “LASER LIGHT”, which can then be transmitted to all parts of the body, either by collagenous “fibre optic” effects or by coaxial transmission line through electron-phonon coupling. Consideration should also be given here to the possibility to all-important spiralling effects, since Kortabitarte found that “Active Species” photons line up and escape through one of the mirrors as a “laser light beam- continuous and pulsating”. Simple multiplication of this effect by several mirrors in the pineal gland will re-create much needed spiralling and frequency information necessary for life. What we have here in the pineal gland then, is actually Photonic Computing which recent scientist have been laboring to invent.

Therefore regarding the potential energy from light, the experiments done on retired Indian Mechanical Engineer called H R Manek who lived for over 211 days on sunlight and water only, will support this view. Renowned NASA and International Scientists have performed many experiments on this advocate of the ancient practice of Sun-gazing with good results.

The Energy and Data Transfer is achieved by Electron-Phonon Coupling and Infra-red Coaxial Transmission-line conduction plus collagenous fibre optics mechanisms to cells which will only respond appropriately to the correct pre-programmed frequency, wavelength and other possible parameters such as a Spiralling Configuration to stimulate correct resonance, vibration or “spin”. Any departure from these parameters may lead to disease.

The Pineal Gland then seems to be the smallest organ with a major role in communication of information to the brain and body from the immediate Environment and the universe as a whole.

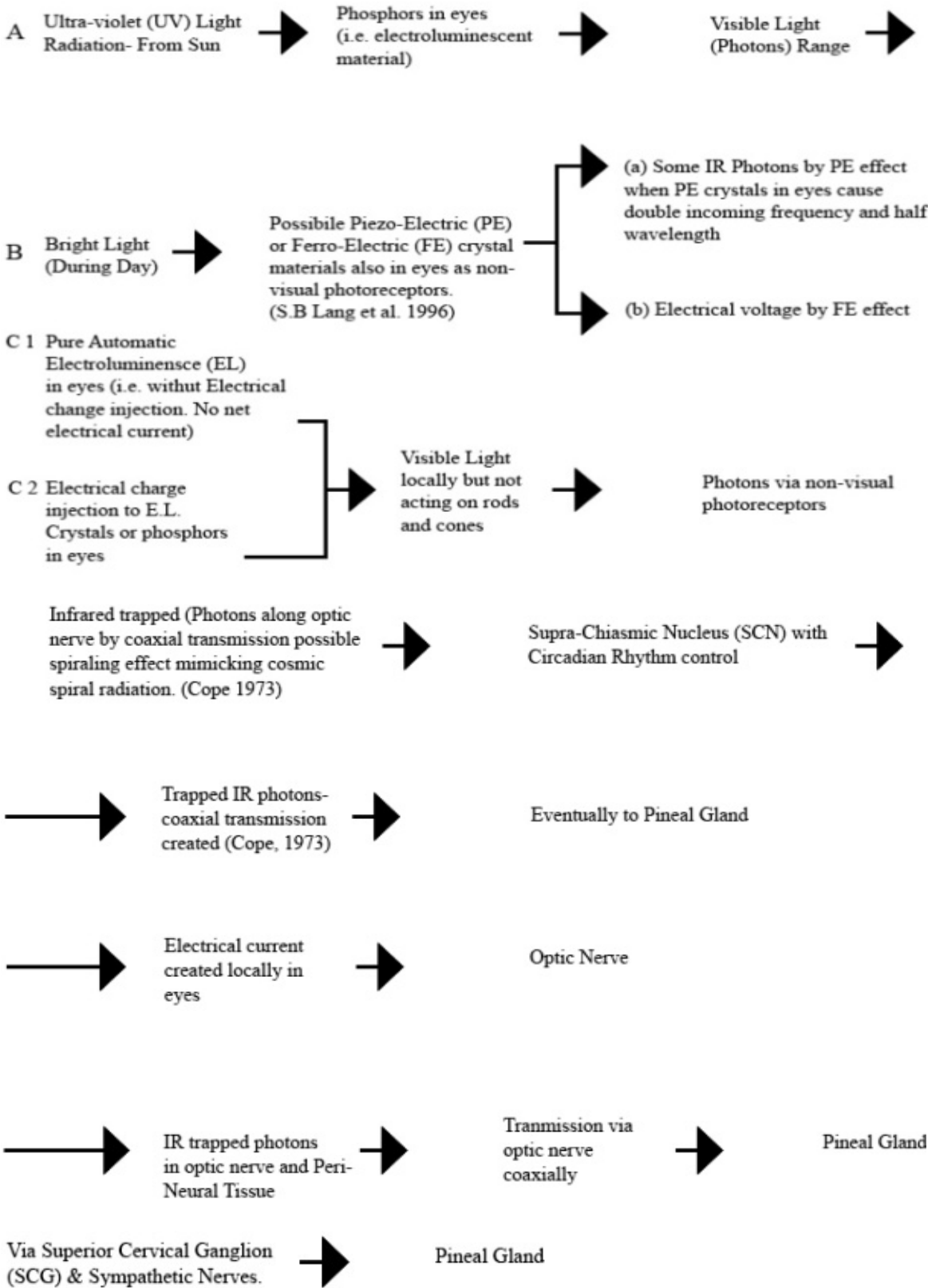
An unknown author wrote the following:

“The best and greatest things are rapped in the smallest parcels.”

Could this be true of the Pineal Gland?



# Three Systems postulated- may act concurrently



Coded Information to the right and left Cerebral Hemispheres via small neuronal connections with the Pineal Gland as well as the central nerve in the Pineal Stalk. Note Photonic information is also transferred to the Cerebrum by Ciliary Processes in the Ventricles.

Information regarding position in space is allowed by:

1. Connection to the Cerebellum.
2. Vibratory signals into the CSF from the Pineal Gland which sits at the top of the spinal cord (possibly by overall Piezo-Electric Effect when crystals change shape under electrical stimuli)

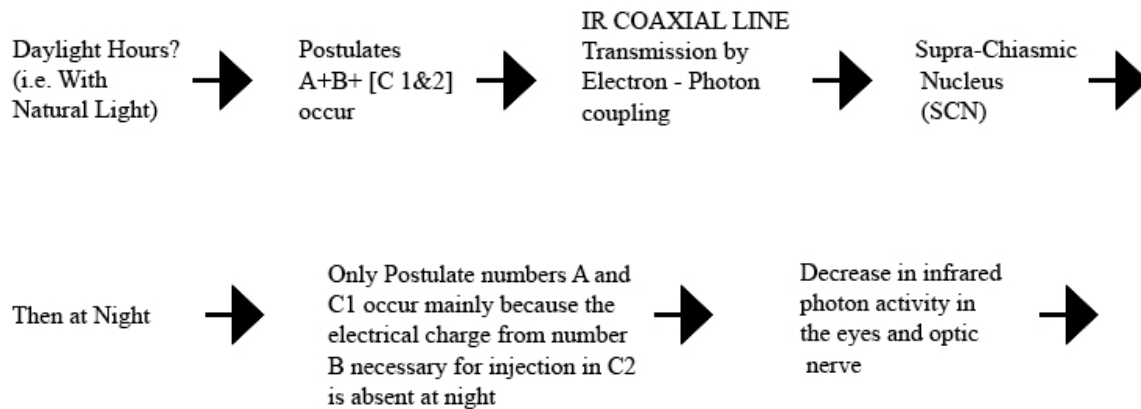
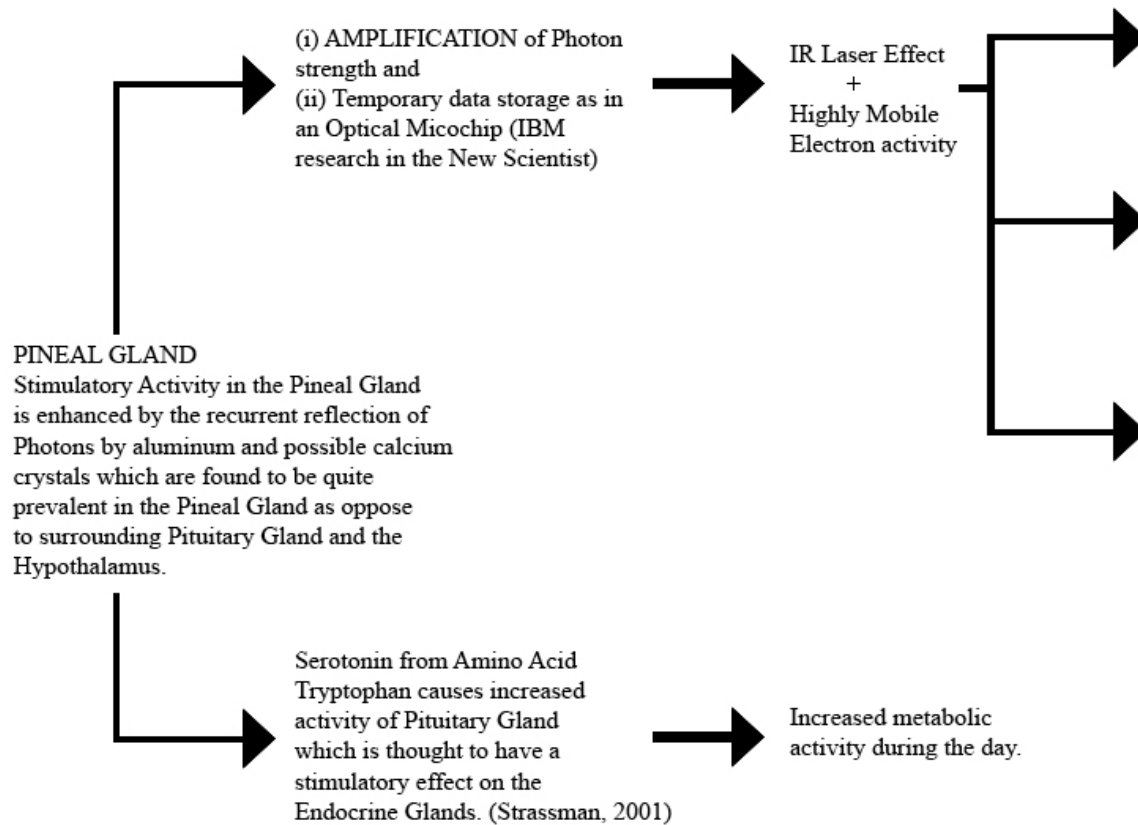
As a result of the fact that Photons have memory for specific data, Somatic Cells of the whole body get the specific frequency and wavelengths information necessary for the definite resonance parameter for which they have been pre-programed at birth.

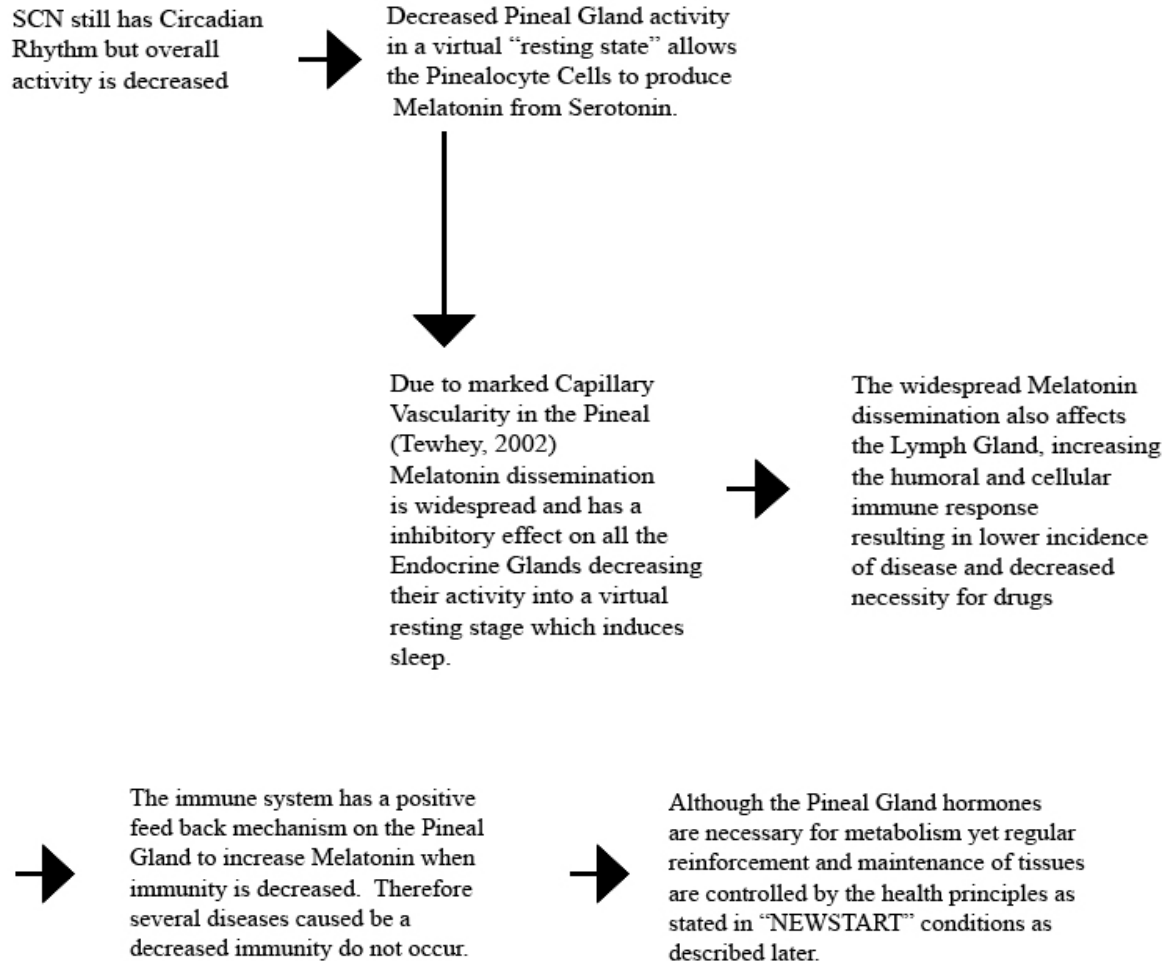


This is made possible by:

1. Photonic information carried by Collagen Fibres by a Fibre Optic Effect to every cell of the body.
2. Information carried by Neuronal Action Potentials digitally (see Becker ).
3. Information transferred by Peri-Neural Tissue by and analog mechanism as Becker suggested.

? Could the Analog Transmission travelling almost parallel to the digital Action Potentials as in 2 above be actually photonic? It is suggested that a Spiralling Effect is created which seems so necessary to life (as discussed elsewhere).





## References

- Amethyst Galleries, Inc. (2007) *The Mineral Oligoclase*. Retrieved January 13, 2008, from <http://www.galleries.com/minerals/silicate/oligocla/oligocla.htm>.
- Becker, R.O. (1974). The basic biological data transmission and control system influenced by electrical forces. *Electrically Mediated growth mechanisms in living systems*. (pp.238-239). New York: Annals of the New York Academy of Sciences.
- Bennett, R., (2002). Overview: The Pineal Gland center of the physical brain. *AVS Journals*. Retrieved August 22, 2007. from <http://www.mindmachines.com/thepineal-gland-article-richard-bennett.htm>.
- Chem, G.W., Huang, Y. K., Lin, K.H., Sun, C.K. (2003). Generation of coherent acoustic phonons in piezoelectric semiconductor heterostructures. [Abstract]. *Front for the arXiv*, Retrieved January 12, 2008, from <http://front.math.ucdavis.edu/0301.0031>.
- Childs, G.V. (2000) Pineal Gland Study Guide. *Cytochemistry*. Retrieved October 1, 2007, [http://www.cytochemistry.net/Endocrine\\_System/pineal.htm](http://www.cytochemistry.net/Endocrine_System/pineal.htm).

