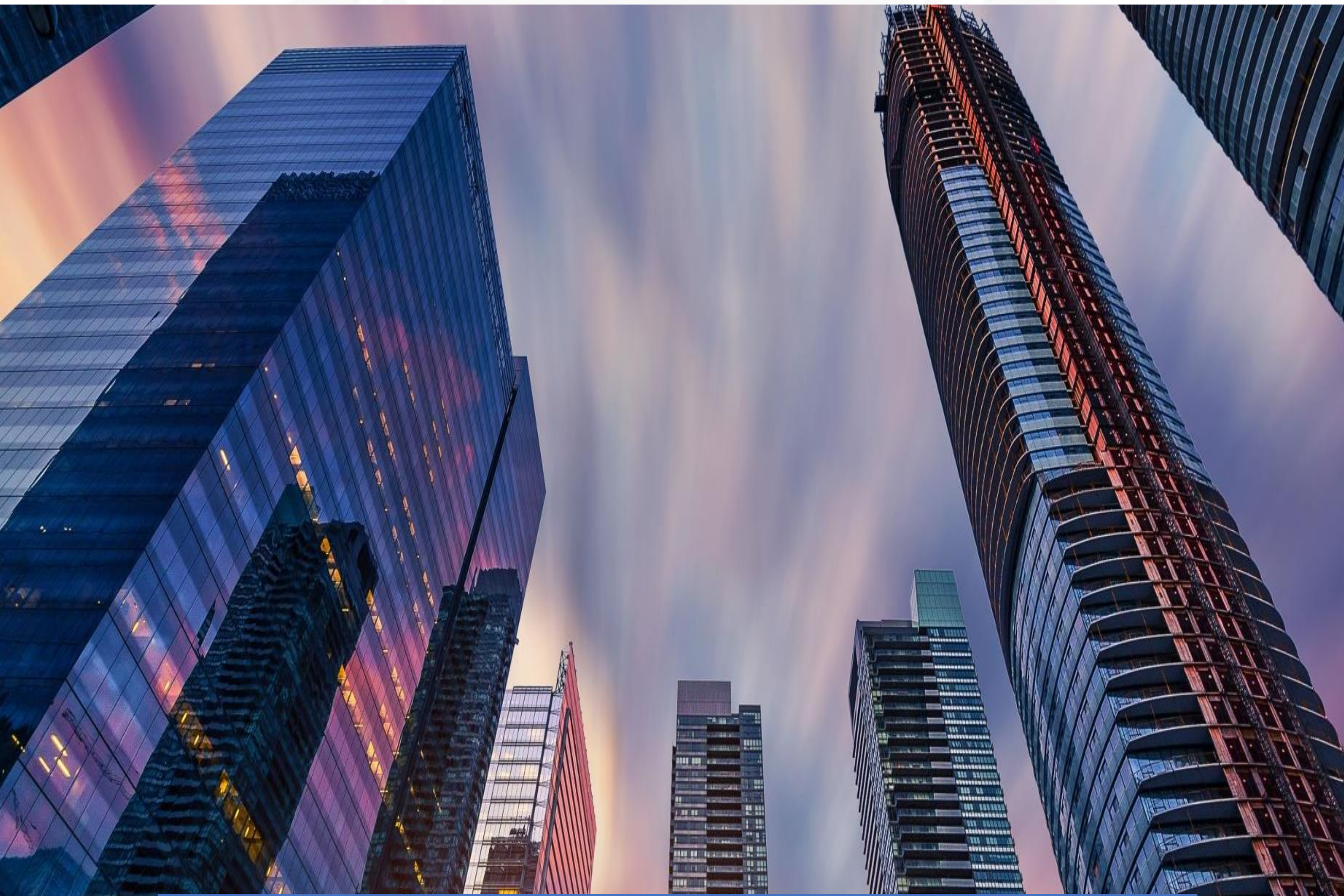
IARDS INTERNATIONAL HYBRID CONFERENCE PROCEEDINGS

10 – 11 DECEMBER 2024



HOSTED AND ORGANIZED BY

INSTITUTE OF APPLIED RESEARCH AND DEVELOPMENTAL STUDIES [IARDS]

SANTIAGO CITY, PHILIPPINES

PROCEEDINGS OF 2024 IARDS INTERNATIONAL CONFERENCE ON RECENT TRENDS IN RESEARCH METHODS: TRANSFORMATIVE SOLUTIONS IN EDUCATION, MANAGEMENT, SCIENCE, AND TECHNOLOGY FOR A GLOBALIZED FUTURE

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INTRODUCTION

The International Hybrid Conference on Recent Trends in Research Methods: Transformative Solutions in Education Management, Science, and Technology for a Globalized Future aims to provide a dynamic platform for researchers, academicians, and professionals from diverse disciplines to engage in interdisciplinary dialogue. This conference will highlight the evolving trends and cutting-edge methodologies in education management, science, and technology, emphasizing the transformative solutions that can be applied in a globalized world.

As education, science, and technology continue to intersect, fostering innovation, inclusivity, and sustainability, this conference aims to explore how contemporary research methods can address the challenges and opportunities of a rapidly changing global environment. With a hybrid format, it will facilitate participation from a wide spectrum of stakeholders from across the globe, offering both in-person and virtual engagement opportunities.

Objectives of the Conference:

1. Promote Interdisciplinary Collaboration: To bring together experts from various fields including education management, science, and technology, encouraging interdisciplinary approaches and collaborative research to address global challenges.

2. Explore Innovative Research Methods: To discuss the latest trends and innovations in research methodologies, highlighting their potential for transforming education, science, and technology.

3. Foster Global Dialogue: To create a platform for cross-border exchange of ideas, research findings, and transformative practices that can be adapted across different educational, scientific, and technological landscapes.

4. Address Global Challenges: To examine how research can contribute to solving pressing issues such as sustainability, access to quality education, digital inclusion, and technological innovation in a globalized world.

5. Enhance Future-Oriented Educational Practices: To explore how transformative solutions in education management can shape the future of teaching, learning, and educational systems worldwide, making them more adaptable, inclusive, and relevant.

6. Promote Science and Technology for Societal Benefit: To demonstrate how advancements in science and technology can provide solutions to contemporary challenges, including climate change, healthcare, and digital transformation.

7. Support Capacity Building: To offer participants professional development through workshops, keynote addresses, and networking sessions that will help enhance their skills in using advanced research methods.

WELCOME ADDRESS TO THE INTERNATIONAL HYBRID CONFERENCE ON RECENT TRENDS IN RESEARCH METHODS: TRANSFORMATIVE SOLUTIONS IN EDUCATION MANAGEMENT, SCIENCE, AND TECHNOLOGY FOR A GLOBALIZED FUTURE

CHAIRMAN OF THE PLANNING COMMITTEE

Distinguished Guests, Esteemed Speakers, Participants, and Colleagues,

Good [morning/afternoon], and welcome to the International Hybrid Conference on Recent Trends in Research Methods: Transformative Solutions in Education Management, Science, and Technology for a Globalized Future.

It is a great honor to stand before you today as the Chairman of the Planning Committee for this momentous event. This conference brings together experts, scholars, and professionals from around the world to explore the latest research methodologies and their transformative applications in education, science, and technology.

As we face an increasingly interconnected global future, the need for innovative and effective solutions has never been greater. Over the next few days, we will engage in meaningful discussions and share insights that will shape the future of research and its role in solving global challenges. The hybrid format of this conference allows us to connect across borders, ensuring that valuable knowledge is accessible to all, regardless of location.

I would like to extend my sincere gratitude to our speakers, participants, and sponsors for making this event possible. I encourage you to take full advantage of the sessions, workshops, and networking opportunities available, as together, we can foster transformative change in education and beyond.

Thank you, and I wish you all an inspiring and productive conference!