- Colossal Storage Corp. (n.d.) *First Generation 1.2 Petabyte Spintronics 3.5 disk drive*. Retrieved January 14, 2008, from <http://colossalstorage.net/spintronics.htm>
- Cope, F.W. (1973a). Electron-Phonon (trapped photon) coupling and infrared coaxial transmission line theory of energy transport in mitochondria and nerve, *Bulletin of Mathematical Biology*. 35. 627-644. New York. Springer.
- Cope, F.W. (1973a). Piezoelectricity and Pyroelectricity as a basis for forces and temperature detection by nerve receptors. [Abstract], *Bulletin of Mathematical Biology*. 35. New York. Springer.
- Cope, F.W. (1975). Kinetics of light emission by photosynthetic systems: Second order light decay kinetic means elovich kinetics in a solid state reaction: 1.5 order light decay kinetics means second order reaction kinetics. [Abstract], *Bulletin of Mathematical Biology*. 37. New York. Springer.
- Czeisler, C.A. et. al (1995). Suppression of Melatonin secretion in some blind patients by exposure to bright light. *The New England journal of medicine*, 332. 6-11. Retrieved July 9, 2007, from <http://content.nejm.org/cgi/content/full/332/1/6>
- Electroluminescence. (2007). In *Encyclopedia Britannica*. Retrieved December 30, 2007 from [www.britannica.com/eb/article-9032305/electroluminescence](http://www.britannica.com/eb/article-9032305/electroluminescence).
- Garrone, P. (2007). Useful information for our health: Bioenergy for the body. *Bioenergy Research*. Retrieved November 21, 2007, from [http://www.bioenergyresearch.com/eng/bioenergy\\_for\\_body.htm](http://www.bioenergyresearch.com/eng/bioenergy_for_body.htm).
- Georgia Institute of technology (2002, Aug 13). Nanometer- Scale light source is first to show single- molecule electroluminescence.
- Griefahn, B. et. al. (2006). Effects of infrared radiation on the diurnal rhythms of melatonin, rectal temperature and heart rate. [Abstract]. *Occupational Ergonomics*, 6(1). Retrieved June 11, 2007, from <http://iospress.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,5>
- Herzog, J. B.(2006). Polar Optical Phonons in AlN/GaN superlattice structures. Physics of Eletron transport in Semiconductor Devices, Retrieved December 30, 2007 <http://xml.ee.nd.edu>.
- Hilton, G. (2003) Melatonin and the Pineal Gland, *Journal of Neuroscience Nursing*, 34(2), 74-89. Retrieved Dec 30 2007 from Academic Search Premier.
- Jerndal, J. (1982). The field resonance approaching medicine. *Health wisdom*. Retrieved August 22, 2007, from <http://www.healthwisdom.org/amrit/pg35.htm>.

- Kortabitarte, I. (2006). The search for new applications for laser light beams. *EurekaAlert*. Retrieved January 12, 2008, from [http://www.eurekaalert.org/pub\\_releases/2006-05/ef-tsft053006.php](http://www.eurekaalert.org/pub_releases/2006-05/ef-tsft053006.php).
- Lang, S.B. et. al. (1996). Piezoelectricity in the human pineal gland, *Bioelectrochemistry and Bioenergetics*, 41, Retrieved August 1, 2007, from <http://img.mediaplex.com/cgi-bin/>
- Lucas et al. (1997). Regulation of the Mammalian Pineal by non-rod, non-cone ocular photoreceptors, *Science*, 284(5413) 505, Retrieved August 1, 2007, for Academic search Premier.
- Luminescence (2007). In *Encyclopedia Britannica*. Retrieved December 30, 2007, from Encyclopedia Britannica Online <http://www.britannic.com/eb/article-9110444>.
- Martensen R.L. (2005). The brain take shape: An early history. *The New England journal of medicine*, 352. 845-846. Retrieved July 9, 2007, from <http://content.nejm.org/cgi/content/full/352/8/845>.
- Moore, R.Y. (1995). Vision without sight. *The New England journal of medicine*, 332. 54-55. Retrieved July 9, 2007, from <http://content.nejm.org/cgi/content/full/332/1/54>
- Parmar, V.(2007). Living on sunlight: About Hira Ratan Manek. *Booklet: A comprehensive sun gazing resource* . Retrieved June 20, 2007, from <http://www.astralsociety.com/files/HRM>
- Rodriguez, C. et. al. (2004). Mini review: Regulation of antioxidant enzymes: a significant role for melatonin. *Journal of Pineal Research*, 36(1). 1-9. Retrieved August 22, 2007, from <http://www.blackwell-synergy.com/doi/full/10.1046/j.1600-079X.2003.00092.x?cookieSet>.
- Scientific Frontline. (2006). *Far-out findings – new analysis suggests planets were formed from a giant mix*. Retrieved December 10, 2007, from [http://www.sflorg.com/spacenews/sn121406\\_02.html](http://www.sflorg.com/spacenews/sn121406_02.html).
- Simanonok, K. (2006). Endogenous light Nexus Theory of Consciousness. [Abstract]. Retrieved January 21, 2008, from <http://light.simanonok.com/>
- Tewhey, S. (2002). Lit from Within: An introduction to ancient and modern perspective of the pineal gland. *Ayurlight*. Retrieved August 22, 2007, from <http://www.ayurlight.com/pages/pineal.htm>.
- Ultra Violet Radiation (2007). In *Encyclopedia Britannica*. Retrieved December 30, 2007 from [www.britannica.com/eb/article-9032305/electroluminescence](http://www.britannica.com/eb/article-9032305/electroluminescence)
- Vigh, B. et.al. (2002). Nonvisual photoreceptors of the deep brain, pineal organs and retina. *PubMed*. Retrieved August 1, 2007, from <http://www.ncbi.nlm.nih.gov/sites/enrez?Db=PubMed&Cmd=ShowDetailView&Term>.

- Wikipedia Foundation Inc. (2007a). Pineal Gland. *In Wikipedia, the free Encyclopedia*. Retrieved Dec 30, 2007, from [http://en.wikipedia.org/wiki/Pineal\\_gland](http://en.wikipedia.org/wiki/Pineal_gland).
- Wikipedia Foundation Inc. (2007b). Photonic computing. *In Wikipedia, the free Encyclopedia*. Retrieved January 13, 2007, from [http://en.wikipedia.org/wiki/photonic\\_computing](http://en.wikipedia.org/wiki/photonic_computing)
- Wikipedia Foundation Inc. (2007c). Infrared. *In Wikipedia, the free Encyclopedia*. Retrieved December 30, 2007, from [http://en.wikipedia.org/wiki/Infrared\\_radiation](http://en.wikipedia.org/wiki/Infrared_radiation).
- Wikipedia Foundation Inc. (2007d). Piezoelectricity. *In Wikipedia, the free Encyclopedia*. Retrieved December 10, 2007, from <http://en.wikipedia.org/wiki/piezoelectricity>.
- Wikipedia Foundation Inc. (2007e). Aluminium. *In Wikipedia, the free Encyclopedia*. Retrieved December 10, 2007, from <http://en.wikipedia.org/wiki/Aluminium>.
- Yellon, S. M. (2007). Melatonin mediates photoperiod control of endocrine adaptations and humoral immunity in male Siberian hamster. [Abstract]. *Journal of Pineal Research*, 43(2). Retrieved August 9, 2007, from <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1600-079X.2007.00448.x>.
- Zawilska, J.A. et. al. (1996). The effect of light with various wavelengths and impulse times on nocturnal suppression of N<sup>2</sup>acetyltransferase activation by serotonin in the pineal gland of the chick. *PubMed*. Retrieved August 1, 2007, from [http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list\\_uids=9340413](http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=9340413).
- Essenta Communication Inc.(n.d) Light color and SAD syndrome. *Essenta Communication*. Retrieved July 11, 2007, from <http://www.essenta.ca/FullSpectrum/Sadsynd.htm>.
- IBM Researchers in US, New Scientist .(2006, December 27). Photons trapped by trick of light. *Iran Daily Science*. Retrieved January 13, 2008, from <http://www.iran-daily.com/1385/2744/html/science.htm>
- Dhalakia K, (2006). Optical micro-manipulation takes hold. *Laser beam shaping VII* Retrieved January 11<sup>th</sup> 2008, from [http://www.st-andrews.ac.uk/~atomtrap/papers/NT\\_Review.pdf](http://www.st-andrews.ac.uk/~atomtrap/papers/NT_Review.pdf)

# Trends in Drifting from Education Based Programmes: Case of Adventist University of Central Africa from 1984 to 2021

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## Abstract

*Job motivation in a global economy is a key factor in determining which programme people in a given period, location, a community need to study. Therefore, the programme of study needed may not necessarily attract applicants because the choice of programme will be triggered by a number of factors, and the job market will definitely be the compelling motivation to this or that programme. A self-supported university student would not take a programme for which the job market will not yield a high remunerating position, although the mind set may be a misconceived idea. After all, every programme is useful in a community. The trend for the last twenty years has been that of opting for marketable majors leading to higher pay, especially Accounting, Finance, Economics, and Information Technology programmes rather than Education and Theology curriculum based subjects, unless sponsored by the government or non-lucrative organization.*

**Keywords: trends, drifting, education, motivation, choice**

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## Introduction

The Adventist University of Central Africa (AUCA) was founded in 1978, but the official opening was held on 15 October 1984. By that time it was located at Mudende, in the former commune of Mutura, Gisenyi prefecture (one component of the current Western Province).

The Adventist University of Central Africa (AUCA) was primarily established to serve the Francophone constituency of the then Africa-Indian Ocean Division. It had 7 faculties:

- Faculty of Business Administration (Accounting and Information Management)
- Faculty of Sciences (Math-Physics, Biology and Chemistry, Human Biology and Public Health)
- Faculty of Education (Educational Psychology)
- Faculty of Technology (A1)
- Faculty of Agriculture
- Faculty of Languages (French and English)
- Faculty of Theology

The institution grew and served its constituents till 1994 when the genocide erupted and the university was closed. From the wreckage of the genocide, the university moved in 1996 and developed into a new phase of activities in the basement of Literature Ministry Seminary (LMS) of Rwanda Union Mission in Kigali City under the names, first “Adventist University Monnier”



(AUM) and then shortly after, “the Adventist University in Rwanda” (AUR). In January 1999, the University moved to Gishushu, Kigali City, Rwanda. In light of the development, the Higher Education Council (HEC) of Rwanda granted and restored its educational function under the 1988 charter and regained the original name “Adventist University of Central Africa”(AUCA).

Following the genocide against Tutsi in 1994, AUCA had temporarily suspended its activities until 7 May 1996, during which time the university reopened its doors on a transitional site in Kigali. Since then, the university could only run a few from faculties Business Administration, Education, Nursing, Information Technology, and Theology.

Owing to these circumstances, the Adventist University of Central Africa could not hope to return to its former campus. The university reopened its doors in 1996 in Kigali in relatively modest buildings, whereby administrators, teachers and students were looking forward to a better day when the institution would look like a beautiful campus worthy of a university. Some people said that this was a resurrection of the university, others rather claimed that it was the last stage of the agony of AUCA. But the claim ignored God’s promise which says, "Not by might, nor by power, but by my spirit ..." (Zechariah 4:6).

In fact, whenever you would enter the small campus of this old and prestigious institution, you would never find any evidence that justified its reputation. You would rather find only small buildings that were not even worth of a nursery school.

Although the plot of the campus was not even enough to run a university (1.7 ha), a few committed administrators and teachers conducted a university program there, a sign of the beginning of the resurrection of the old Adventist University of Central Africa.

In fact, in order to get out of this situation, it was necessary to engage in both activities, i.e. teaching and thinking about reconstruction. Both challenges were difficult: teaching in such conditions was not easy, rebuilding without resources was even harder. The only way out of this crisis was to sell Mudende campus to the Government of Rwanda.

Negotiations between the authorities of the university and the Rwandan government began in 1999. The agreement of the government was given in 2003. It was not until February 2006 that the handing over and taking over were made between both concerned parties (the ECD and the Government of Rwanda, represented by its Ministry of Defense) (see photos of the event). Currently it is occupied by the Rwanda Defense Forces. The past of AUCA was then closed to look forward to the present and the future. New horizons of the melodious bright future was opening.

Ten years after the brutal ruthless genocide against the Tutsi, the process of reconciliation and reconstruction continues in Rwanda. For Seventh-day Adventists this includes the "resurrection" of the Adventist University of Central Africa. First, it planned to reconstruct the existing Gishushu campus, but church leaders globally opposed the idea because the site was too narrow for a university.

Instead they suggested to look for a much wider land, preferably in Kigali City, where students and visiting professors would be more available. Thus, the government gave us the land Masoro,

which is located in the outskirts of Kigali. It is an area of 22 ha, with a beautiful sight of the current international airport of Kigali. The site was accepted by the Division and the General Conference of our church.

With what was given to AUCA by the Rwandan government, in compensation for the campus Mudende, and the appropriation from ECD, it was now possible to plan for the reconstruction of a new campus of AUCA. In this regard, Pastor Jozsef Szilvasi, Rector of the university said during a graduation ceremony:

Two years later the Adventist University of Central Africa was housed in the campus of Masoro, which is situated on a land of 22 hectares in the extremities of the City of Kigali, after the ground breaking ceremonies by government authorities and the East Central Africa Division (ECD) leaders.

The East Central Africa Division, in collaboration with the Administrative Committee of the University took significant steps to build a new campus in signing a contract with the Government of Rwanda to sell what remained of the old campus Mudende. The construction works took almost two years to be completed. The inaugural ceremonies were conducted by Dr Pardon Mwansa, the Vice President of the General Conference of the Seventh Day Adventist Church, on 22 July 2007.

However, one building was not enough for all the university activities. That is why immediately after, other construction activities had to follow. A conference hall of a capacity of around 2000 persons was the first priority on the long list. Its construction began in February 2009 and was completed in September 2011, date on which it was inaugurated by the Ministry of Local Government and high ranking officers of the East Central Africa Division (ECD). This multipurpose hall enables the university to gather the whole student population during various forums, such as the academic gathering, general assembly, week of prayer, Sabbath services, conferences of all kinds, etc.

Currently AUCA owns three campuses in the City of Kigali: Masoro Campus, Gishushu Campus, and Ngoma Campus. It is difficult to develop both campuses simultaneously given the shortage of financial resources. Given the strategic position of Gishushu campus, Kigali City Council asked the university to develop it according to its Master Plan. This is how the construction project of the Science Centre and Technology of Gishushu was born. The development department then began to gather design ideas for the building plan. The construction of this centre started with the ground breaking by the Prime Minister and the President of the General Conference of the Seventh-day Adventist Church. It was on March 8, 2012. The construction lasted 2 years and 6 months. The building was completed and inaugurated on 11 February 2015 by the President of the General Conference of the Seventh-day Adventist Church.

Masoro and Gishushu campuses are connected to other parts of the City of Kigali by two paved roads built by the Ministry of infrastructure.

## **Mission, Vision, Objectives of the Faculty of Education at AUCA**

**Mission:** The Adventist University of Central Africa is committed to provide a Christ -Centred quality education founded on a holistic approach that prepares people for the service in this life and the life to come.

**Vision:** To be a well-known centre of academic excellence in undergraduate and prostgraduate programmes in education, business administration, and Information Technology.

### **Objectives:**

To offer ten majors for Education programmes such as Accounting, Mathematics, Economics, English, French, Information Technology, Geography, History, Religious Studies, and Educational Psychology.

To run an in-service programme in Education mainly for primary school teachers at Masoro Campus

To teach a Diploma (A1) of Education in English Language and Literature, Mathematics, Accounting, and Geography to address the urgent needs for teachers for primary school.

To operate a vibrant Master’s programme in Education programme at Gishushu Campus to serve the country and the SDA church in school administration and curriculum development.

### **Aim of the study**

This study aims to research on key factors which have attracted applicants to enroll in Education based programmes such as languages, sciences, mathematics, geography, educational psychology, just to name a few, and the causes of a sensitive drop out of numbers of students enrolled in those areas.

### **Research Question**

1. What is the viability of education programmes in a competitive global market?
2. What causes the drop out of enrolment in Education based programmes?
3. What are the benefits of an education curriculum based in the development of the country?

### **Methodology**

This paper adopts a descriptive research design as all the variables and subjects are observed and the basic obj to describe AUCA Education programme situation. The researcher compared the data of previous years of the University as related to the enrolment of the students in Education subjects to the present year to find out the g between the varied enrolments and give a conclusion based on the results. Therefore, secondary data analysis applied

### **Table 1. AUCA Enrolment 1984-1994 (Mudende)**

<b>Ser</b>	<b>Major/Dept</b>	<b>1984-1985</b>
1	Accounting	40
2	Agronomy	3
3	Biochemistry	3
4	Construction	0
5	Educational Psychology	6
6	Human Biology	2
7	Information Systems	6
8	Math-Physics	3
9	Modern Languages	4
10	Professional	0
11	Public Health	2
12	Theology	45
<b>Ser</b>	<b>Major/Dept</b>	<b>1985-1986</b>
1	Accounting	13
2	Agronomy	2
3	Biochemistry	1
4	Construction	0
5	Educational Psychology	5
6	Human Biology	4
7	Information Systems	0
8	Math-Physics	0
9	Modern Languages	0
10	Professional	0
11	Public Health	0
12	Theology	7
<b>Ser</b>	<b>Major/Dept</b>	<b>1986-1987</b>
1	Accounting	11

2	Agronomy	2
3	Biochemistry	1
4	Construction	0
5	Educational Psychology	5
6	Human Biology	4
7	Information Systems	1
8	Math-Physics	0
9	Modern Languages	1
10	Professional	0
11	Public Health	0
12	Theology	6
<b>Ser</b>	<b>Major/Dept</b>	<b>1987-1988</b>
1	Accounting	14
2	Agronomy	2
3	Biochemistry	1
4	Construction	2
5	Educational Psychology	9
6	Human Biology	2
7	Information Systems	7
8	Math-Physics	5
9	Modern Languages	1
10	Professional	0
11	Public Health	0
12	Theology	6
<b>Ser</b>	<b>Major/Dept</b>	<b>1988-1989</b>
1	Accounting	22
2	Agronomy	0
3	Biochemistry	0

4	Construction	9
5	Educational Psychology	16
6	Human Biology	0
7	Information Systems	25
8	Math-Physics	1
9	Modern Languages	0
10	Professional	6
11	Public Health	0
12	Theology	16
<b>Ser</b>	<b>Major/Dept</b>	<b>1989-1990</b>
1	Accounting	45
2	Agronomy	0
3	Biochemistry	0
4	Construction	18
5	Educational Psychology	35
6	Human Biology	0
7	Information Systems	21
8	Math-Physics	7
9	Modern Languages	0
10	Professional	7
11	Public Health	9
12	Theology	22
<b>Ser</b>	<b>Major/Dept</b>	<b>1990-1991</b>
1	Accounting	43
2	Agronomy	0
3	Biochemistry	3
4	Construction	17
5	Educational Psychology	22

6	Human Biology	0
7	Information Systems	4
8	Math-Physics	17
9	Modern Languages	0
10	Professional	6
11	Public Health	8
12	Theology	15
<b>Ser</b>	<b>Major/Dept</b>	<b>1991-1992</b>
1	Accounting	28
2	Agronomy	0
3	Biochemistry	7
4	Construction	7
5	Educational Psychology	26
6	Human Biology	0
7	Information Systems	24
8	Math-Physics	1
9	Modern Languages	0
10	Professional	0
11	Public Health	8
12	Theology	22
<b>Ser</b>	<b>Major/Dept</b>	<b>1992-1993</b>
1	Accounting	53
2	Agronomy	0
3	Biochemistry	0
4	Construction	12
5	Educational Psychology	24
6	Human Biology	0
7	Information Systems	4

8	Math-Physics	7
9	Modern Languages	0
10	Professional	0
11	Public Health	12
12	Theology	8
<b>Ser</b>	<b>Major/Dept</b>	<b>1993-1994</b>
1	Accounting	61
2	Agronomy	0
3	Biochemistry	15
4	Construction	21
5	Educational Psychology	30
6	Human Biology	0
7	Information Systems	4
8	Math-Physics	1
9	Modern Languages	0
10	Professional	1
11	Public Health	10
12	Theology	61

**Table 2. AUCA Enrolment 1996-1997 (Gishushu)**

<b>Ser</b>	<b>Major/Dept</b>	<b>1996-1997</b>
1	Accounting	47
2	Educational Psychology	22
3	Information Management	26
4	Theology	20
<b>Ser</b>	<b>Major/Dept</b>	<b>1997-1998</b>
1	Accounting	86
2	Educational Psychology	59



3	Information Management	29
4	Theology	43
<b>Ser</b>	<b>Major/Dept</b>	<b>1998-1999</b>
1	Accounting	165
2	Educational Psychology	89
3	Information Management	33
4	Theology	44
<b>Ser</b>	<b>Major/Dept</b>	<b>1999-2000</b>
1	Accounting	201
2	Educational Psychology	56
3	Information Management	132
4	Theology	46
<b>Ser</b>	<b>Major/Dept</b>	<b>2000-2001</b>
1	Accounting	207
2	Educational Psychology	89
3	Information Management	180
4	Theology	49
<b>Ser</b>	<b>Major/Dept</b>	<b>2001-2002</b>
1	Accounting	225
2	Educational Psychology	182
3	Information Management	114
4	Theology	55
<b>Ser</b>	<b>Major/Dept</b>	<b>2002-2003</b>
1	Accounting	176
2	Educational Psychology	128
3	Information Management	109
4	Theology	51
<b>Ser</b>	<b>Major/Dept</b>	<b>2003-2004</b>

1	Accounting	293
2	Educational Psychology	208
3	Information Management	254
4	Theology	53
<b>Ser</b>	<b>Major/Dept</b>	<b>2004-2005</b>
1	Accounting	339
2	Educational Psychology	218
3	Information Management	334
4	Theology	48
<b>Ser</b>	<b>Major/Dept</b>	<b>2005-2006</b>
1	Accounting	619
2	Educational Psychology	220
3	Information Management	586
4	Theology	41
<b>Ser</b>	<b>Major/Dept</b>	<b>2006-2007</b>
1	Accounting	1028
2	Educational Psychology	331
3	Information Management	866
4	Theology	41

**Table 3. Comparison: Overall Education vs Some other BA&IT Majors 2007-2014 (UG)**

Year	Accounting	Management	Info Management	Networks	Education	Theology
07-08	1028	0	866	0	332	41
08-09	1036	0	867	0	333	42
09-10	1201	29	787	10	313	42

10-11	1370	75	798	113	319	61
11-12	1374	97	780	196	426	113
12-13	1163	95	767	246	446	116
13-14	1000	177	633	336	437	106

## Findings

**Table 1** above shows the enrolment in former AUCA when it was just a second university in being implanted in Rwanda after the National University of Rwanda. From 1984 to 1994 the country needed school teachers and administrators. Students were being sponsored by the government and the church to cater for education. The figures show an increase in enrolment of students in Educational Psychology (6, 5, 9, 16, 35, 22, 26, 24, 30) major, the number was increased to 319 in 2011.

**Table 2** above reflects the enrolment in the four majors after AUCA had just moved to Gishushu in 1996. Classes were being conducted in very poor classrooms, sometimes under a tree. The Educational Psychology came 2<sup>nd</sup> in enrolment with 426 students, followed by Accounting. For the two years combined (1996-1997:22 1997-1998:59), it had 81, while Information Management had 106 students.

**Table 3** above shows the overall enrolment of students in Education from the year 2007 to 2014, after moving to the new campus. During that time the university had more majors and there was a growing competition in institutions of learning. Applicants had more choices in pursuing their education. Therefore, there was a sensitive drifting from Education to other programmes. Teaching position was no longer attracting graduates as before because there were some good paying jobs in both public and private institutions. The real and nominative salary knew some discrepancies on the market. The salary of a teacher was not able to sustain the living, whereas other sectors were increasing the salary in the market economy.

Furthermore, of the 10 majors of Education accredited by both HEC and AAA very few students were enrolled in programmes such as Math-Economics, Educational Psychology-Geography, and IT-Accounting, and with a relative increase of enrollment in Education. The University had more candidates enrolled in English-French, Accounting-Geography-History. The remaining majors created in 2012 did not attract any students, i.e. French Language and Literature, Religious Studies, and Economics did not attract any student at all. This reflects a trend of significantly low enrolment and a decrease in the whole Faculty of Education.

## Conclusion and Recommendations

Many common causes, regardless of the type of school, lead to reasons why students leave education studies. These are individual problems or a mixture of issues. If they are not addressed adequately by campus management, it will result in a significant decrease in student retention.

JAA market is a key factor in determining a study programme. It is less convincing for a self-supported university to pursue a study programme should not take a programme for which the job market will not yield a high remuneration position, although the mind set may be a misconceived idea. People think first of what they will earn on completion.

studies. Therefore, benchmarking competitive salaries will influence any study programme.

It is recommended that public and private institutions take into account the needs of the community in terms of market and care for all the programmes of study because every area of life needs qualified and satisfied people. It is necessary to balance the programmes and attract the applicants for all the programmes so that some areas may not suffer from lack of qualified workers. In this regard, sponsorship is key to motivating applicants for this or that programme of study.

## References

1. Baker, B., M. Orr, and M. Young. 2007. Academic drift, institutional production and professional distribution of graduate degrees in educational leadership. *Educational Administration Quarterly* 43 (3): 279–318.
2. Christensen, S., and E. Erno-Kjølhed. 2011. Academic drift in Danish professional engineering education: A reality? Opportunity or threat? *European Journal of Engineering Education* 36 (3): 285–299.
3. Croucher, G., and P. Woelert. 2016. Institutional isomorphism and the creation of the unified national system of higher education in Australia: An empirical analysis. *Higher Education* 71: 439–453.
4. De Wit, K., and J. Verhoeven. 2003. The context changes but the divisions remain: The binary higher education system in Flanders – The case of information science. *Studies in Higher Education* 28 (2): 143–156.
5. Gonzalez, L. 2013. Faculty sense making and mission creep: Interrogating institutionalized ways of knowing and doing legitimacy. *Review of Higher Education* 36 (2): 179–209.
6. Griffioen, D., and U. de Jong. 2013. Academic drift in Dutch non-university higher education evaluated: A stakeholder perspective. *Higher Education Policy* 26 (2): 173–191.
7. Harwood, J. 2005. *Technology's dilemma: Agricultural colleges between science and practice in Germany, 1870–1934*. Bern: Peter Lang.
8. Harwood, J. 2010. Understanding academic drift: On the institutional dynamics of higher technical and professional education. *Minerva* 48: 413–427.
9. Horta, H., J. Huisman, and M. Heitor. 2008. Does competitive research funding encourage diversity in higher education? *Science and Public Policy* 35 (3): 146–158.
10. Jaquette, O. 2013. Why do colleges become universities? Mission drift and the enrolment economy. *Research in Higher Education* 54 (5): 514–543.
11. Kaiserfeld, T. 2013. Why new hybrid organizations are formed: Historical perspectives on epistemic and institutional drift. *Minerva* 51: 171–194.
12. Kraak, A. 2009. South African Technikons and policy contestation over academic drift. In *International handbook of education for the changing world of work*, ed. R. Maclean and D. Wilson, 961–975. Dordrecht: Springer.

13. Kyvik, S. 2007. Academic drift: A reinterpretation. In *Towards a cartography of higher education policy: festschrift in honour of Guy Neave*, ed. Centre for Higher Education Policy Studies, 333–338. Enschede, 2007.
14. Laiho, A. 2010. Academicisation of nursing education in the Nordic countries. *Higher Education* 60: 64–77.
15. Maassen, P., E. Moen, and B. Stensaker. 2010. Reforming higher education in the Netherlands and Norway: A comparison of the state and national modes of governance. *Policy Studies* 32 (5): 479–495.
16. Morphew, C. 2000. Institutional diversity, program acquisition and faculty members: Examining academic drift at a new level. *Higher Education Policy* 13: 55–77.
17. Smeby, J.-C. 2006. *Professionalism in a knowledge society: The academic drift of professional education and the 'new' professions*. Oslo University College, Centre for the Study of Professions, Working Paper No. 7/2006.
18. Stensaker, B., and J. Norgard. 2001. Innovation and isomorphism: A case study of university identity strategies in Norway, 1999. *Higher Education* 42: 473–492.
19. Tight, M. 2015. Theory development and application in higher education research: The case of academic drift. *Journal of Educational Administration and History* 47 (1): 84–99.

# Assessment of Factors affecting the Academic Achievement of Students with Disabilities in Higher Education in Rwanda (2017)

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## ABSTRACT

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The study aimed at examining the effect of SWDs factors and learning-environmental factors on academic performance of SWDs. Only 4% of PWDs have access to inclusive higher education in Rwanda (NISR, 2012). The hypothesis ( $H_0$ ) was: “Learning-environment doesn’t affect the academic achievement of SWDs.” The study was based on socio-constructivism (Vygotsky 1978; Wood et al., 1976). The study used correlational-research design. A sample of 54 SWDs was selected among 259 SWDs at AUCA and UR-CE. Findings showed that  $H_0$  is True. ( $F=3.723$ ,  $p\text{-value}=0.058$ ). Sargeant & Berkner (2015) showed that inclusion in classroom has to be Christian based.

**Keywords:** academic achievement, Learning Environment

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## 1. Introduction

The study discussed about how the academic staff, students, administrators and the community foster a positive emotion among students with disabilities by showing a positive attitude towards students with disabilities. The study created showed the impact of keeping the sustainable natural environment for the students with disabilities on campus as a sign of dignity on their academic achievement. The study created the model by which academic staff and administrative staff, students and the community in general need to follow to enhance inclusive quality education as one of key goal among sustainable development goals.

### 1.1. Background to the Study

The Rwandan society used to consider people with disabilities as a shame to the family. Persons with disabilities were hidden in a room for not going in public (DFID, 2005). In addition, a discrimination based on disabilities was remarked at workplace in different sectors especially public sector (DFID, 2005). . Since 1962, HVP Gatagara started to care, educate and rehabilitate people with disabilities in primary and secondary education level (HVP, 2017).

Fr. Joseph Fraipont has founded HVP Gatagara in 1962 for care, education and reeducation of people with disabilities at primary and secondary level. (HVP, 2017)

The United Kingdom Department for International Development (DFID) in 2005 used data from 2002 Rwanda Population and Housing Census and found that it was a negative attitude towards People with Disabilities in Rwanda to consider them as “*subject to charity*” or born for begging. The problem was founded on the fact that students with disabilities do not have a full access to inclusive education in Higher Learning Institutions in Rwanda (DFID, 2005). The planning for higher education would not consider people living with disabilities due to the scarcity of resources and the poor mind set before 2005.

After realizing that UN, (2006) voted that students with disabilities have access and accessibility to Tertiary Education, Rwanda has ratified the United Nation Convention on Persons with Disabilities and its optional protocol since December 2008. This is in line with Sustainable

Development Goal -SDG 4 (UN, 2015), by 2030 the world will ensure inclusive education and equitable quality education and promote lifelong learning opportunities for all.

In 2008, the University of Rwanda-College of Education (UR-CE), the former Kigali Institute of Education (KIE) was given a mandate to be a disability mainstreamed Higher Learning Institution in Rwanda. The Adventist University of Central Africa (AUCA) accepted to receive students with disabilities under government scholarship since 2008 (Government of Rwanda, 2015). This was done in order to halve social exclusion in higher education. The problem statement gives details on this issue.

### **1.2. Statement of the Problem**

Young people aged 15-24 were counted among unemployed on a rate of 15% more than three times the rate for adult 4.6% worldwide (United Nations, 2016). They are also most likely to be among the working poor: 16% of all employed youth who live below the poverty line in 2015 compared with 9% of working adults. Among them one third is found in sub-Saharan Africa including Rwanda (United Nations, 2016). One way to alleviate the poverty condition is to invest in education especially higher education. This study focused on youth who were studying in Higher Education in Rwanda and have, in a special way, a disability condition.

The Rwanda Fourth Population and Housing Census undertaken in 2012 revealed that 41% of population with disabilities had no education including 50% of female with disabilities.

According to NISR & MINECOFIN (2012), a proportion of 0.7% of persons with disabilities completed higher education including 0.4% of female with disabilities.

The problem of access to higher education for people with disabilities is highlighted by the Higher Education Policy in Rwanda developed by Higher Education Council in the Ministry of Education. MINEDUC (2013) was clear that the Rwandan Higher Learning Institutions (HLIs) in Rwanda had limited infrastructures and education related facilities. The HLIs in Rwanda financial, skilled human resources scarcity and poor coordination in education of Students with disabilities in Higher Education at national level was remarkable.

The report on the visit of Students with disabilities in Higher Learning Institutions in Rwanda made by National Council of Persons with Disabilities (NCPD) in December 2012 showed that the number of Students with disabilities is still small due to the problem of access to higher education. These who were enrolled faced challenges related to social exclusion in academic life. The report listed different challenges faced by Students with disabilities in Institutions of Higher Learning. These challenges are related to the inaccessibility of infrastructure, lack of appropriate accommodation during the class and examinations, discrimination based on disabilities, lack of guidance and counseling, lack of appropriate medical care, family problems and financial problems, lack of required facilities and equipment and trained faculty and staff (NCPD, 2012).

The Education Statistical Yearbook 2015 in Rwanda showed that only 142 Students with disabilities completed Tertiary Education in 2015 (MINEDUC, 2016). Researchers had had an inquiry on the factors affecting the academic achievement of Students with disabilities in Higher Education in Rwanda.

### **1.3. Purpose of the study**

The study intended to:

Analyse the between factors of learning and academic achievement of Students with disabilities in Higher Learning Institutions in Rwanda. Analyse the influence of how environmental factors on the academic achievement of Students with disabilities in Higher Learning Institutions in Rwanda. Examine the influence of students' factors on the academic achievement of Students with disabilities in higher education in Rwanda.

#### **1.4. Hypotheses of the Study**

The Null Hypotheses was as follow:

Personal factors have no relationship with the academic achievement of Students with disabilities in selected HLIs in Rwanda.

Environmental factors have a no relationship with the academic achievement of Students with disabilities in selected HLIs in Rwanda.

#### **1.5. Significance of the study**

This study showed how to educate persons with disabilities is to give them equal opportunity for employment and access to political & social-economic wellbeing. The benefits of undertaking this study were to:

Foster independency and increase productivity among persons with disabilities. Fill the gap between education of persons with disabilities and employment of people with disabilities in all sectors. Reduce the incidence of street begging, cases of delinquency remarked among persons with disabilities.