DR. VON P. GABAYAN JR.
Executive Director and Planning Committee Chairman

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INTERNATIONAL, INDUSTRI DIVERSIFICATION AND VALUE OF THE MANUFACTURE FIRM IN INDONESIAN STOCK EXCHANGE

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ABSTRACT

This study examines the relationship between firm value and both international and industrial diversification involvements for a sample of 49 manufacture listed firms in Indonesian Stock Exchange over 2010-2012. This study uses multiple regression method, Tobin's Q ratio to measure firm value and dummy variable to measure diversification. The result of this study shows that industrial diversification has no significant effect on firm's value, international diversification has a negative effect to firm value, and industrial and international diversification has a negative effect to firm value.

KEYWORDS: Industri diversification, International diversification, Firm value

I. INTRODUCTION

At this time, Firm value is important for the company and its shareholders. The company put the firm value as its primary purpose. A high value indicates company shareholders prosperity. High and low value of the company can be seen from its stock price. In the process of value creation, the company made a specific strategy to increase competitive advantage. So as to create a higher market value. The development of dynamic industry makes companies doing business development in an effort to improve its competitive advantage. Business development company is usually done by investing. Based on data released by the Investment Coordinating Board (BKPM) showed a significant investment in Indonesia grew from January to September of 2013, with domestic investment (domestic) grew by 43.3% and foreign direct investment (FDI) 116.2%. The largest investment absorbsment is in the manufacturing sector, with the proportion of 40.7% respectively for domestic and 58.6% for PMA (www.investor.co.id: 2014).

Diversification strategy is one form of investment that is currently used by companies to increase its competitive advantage. Diversification is a form of business development by expanding the number of business and geographical segments. This strategy can eliminate losses in one business segment, due to the effects of substitution or cross-subsidization between profitable business segments. Risk Elimination of loss usually get positive signals from investors and companies management. Investors will judge that the company is able to avoid the risk of losses on the business segments in order to minimize the risk of bankruptcy which would be detrimental to the investors. Diversification could be an evaluation tool for the segment is the most profitable business in the future for the company management, and because of it, the level of investor's confidence is increasing, thereby increasing the value of the company.

Fauver et al (2004) divides the company by two kinds of diversification, ie industrial diversification and international diversification. Industrial diversification is a strategy adopted by the company in a way to have some business segments. While international diversification is a strategy used by companies to seek new market opportunities outside the country of origin (Capar & Kotabe: 2003). The company uses international diversification strategy to expand its business markets. Contractor, et al (2003) explains that international diversification is a corporate strategy to expand into global markets. Research conducted by Puji Harto in 2005 to 100 companies listed on the Jakarta Stock Exchange, about the diversification policy and its effect on firm performance, which shows the value of the diversify company is lower than a single segment. It means that diversification is carried by a majority of companies have not demonstrated an optimal result on the companies performance. Based on the description, the researcher is interested to study more about: The effects of industrial and international diversification on firm value manufacturing companies in Indonesia Stock Exchange. This study uses firm size, capital expenditure, profitability and leverage as control variables.

II. Literature Review

Diversification is a form of business development by expanding the number of business and geographic segments to expand the existing market share or develop diverse products (Harto: 2005). Hoskisson (2005: 217) also argues that diversification strategies can be used to gain a wider market forces and greater benefit.

International diversification

International diversification is a strategy used by companies to seek new market opportunities outside the country of origin (Capar & Kotabe: 2003). The company uses international diversification strategy to expand its business markets. Contractor et al (2003) describes the international diversification as a corporate strategy to expand into global markets. This means that companies that use international diversification strategy is a company that implements international business. International business methods used by the company according to Madura (2006:12) is the international trade, licensing, franchising, joint operations, the acquisition of a company that has been running, and establishing new foreign subsidiaries. The expansion of the company's market share will lead to greater income earned. Rising income received by the company shows that the better the company's performance. So that investors will positively assess the implementation of this strategy. However, international diversification may pose other risks, such as interest rate risk, cultural differences in various countries, consumer attitudes toward the product, the presence of obstacles from the government and so on. These risks make the company who uses international strategy is more difficult to control. Coordination and distribution costs will appear on the company that has a wide operating region (Hoskisson: 295). The increase in cost is not offset by an increase in sales that may cause the company suffered a loss due to this strategy. So the performance of the company is considered to decline and will decrease the value of the company.

Industrial diversification

Industrial diversification is the strategy adopted by the company in a way to have some specific industry segments. According to David (2009: 260) there are two general types of industrial diversification strategy is related diversification and unrelated diversification. Related diversification strategy is a strategy undertaken by the company to increase its business segments by business segment that is still associated with the business segments previously. Meanwhile, the company that runs the unrelated diversification strategy will look for companies that are in different business segments that can be acquired in a deal and have the potential to generate a high return on investment. Unrelated diversification require businesses to locate and acquire companies that have low assets, were financially distressed, or have high growth prospects but require capital investment. Industrial diversification in the company conducted as a part of a corporate strategy to increase its competitive advantage. Teece (1982) mentions that company use diversification strategy to minimize the industry risk. By diversifying, the company divides risk into several sections. If there is a failure in one business segment, the company can rely on other business segments to cover losses arising from the failure (Hoskisson, 2005:229). In addition the company managers can evaluate the most profitable business segment for the company in the future. And because of that investor confidence will be increase by the company's performance, so the firm value will increase. These results are consistent with research Lee et al (2012).

However, the results of Berger et al (1995), and the Fauver et al (2003) show that diversification can reduce firm value. Berger found that diversified company’s values decreased by 13-15%. This is caused by the company invested heavily in the industry that have a negative NPV. So the returns are low but require a large investment. Hoskisson (2005: 207) mentions that the company diversified for various motives one equalized with competitors. So it can diversify may not carry any impact on the company.

Firm Value

Firm Value is the main goal of the company according to Bringham and Houston (2006: 43). Firm value can be reflected in the company's stock price of the company. Higher stock price shows that the company has a high firm value. Firm value reflects investors' perception of the companies performance and prospects for the company (Bringham and Gapenski, 1993: 690). Maximizing firm value has a broader meaning than maximizing profits. According Sudana (2011: 8), maximizing the value of the company means have to consider several things, namely, the long-term wealth, risk and uncertainty, corporate social responsibility and shareholder profits. Measurement of the market value of the company is done by adopting the ratio of the size of Tobin's Q.

Based on previous research and the theoretical basis can be compiled following research hypothesis:

1. Industrial diversification has a positive effect on firm value.
2. International diversification has a positive effect on firm value.
3. Industrial and international diversification has a positive effect on firm value.

III. METHODOLOGY

Selection and Data Collection Methods Type of data collection in this study is a secondary data of manufacturing companies in Indonesia Stock Exchange (IDX), which is includes the financial statements of companies ranging from 2010 to 2012. Data source used to calculate each variable in this study came from the site www.idx.co.id. Besides literature survey, the literature and scientific works are used to understand the existing problems and to look for alternative solutions. The sample used in this study was determined using purposive sampling method, ie the sampling technique using specific consideration or discussion. This study used a sample of manufacturing firms that went public in the Indonesia Stock Exchange, which in 2010-2012 was listed in Indonesia Stock Exchange. The company announced the financial statements during the study period 2010-2012. Sample firms have information on the complete financial data in order to calculate the variables during the study period 2010-2012. Public company listed on the Indonesia Stock Exchange (IDX) who has a minimum of 2 and a business segment or have international sales of 10% of total sales. If there are data outliers, it is not used in the study.

Measurement and Operational Definition of Variables

To give a clear view of the variables used in this study, the operational definition of each variable used in this study are as follows:

1. Firm Value

Firm value reflects investor's perception of the performance of the company in the past and prospects for the company in the future (Bringham and Gapenski, 1993: 690). Measurement of the company's market value is calculated using the Tobin's Q ratio that describes the value of the company based on the company's stock price.

2. Industrial diversification

Industrial diversification is a company's strategy to have some specific industry segments. Industrial diversification in this study was calculated using dummy variables. Companies that have two or more segments are given a value of one (1) whereas the company has only one segment was given a value of zero (0).

3. International diversification

International diversification is a strategy used by companies to seek new market opportunities outside the country of origin (Capar and Kotabe: 2003). Companies that have international sales by 10% or more were given a value of one (1) whereas the company had sales of less than 10% will be assigned a value of zero (0).