Promote participation of person with disabilities in decision-making process in Rwandan society. Involve persons with disabilities-young people in a special way- in achieving Sustainable Development Goals and improve the quality of life of them.

#### **1.6. Justification (Rationale) of the Study**

Among studies that were done relating to this topic, a study on Factors affecting the Academic achievement of Students with disabilities in Kigali Institute of Education, there is no other study that was carried out on Factors affecting the Academic Achievement of Students with Disabilities in Higher Learning Institutions in Rwanda. Case study: Adventist University of Central Africa and University of Rwanda, College of Education. So this study needed to be undertaken to show the reality on ground in 2017.

The study also has the originality of dealing with young people as far as students with disabilities are concerned. This is in line with the role of youth in achieving 17 Sustainable Development Goals and meeting 169 targets that were set for that purpose in Rwanda. The critical review of the related literature will serve as the foundation of this study.

## **2. Literature review**

A critical review of the related literature was done based on other studies which related to Academic Achievement of Students with Disabilities.

### **2.1. Vygotsky's Theory of Learning**

The theory, when it is adapted to this situation of education of people with disabilities, says that there are knowledge, skills and abilities that a student with disabilities cannot acquire on his or her



own but through guidance and encouragement from a competent person- an expert tutor, educator, facilitator, or experienced peer- the student with disabilities can master them and become proficient in Higher Education (Vygotsky, 1978; Wood et al, 1976). A learner with disabilities was considered as a novice who had prior knowledge and skills that need to pass through the *scaffolding process* (Wood, Bruner, & Ross, 1976) or go through the *zone of proximal development* (Vygotsky, 1978) by an expert- tutors or a peer students for the assimilation of the new knowledge. This leads the researchers to go through different literatures related to the academic achievement. Different models were summarized in this way.

## 2.2. Models of the Academic Achievement

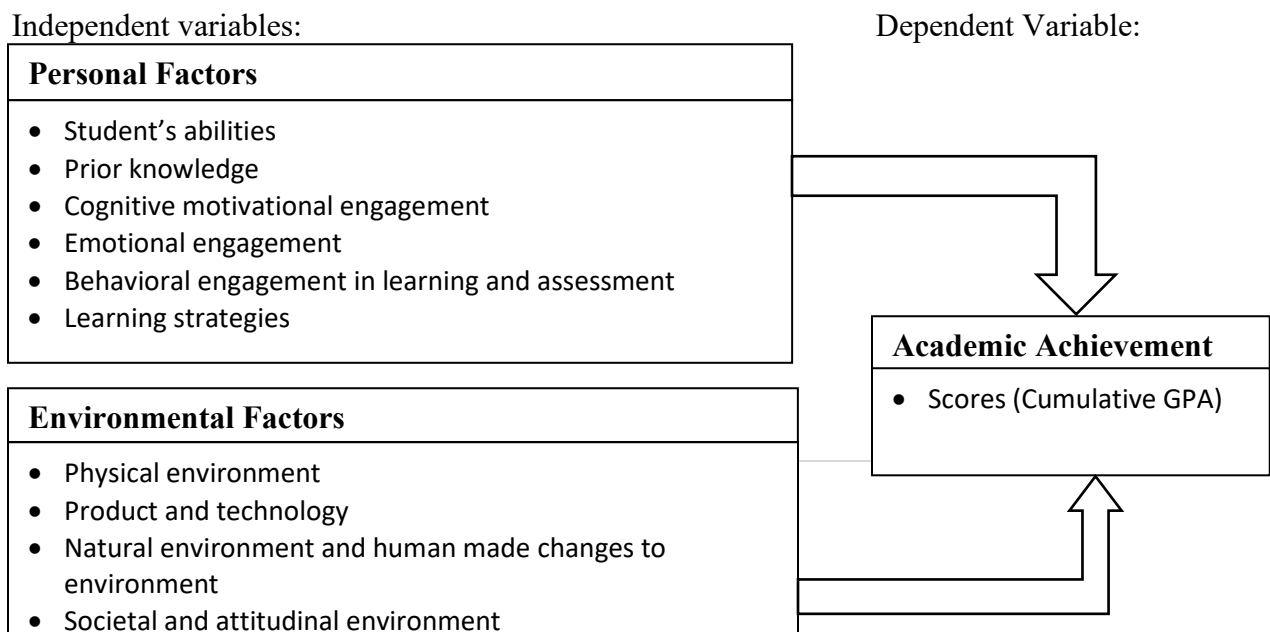
**The Model of Lee and Shute (2010)** provided an integrated framework of personal and socio-contextual factors for academic achievement of K-12 tests in United States of America (Hoy et al, 2013; Lee & Shute, 2010). The weakness of Lee and Shute Model is that they did not consider personal factors as included in contextual factors according to the International Classification of Functioning, Disability and Health (IFC). (World Health Organization, October 2013).

**A structural Equation Model (SEM).** According to Rugutt & Chemosit, (2005) psychological characteristics are major predictors to academic achievement (cumulative GPA) compared to learning environment. The psychological characteristics used were self-concept, attitudes, behavior, intrinsic motivation, and overall student engagement in learning. Based on these models, researchers made a theoretical framework that became a hub of this study.

### 2.2. Theoretical framework

The theoretical framework referred to the Model of Lee and Shute in (Hoy, Miskel, & Tarter, 2013; Lee & Shute, 2010). The reference was also made to the International Classification of Functioning, Disability and Health (IFC). They provided personal factors and environmental factor affecting Persons with Disabilities (WHO, 2010). These models were used to find independent variables. According to the (Rugutt & Chemosit, 2005) the academic achievement of students with disabilities was mesured based on cummulative Grade Point Average. The author used a Structural Equation Model (SEM). Based on this theoretical framework, a conceptual framework was designed to establish in brief the correlation between the independent variables and the dependent variable as figure 1 gives details.

Figure 1. The conceptual framework



learning strategies. Respondents were asked to show if they have a problem of limitation or not with those factors. It has also used environmental factors such as physical environment, technological environment, natural environment and human made changes to environment, social and attitudinal environment and family and community involvement and peer support. Respondents were asked if their have barriers with environmental factors or not. The research methodology helped to collect and analyse the right information about this research as chapter 3 gave details.

### **3. Methodology**

This study used mixed research methods to conduct a cross sectional study in 2017.

#### **3.1. Research Design**

The study had descriptive and correlational research designs. The case studies selected are the UR-CE as a public institution and AUCA as a private institution in Rwanda. This study was a multi-methods quantitative study. The data gathering procedure was done in single point in time or a “*snapshot*” in time horizon (Saunders, Lewis, & Thornhill, 2009) for academic year 2016/2017. In other words, this was a cross-sectional study. The next point describes the population of the study.

#### **3.2. Target population**

The population size was 259 people composed with 20 students with disabilities, 197 academic staff and 42 administrative staff.

#### **3.3. Sample and sampling procedures**

Using the statistical formulae, the sample size was composed with 54 respondents and it was calculated with Daniel & Cross, (2013)’ sample size formulae for the infinite population

$n = \frac{Z^2 pq}{d^2}$  If, the finite population is found that the correction is necessary, this is the suitable

formula to be used  $n = \frac{Nz^2 pq}{d^2 (N - 1) + Z^2 pq}$  where,

- $q=1-p$
- $n$  is the minimum sample size required from the population size
- $p$  is the proportion equal to 0.5
- $Z$  is the  $z$  value at 90% level of confidence equals to 1.64
- $d$  is the margin error at 10%.

Then,  $n = \frac{259(1.64)^2 0.5 * 0.5}{(0.1)^2 (259 - 1) + (1.64)^2 * 0.5 * 0.5}$  therefore,  $n = 54$  people

A number of 54 people for the sample population were selected as follows: 12 academic staff in UR-CE and 20 in AUCA, 2 administrative staff at AUCA and 4 administrative staff at UR-CE and 11 students with disabilities in UR-CE and 3 students with disabilities at AUCA plus 2 students who did not come to be part in this study at AUCA.

Purposive sampling technique was used to select respondents during the administration of the questionnaires to people who were eligible to be part in this research. The criteria that were followed were as follows: having an experience of teaching students with disabilities in the past or currently being an administrative staff at AUCA or at UR-CE. These institutions were the selected as disability mainstreaming Higher Learning Institutions in Rwanda. Being a student with disabilities enrolled in either UR-CE or in AUCA.

### 3.4. Design of the research instrument

The questionnaires were developed in two sections including Section I that assessed the demographic information of the respondents. Respondents were requested to tick in the box of corresponding with the correct answer. In Section II was composed with specific information. The statements for measuring the correlation between personal factors and environmental factors and the academic achievement of students with disabilities at UR-CE and at AUCA. Respondents were to answer by putting a circle to the one of rating questions composed with 5 level Likert scale as follows 5-agree, 4-Tend to agree, 3-Not sure, 2-Tend to disagree and 1-degagree.

### 3.5. Reliability of the instrument

The reliability of the research instruments intended to assess the internal consistency through correlating responses of each question in the questionnaire with those of another question in the questionnaire (Saunders, Lewis, & Thornhill, 2009). The questionnaires were adapted from ICF checklist version 2.1a, clinician form for international classification of Functioning, Disability and Health (WHO, 2001); and Measuring Health and Disability: Manual for WHO Disability Assessment Schedule-WHODAS 2.0 (WHO, 2010)

### 3.6. Validity of the instrument

The questionnaires were validated, Mr. Abiud Moronge- a scholar in the field of Management, Dr. Casamayor Santiago-a specialist in statistics from Adventist University of Central Africa and Dr. Habinshuti Gonzague -Inclusive education specialist form the University of Rwanda-College of Education. He checked if questions were clear about the data required and the way questions were worded to sound well by giving dignity to respondents with disabilities in a special way.

### 3.7. Data gathering procedures

Research ethics were followed in the way that data gathering procedure respected all requirements. Here, the agreement of the respondent was respected by using the consent form. A self administered questionnaires were distributed to 12 academic staff in UR-CE and 20 in AUCA, 2 administrative staff in AUCA and 4 in UR-CE and 11 Students with disabilities in UR-CE and 3 Students with disabilities in Adventist University of Rwanda. I met the challenge of having some of the respondents who were in holidays. The reason why, 7 Students with visual impairments and one albinos with vision problem were reached using phone call. 2 students with hearing impairments were not able to participate in this research by responding because they were not around AUCA Gishushu campus to fill the questionnaire.

### 3.8. Data analysis

Data were treated using SPSS. 20 vesion and were put in tables, graph to be analysed.

#### Evaluation of the mean

The mean was used to measure the center of a distribution of the quantitative variables. The mean referred to “*average of the observations.*” According to Agresti & Franclin (2013), the formulae:

$$\bar{x} = \frac{\sum x}{n}$$

was used to calculate the balance point of the data in the distribution from the perception of respondents. Table 1 showed criteria to evaluate the mean.

Table 1: Evaluation of the mean

Mean	Evaluation of the mean	Interpretation
1.00– 1.99	Disagree	Severe problem or severe barrier
2.00– 2.99	Tend to disagree	Moderate problem or moderate barrier
3.01– 3.99	Not sure	Not specified
4.00– 4.99	Tend to agree	Mild problem or mild barrier

5.00      Agree      No problem or no  
   barrier

Source : (Saunders, Lewis, & Thornhill, 2009).

The interpretation given in table 1 was done in the opposite way for the negative questions in the questionnaires.

**Standard deviation (SD)**

The standard deviation was considered as a value that indicated the degree of variability of data. The standard deviation measured the variability of the data around the mean. The formula of

standard deviation of  $n$  observations is equal to  $SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$  Where,

- $n$       Number of values
- $x$       Each value in the population
- $\bar{x}$       The mean of the values
- $SD$       The standard deviation of the sample

Table 2: Evaluation of the standard deviation

<b>Standard Deviation</b>	<b>Interpretation</b>
$\bar{X} \pm SD$	lower variability around the mean
$\bar{X} \pm nSD$	greater variability around the mean

Source: (Agresti & Franclin, 2013)

The standard deviation was taken as a typical distance of the observations from the mean. In the other words, the larger values of the standard deviation, the greater variability around the mean. In case, the standard deviation equals to zero, all observations took the same value of the mean. The more data are concentrated around the mean, the smaller the standard deviation.  $\bar{X} - SD$  denoted that the value was one standard deviation below the mean;  $\bar{X} + SD$  denoted that the value was one standard deviation above the mean, and  $\bar{X} \pm SD$  denoted that the value was one standard deviation from the mean in either direction.

**Correlation coefficient**

The correlation coefficient was used to study and measure the statistical correlation that existed between personal factors and the academic achievement and environmental factors and the academic achievement. The purpose of correlation analysis was to measure the strength and closeness of the correlation between each independent variable and the dependent variable. For the purpose of the research, the Pearson correlation was used to assess the correlation between variables. The correlation coefficient ( $r$ ) was calculated from the following formula according to

Daniel & Cross (2013): 
$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}$$

Where  $x$  and  $y$  are the random variables under study and  $r$  = correlation coefficient. Correlation Coefficient was either positive or negative. The correlation coefficient took on values ranging between +1 and -1. A value of 1 showed that a linear equation described the perfect positive correlation, with all data points laid on the same line and with  $Y$  increasing with  $X$ . A score of -1 showed that a linear equation described perfect negative correlation, with all data points laid on a single line but that  $Y$  increased as  $X$  decreased. While a value of 0.00 indicated no linear correlation. When the value between 0.00 and +/- 0.30 showed a weak correlation; when the values were between +/- 0.30 and +/- 0.60 showed moderate correlation, and values greater than +/- 0.70 showed strong correlation. (Saunders, Lewis, & Thornhill, 2009).

## Hypothesis Testing

### Operationalization of variables:

X1= Personal Factors

X2=Environmental Factors

Y=Academic Achievement explained in GPA score.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + E_i$$

$\beta_0$  constant at 95% confidence level.

The study used personal factors such as student's abilities, prior knowledge in English and mathematics, behavioral engagement, emotional engagement and The test statistic shows the null hypothesis ( $H_0$ ) when  $p\text{-value} \geq 0.05$ ; to make a decision about  $H_0$ , we do not reject  $H_0$  to show that there is no significant relationship between variables. For alternative hypothesis ( $H_a$ ), we reject  $H_0$  if  $p\text{-value} \leq 0.05$  to show that there is a significant relationship between variables. The regression analysis shows that the smaller  $p\text{-value}$ , the stronger the evidence is against  $H_0$ . (Agresti & Franklin, 2013). This statistical analysis helped to get results as the research findings entail.

## 4. Presentation, Analysis and Interpretation of Findings

Findings showed that these students with disabilities were young people. The present research highlighted two major factors affecting the academic achievement of students with disabilities in higher education including personal factors and environmental factors; both constitute socio-contextual factors. Youth-Students' socio-contextual factors are characteristics of the Students with disabilities that affect positively or negatively their academic achievement. It included personal and environmental factors.

**Table 3. Demographic profile of Students with disabilities by age group**

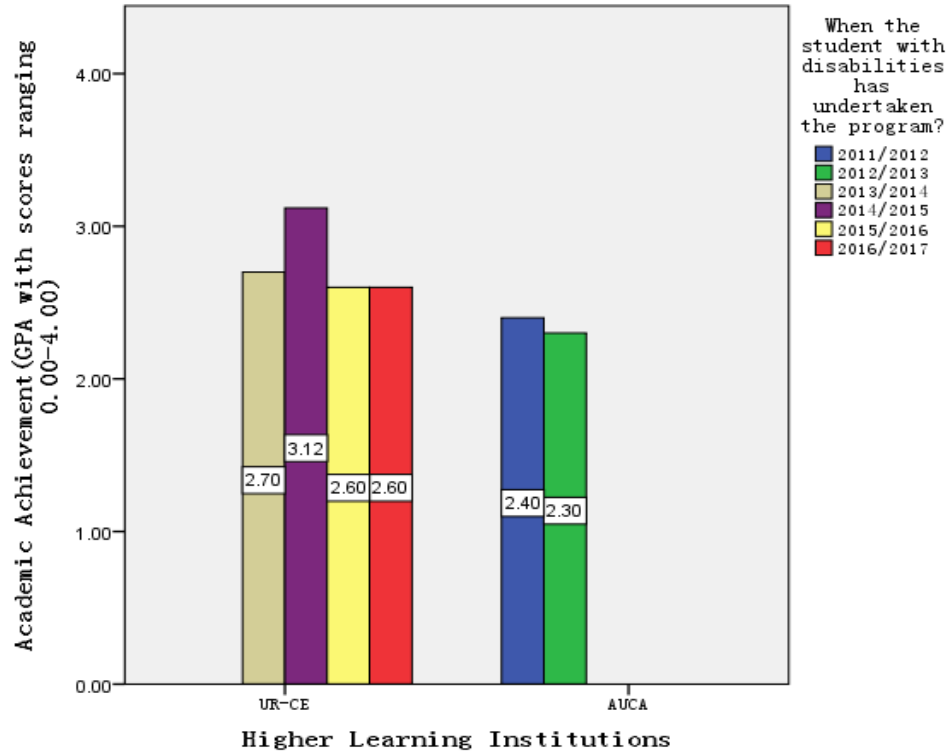
		Higher Learning Institutions			
		UR-CE		AUCA	
		Count	Column N %	Count	Column N %
Age group of the Students with disabilities	Below age 19	1	9.1%	0	0.0%
	Age 20-24	3	27.3%	1	33.3%
	Age 25-29	6	54.5%	1	33.3%
	Age 30-34	0	0.0%	1	33.3%
	35 and above	1	9.1%	0	0.0%

Source: Field data, 2017

#### 4.1. Challenges in the academic achievement of SWDs

The academic achievement is the extent to which students with disabilities, instructors and institution achieved their short or long-term educational goals (Rugutt & Chemosit, 2005). Scores of Students with disabilities in Academic Year 2016-2017 semester 2 were measured against the grade level achievement standards or pass mark for offering a Bachelor Degree at the UR-CE (50%) and at the AUCA (12/20). Cumulative Grades Point Average was used as an indicator for students' academic achievement in this study. At University of Rwanda- College of Education, the cumulative GPA was counted out of 100. If a student scored 50.00-59.99, he/she would get Pass, whether a student scored 60.00-69.99, he/she would get Lower Second Class Honor, if a student scored 70.00-79.99, he/she would get Upper Second Class Honor and if ever a student scored 80.00-100, he/she would get First Class Honor. In AUCA, a student who scored 12.00-13.99 out of 20 has a mention of Satisfaction; while a student who scored 14.00-15.99 out of 20 has a mention of Distinction and a student who scored; 16.00-20 has a mention of Grand Distinction. Figure 2 gives details on the challenges that students with disabilities met in their academic life.

**Figure 2. Academic achievement of Students with disabilities in UR-CE and AUCA (2017)**



Source: Field data, 2017

The academic achievement of Students with disabilities who participated in this research showed that those who started their undergraduate program in 2014/2015 scored high in academic achievement in UR-CE (3.12) out of 4 or 78%. In general, Students with disabilities academic achievement (2.75) out of 4 or 69% were above the standard (50%) was set by the UR-CE. In AUCA Students with disabilities scored (2.40 out of 4) 12 out of 20 or below. This indicated low academic achievement for Students with disabilities in AUCA. All Students with disabilities with disabilities asked have started their programme in 2011/2012 and 2012/2013 and they have not yet completed the programme.

#### 4.2. Personal factors affecting the life of Students with Disabilities

Students with disabilities study along with Students with no apparent disabilities in URCE and in AUCA. The study assessed if they had limitations or not with Youth-Students' abilities, limitations in basic knowledge in English and Mathematics, problem of behavior and problem related to intrinsic motivation, problems related to emotion and learning strategies. Table 4 gives details.

**Table 4. Findings on perception of Students with disabilities about personal factors**

	Higher Learning Institutions	N	Mean	Std. Deviation	Std. Error Mean
Student's Ability	UR-CE	11	2.07	1.23	0.371



	AUCA	3	4.08	0.878	0.507
Prior Knowledge in English and Mathematics	UR-CE	11	2.73	1.506	0.454
	AUCA	3	4	1.323	0.764
Behavior Engagement	UR-CE	11	4.18	0.881	0.266
	AUCA	3	3.5	0.75	0.433
Cognitive Motivation	UR-CE	11	4.04	0.777	0.234
	AUCA	3	4.33	0.987	0.57
Emotion Engagement	UR-CE	11	3.36	0.674	0.203
	AUCA	2	3.25	0.354	0.25
Learning strategies	UR-CE	11	4.26	0.705	0.212
	AUCA	3	4.22	0.694	0.401

Source: Field data, 2017

Findings showed that AUCA Students with disabilities faced problems with activity limitation ( $\bar{x} = 4.08; SD = 0.878$ ); prerequisites in English and Mathematics ( $\bar{x} = 4; SD = 1.323$ ); behavior in learning was not specified ( $\bar{x} = 3.5; SD = 0.75$ ). AUCA Students with disabilities were intrinsically motivated ( $\bar{x} = 4.33; SD = 0.987$ ); emotion was not specified ( $\bar{x} = 3.25; SD = 0.354$ ) and they had good learning strategies ( $\bar{x} = 4.22; SD = 0.684$ ).

AUCA Students with hearing problems, had mostly problems with interaction with Students and academic staff and administrative staff because of sign language barrier. Neither AUCA Students without disabilities, nor AUCA instructors use sign language. Students with disabilities in AUCA's English writing skills was not improved. The good thing is that they had inner motivation because they were not discouraged although they faced many problems with the academic life. They made an arrangement to study hard.

#### 4.3. Environmental factors affecting the life of Students with Disabilities

Students with disabilities need an environment conducive for working in the same conditions in academic life. This study discussed on whether a student with disabilities have or don't have barriers with physical environment, technological environment, natural environment and human made changes to environment, societal and attitudinal environment, family and community involvement and peer support to Students with disabilities in URCE and in AUCA.

**Table 5. Findings on perception of Students with disabilities on environmental factors**

	Higher Learning Institutions	N	Mean	Std. Deviation	Std. Error Mean
Physical environment	UR-CE	11	4.30	1.35	0.41
	AUCA	3	4.78	0.38	0.22

Technological environment	UR-CE	11	4.58	0.86	0.26
	AUCA	3	3.44	1.39	0.80
Natural environment and human made changes to environment	UR-CE	11	3.82	0.73	0.22
	AUCA	3	3.08	0.14	0.08
Societal and attitudinal environment	UR-CE	11	4.15	1.22	0.37
	AUCA	3	4.00	0.88	0.51
Family & community involvement	UR-CE	11	3.75	0.57	0.17
	AUCA	3	4.07	0.23	0.13
Peer support	UR-CE	11	4.12	0.89	0.27
	AUCA	3	4.11	0.47	0.27

Source: Field data, 2017

The overall mean on quality physical environment showed that there were disability friendly infrastructures in both UR-CE ( $\bar{x} = 4.30; SD = 1.35$ ) and AUCA ( $\bar{x} = 4.78; SD = 0.38$ ). This showed that the Students with physical disabilities did not have barriers in using physical environment in general. Hence, there were buildings of Science in UR-CE and the AUCA Central Academic Block in which were not rehabilitated for facilitating Students with physical impairments to reach all floors. Students with disabilities showed that there was no barrier with product and technology related to communication, transportation in both UR-CE ( $\bar{x} = 4.58; SD = 0.86$ ) and AUCA ( $\bar{x} = 3.44; SD = 1.39$ ). UR-CE has the resource room which helps much in providing assistive technologies and use of Internet for Students with disabilities. There were also walking white cans for visually impaired Youth-Students. As a success story, in UR-CE three Students were teaching in primary schools and they taught individuals about how to use Brailles. In AUCA, most of the Students with hearing and speaking impairments, are majoring in Information Technology and they can play the role of software developers for companies.

As a success story, one student with hearing impairment had got a job as a research assistant for the Rwanda Sign Language Dictionary Project (RSLD) undertaken by National Council of Persons with Disabilities.

Findings showed that Students with disabilities had a no barriers about natural environment and human made changes to environment including climate change, fresh air and enough light in classroom in UR-CE ( $\bar{x} = 3.82; SD = 0.73$ ) and AUCA ( $\bar{x} = 3.08; SD = 0.14$ ). The natural environment was conducive to Students with disabilities in both institutions. Students with disabilities had no barriers with Societal and attitudinal environment in UR-CE ( $\bar{x} = 4.15; SD = 1.22$ ) and in AUCA ( $\bar{x} = 4.00; SD = 0.88$ ). Students with disabilities had no barrier of family and community involvement in UR-CE ( $\bar{x} = 3.75; SD = 0.57$ ) and in AUCA ( $\bar{x} = 4.07; SD = 0.23$ ). Students with disabilities had no barrier of peer support in both UR-CE ( $\bar{x} = 4.15; SD = 1.22$ ) and AUCA ( $\bar{x} = 4.15; SD = 1.22$ ). According to Vygotsky (1978), the knowledge, skills and abilities are acquired through the construction of the meaning based on social interaction and experience through the tools of culture, language and belief. This had an implication that attitudes and support of instructors and peers Youth-Students, the management support of the institution and the Government, the encouragement of families had a significant role to play in potential development of a learner with disabilities in higher education.

**Table 6. Perception of Students with disabilities on access to technological communication**

	Higher Learning Institutions					
	UR-CE			AUCA		
	Total N	Mean	SD	Total N	Mean	SD
The institution has disability friendly source of information.	11	4.36	1.29	3	4.67	.58
The institution has disability friendly communication technologies including Internet.	11	4.82	.40	3	3.33	2.08
The journey from my residence to the campus is not long.	11	3.36	1.57	3	2.00	1.73
The institution provides assistive technologies.	11	4.55	1.21	3	2.33	2.31

Source: Field data, 2017

UR-CE Students with disabilities did not have barriers to the use of assistive technologies ( $\bar{x} = 4.55; SD = 1.21$ ), communication technologies and Internet access ( $\bar{x} = 4.82; SD = 0.40$ ) and other source of information ( $\bar{x} = 4.36; SD = 1.29$ ) to share knowledge. AUCA had not yet been equipped with these disability friendly technological communications including assistive technologies ( $\bar{x} = 2.33; SD = 2.1$ ), communication technologies ( $\bar{x} = 3.33; SD = 2.08$ ) AUCA could accommodate physically impaired Students especially in Gishushu campus and Ngoma Campus, and other types of disabilities and share disability friendly source of information ( $\bar{x} = 4.67; SD = 0.58$ ) apart from those with visual impairments. In University of Rwanda- College of Education, visual impaired Students were satisfied with facilities. The resource room was equipped with assistive devices.

**Table 7. Perception of Administrative staff on access to information during the induction week**

	Higher Learning Institutions					
	UR-CE			AUCA		
	Total N	Mean	SD	Total N	Mean	SD

There is equal access to information related the values of Rwandan, mission and expectations of the institution	4	4.00	0.00	2	3.00	1.41
There is equal access to information related to learning how to learn including academic skills development, learning strategies and critical thinking	4	4.00	0.00	2	3.50	2.12
There is equal access to information related to self-management including stress management, self-discipline and self-motivation	4	4.50	.58	2	3.00	1.41
Students with disabilities have equal opportunity for self-assessment and self-awareness for learning style and career interest	4	4.00	2.00	2	2.50	.71
Students with disabilities have access to public lectures related to holistic personal development	4	3.75	1.26	2	3.00	1.41
Students with disabilities have an occasion to meet counselors on for life planning by marching academic experience with future personal and vocational goals	4	3.25	1.71	2	3.00	1.41

Source: Field data, 2017

**Table 8**

*Need assessment on capacity building of academic staff on inclusive education*

		Higher Learning Institution			
		UR-CE		AUCA	
		Count	Column N %	Count	Column N %

I attended trainings on assessment of degree of disability	Not attended	7	58.3%	17	85.0%
	In-service training	3	25.0%	2	10.0%
	Pre-service training	2	16.7%	1	5.0%
I attended trainings on environmental adaptation( eg. mobility orientation-walking with a can in the way)	Not attended	8	66.7%	17	85.0%
	In-service training	2	16.7%	2	10.0%
	Pre-service training	2	16.7%	1	5.0%
I attended trainings on the use of assistive technologies (audiometer, special tables, JAWS- a software for visual impaired Youth-Students)	Not attended	10	83.3%	18	90.0%
	In-service training	1	8.3%	1	5.0%
	Pre-service training	1	8.3%	1	5.0%
	Not attended	9	75.0%	16	84.2%
I attended trainings on the communication with sign language	In-service training	2	16.7%	2	10.5%
	Pre-service training	1	8.3%	1	5.3%
I attended trainings on the use of specific methods of teaching Students with disabilities (eg. task analysis, individualization, manipulative)	Not attended	7	58.3%	16	80.0%
	In-service training	1	8.3%	2	10.0%
	Pre-service training	4	33.3%	2	10.0%
	Not attended	6	54.5%	14	73.7%
I attended trainings on counseling Students with disabilities	In-service training	2	18.2%	2	10.5%
	Pre-service training	3	27.3%	3	15.8%

**Source:** *Field data, 2017*

*The implication of training of the academic staff and non-academic staff in supporting Students with disabilities in higher education is to empower them to gain knowledge and skills and abilities for their social inclusion.*

One of the role of youth in achieving SDGs implementation in Rwanda is to foster social inclusion through talent clubs, and engagement of people with disabilities in income generating activities during the academic life and after the academic life. This will be done through creation of cooperatives and encourage people with disabilities to have a voice of participation.

Orientation week was very important meetings for freshmen retention and it was a foundation for completion of their studies. The views of administrative staff on accommodation of Students with disabilities during the induction week showed that there was equal access to information in University of Rwanda- College of Education. That included the information related to the value based education ( $\bar{x} = 4.00; SD = 0.00$ ), self-management, self-discipline and self-motivation of a student ( $\bar{x} = 4.45; SD = 0.58$ ), study and research methods ( $\bar{x} = 4.00; SD = 0.00$ ) self-awareness and self-assessment ( $\bar{x} = 4.00; SD = 2.00$ ), and life planning ( $\bar{x} = 3.25; SD = 1.71$ ) from University of Rwanda-College of Education. UR-CE Students with disabilities would participate in events such as general meetings of the Students and consolidation camps at the same level with their peers without disabilities.

The AUCA Students with disabilities participated passively in the general assemblies and week of prayers due to the lack of sign language interpretation. There is a severe barrier and there is a need of substantial facilitator for access to information on Christian value based education ( $\bar{x} = 3.00; SD = 1.41$ ), study and research methods ( $\bar{x} = 3.50; SD = 2.12$ ) self-management, self-discipline and self-motivation ( $\bar{x} = 3.25; SD = 1.71$ ) of a student with disabilities. It showed that there was severe barriers and a need of substantial facilitator so that AUCA Students with disabilities access information on self-awareness and self-assessment ( $\bar{x} = 2.50; SD = 0.71$ ), and life planning ( $\bar{x} = 3.25; SD = 1.71$ ). AUCA Students with disabilities were not able to access to full information given during the week of prayer, general assemblies when the sign language interpretation was not applied.

According to NCPD, (2014), mainstreaming institutions of higher learning have the mandate of bridging gaps between university education and inclusive society through training and development of the capacity of persons with disabilities so they become independents and asset to the community. The author referred to inclusive education, research, development and innovation in higher education.

#### 4.4. Hypotheses Testing

The first null hypothesis was to verify if personal factors including Youth-Students' ability, prior knowledge, behavioral engagement, cognitive motivation, emotional engagement, and learning strategies had no correlation with their academic achievement in selected Higher Learning Institutions in Rwanda.

**Table 9. Coefficient correlation between personal factors and the academic achievement**

Academic Achievement	Ability	Prior Knowledge	Behavior	Cognitive Motivation	Emotion	Learning Strategies
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Academic Achievement	Pearson Correlation	1	-.196	-.250	.341	.204	.673*	.324
	Sig. (2-tailed)		.541	.434	.278	.524	.023	.304
	N	12	12	12	12	12	11	12

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data, 2017

Findings showed that there was a weak negative correlation between Youth-Students' ability ( $r = -0.196$ ), Students with disabilities' prior knowledge ( $r = -0.250$ ) and their academic achievement in both UR-CE and AUCA. There was also a weak positive correlation between Students with disabilities' behavior engagement ( $r = 0.341$ ), Students with disabilities' cognitive motivational engagement ( $r = 0.204$ ), Students with disabilities' learning strategies ( $r = 0.324$ ) and their academic achievement in both UR-CE and AUCA. Table 8 showed that there was no correlation of students with disabilities' ability ( $p\text{-value} = 0.541 \geq \alpha = 0.05$ ), Students with disabilities' prior knowledge ( $p\text{-value} = 0.434 \geq \alpha = 0.05$ ), their behavioral engagement in learning ( $p\text{-value} = 0.278 \geq \alpha = 0.05$ ), cognitive motivational engagement ( $p\text{-value} = 0.524 \geq \alpha = 0.05$ ), and their learning strategies ( $p\text{-value} = 0.304 \geq \alpha = 0.05$ ) to their academic achievement in the UR-CE and the AUCA.