4. Industri and international diversification

Industrial and international diversification is a combination of industrial diversification and international diversification strategies. Companies that have more than one industry segment and has international sales by 10% or more were given a value of one (1), while a company that has one segment and international sales or have less than 10% were given a value of zero (0).

5. Leverage

Leverage in this study is used as control variabel. Leverage indicates how much the company is relying on debt in its capital structure according to Ross (2009: 158). Companies that use more debt portion in the capital structure, the company's leverage is also getting bigger. Leverage is calculated using the debt to asset ratio.

6. Firm Size

Firm Size shows the amount of the company. The size of the company can show how well the company will be able to cope with the risks arising from operational activities. Companies that has great size usually has a better ability to cope with risk. Firm Size is calculated by the natural logarithm of total assets.

7. Profitability

Profitability describes how well the company's ability to generate earnings in a particular period. Profitability can be calculated by dividing the earnings before interest and taxes by the company or the sale of property acquired from the data the income statement. In this study, profitability is calculated using the Operating Profit Margin (OPM).

8. Capital Expenditure

Capital expenditure is expenditure within the meaning of property, plant, and equipment. Most of the company's capital expenditure to finance long-term investments in the form of fixed assets. It aims to achieve long-term profitability. In this study capital expenditure was calculated using the Capital Expenditure to Sales ratio.

Data Analysis Methods

The analysis technique used in this study is a multiple regression with SPSS (Statistical Product and Service Solutions). Regression analysis was used to measure the strength of relationship between two or more variables and shows the relationship between independent variables with the dependent variable. This research used regression model as below:

I. Industrial diversification and control variable regression model

$$Q_{i,t} = \alpha + \beta_1 D_{ind} + \beta_2 \text{ Lev} + \beta_3 \text{ Size} + \beta_4 \text{ OPM} + \beta_5 \text{CAPEX/sales} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

II. International diversification and control variable regression model

$$Q_{i,t} = \alpha + \beta_1 D_{int} + \beta_2 \text{ Lev} + \beta_3 \text{ Size} + \beta_4 \text{ OPM} + \beta_5 \text{ CAPEX/sales} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

III. Industrial and international diversification and control variable regression model

$$Q_{i,t} = \alpha + \beta_1 D_{int,ind} + \beta_2 \text{ Lev} + \beta_3 \text{ Size} + \beta_4 \text{ OPM} + \beta_5 \text{ CAPEX/sales} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

IV. Analysis and Discussion

The sample in this study is a manufacturing company that listed on the Indonesia Stock Exchange during the period 2010-2012. The manufacturing company is a company whose business operations processing raw materials into semi-finished materials or finished goods. The total sample of this study amounted to 49 companies from the manufacturing industries listed in the Indonesia Stock Exchange.

Firm value

Firm Value is the main goal of the company. Maximizing firm value is considered important than maximizing profits. The following statistical calculation of the value of the firm as measured by Tobin's Q.

Table 1: ***Firm Value***

Explanation	Year		
	2010	2011	2012
MIN	0,599	0,617	0,610
MAX	2,182	2,831	2,574
MEAN	1,145	1,129	1,237
STANDART DEVIASI	0,458752	0,471325	0,504744

Sumber: Data diolah

The mean value of companies sampled in this study is fluctuate. In 2010 amounted to 1,145, then declined in 2011 to the value of 1,129 and increased in 2012 to 1.237.

International Diversification

International diversification is a strategy used by companies to seek new market opportunities outside the country of origin (Capar & Kotabe: 2003). International diversification strategy is referred to as the company's strategy to expand into global markets. In this study of international diversification is measured using dummy variables. There are 32 companies that diversify internationally in 2010, as well as 33 and 30 were diversified international company in 2011 and 2012.

Industrial Diversification

Industrial diversification is the strategy adopted by the company to have some specific industry segments. This study used a dummy variable to calculate industrial diversification. There are 38 companies that used industrial diversification in 2010, and 39 companies were diversified industry in 2011 and 2012.

International and Industrial Diversification

International and industrial diversification strategy is a combination of industrial diversification and international diversification. Companies that implement this strategy have more than one segment and have international more than 10%. In the study there were 21 companies that used industrial and international diversification strategy in 2010, and 23 companies in 2011 and 2012. Diversification and international industry is calculated using dummy variables.

Leverage

Table 2: ***Firm Leverage***

Explanation	Year		
	2010	2011	2012
MIN	0,09430	0,09767	0,07859
MAX	0,93705	0,92881	0,94791
MEAN	0,52467	0,51648	0,50314
STANDART DEVIASI	0,208439	0,194279	0,20137

Sumber: Data diolah

Leverage in this study calculated by dividing the company's total debt to total assets. The industry mean shows that the use of leverage in the study tended to decline. In 2010 the mean of industry leverage is 0.52467, fell to 0.51648 in 2011 and 0.50314 in 2012.

Firm Size

Table 3: ***Firm Size***

Explanation	Year		
	2010	2011	2012
MIN	11,5188	11,6787	11,8193
MAX	18,5416	18,8493	19,0210
MEAN	14,2787	14,4274	14,5537
STANDART DEVIASI	1,280943	1,313154	1,316519

Sumber: Data diolah

Firm Size indicates the size of the property owned by the company. Average firm size is calculated using the natural logarithm of total assets showed an increase. In 2010 the mean size of the company amounted to 14.2787, while in 2011 and 2012 increased to 14.4272 and 14.5537.

Profitability

Table 4: ***Firm Profitability***

Explanation	Year		
	2010	2011	2012
MIN	-0,05493	-0,18308	-0,12802
MAX	0,23909	0,30919	0,23866
MEAN	0,09268	0,07761	0,07114
STANDART DEVIASI	0,063854	0,07674	0,078784

Sumber: Data diolah

Profitability of the company describes how well the company's ability to generate earnings in certain periods. Profitability's mean of companies in the sample tended to decline in 2010 to 2012.

Profitability of the company in 2010 amounted to 0.09268, then decreased to 0.07761 and 0.07114 in 2011 and 2012.

Capital Expenditure

Table 5
Capital Expenditure Perusahaan

Explanation	Year		
	2010	2011	2012
MIN	0,00905	0,00980	0,03482
MAX	1,71154	2,96150	1,88711
MEAN	0,44647	0,52741	0,45575
STANDART DEVIASI	0,399536	0,590574	0,438946

Sumber: Data diolah

Capital Expenditure is expenditure that is expected to produce greater gains in more than one accounting period. Mean of the capital expenditure divided by sales in the sample companies in 2010 amounted to 0.44647, then experienced growth in 2011 to 0.52741, but decreased in 2012.

Model analysis

The Effect of Industry Diversification, Leverage, Profitability, Company Size, and Capital Expenditure Against Firm Value

Here are the results of the regression test phase, which used industrial diversification (DIVind)as independent variable, the control variable are leverage (LEV), firm size (SIZE), profitability (OPM), and capital expenditure (CAPEX / sales):

Table 6
Regression Result

Variable	Koefisien Regresi	Signifikansi
Konstanta	-0,882	0,031
Diversifikasi Industri	0,037	0,687
Leverage (LEV)	0,152	0,424
Ukuran perusahaan (SIZE)	0,125	0,000
Profitabilitas (OPM)	1,912	0,000
Capital expenditure (CAPEX)	-0,055	0,459
Korelasi berganda(R)	0,511	
Koefisien determinasi (R^2)	0,282	
Uji F	11,056	
Signifikasi	0,000	

Sumber: Data diolah

Based on the results of the regression calculation above it can be made a conclusion that industrial diversification has a positive influence on the company. While the size and profitability of the company has a positive influence on the company.