Findings showed also that there was a moderate positive correlation ( $r = 0.673$ ) between emotional engagement and the academic achievement of UR-CE and AUCA Students with disabilities. If  $p\text{-value} = 0.023 < \alpha = 0.05$ , then there was a positive correlation of emotional engagement to the academic achievement of UR-CE and AUCA Students with disabilities. Therefore, we did not reject the first null hypothesis; taking consideration of the following personal factors including ability, prior knowledge, behavior engagement in learning, cognitive motivational engagement and learning strategies. Then we rejected the null hypothesis based on the emotional engagement of Students with disabilities. The implication of the decision from Table 8 was that the emotional engagement had a positive correlation on the academic achievement of Students with disabilities in both UR-CE and AUCA in Rwanda.

Students with disabilities' negative emotions such as anger, fear, shame, jealousy etc. for example, have a negative impact on their academic achievement in higher education. A student with disabilities may get depressed in the way that he or she becomes overwhelmed and helpless with disability condition or other conditions including lack of personal support needed from the family, community, administrators, teacher's even peers correlate with the academic achievement of Students with disabilities.

Students with disabilities' positive emotion includes enthusiasm, joy, altruism to other people, social support, serving as role model, acceptance of his or her condition, and sense of humor are very important in their academic life. Students with disabilities were almost forgotten when one tutors taught a group of 150 -1500 Students in the classroom for cross cutting modules in UR-CE." Young people have a role to support one another emotionally for the sustainable development of the society.

**Table 10. Correlation coefficient between environmental factors and the academic achievement**

		Academic Achievement	Physical	Products and technology	Natural	Social attitudinal	Family & community	Peer support
Academic Achievement of Students with disabilities	Pearson Correlation	1	.306	.483	.608*	.600*	.023	-.567
	Sig. (2-tailed)		.333	.112	.036	.039	.945	.055
	N	12	12	12	12	12	12	12

\*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data, 2017

The second null hypothesis was that environmental factors including physical environment, product and technology, natural environment, societal and attitudinal environment, family and community involvement, and peer support had no positive correlation on the academic achievement of Students with disabilities in selected HLIs in Rwanda.

Findings from table 9 showed that there was a weak positive correlation between physical environment ( $r = 0.306$ ), product and technology ( $r = 0.483$ ), family and community involvement ( $r = 0.023$ ) and the academic achievement of Students with disabilities in selected HLIs in Rwanda. There was also a moderate negative correlation ( $-0.567$ ) between peer support and the academic achievement of students with disabilities in selected HLIs in Rwanda. Therefore, there was no positive correlation of physical environment ( $p\text{-value} = 0.333 \geq \alpha = 0.05$ ), product and technology ( $p\text{-value} = 0.112 \geq \alpha = 0.05$ ), family and community involvement ( $p\text{-value} = 0.945 \geq \alpha = 0.05$ ) and peer support ( $p\text{-value} = 0.055 \geq \alpha = 0.05$ ) to the academic achievement of Students with disabilities.

Findings showed also that there is moderate positive correlation between natural environment ( $r = 0.608$ ), societal and attitudinal environment ( $r = 0.600$ ) and the academic achievement of Students with disabilities. Then, there was a positive correlation between natural environment ( $p\text{-value} = 0.036 < \alpha = 0.05$ ) and societal and attitudinal environment ( $p\text{-value} = 0.039 < \alpha = 0.05$ ) to the academic achievement of students with disabilities in HLIs in Rwanda. Therefore, the second null hypothesis was not rejected based results showed by table 9 including physical environment, product and technology, family and community involvement and peer support. The second null hypothesis was rejected as far as natural environment and social environment is concerned. This means that natural environment and human made changes to environment and societal and attitudinal environment had a positive correlation with the academic achievement of students with disabilities in selected Higher Learning Institutions in Rwanda.

**Table 11. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635 <sup>a</sup>	.404	.295	.324

a. Predictors: (Constant), environmental factors, personal Factors



Table 11 showed that environmental factors and personal factors are the predictor variables and the academic achievement was the outcome variable.

**Table 12. ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.782	2	.391	3.723	.058 <sup>b</sup>
	Residual	1.155	11	.105		
	Total	1.937	13			

a. Dependent Variable: academic achievement

b. Predictors: (Constant), environmental factors, personal factors

There is no significant relationship between environment factors, personal factors and the academic achievement of students with disabilities ( $F=3.723$ ,  $p\text{-value}=0.058$ ) at the Adventist University of Central Africa and the University of Rwanda College Of Education. F statistic showed that there is low variability above at 3.1%. It means that not all means are equal. The coefficients of the regression analysis give details in table 13.

**Table 13. Coefficients of personal factors and environmental factors<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.819	.931		3.030	.011
	Personal Factors	-.117	.171	-.160	-.685	.508
	Environmental Factors	.412	.160	.602	2.576	.026

a. Dependent Variable: Academic Achievement

The linear regression equation becomes  $y=2.819-0.117x_1+0.412x_2$  at 95% confidence level. Environmental factors influence significantly the academic achievement of students with disabilities at the Adventist University of Central Africa and at University of Rwanda College of Education ( $\beta = 0.602$ ,  $p\text{-value}=0.026$ ). The implication of these findings is that a unit increase in environmental factors led to the increase in academic achievement indicators by 60.2 % at the Adventist University of Central Africa and the University Of Rwanda College of Education.

#### 4.5. Discussion of Findings

This manuscript showed how emotional engagement, social and attitudinal engagement and natural environment correlate with the academic achievement of Students with Disabilities. Though, the academic achievement of a student with disability is not influenced by personal factors and environmental factors at the same time, physical and social environment influence students with disabilities at AUCA and UR-CE at 60.2%. The social inclusion and physical environment conducive are need. Sergeant & Berkner (2015) showed that inclusion in classroom has to be Christian based.

### Social Inclusion Model

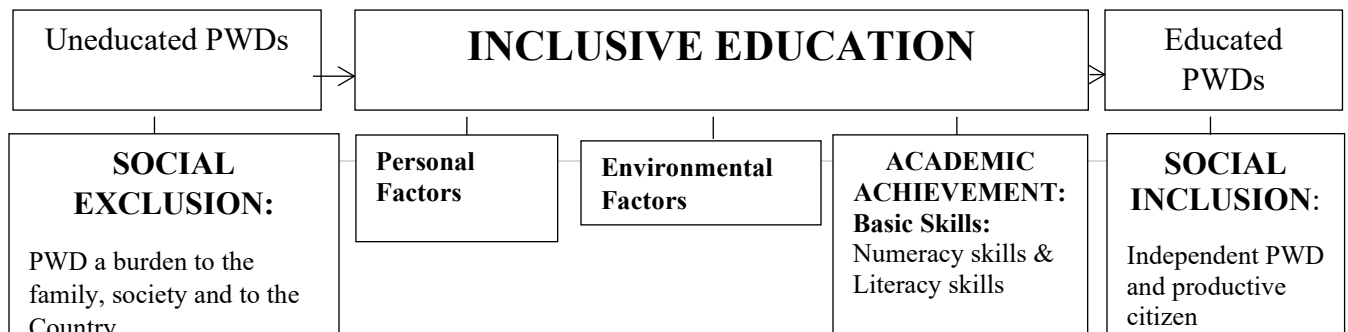
According to Silver, (2015) social exclusion was used for the first time in France in 1970s and was expended in the rest of European Unions member states and in the rest of the world. Social exclusion encourages discrimination among people and marginalized people suffer from poor quality education, training and unemployment or underemployment. Here people may have the same job but not be paid equally based on race, sex, disability etc. social inclusion is composed with economic, social-cultural and political dimensions. These dimensions may have different features based on the respective nations.

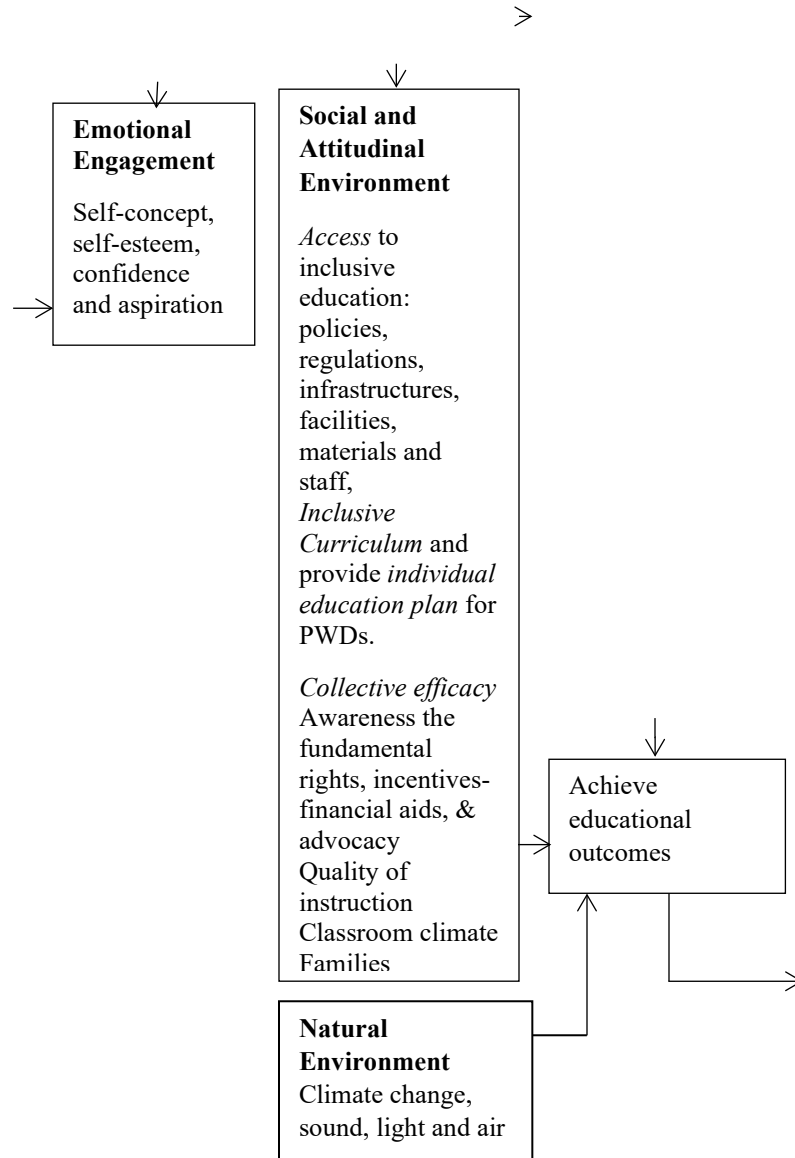
Economic dimension is shown by different mechanisms including distances from jobs and salaries, quality education, housing, public services, etc. social-cultural dimension is composed with peers correlations, family structures, social networks, access to churches, institutions and exposure to risky behaviors. Political dimension includes access to social protection, eligibility to voting and participation in decision making and ability to partnerships with other nations.

The social inclusion model for persons with disabilities showed that they can be productive to the community instead of being a burden to the society through inclusive education. Enhancing quality of education for persons with disabilities is not a waste of resources but a long-term investment for a sustainable development of the society. Chapter one has given details on how deep was the gap between a number of educated and non-educated persons with disabilities in 2012 in Rwanda. Based on the theory of learning of Vygotsky (1978) ;

Wood, Bruner, & Ross (1976), the research showed how much a person with disability-*novice* has prior knowledge and skills and through *scaffolding process* in higher education by the help of instructors, peers, family and community members-*experts* achieve *potential development* and become *proficient*. The level of proficiency is measured through their academic achievement (score) as the conceptual framework has illustrated. The academic achievement of Students with disabilities was measured with a pass mark according to the standards of the selected institution of Higher Learning (UR-CE and AUCA). In addition, the level of proficiency and the capacity for problem solving of the student contribute to the increase of level of participation in cultural, social and economic activities in the society (see Figure 3).

Figure 1. Social Inclusion Model of Persons with Disabilities for Sustainable Development





Source: researcher construct, 2017

## 5.6. Overcoming challenges in education inclusiveness

This point showed how to overcome challenges in inclusive education in higher education through empowering youth and People with Disabilities for Sustainable Development.

Findings showed that UR-CE academic staff who participated in this research, did not attend training on test administration (58.3%), environmental adaptation (66.3%), use of assistive technologies for teaching Students with disabilities (83.3%), being familiar with communicating

in sign language (75%), specific methods in teaching Students with disabilities (58.3%), and guidance and counseling of Students with disabilities (54.3%)

The Assessment Center is an ongoing project in University of Rwanda. The institution plan to take the responsibility of making an observation, referral and evaluation after administering achievement test, Intelligence Test or any other psychometric test that can be used to measure the degree of disability or functioning of a candidate. In Adventist University of Central Africa, a gap needed to be filled in capacity building of staff in inclusive education. The academic staff who filled the questionnaires at AUCA, did not attend trainings on test administration (85%), environmental adaptation (85%), use of assistive technologies for teaching students with disabilities (90%), being familiar with communicating in sign language (84.2%), specific methods in teaching Students with disabilities (80%), and guidance and counseling of Students with disabilities (73.7%). These trainings were for enhancement of quality education and quality of service delivery to Students with disabilities, their families and the community in general.

### **5.7. The role of youth in achieving SDGs in Rwanda**

Focusing on youth, 17 SDGs in Rwanda are achievable by 2030. Ending poverty in all its forms everywhere for all people including youth, ending hunger, achieve food security and improved nutrition including nutritional needs of adolescent girls. All member states will ensure healthy lives and promote well-being for all at all ages. They will ensure all youth reach proficiency level in literacy and relevant skills for decent work. All countries by 2030 will achieve gender equality and empower all women and girls by involving youth in awareness activities and active participation in decision making positions. They will provide adequate and equitable sanitation and hygiene, with special attention to needs of women and girls. Through job creation, achieve full and productive employment and decent work for young people. Empower and promote the social economic and political inclusion of all including those with disabilities, irrespective of age. Make cities and human settlements inclusive, safe, resilient and sustainable. Ensure sustainable consumption and production patterns. Raising capacity for effective climate change related planning and management including focusing on youth. Provide access to justice for all and build effective accountable and inclusive institutions at all levels. Realize partnership for sustainable development including engagement of youth organizations. To achieve this, quality education and inclusive education is the key for sustainable development (United Nations, 2015). The reason why, an assessment was made to find out the needs of instructors about training for inclusive education at the UR-CE and at the AUCA.

**Figure 2 *Process of Empowering of people with disabilities through education inclusiveness***



**Source: researcher construct, 2017**

In Rwanda, the definition of youth includes people with age group between 14 and 35 years old by 2006 Rwanda National Youth Policy while the new definition considers young people, the population aged between 16 and 30 years old by (MYICT, 2015). According to the Youth Thematic Report of National Institute of Statistics of Rwanda (NISR) of March 2016, the youth represents 39% of the entire population in Rwanda. Young people have the role to play by raising awareness of SDGs among other people including those with disabilities as far as achieving SDGs in Rwanda. Quality education and inclusive education is the key to the implementation of achieving SDGs in Rwanda. The conclusion showed in detail on how the implementation of achieving SDGs is possible by focusing of human capital development in Rwanda including marginalized people and people with disabilities in a special way. SDGs implementation in Rwanda is focused on the active involvement of youth and raising awareness to the rest of the population.

Youth are active drivers of change in local communities and in the rest of the levels in Rwanda. This should be done through raising awareness to the rest of the population, translation of 17 SDGs and its 169 targets agenda into local, national and regional policies, creating structured mechanisms to involve youth in decision making process including those who have clear impact on them. Maintain adequate allocation of fund to support young people and people with disabilities and youth-led organizations activities by including those with disabilities. Involve youth and people with disabilities to make a positive and peaceful change through political ways or work for social development through activism, social movements and creative expression in Rwanda. Create partnerships and networks with social groups' sustainable development of Rwanda. This practice was successful in the rest of the world (UNDP, 2017), it can be also practiced based on Rwanda Socio-cultural context.

## 5. Conclusion

This paper on assessment of factors affecting the academic achievement of students with disabilities at the UR-CE and at the AUCA was to assess the correlation between personal factors, environmental factors and the academic achievement of students with disabilities. The study focused two higher learning institutions including UR-CE and AUCA in 2017.