The Effect of Industry Diversification, Leverage, Profitability, Company Size, and Capital Expenditure Against Firm Value

Here are the test results of second stage regression, international diversification (DIVint)as independent variable, the control variable are leverage (LEV), firm size (SIZE), profitability (OPM), and capital expenditure (CAPEX / sales):

Table 7: Regression Result

Variabel	Koefisien Regresi	Signifikansi
Konstanta	-0,664	0,086
Diversifikasi Internasional (DIVint)	-0,177	0,011
Leverage (LEV)	0,222	0,231
Ukuran perusahaan (SIZE)	0,116	0,000
Profitabilitas (OPM)	2,080	0,000
Capital expenditure (CAPEX)	-0,041	0,549
Korelasi berganda(R)	0,560	
Koefisien determinasi (R^2)	0,313	
Uji F	12,852	
Signifikasi	0,000	

Sumber: Data yang diolah

Based on the results of the regression calculation above it can be made a conclusion that international diversification has a negative effect on the company. While the size and profitability of the company has a positive influence on the company.

The Effect of Industry and International Diversification, Leverage, Profitability, Company Size, and Capital Expenditure Against Firm Value

Here are the test results of third stage regression,industrial and international diversification (DIVint)as independent variable, the control variable are leverage (LEV), firm size (SIZE), profitability (OPM), and capital expenditure (CAPEX / sales):

Table 8: Regression Result

Variabel	Koefisien Regresi	Signifikansi
Konstanta	-0,671	0,085
Diversifikasi Industri dan internasional (DIVindint)	-0,149	0,026
Leverage (LEV)	0,146	0,425
Ukuran perusahaan (SIZE)	0,118	0,000
Profitabilitas (OPM)	2,114	0,000
Capital expenditure (CAPEX)	-0,089	0,195
Korelasi berganda(R)	0,553	
Koefisien determinasi (R^2)	0,306	
Uji F	12,420	
Signifikasi	0,000	

Sumber: Data diolah

Based on the results of the regression calculation above, it can be made a conclusion that the industrial and international diversification has a negative effect on the company. While the size and profitability of the company has a positive influence on the company.

The Effect of Industrial Diversification to Firm Value

The results showed a positive effect of industrial diversification on firm value but not significant. The positive influence means that if the company diversify the industry will add value to the company. The results of this study support the theory presented by Thompshon (2012:295) that diversification strategy is used by company to enhance shareholder value. Industrial diversification strategy is a form of business development by increasing business segment. This strategy can eliminate the loss in one business segment, due to the effects of substitution or cross-subsidies, among few profitable business segments. So with the elimination of this loss of income held by the company will be maintained. Elimination of the risk of loss and the increase in income, usually getting positive signals from investors and management companies. Investors will judge that the company is able to avoid the risk of bankruptcy which would be detrimental to the investors. So that's a positive signal to make the company's stock demand increases, and increase the share price and the value of the company. These results support the research conducted by Lee et al (2012). Beside that unsignificant in this study suggests that not all companies that use industrial diversification gain added value by the rising firm value. Hoskisson (2004: 207) states that companies that diversify may have another reason than to raise the value of the company. Like, equalized with competitors in the business to maintain market power, and to expand its business portfolio to reduce the managerial risk. As a result of industrial diversification strategy had no effect on firm value.

The Effect of International diversification to firm value

The results showed that international diversification has significantly negative effect on firm value. Negative effect means that if the company does international diversification, the firm value will be decrease. International diversification used by company to seek new market opportunities outside the origin country (Capar & Kotabe: 2003). With the increasingly market share, earnings are expected to be increased, so does the firm value. On the other hand, companies that conduct international diversification has a more complex problem than the companies that focus on the domestic market. International diversification carries some risks such as global competition is very tight, a different cultural environment, currency differences, the lack of a stable government and so on. Given this risk, the company whose pursuing an international diversification strategy becomes difficult to control. Companies that internationally diversify with a wide geographic area can make coordination unit cost and increased product distribution costs (Hoskisson 2003: 295). The increase in cost is not offset by the increase in sales will result in losses to the company. Continuous loss can make lower the company's image. So the demand for the stock will decline and the stock offering will increase, resulting in a decline in stock prices and the value of the company. The results of this study support the research conducted by Lee et al (2012).

The Effect of industrial and international diversification to firm Value

The results showed that industrial and international diversification has significant negative effect on firm value. Negative effect means that if the company use industrial and international diversification, it will reduce the value of the company. The results of this study support the research conducted by Lee et al (2012). The company uses industrial and international diversification strategy to expand market share. Companies that use industrial and international diversification will have a greater size. Manager's motives to doing diversification may be based on personal interests, such as managerial risk reduction, remuneration, prestige, or obtain greater compensation. Large companies is more difficult to be managed, so that the managers at large companies receive substantial compensation. Compensation can be a great motive for managers to perform additional diversification (Hoskisson 2004: 207-231). On the other hand, Kim and Ike (2007) states that companies that implement diversification has low levels of transparency. Diversification makes the company's internal control difficult and complicated. Denis et al (2002) mentions that diversification has a huge problem of asymmetry information. If control of the company is less in business segment, while the managers continue to diversify investments to the point that is too big of expected benefits. It will cause losses to the company, which resulted in poor assessment of the investors that the company's stock price and the value will go down.

V. Conclusion

Based on the analysis and discussion, this study resulted the conclusion that industrial diversification has particularly positive effect on firm value but not significant, while international diversification as well as a mix of industrial and international diversification, has a negative effect on firm value. Based on this study, a manufacturing company in Indonesia whose implement diversification strategies should re-evaluate whether the use of these strategies according to the characteristics of the company and economic conditions. Future studies could look for other variables that explain the Firm value such as ownership structure, as well as to examine more deeply about the application of the diversification strategy in Indonesia by classifying forms of industrial diversification strategy into related or unrelated diversification, or classification as a low level of diversification, moderate to high levels of diversification, and very high levels of diversification.

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TRENDS IN ARTIFICIAL INTELLIGENCE, CYBER SECURITY, AND INTERNET OF THINGS RESEARCH IN NIGERIA

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ABSTRACT

The rapid growth of Artificial Intelligence, Cybersecurity, and Internet of Things has significant implications for technological and economic development globally. Therefore, this paper analyzes data sourced from National Information Technology Agency (NITDA), research publications, projects, and initiatives on the trends on these domains in Nigeria from 2020- 2024, with a focus to understand the growth patterns on trends, and forecast future trends. Descriptive statistics and time-series analysis tool was used to analyzed the sourced data, in order to identify trends index on the focus areas within each domain. To forecast future research trends from 2025 beyond, AutoRegressive Integrated Moving Average (ARIMA) model was employed. This model was selected due to its efficacy in modeling and predicting time-series data with trends and seasonality. The findings revealed steady growth in AI and Cybersecurity research, while IoT exhibits steady, but slower trajectory. Future forecast suggest a continued upward trend in these three domains.

KEYWORDS: Artificial Intelligence, Cyber Security, Internet of Things, Research, National Information Technology Agency (NITDA), AutoRegressive Integrated Moving Average (ARIMA), Nigeria.

INTRODUCTION

In Nigeria, the adoption of Artificial Intelligence, Cyber Security, and Internet of Things technologies is rapidly increasing due to the country's growing economy and the need for innovative solutions to address its unique challenges. However, Nigeria also faces significant challenges in terms of cyber security, according to *Check Point Software Technologies*, (Business Insider Africa) ranked Nigeria among the11th globally most vulnerable countries to cyber threats; hence this paper aims to give a comprehensive overview of the current trends in AI, Cyber Security, and IoT research in Nigeria, with a focus on identifying the key challenges, opportunities, and innovation in these areas, with emphasis to study the progressive trend index in these three domains from 2020 to 2024, and use the index to predict (forecast) the future growth from 2025 to 2029. Despite these challenges, there is a growing body of research on AI, Cyber Security, and IoT in Nigeria, with many scholars, researchers, and practitioners exploring the potential applications and implications of these domains in the Nigerian context. This article also aims to contribute to the growing body of knowledge on these topics and provide insights that can inform policy, practice, and research focus for future researchers in these areas.

Artificial Intelligence (AI) research has experienced significant growth in recent years, with advancements in machine learning, deep learning, and natural language processing. According to a study published in 2022, AI has the potential to transform various industries, including healthcare, finance, and transportation sectors. Similar study published in 2020, highlighted the importance of explainable AI, which enables users to understand the decision-making process of AI models. The trend on research in Cyber security in Nigeria has become a major concern in recent years, due to the increasing number of cyber attacks and data breaches. A study published in 2023 highlighted the importance of AI-powered cyber security solutions, with capabilities to detect and respond to cyber threats in real-time. Similar study that was earlier published in 2020 emphasized the need for a proactive approach to cyber security, which involves anticipating and mitigating potential threats.

The Internet of Things (IoT) has revolutionized the way we live and work, as the number of connected devices increases. Some authors try highlighting the importance of IoT security, which involves protecting connected devices from cyber threats, while some emphasized the need for a comprehensive approach to IoT security, which involves securing data, devices, and networks. The intersections between AI, cyber security, and IoT are becoming increasingly important, as these three technologies are being integrated into various applications. A paper published by (Abreu, R., et al. 2023), highlighted the potential of AI-powered IoT security, and AI-powered Cybersecurity solutions, which can detect and respond to cyber and IoT threats in real-time.

METHODOLOGY

The Study Area:

Nigeria has the geographical centre coordinates of Longitude: 8.6753^0 E and Latitude: 9.0820^0 N, the country has 36 states and the Federal Capital Territory located at Abuja inclusive, the states are distributed across diverse climatic zones, with a population of approximately 216 million people according to population census conducted in 2023 by the National Population Commission.

Trends in AI, Cybersecurity, and IoT Research in these regions between 2020 and 2024, shows that certain states emerged as hubs for technological innovation, for instance Lagos State is known for its startups and tech communities such as Andela and Co-Creation Hub in AI Research, Private sector-driven security solutions, and Leadership in IoT startups. On the other hand, Oyo State (Ibadan), also has a hub for University-based AI and Cybersecurity research, notably the University of Ibadan. Kaduna State is also discovered to sustain strong initiatives in AI education and startups, with Abuja (FCT) coming top as the Central hub for cybersecurity conferences and other government-driven initiatives.

Enugu State located in the South- East of Nigeria also shows growing academic contributions in cybersecurity frameworks, then Kano State in the North-West, also shows its trend on adoption of IoT in area of agriculture, and Rivers State in South-South, adopting IoT applications in oil and gas exploration and monitoring of the pipelines and other facilities by the crude oil producing companies.

The administrative map of Nigeria with state boundaries and major cities and trend index of various domains is shown in figure 1.0; the climatic zones using colours such as green for rainforest, yellow for savanna, the three Technological Research Trends are marked with icons to show the state's leading in AI, Cybersecurity, and IoT.

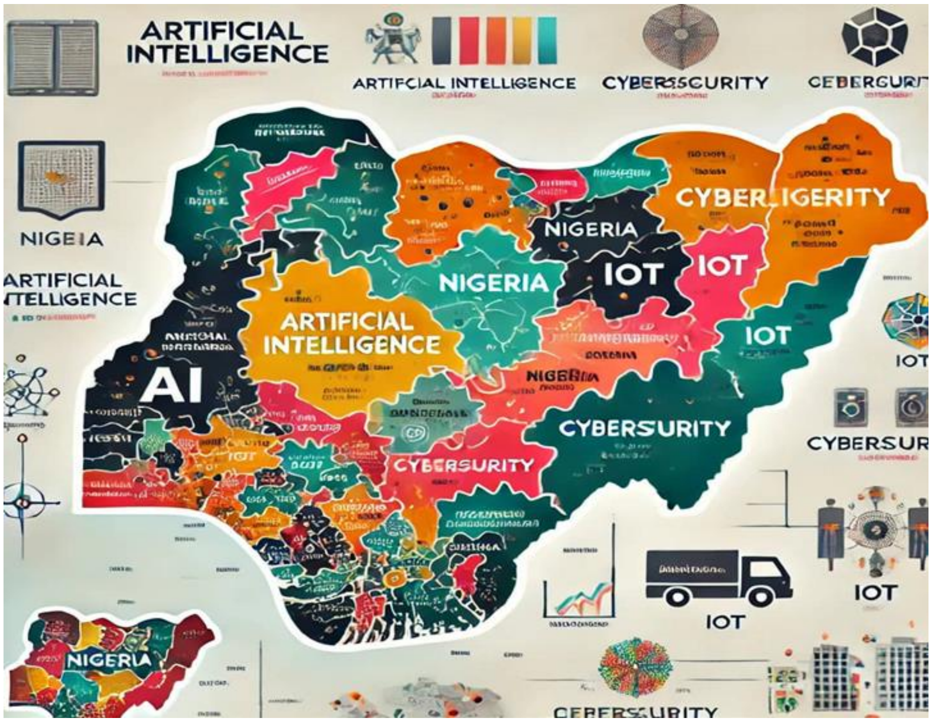


Figure 1.0: The Administrative Map of Nigeria Showing the Distributions of Trends in AI, Cybersecurity, and IoT Research.

Data Collection

This paper, sourced it data on the trends in these three domains for the analysis from the sources like; National Information Technology Agency (NITDA), including research publications, projects, initiatives, and industry reports (e.g. Deloitte, OECD), within the period of five years i.e. (2020 – 2024). The data were classified, and categorizes into AI, Cybersecurity, and IoT columns and then presented in table 1.0.

Table 1.0: Data collected on the Trends in AI, Cybersecurity, and IoT Research in Nigeria from 2020 – 2024

Year	AI growth index	Cybersecurity growth index	IoT growth index
2020	60	50	40
2021	70	58	55
2022	80	60	63
2023	85	65	70
2024	100	82	88

Data Analysis

The descriptive statistics and time-series analysis technique is adopted to analyze the data in order to identify growth trends on emerging focus areas within each domain, after which the analyzed data showing progressive research growth index trends in the three domains is visualize as a bar chart in figure 2.0, and on the line graph in figure 3.0 respectively.

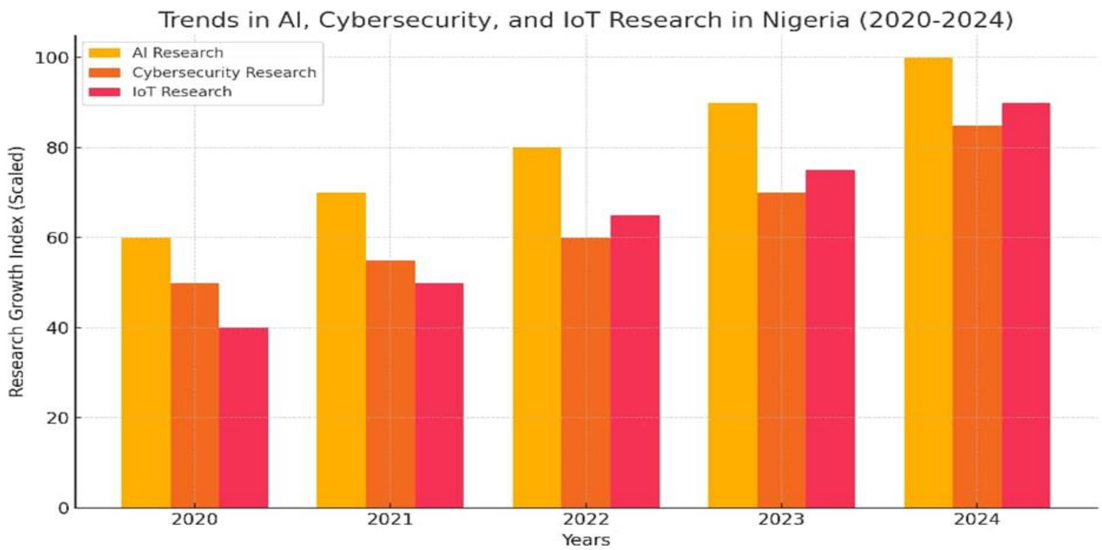


Figure 2.0: The Bar Chart depicting the upward trends in AI, Cyber Security, and IoT Research in Nigeria from 2020 – 2024.