The study has analyzed the scores of students with disabilities and checking if they are higher than the pass mark set in compliance of the standards of selected Higher Learning Institutions in Rwanda. Figure 2 showed it that, Students with disabilities 69% are above the standard (50%) was set by the UR-CE. In AUCA Students with disabilities score 12 out of 20 which is the grade level academic achievement standard for the award of a Degree or below the standard. It indicated the low academic achievement for Students with disabilities in AUCA. The study has described personal factors influencing the academic achievement of Students with disabilities in UR-CE and AUCA. These are ability of the student, prior knowledge, behavioral engagement, cognitive motivation, emotional engagement and learning strategies. The study described environmental factors influencing the academic achievement of Students with disabilities in Higher Learning Institutions in Rwanda. Those factors are physical environment, products and technology, natural environment and human made changes to environment, societal environment, family, community involvement and peer support. The study assessed the correlation between personal factors and the academic achievement of Students with disabilities in higher education in Rwanda. Findings showed that there is no significant relationship between environment factors, personal factors and the academic achievement of students with disabilities ( $F=3.723$ ,  $p\text{-value}=0.058$ ) at the Adventist University of Central Africa and the University of Rwanda College Of Education. Since people are educated and have knowledge, skills and abilities to do their activities efficiently and effectively, it will give an assurance to end poverty everywhere, to have zero hunger by investing in agribusiness and ensuring food security across the country of Rwanda, fight for good health by setting strategies for fighting against non-communicable diseases and communicable diseases, ensuring quality education enhancement, gender equality, availing clean water and sanitation, use renewable energy including solar energy and hydraulic energy and reach remote areas including rural areas, create good jobs and ensure economic growth in Rwanda, enlarge industrial sector and with innovation and modern infrastructure. Reduce in inequalities in all sectors and ensure sustainable cities and communities with modern master plan. Consume responsibly and enhance culture of saving. Forecast for climate change and insure effective disaster management. Protect life of livings below water and protect living on land especially fight against extermination of endanger species. Work hand in hand for creating partnerships for implementation of achieving sustainable development goals in Rwanda (United Nations, 2015). The paper met its objectives and opened gates for future research on achieving SDGs implementation in Rwanda.

## 6. References

- Agresti, A., & Franclin, C. (2013). *Statistics: The art and Science of Learning form Data*. Boston: Pearson Education, Inc.
- Daniel, W. L., & Cross, C. L. (2013). *Biostatistics: A foundation for Analysis in Health Sciences*. Hoboken: JohnWiley & Sons, Inc.
- DFID. (2005). *Disability Knowledge and Research: Mainstreaming Disability in Development: Country-Level Research*. London: Philippa Thomas, Disability Policy Office DFID.
- GoR. (March 2015). *Initial Report of Rwanda on the Implementation on the Implementation of the Convention on the Rights of Persons with Disabilities*. Kigali: Republic of Rwanda.
- Hoy, W. K., Miskel, C. G., & Tarter, J. C. (2013). *Educational Administration: Theory, Research, and Practice* (Ninth ed.). New York: McGraw-Hill Companies Inc.
- HVP. (2017, August 7). *Historique*. Retrieved August 2017, 2017, from gatagara.org: <http://www.gatagara.org/who1.html>
- Lee, J., & Shute, V. (2010). Personal and Socio-Contextual Factors in K-12 Academic achievement: An Integrative Perspective on Student Learning. *Educational Psychologist*, 45(3), 1-19.
- MINEDUC. (2013). *Education Sector Strategic Plan 2013/14-2017/18*. Kigali: MINEDUC.
- MINEDUC. (2016). *2015 EDUCATION STATISTICAL YEARBOOK*. Kigali: MINEDUC.
- MYICT. (September 2015). *Rwanda National Youth Policy*. Kigali.
- National Institute of Statistics of Rwanda (NISR). (March 2016). *Integrated Household Living Conditions Survey*. Youth Thematic Report, National Institute of Statistics, Kigali.
- NCPD. (2012). *Report for Visiting Students with Disabilities in Universities and Higher Learning Institutions*. Kigali: National Council of Persons with Disabilities.
- NISR, & MINECOFIN. (2012). *Fourth Population and Housing Census, Rwanda, 2012: The Thematic Report on Socio-economic characteristics of persons with disabilities*. Kigali: Ministry of Finance and Economic Planning; National Institute of Statistics of Rwanda.
- Rugutt, J. K., & Chemosit, C. C. (2005, Spring ). A study on Factors that Influence College Academic Achievement: A Structural Modeling Equation Approach. *Journal of Educational Research & Policy Studies, Volume 5*, (Number 1), pp.66-90.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Youth-Students*. London: FT PReintice Hall, an imprints of Pearson Education Ltd.

- Silver, H. (2015, October). The Context of Social Inclusion. *United Nations Departement of Economic and Social Affairs-DESA Working Paper*(No.144).
- United Nations (2015, August 12). *SDGS outcome-document-of-Summit-for-adoption-of-the-post-2015-development-agenda*. Retrieved from UN.ORG: [http://www.un.org/pga/wp-content/uploads/sites/3/2015/08/120815\\_outcome-document-of-Summit-for-adoption-of-the-post-2015-development-agenda.pdf](http://www.un.org/pga/wp-content/uploads/sites/3/2015/08/120815_outcome-document-of-Summit-for-adoption-of-the-post-2015-development-agenda.pdf)
- United Nations. (2006, December 13). *Convention on the Rights of Persons with Disabilities and Optional Protocol*. Retrieved February 15, 2017, from <http://www.un.org/>: <http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>MYICT. (September 2015). *Rwanda National Youth Policy*. Kigali.
- National\_Institute\_of Statistics\_of\_Rwanda\_(NISR). (March 2016). *Integrated Household Living Conditions Survey*. Youth Thematic Report, National Institute of Statistics, Kigali.
- Silver, H. (2015, October). The Context of Social Inclusion. *United Nations Departement of Economic and Social Affairs-DESA Working Paper*(No.144).
- UNDP. (2017, February 22). *The Role of Yough in making a Sustainable Development Goals a reality in Mongolia*. Retrieved November 28, 2017, from <http://www.mn.undp.org/>: <http://www.mn.undp.org/content/mongolia/en/home/presscenter/speeches/2017/02/22/role-of-youth-in-making-the-sustainable-development-goals-a-reality-in-mongolia.html>
- United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development A/RES/70/1*. New York: United Nations.
- United Nations. (2016). *The Soustainable Development Goals Report* . New York: United Nations.
- United Nations. (2016). *The Sustainable Development Goals Report* . New York: United Nations.
- Vygotsky, L. S. (1978). *Mind in Society: Development of Higher Psychological Processes*. (M. Cole, V. J. Steiner, E. Souberman, & S. Scribner, Eds.) London: Harvard University Press.
- WHO. (2001). *International Classification of Functioning, Disability and Health*. Geneva: World Health Organization.
- WHO. (2010). *Measuring Health and Disability: Manual for WHO Disability Assessment Schedule-WHODAS 2.0*. (TB Üstün, N Kostanjsek, S Chatterji,J Rehm., Ed.) Geneva: WHO Press.
- Wood, D., Bruner, J. S., & Ross, G. (1976). The Role of Tutoring in Problem Solving. *Jurnal of Child Psychology and Child Psychiatry*, 17, 89-100.



# **Role of Social Media on Political Participation among Literate Women in Urban Communities of Ilorin, Kwara State Nigeria**

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## **Abstract**

*This study examined the role of social media on political activism among literate women in Ilorin, Nigeria. In this study, the extent of social media utilization and the level of partaking in political activities were also investigated. This study made use of a descriptive survey research. The population for this study comprised all women leaders/political activists in Ilorin, Nigeria. Two hundred (200) literate women leaders/political activists were sampled using a clustered sampling technique. A researcher's developed questionnaire with the reliability coefficient of 0.72 was used for data collection while the data collected were analyzed using descriptive statistics of percentage to answer the research questions while inferential statistics of Pearson's Chi-square via a contingency table to test the hypothesis postulated for this study. Findings of this study revealed that social media was found to play significant roles on women political involvement as women were found to utilize social media as a platform for political online meetings, political awareness and sensitization among members, expression of opinions in addressing political matters etc. It was therefore recommended among others that women should always harness the benefits of social media to foster their political activism among women for the betterment of democracy and national development.*

**Keywords:** Literate women, roles, social media, political activism and political participation

## Introduction

In the context of on-going democratic reforms, there has been a renewed interest to promote the participation of women in public decision making at the local government level. Gender equality in politics and women economic empowerment is largely seen as part of developmental agenda of current liberalization project. Women issues have now become an integral part of contemporary governance discourse and this is largely due to the increasing recognition of women as positive contributors to economic and political developments. The rationale for promoting women's participation in political dispensation is based on equity, quality and development. Four interrelated areas of concern are emerging from on-going studies of gender inequality in political representation. These are: (i) structural impediments attributed to patriarchal ethos and entrenched gender biases that impede women's representation in governance processes; (ii) institutional barriers and failures to systemize, domesticate and enforce gender equity instruments; (iii) contextual challenges, such as violent conflicts, political instability, and reconfiguration of political power; and (iv) internal challenges within women's movements and networks (Ekiyor & Marieme, 2009). Online political communication, especially through social media allow politicians to have control over their own messages and this works especially well for unelected or young women; whose status makes them less likely to be constrained by the political party apparatus (European parliament, 2013).

Political participation has focused on the impact of technology, especially the Internet, on the political activity of general public. The Internet has significantly altered the cost structure of participation, and has also enhanced the range of possible political activities (Abbass and Nawaz, 2014). It has extended the opportunities for mobilizing conventional political associations, while giving fame to the use of certain extra representative styles of participation, such as direct action politics and new social activities. New technology has facilitated the extension of the level of participation, broadening their scope and enabling coordination and political power on a transnational scale to occur with an ease which was almost unknown until a decade ago (Hassan, 2007). The development of electronic and digital infrastructure has given millions of people the potential to learn, publish and communicate on an unprecedented scale (Jaspal, Rusi and Cinirella, 2010). This rapidly declining the real cost of requisite information and communication technologies [ICTs], combined with huge changes to the available infrastructure, have allowed young people to take benefits of technology to do and achieve things unfamiliar to earlier generations (ITU, 2008)

Women political struggles have been dated back to the 19th century when women like Amina of Zaria, Madam Tinubu of Lagos, Olufumilayo Ransom Kuti of Abeokuta, Margaret Ekpo and Hajji Gabon Swabia among others fought to give women pride of place in Nigeria's history even after the struggle for independence was over and Nigeria became an independent sovereign nation, women continue to contribute their quota in the post-

independence match towards development and progress of Nigeria. Abubakar, 2011 asserted that various political organizations have contributed immensely to the mobilization and sensitization of women with a view of ensuring that women are involved in the politics of the country. Recently, the transformation of the communications landscape has had an impact on electoral process, changing the channel used by citizens and voters to obtain information, the communication strategies and the platform where candidates present their political ideas and programs which are majorly through social media (Bakan and Davis, 2004). It has therefore been observed that the social media is important to the political development of nations. Considering the fact that the internet is increasingly being used world-wide with its power of reaching a large mass of audience, it should not be ignored in the political scheme of things (Fasake, 2004). Thus, social media offer citizens especially women a space to exercise their right to freedom of expression and participate in public matters which gives sense of citizenry.

The emergence of social media has changed the way in which political communication takes place in most countries of the world, including Nigeria. Political institutions such as politicians, political parties, foundations, institutions, and political think tanks are using social media, Facebook and Twitter, as a new way of communicating with voters. Individuals and politicians alike are able to voice their opinions, engage with their network, and connect with other likeminded individuals (Kearney, 2013). However, the active participation of social media users has been documented as an increasingly important element in political communication, especially during political elections. Users are able to connect directly to politicians, campaigns and engage in political activities in new ways. By simply pressing the like button on Facebook or by following someone on Twitter, users have the ability to connect in new ways. Thus, Chatora (2012) pointed out that the option for users to share, like, or retweet political messages instantaneously has opened up a new avenue for politicians to reach out to voters. Politicians in their bid to use social media for elections were mindful of the developments and the new vista of consciousness in the practice of citizen journalism in Nigeria. In the last decade, the rise of Facebook, YouTube, Myspace, Blogs and other social networking sites has witnessed citizen journalists armed with video camera and beginning to show up everywhere. Following this, politicians have attempted to check the negative publicity that may come from any of the networks by reaching out to sites and blogs that can affect their prospects (Eledan, 2011). The former Nigerian President, Goodluck Jonathan joined the fray when at the 26th convocation ceremony of the University of Port Harcourt, he promised that he would open a facebook page to interact with millions of Nigerians (Lawal, 2010).

The dependence on the traditional media for political campaigns will certainly be noticeable and cannot be completely discarded, modern trends of the New Media seem to be eroding the gains of the traditional media. As the new media gradually reshapes the advance phase of political strategists and marketing, experts are quick to wonder whether newspapers, television, radio and other traditional media forms still command the degree of

relevance that made them indispensable in the years past for developing credible form of political communication (Nations,2010). Nigeria with a population put at over 150 million and about 60 million active young voters, near 43 million internet users and approaching 80 million mobile connections, political campaign managers are sure to have tested their abilities in finding new media methods to get their political message out faster, easier, cheaper and stronger (Eledan, 2011). The new media is useful not only for mobilizing voters, but also in integrating all other facets of campaigns, including rally, organizing and delivering campaign messages to potential voters on a consistent basis, at relatively low or no cost to them. However, Facebook, Twitter and other social networks reinforce political messages and build online and offline support that will help drive interesting debates about any politicians and the party. The new media according to Fred (2011) was also to a large extent useful to the electoral umpire - INEC, numerous international and local observers, the traditional media operators and ordinary people who monitored the election and in checking electoral fraud. It also provides easy access to needed evidence by the Tribunals. The participatory nature of social media encourages contributions from everybody, provides opportunity for feedback from every interested person.

Social media sites provide an enhanced networking and discussion capability that is not inherently present in the standard uses for the internet. By definition alone, a social network is a website where one connects with those sharing personal or professional interests, place of origin, education at a particular school and all others (Merriam-Webster, 2011). As limited in this definition, a social networking site sounds no different than a blog or a web forum. However, social networking sites are quite different and more extensive than a website or a blog. In a blog or website there is limited connectivity between users. There is a user whose submissions can be accessed and commented on by other users, or vice versa, but the extent of the connectivity stops there.

Research on the relationship between the utilization of digital media and political participation began in the late 1990s and has pursued several lines of inquiry. One line has focused on what might be called alternative forms of participation and e-participation. This include activities taking place primarily through digital media such as online petitioning, blogging, uses of social media for politics, citizen journalism, and the like. (Heinz and Rice, 2009). Digital media, simply put, is new form of mass communication. Another term for it is new media or social media. Relatively, it is recent media based on new information technology, a 21st century's people's media. It is dynamic as the Internet-based tools and technology keep changing in unpredictable ways, and evolving too (John, 2013). Obviously, with the increasing role of digital media in political activities, participation has now taken a new form. Like posting and commenting online, joining and creating online groups, organizing protest events, participation in online discussions with friends and 'liking' on a Facebook profile of a political figure or party indicating political preferences; certainly have become widespread. Social media generated new trends for political participation and changed the patterns of political communication. Siluveru (2015) endeavored to dig

out the facts about social and digital media in political communication and concluded that social media is being used for the purpose of social relations and updating the users about happenings in politics and other social issues.

Of much concern, however, is how social media are informing women's sense of community and political engagement. Scholars have found that social media use is a significant predictor of civic engagement and political participation in the society (Nabueze, Obasi and Obi, 2012). Despite the fact that social media has been an active tool in reaching out to youths and the masses, little is known about its influence on women's participation in politics in Kwara state in general and Ilorin in particular. Social media is a relatively new medium with many unanswered questions. In the wrong context, it is not impossible to believe that governments will and are using this tool for censorship, cataloguing, or propaganda. There are also reports of Social Networking Sites providing a resource for terrorist, rebel, militia, and pirate networks (Chadwick, 2011). It is important then that Social Networking Sites be viewed as a tool for constructive and deconstructive purposes. This is simply a technology with relatively unknown ramifications that deserves cautious reserve when assessing its potential.

The latter part of the 20th century witnessed rapid technological changes which redefined and reinvented communication and media. It is easy for those with Internet connections to be aware of the types of new media, especially networking sites. Following are some types of new media: Websites, Cyber chatting, Blogs, Podcast, Widget, Streaming media, social media etc. Social Media Networks Facebook is one of the top social networking sites in the world – a young user-friendly platform established in 2004. The office of Facebook is headquartered in California, US. Mark Zuckerberg is the founder, chairman and chief executive officer of Facebook. The home office page of Facebook says the mission of Facebook is to give people the power to share and make the world more open and connected. The user can build a profile, add 'Friends', post messages, react to other people's messages, post photos, videos and texts in any form. Groups with common interest or educational institutions, political interest, cultural forums, employees at a workplace, civic groups etc., can be formed so that information can be shared only among the members of that particular group.

Osuala (1982) pointed out that with the increasing role of digital media in political activities, participation has now taken a new form. Like posting and commenting online, joining and creating online groups, organizing protest events, participation in online discussions with friends and 'liking' on a Facebook profile of a political figure or party indicating political preferences; certainly have become widespread. Thus, social networking sites use for online political participation yield significant influence on women. Online political participation is online political participatory activities carry out on Facebook such as sending political messages on Facebook to the politicians, commenting on a candidate's Facebook page, seeking donation for a political party or sharing political

information on Facebook (Larson, 2004). Thus, this provides women more ways to be active in political affairs than what was not possible in the past generations.