Considering the trends of the three industries depicted on the bar chart in figure 2.0, the relationship between investments, policies, and research output in AI, Cybersecurity, and IoT research in Nigeria from 2020 to 2024 is interconnected and plays a critical role in driving innovation. The significant investments from local startups, global tech companies (e.g., Google AI Impact Challenge, Microsoft AI for Good), and venture capitalists boost the trend in AI research, also funding from organizations like the Tony Elumelu Foundation supports AI-based innovations.

The National Digital Economy Policy and Strategy (2020–2030) emphasizes AI for digital transformation, initiatives to integrate AI education into higher institutions and create a framework for data use and protection, increased publication of papers on AI applications, particularly in fintech, agriculture, and health, also collaborations between universities and private firms enhance local expertise and foster practical solutions.

The steady growth on trend in Cybersecurity as obtained in the chart over the years is as a result of investments from banks and telecom companies due to escalating threats (e.g., phishing, ransomware), and Government funding for cybersecurity solutions to protect critical national infrastructure. The grants and training programs by organizations like Cisco and EC-Council brings about focus on practical cybersecurity training and certification programmes, this also contribute to growth index in this field. The introduction of policies and regulations, like the Nigeria Data Protection Regulation (NDPR) in 2019 to enhance data security, the Cybercrimes (Prohibition & Prevention Act 2015) provides a legal framework for tackling cyber threats; and also gives rise on research output in threat intelligence, penetration testing, and secure software development. However, research tends to be reactive, often driven by emerging threats rather than proactive innovation.

Gradual increase in IoT-focused investments, mostly in the area of agriculture (for example, smart irrigation), logistic, and collaboration between tech hubs, and multinationals to fund IoT prototypes as well as the infrastructure investments in 5G deployment, set the foundation for IoT expansion, this contribute to the growth index in this domain research in Nigeria. Government Policies encouraging partnerships between tech startups and larger enterprises for IoT development, and efforts to create smart cities and develop IoT applications in areas like transport and energy, step up the trend in IoT research in recent years. Although lack of specific IoT-focused legislation and limited infrastructure challenges such as; unstable power supply and low IoT hardware manufacturing capacity slows progress in IoT when compared compared to AI and cybersecurity.

For example, AI research in Nigeria has flourished due to significant funding for computational tools, while IoT faces slower growth due to fewer targeted investments in the industry. Government policies like the Nigeria Data Protection Regulation (NDPR); introduced in 2019 by NITDA, and digital economy strategy establish frameworks indicate prioritization of cybersecurity and AI. This alignment ensures that research outputs address real-world challenges and align with global goals in these domains.

RESULTS AND DISCUSSIONS

Data from reputable sources such as research publications, industry reports (e.g., Deloitte, OECD), and NITDA from table 1.0 were used to plot the bar chart shown in figure 2.0 in order to visualized, and traced the progressive trends pattern in AI, Cybersecurity, and IoT research in Nigeria from 2020 – 2024. The line graph in figure 3.0 shows the domain with the highest growth index, the factors driving the growth, and the relationships between other determining factors such as investment, policies, and research output were also identified and presented.

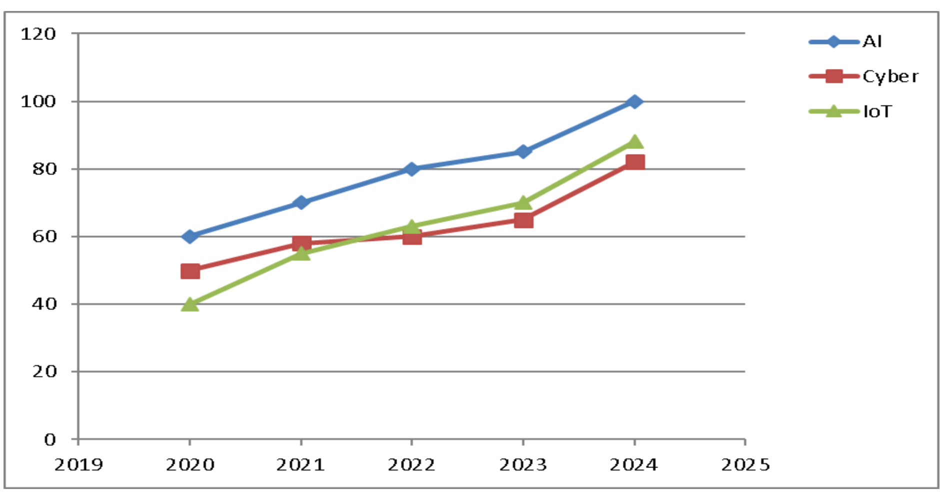


Figure 3.0: Progressive Trends in AI, Cybersecurity, and IoT Research in Nigeria from 2020 – 2024.

The results obtained in figure 3.0, shows that AI has the highest progressive pattern within the years under review, due to the adoption of AI in sectors like fintech, healthcare (e.g., telemedicine), and agriculture (e.g., precision farming). Other factors behind the continuous and constant progressive growth in this domain are; (a) Growth of machine learning applications, natural language processing (NLP) for local languages, and AI-based automation tools. (b) Expanding AI education programs, tech hubs, and government interest. (c) Increased in data availability, rise in computing power, and the need for efficiency in various sectors.

IoT progressive growth index follows that of the AI, due to the growth drivers such as; Increased smartphone penetration, internet access, and focus on urbanization and smart cities. Other factors that contribute to the growth in this domain are; (a) Adoption of IoT in agriculture (e.g., smart irrigation), smart cities, and energy management, (b) Interest in IoT for logistics and tracking systems in Nigeria's expanding e-commerce sector, and (c) Gradual uptake of consumer IoT devices due to improving connectivity (e.g., 5G rollout).

Cybersecurity also attain continuous growth in research within the period next to IoT; due to escalating cyber attacks, particularly targeting financial institutions and telecom operators in Nigeria. Other factors that contribute to the growth in this domain are; (a) Increased adoption of cybersecurity tools and compliance with regulations like Nigeria Data Protection Regulation (NDPR), (b) Greater emphasis on awareness campaigns and professional certifications, and (c) Rising cybersecurity threats and growing digital penetration.

PREDICTION (FORECAST) OF FUTURE GROWTH

To predict future growth in AI, Cybersecurity, and IoT research in Nigeria for 2025 and beyond, the machine learning models called Auto-Regressive Integrated Moving Average (ARIMA) model is used, ARIMA is a popular statistical model used for time series analysis and forecasting. It is particularly suited for modeling data that shows patterns in trends over time, such as trends or seasonal fluctuations., the process involves several steps such as Steps for; (a) Prediction (b) Data Collection (c) Gathering of historical data on key indicators like: (Number of published research papers, Investments in AI, Cybersecurity, and IoT). (d) Policy developments and their impacts. (e) Adoption rates of each technology.

Forecasted Results on Trends in AI, Cybersecurity, and IoT Research based on the ARIMA Model Simulation from 2025–2029 in Nigeria

The data presented in table 2.0 shows the simulated research publication forecast from (2025–2029) on trends in AI, Cybersecurity, and IoT research in Nigeria.

Table 2.0: Forecasted Results on Trends in AI, Cybersecurity, and IoT Research based on the ARIMA Model Simulation from 2025–2029 in Nigeria.

Year	**AI** growth index	**Cybersecurity** growth index	**IoT** growth index
2025	505	299	183
2026	606	347	214
2027	704	395	244
2028	789	442	272
2029	889	490	299

From the data presented in simulated research publication forecast from (2025–2029) in table 2.0, and based on trends and hypothetical ARIMA predictions model shown in figure 4.0, the following predictions in terms of expected growth index and challenges, were deduced for each domain:

Artificial Intelligence - This domain is likely to see exponential growth due as a result of the adoption in fintech, healthcare, an automation driven by improved computational power, more investments, and broader application areas in years to come, with the challenges of need for local expertise and infrastructure.

Cybersecurity- The domain is predicted to see moderate but steady growth as cyber threats become more sophisticated, driving demand for local solutions, expanding digital economy and stricter enforcement of cybersecurity regulations. The challenges this industry is facing are reliance on imported solutions and skills gap.

Internet of Things- IoT domain is predicted to have slower growth initially, but expected to accelerate post-2025 due to better infrastructure (e.g., 5G expansion), and others driving factors like; urbanization, smart city initiatives, and industrial IoT in agriculture and energy. The challenges in this domain are infrastructure and cost barriers, which contribute to the slower growth index experience in this industry.

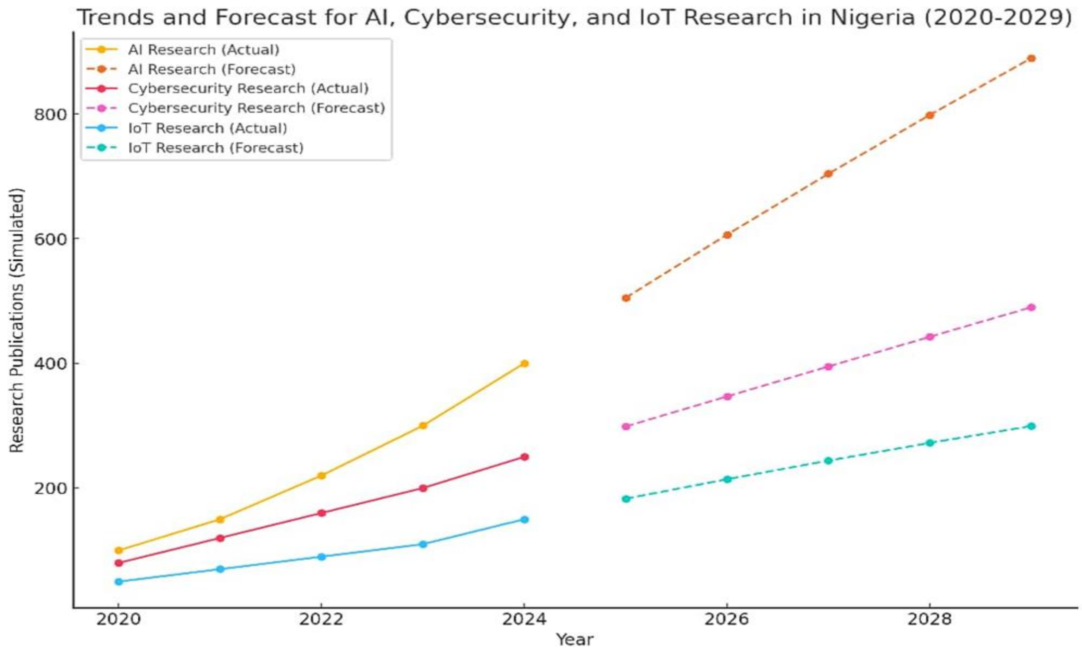
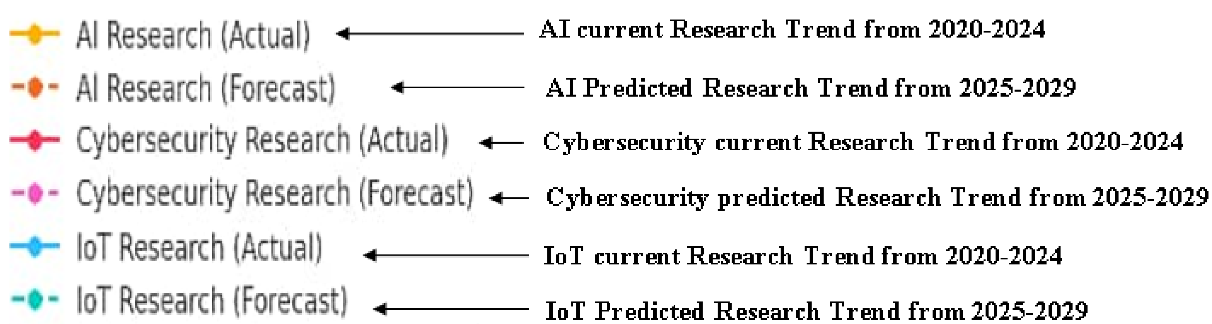


Figure 4.0: ARIMA Simulated Trends for AI, Cybersecurity, and IoT Research in Nigeria (2025-2029).

LEGEND:



Conclusion

The study on trends in the domain of AI, Cybersecurity, and IoT research; shows that Nigeria is competing technologically with the global trend in these domains. Although the rate of the progress is not as high as that of the developed countries of the world, but the interplay between investments, policies, and research outputs in Nigeria has been most robust in AI, followed by cybersecurity and IoT. This hierarchy reflects the prioritization of sectors with immediate economic impact, such as AI in fintech and cybersecurity for national security. IoT tend to lag behind in the future forecasting due to infrastructural constraints and limited policy focus, though it holds long-term potential. The use of ARIMA simulated prediction tool shows that there will be constant progressive index in these three domains in the coming years.

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WRITING GROUPS: A RECIPE FOR SUCCESSFUL SCHOLARLY WRITING

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ABSTRACT

Productive scholarly writing is critical for faculty success in higher education. This paper presents the steps followed and the results of one university's creation of eleven interdisciplinary writing groups formed over a period of 2 ½ years using the Gray (2010) writing model. The goal of the project was to teach faculty how to become more successful writers and to increase their writing productivity. In a written assessment conducted after 1 ½ years, all faculty reported that they had met their goal of increasing writing productivity and the groups had helped them to become more successful writers. A focus group session conducted after another year, yielded similar outcomes. Additionally, faculty reported that the groups served as valuable professional support.

KEYWORDS: higher education, faculty development, faculty writing

WRITING GROUPS: A RECIPE FOR SUCCESSFUL SCHOLARLY WRITING

The life of a faculty member at most four-year higher education institutions is composed of teaching, research, and service. Many devote most of their time and effort to teaching and service but wrestle with scholarly writing (Boice, 2000). For the life of an academic working in higher education, successful writing is functional literacy or what R.F. Hirsch, Jr. refers to as cultural literacy (1987). Knowing how to write successfully is what Hirsch referred to as an "important fact" that faculty need to know in order to be successful in their culture and separate them from unsuccessful faculty (Madren, 2014). As students, they wrote numerous papers; as faculty, many do not know how to convert these skills into successful scholarly writing for projects such as journal articles and grant proposals (Stivers & Cramer, 2013). While they need to be effective scholarly writers in order to receive positive annual reviews and gain tenure, the majority of new faculty lack the skills needed for the task (Boice, 1992). After receiving tenure, some faculty feel relief from the pressure to publish and return to other parts of their lives such as teaching and their families. However, faculty are expected to remain active in their scholarly pursuits throughout their careers (Stivers & Cramer, 2013).

Robert Boice, a social psychologist, is an expert on scholarly writing and has authored numerous articles and books on the subject (Boice, 1990, 1992, 2000). His research of new faculty production of scholarly writing revealed that during years 1 and 2, over two-thirds of them produced no work that counted towards their tenure review. This non-production continued into years 3 and 4 (Boice, 1992). His research reported reasons why new faculty struggle with writing including a) they did not learn how to write with fluency and constancy in graduate school, b) they worked too often in isolation, c) they viewed writing as difficult and mysterious, d) they believed they could master either teaching or writing rather than both, e) they stated they were too busy to write, and f) they had difficulty deciding on what to write about (Boice, 2000). Boice's writings espouse the importance of working patiently and calmly, writing daily, keeping records, and seeking feedback from others (Boice, 2000).

Tara Gray, a faculty development specialist and national speaker on faculty writing, developed a model for new and experienced faculty to follow when writing. Her model follows Boice's steps of writing daily and keeping records, and adds the importance of being accountable to others (Gray, 2010). In her model, she recommends writing at least 15 to 30 minutes a day, sharing work weekly with individuals outside the discipline, organizing paragraphs around topic sentences, and moving forward to "kicking it out the door" (Gray, 2010, p. 73) rather than striving for complete perfection. She recommends that writers stop "thinking of writing as a solitary activity" (p. 23) and work with a group of people who are not experts on the topic.