This study is theoretically grounded on the technological determinism theory. The theory which was propounded by Marshall McLuhan (1964), a Canadian communication scholar, who observed new media technologies in communication, would soon determine social changes, turning the world into a global village. He believed that socio-political, economic and cultural changes are inevitably based on development and diffusion of technology. McLuhan argued technology undoubtedly causes specific changes on how people think, how society is structured and the form of culture created. This theory portends that, given the emergence of Internet and its adoption and relevance in mobilizing people for political activities, there is bound to be an impact on the electoral process and overall political environment. Communication is the basic tenet of technological determinism theory. The theory seeks to explain social and historical phenomena in terms of the principal determining factor (technology). The theory states that communication technologies in general are the prime causes of changes in society. Reinforcing this position, it is affirmed that technological determinists interpret technology in general and communication technologies in particular as the basis of society in the past, present and even in future.

The relevance of the theory to the study shows that communication technology has exceedingly changed the way we send out messages and receive them from the opposite. Communication barriers are eliminated and the forms of communication have been transformed significantly. The theory asserts that, given the emergence of internet and its adoption and relevance in mobilizing people for political activities, there is bound to be an impact on the electoral process and overall political environment. This is true in the use of social media which enables us to connect with others anytime and anywhere. Its creation has helped in accelerating the electoral process in terms of creating awareness on political issues, mobilization and education of voters especially women.

### **Purpose of this Study**

This study examined the role of social media on political activism among women in Ilorin, Nigeria. Specifically, this study will find out the following:

1. the extent of social media utilization among women in Ilorin, Nigeria
2. the level of participation in political activities among women in Ilorin, Nigeria

### **Research Questions**

The following questions were raised to guide this study

RQ1: What is the extent of social media utilization among literate women in Ilorin, Nigeria?

RQ 2What is the level of participation in political participation among literate women in Ilorin, Nigeria?

### **Research Hypothesis**

The following hypothesis was postulated for this study

**H<sub>01</sub>:** There is no significant role of social media on political participation among literate women in Ilorin, Nigeria

### **Methodology**

This study made use of a descriptive survey research. The population for this study comprised of all women political activists in Ilorin, Nigeria. Two hundred (200) women political activists were sampled using a clustered sampling technique as the researchers visited various centers and places where women usually gathered for weekly or monthly political meetings. A researcher's developed questionnaire titled questionnaire on women political participation and social media (QWPPSM) was used for data collection. The instrument contained 10 items on social media usage and 10 items on women participation in political activities all of which were structured in a four-response Likert scale type. The instrument was validated by experts in Educational Technology and experts in Test and Measurement with the reliability coefficient of 0.72 while the data collected were analyzed using descriptive statistics of percentage to answer the research questions while inferential statistics of Pearson's Chi-square via a contingency table to test the hypothesis postulated for this study.

### **Data Analysis and Results**

Out of 200 women sampled for this study, 61 women (30.5%) had higher education degree while 139 (69.5%) had below higher education degree.

**RQ 1:** What is the extent of social media utilization for political activities among literate women in Ilorin, Nigeria?

The scores of each respondent on social media utilization for political activities were subjected to percentage analysis. Since the questionnaire on social media utilization contained 10 items structured in a four-response-type, the minimum, maximum and range score are 10, 40 and 30 respectively, the range was therefore divided by 3 (i.e.  $30/3=10$ ). Thus, women whose score fell within score range 10 – 20; 21 – 30 and 31 – 40 were categorized as Rarely, Occasionally and Always utilized social media respectively. The statistics of respondents' scores were summarized and presented in Table 1.

**Table 1:** *Extent of social media utilization among women in Ilorin, Nigeria*

<b>Extent of social media utilization for political activities</b>	<b>Score Range</b>	<b>Frequency</b>	<b>Percentage</b>
Rarely	10 – 20	44	22.0
Occasionally	21 – 30	72	36.0
Always	31 – 40	84	42.0
<b>Total</b>		<b>200</b>	<b>100.0</b>

Table 1 reveals that 44 (22%) of the participants rarely utilize social media for political activities; 72 (36%) sometimes utilize social media for political activities while 84 (42%) of the respondents always utilize social

media for political activities. Thus, the majority of the literate women occasionally utilized social media for political activities in Ilorin, Nigeria.

**RQ 2:** What is the level of participation in political activities among women in Ilorin, Nigeria?

The scores of each respondent on political participation were subjected to percentage analysis. Since the questionnaire on women political participation contained 10 items structured in a four-response-type, the minimum, maximum and range score are 10, 40 and 30 respectively, the range was therefore divided by 3 (i.e.  $30/3=10$ ). Thus, women whose score fell within score range 10 – 20; 21 – 30 and 31 – 40 were categorized as those who were of Low, Moderate and High levels of political participation respectively. The statistics of respondents' scores were summarized and presented in Table 2.

**Table 1:** *Levels of political participation among Literate women in Ilorin, Nigeria*

Levels of Political Participation	Score Range	Frequency	Percentage
Low	10 – 20	21	10.5
Moderate	21 – 30	48	24.0
High	31 – 40	131	65.5
<b>Total</b>		<b>200</b>	<b>100.0</b>

As revealed in Table 2, out of 200 (100%) literate women sampled, 21 (10.5%) of them were of low level of partaking in political activities; 48 (24%) were moderately partaking in political activities for political activities while 131 (42%) of the participants were of high level of partaking in political activities. Thus, the majority of the literate women highly participate in political activities in Ilorin, Nigeria.

### Hypothesis Testing

Inferential statistics of Pearson's Chi-square via a contingency table to test the hypothesis postulated for this study

**H<sub>01</sub>:** There is no significant role of social media on political participation among women in Ilorin, Nigeria

**Table 3:** Pearson's Chi-square showing the impact of social media on political activism among women in Ilorin, Nigeria

Social Media Utilisation		Political Participation			Total
		Low	Moderate	High	
Rarely	Count	21	22	0	43
	Expected	4.5	10.3	28.2	43.0
Occasionally	Count	0	26	47	73
	Expected	7.7	17.5	47.8	73.0
Always	Count	0	0	84	84
	Expected	8.8	20.2	55.0	84.0



Total	Count	21	48	131	200
			Value	Df	Sig.
<b>Chi-square Tests</b>	Pearson Chi-Square		157.601 <sup>a</sup>	4	.000
	Likelihood Ratio		187.860	4	.000
	Linear-by-Linear Asso.		124.666	1	.000
<b>Symmetric Measure</b>	Cramer's V		.628		.000
	<i>N of Valid Cases</i>		200		

a. 2 cells (11.1%) have expected count less than 5. The minimum expected count is 4.52.

Table 3 shows the statistical impact of social media on political activism among women in Ilorin, Nigeria. As revealed in Table 3, the Pearson's Chi-square value 157.601 with a p-value 0.00 at the degree of freedom 4 was obtained ( $\chi^2_{(4)} = 157.601$ ;  $p < 0.05$ ). Since the p-value 0.00 is less than 0.05 alpha level, the null hypothesis was rejected and thus, there was a significant impact of social media on political activism among women in Ilorin, Nigeria.

The degree of impact of social media on political activism among women was relatively high and positive as indicated by Cramer's V value 0.628 with p-value 0.00. This could be observed given the cross tabulation (in Table 3), out of all, 84 women who always utilized social media were observed to have high level of political participation while 47 out of 73 women who occasionally utilized social media were also of high level of political participation and so on.

## . Discussion

Majority of the literate women occasionally utilized social media for political activities in Ilorin, Nigeria Women were found to utilize social media as a platform for political online meetings, political awareness and sensitization among members, expression of opinions in addressing political matters. Series of social media platforms were being used to offer men and women a space to exercise their right to freedom of expression and participate in public life as committed citizens. It also offers women politicians and candidates a platform to present themselves and their political programs before citizens. Considering its low cost and the role that personal initiative plays in its use. This corroborates Diamond and Plattner, (2012) who submitted that social media have served as means for female parliamentarians who were otherwise politically disadvantaged, having the potential to advance women participation in politics. 85% of female parliamentarians surveyed make use of the social media, especially during the campaign period. Facebook was by far the most used platform, being used by 90% of female parliamentarians surveyed. The primary audience comprised voter's constituent and campaign teams, followed by elite audience such as; journalist and other politicians. Facebook and Twitter, have been serving as means of communicating and sensitizing women on contending political issues, ideas and ideologies. In the same vein,

Kearney (2013) asserted that women began to use these media to voice their opinions, engage with their network, and connect with other likeminded individuals.

Findings of this study showed that the majority of the literate women highly participate in political activities in Ilorin, Nigeria. Social media and politics are in a robust, divergent but symbiotic relationship in a functioning democracy. As the public sphere and open market place of ideas, the media provide platform for articulation and contestation of viewpoints that aid members of the public to make informed decisions. This substantiates Barner (2010) who reported in his study that social media have taken media democratic function further by allowing both synchronous and asynchronous interactions and serving as platform for collective action. By serving as two-way communication route, social media allows political organisations and aspirants to communicate and connect with the electorates and the constituents while taking feedback instantaneously or at a later time. It is, therefore, not uncommon these days for political aspirants to maintain profiles on social network sites and other mobile social media like Twitter. More so, Somaiah (2018) submitted that social media being the source of political dialogue is the perfect platform to engage potential voters and turn them into committed voters. Furthermore, West (2011) found that the pew internet and American life project survey found at the time of the 2010 election in that 23% of Americans had tried to convince someone to vote for a specific candidate and 10% had attended a political rally. With the help of social media, ordinary citizens can become agent of persuasion and leverage their personal network for whatever values, issue position, or ideological stances that they cherish.

Findings indicated that there was a significant impact of social media on political activism among women in Ilorin, Nigeria. The degree of impact of social media on political activism among women was relatively high and positive as out all the 84 women who always utilized social media were observed to have high level of political participation while 47 out of 73 women who occasionally utilized social media were also of high level of political participation and so on. This finding is similar to Fred (2011) who affirmed that social media has significant strong influence on the provision of information on political activities since social media has been a tool for disseminating information on political affairs of many state. Phillips (2015) who found that politicians use of social media has influence on people as politicians now make use of social media as a tool for conviction and persuasion of citizens to vote for them. 2013 European Parliament study, new media has a potential positive impact on women's empowerment, allowing them to network with other women, create online selves which builds confidence, appeal to other women and peers through styles and issues that are directly relevant and attractive and provide alternative power basis which might be of interest to mainstream politicians. As reported by the European parliament (2013), online political communication, especially through social media allow politicians to have control over their own messages and this works especially well for unelected or young women; whose status makes them less likely to be constrained by the political party apparatus.

## Conclusion

Based on the findings of this study, it could be concluded that social media have tremendous impact on women political activism by making them highly involved in political campaign, utilizing social media as a platform for political online meetings, political awareness and sensitization among members, expression of opinions in addressing political matters among many others

## Recommendations

With respect to the findings of this study, it could be recommended that

1. Women should always harness the benefits of social media to foster their political activism among themselves for the improvement of democracy and national development.
2. Political parties should actively search for women who may be interested in running for election, through social media networks, this will promote active participation of women in politics via online platform.
3. Organizations supporting women should consider organizing trainings and workshops through social media to educate and sensitize women on the need to participate in political activities

## References

- Abbas, Z and Nawaz, A (2014) Digital-Literacy as the Predictor of Political- Participation a Survey of University Graduates in Dikhan, KP, Pakistan. *Global Journal of Human-Social Sciences*. 14(8), 87 - 99
- Abubakar, A.A (2011) *Political participation and discourse in social media during the 2011 Presidential Electioneering*. Paper presented at the ACCE, Covenant University, Ota. September 2011.
- Baran, S. J. & Davis, D. K., (2004). *Mass Communication Theory, Foundation, Ferment and Future*. U.K.: Wadsworth.
- Barner, M. (2010). *Media and Politics: Bulgaria*: Konrad-Adenauer-Stiftung Press.
- Chadwick, A.(2011).The political information cycle in a hybrid news system: The British Prime Minister and the ‘Bully Gate’ affair. *The International Journal of Press Politics*,16, 3–29.
- Chariton, S. (1989). *Women, the State and Development*. In I.H. Everett and K. E Stuart (Eds), *Development Communication; Theories and Practice* (pp. 19-22). New York: State University Press.
- Chatora, A. (2012) Encouraging Political Participation in Africa: The Potentials of Social Media Platforms. *Journal of Political International Studies* 36.1: 77–92
- Diamond, L., & Plattner, M. F. (2012). *Liberation technology: Social Media and the Struggle for Democracy*. Baltimore: The Johns Hopkins University Press.
- European Parliament, (2013) Women indecision-making; the role of the new media for increased political participation participation. Accessed November 13, 2021 <https://www.europa.eu/portal/en>
- Eledan, P. (2011). *Dr. Goodluck Jonathan’s Use of Social Media Campaign*. Accessed 27 September 2021 from <http://prsync.com/goodluckjonathanforcom/>.
- Ekiyor, T. & Marieme, L. (2009). *The status of women’s leadership in West Africa*. Accra, Ghana: West Africa Civil Society Institute.
- Fasake M., (2004). *Women and governance in Nigeria*. In Odion-Akhaine, S. (ed). *Governance Nigeria and the World* (pp.13- 27). Lagos. Centre for Constitutionalism and Demilitarisation.
- Fred, D. (2011). Social media and mobiles as political mobilization forces for young adults. *Journal of Politics in Latin America* 4.2: 89– 109.

- Hasan, B. (2007). Examining the effects of computer self-efficacy and system complexity on technology acceptance. *Information Resources Management Journal*, 20(3), 76–88.
- Heinz, M., & Rice, R. E. (2009). An integrated model of knowledge sharing in contemporary communication environments. *Annals of the International Communication Association*, 33(1), 135–155.
- I.T.U (2008). Use of Information and Communication Technology by the world’s children and youth. (Retrieved on September 06, 2021) from [http://www.itu.int/ITU-D/ict/material/Youth\\_2008.pdf](http://www.itu.int/ITU-D/ict/material/Youth_2008.pdf)
- John, S. P. (2013). Influence of computer self-efficacy on information technology adoption. *International Journal of Information Technology*, 19(1), 1–13.
- Jaspal, T, Rusi, O.J and Marco Cinnirella. 2010. “Media representations of British Muslims and hybridised threats to identity”. *Contemporary Islam: Dynamics of Muslim Life* 4:3 289- 310.
- Kearney, M. (2013). Political Discussion on Facebook: An Analysis of Interpersonal Goals and Disagreement. A Thesis submitted to University of Kansas.
- Larson, K. G. (2004). The internet and political participation the effect of internet use on voter turnout [https://repository.library.georgetown.edu/bitstream/handle/10822/555774/etd\\_kgl6.pdf](https://repository.library.georgetown.edu/bitstream/handle/10822/555774/etd_kgl6.pdf). (Accessed November 23, 2021).
- Lawal, U. (2010). Impacts of Social Media on political awareness in Nigeria Umar. Retrieved 27 October 2021 from <http://prsync.com/goodluckjonathanforcom/>.
- Mcluhan, M (1964) Technologically Determinist Understanding Media: The extensions of man. [http://www.nwlink.com/~donclark/history\\_knowledge/mcluhan.html](http://www.nwlink.com/~donclark/history_knowledge/mcluhan.html). Accessed on 08 October, 2021
- Merriam-Webster Online Dictionary. (2011). “Social Network”. Accessed October 17, 2021 from: <http://www.merriam-webster.com>
- Nations, D. (2010) *What is Social Media?* Webstrend.about.com/od/web2.0/a/entrepreneurship www.nigeriansabroad.com Accessed on 28, October, 2021
- Nwabueze, C., Obasi, A. & Obi, P. (2012) *Social media, native media and social entrepreneurship development in Nigeria*. A paper for publication in *EBSU Journal of mass communication*, 11(2), 65- 79
- Osuala, E. (1982). *Introduction to Research Methodology*. Onitsha: African Publishers
- Philips, A. (2015). Social Media and Politics. *Journal of Democracy*, 10. 96-116.
- Siluveru, M. (2015). Social and digital media in political communication. *International Journal of Scientific Research*, 4, 768-770. [https://www.worldwidejournals.com/international-journal-of-scientific-research-\(IJSR\)/article/social-and-digital-media-in-political-communication/NTgxMw==/](https://www.worldwidejournals.com/international-journal-of-scientific-research-(IJSR)/article/social-and-digital-media-in-political-communication/NTgxMw==/)
- Somaiah (2018) How to Get Out the Vote with Social Media. *International Journal of Political Affairs*. 6 (2), 23 - 37
- West D.M., (2011) The ways social media can improve campaign engagement and reinvigorate American democracy. *American Journal of Studies on Social Issues*. 24(2), 69 - 83
- Women in Parliaments Global Forum, (2016); Social media; advancing women in politics. Accessed on October 2, 2021

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