BACKGROUND AND PURPOSE

This paper, based upon a presentation made at the Adult Higher Education Alliance 2015 annual conference, will present the steps followed and results of one institution's creation of eleven writing groups formed over a period of two and a half years. My university is located in the Rocky Mountain West, has an enrollment of 15,000 students, 900 faculty, and a Carnegie classification of "very high research intensive." Faculty at the institution are expected to publish refereed journal articles, receive external funding through grant writing, and present at conferences to receive tenure and promotion. I, in the role of the Director of the Center for Faculty Excellence (CFE) and also the presenter of the session, created and trained the writing groups following the Gray model for successful writing. Her model was the recipe for our groups and provided the facts to learn and follow in order to become more productive and successful scholarly writers. The goal of the project was to teach faculty how to become more successful writers and increase their writing productivity.

METHODOLOGY

This section describes the 4 steps and timing of the steps that transpired in forming the writing groups and in conducting two assessments of outcomes:

- Formation of two pilot groups: fall semester 2012,
- Formation of additional groups: spring semester 2013 – fall semester 2014,
- Assessment #1 of outcomes: spring semester 2014, and
- Assessment #2 of outcomes: spring 2015.

Note that there is overlap in the timing of steps 2 and 3. As I received informal positive verbal feedback from members of the groups and requests from other faculty to join a group, new groups were formed.

STEP 1: FORMATION OF TWO PILOT GROUPS: FALL SEMESTER 2012

I learned about writing groups at a conference for faculty developers during fall 2012. I attended a presentation by Gray describing her writing group model and two additional presentations by members of writing groups at higher education institutions. I was particularly impressed with the reported increases in writing productivity given by the members of the two writing groups.

After returning from the conference, I offered an information session open to all faculty at my institution who were interested in becoming a member of a writing group. Thirteen people from a variety of disciplines such as education, English, engineering, sociology, mathematics, and microbiology, attended the session. During the session, I presented the Gray writing model, facilitated a discussion of the model, and formed two interdisciplinary groups of six each at the conclusion of the session. Since the groups intended to meet weekly, six members was deemed the optimal number so that all members could present at least twice a month. One individual decided not to join a group after hearing about the expectations of the group. I joined one of the groups as I wanted to experience the outcomes personally. I became the facilitator of my group and asked the other group to identify a facilitator so I would have a continuing point of contact with the group.

I worked with both groups to help them establish ground rules, a process and schedule for each meeting, and I distributed Gray's book, Publish & flourish: Become a prolific scholar (2010), to each person free of charge. Examples of ground rules made are the following:

- We will follow Gray's model of looking for topic sentences in each paragraph and critique organizational structure,
- We will provide positive feedback first – "what I liked" – then go to "what I was looking for" and finish with the positive,
- This is not a fine-tuning editing group,
- We will keep a daily record of our writing,
- Everyone will have equal time – we will have a timekeeper, and
- We will meet weekly.

The two groups differed in how they decided to handle longer writing. One group decided to not review longer papers and the other group decided to review longer papers upon special request. The longer reviews were voluntary. The process and schedule of each meeting varied slightly by group but generally followed these guidelines:

1. Everyone will bring their writing record to each meeting and everyone will talk about their progress during the week,

2. Half of the group will bring writing each week with the person presenting telling everyone what to target in their reading,

3. The presenter will bring paper copies for everyone,

4. Group members will read writing for five minutes and provide feedback for ten minutes, and

5. There will be a five minute closing to discuss the next meeting time and who will bring writing.

STEP 2: FORMATION OF ADDITIONAL GROUPS: SPRING SEMESTER 2013 – FALL 2014

After a month, I began hearing very positive comments from members of the first two groups. Individuals in the groups shared their experiences with other faculty, and I began receiving requests to form new groups. As a result, I held another information session on forming writing groups during spring semester 2013 and created two new interdisciplinary groups. Following the same format as the previous semester, I attended the first meeting of the new groups to assist them in establishing ground rules, process and schedule, and gave them copies of Gray's book. Continued positive comments from group members caused me to conduct two information sessions during fall semester of 2013 and one during spring 2014. Similar to the first information session, not everyone who came to the meeting joined a group, but only one or two at the sessions did not join. Three new groups formed during fall 2013, two during spring 2014, and two during fall 2014 bringing the total to 11 writing groups created.

STEP 3: ASSESSMENT #1 OF OUTCOMES: SPRING SEMESTER 2014

In April 2014, I conducted a survey assessment of the seven active writing groups' outcomes using Brookfield's Critical Incident Questionnaire (1995) as a model. According to Brookfield (1995), asking about questions about emotional highs and lows of experiences is a valuable method of ascertaining the impact of a practice upon a participant. Additionally, I asked questions that inquired about their use of the model and the project goal of increasing their writing productivity and success. Questions asked were the following:

1. Have your initial goals been met?
2. Has this group helped you to become a more productive and successful writer? How?
3. What writing schedule have you adopted?
4. When did you feel most engaged?
5. When did you feel less engaged?
6. What action did anyone in the group take that you found affirming and helpful?
7. What about the group surprised you the most?
8. Have you submitted any writing? If yes, please indicate what and how many. [Choices given were grant proposal, book chapter, journal article, and conference proposal.]
9. Have you had work accepted? If yes, please indicate what and how many. [Choices corresponding to the ones in question 7 were given.]

I distributed the assessment forms to the facilitator of groups that had been in operation for a minimum of a full semester and they distributed them to the group members. Responses were anonymous. Seven groups with a total of thirty members were asked to complete the survey.

STEP 4: ASSESSMENT #2 OF OUTCOMES: SPRING 2015

During spring 2015, Tara Gray visited the institution and delivered a session for individuals currently in a writing group using her model. Thirty individuals attended the session with at least one member from each of the ten active groups. During this session, she asked individuals how things were going, what had brought the group success, and what challenges the group had experienced.

RESULTS

Of the eleven writing groups formed over the past two and a half years, there are ten active writing groups. All consist of faculty from a variety of disciplines. The individuals in the groups have changed somewhat. Members have gone on sabbatical; others have left the institution.

Some members dropped out of the group for a variety of reasons such as workload. When a group has lost a member, they have either recruited their own new member or they have contacted me for names of people who are waiting to join a group. Periodically, I have people who contact me and ask to be put on a waiting list, and I refer to my list when a group requests assistance. The group then instructs the new member on the process and I give them Gray's book. I have not tracked the specific numbers of people who have left and new joiners; but they have been very few. Since the groups operate very autonomously, these events sometimes occur without my knowledge until I contact the facilitator of each group at the end of the academic year. At this time, the facilitator gives me the names of people who are current active members.

One group disbanded during spring semester 2015 because of difficulty with scheduling and because of members having difficulty keeping a regular writing schedule. The people in the group who wanted to continue gave me their names and I added them to my waiting list that is currently in existence. Those people's names will be given to people in groups who request a replacement for someone who has left.

ASSESSMENT #1 – SURVEY

In the April 2014 assessment, twenty-six responses were received from thirty members. At least one member from all seven groups returned surveys. Length of membership ranged from one semester to four semesters. All respondents reported that they had met their goal of increasing writing productivity and the groups had helped them to become more successful writers. All respondents reported submission of at least one grant, journal article, or conference proposal. Everyone who had been in a group for over a year reported an acceptance of one of these three types of submissions. Thirty-two grants for $4.6 million had been submitted since joining a group. While some were still under review, four grants for $63,000 had been awarded. Twenty-three journal articles had been submitted with seventeen accepted. The remainder was still under review or in the revise and resubmit stage. Three book chapters had been submitted and all had been accepted. Thirteen conference proposals were reported as submitted with seven accepted and six still under review.

All responses to open-ended questions were positive except for responses to the question "when did you feel less engaged?" Individuals reported a variety of writing schedules, however they all communicated that they write more regularly now. Some stated they write five days a week; others said they write regularly three days a week. Times of most engagement were while the group was reviewing their work and before their time to present. People reported feeling least engaged when they had other things on their mind or when they had other work waiting on them. Comments to the query about actions that others took that was most affirming and what was most surprising to them were similar. Ten individuals reported they were surprised that the interdisciplinary composition of the group worked so well and they were surprised they could give people working in other disciplines feedback on their writing. One person stated: “Even when I think a section is well written, it is surprising to me that my colleagues from another discipline can provide feedback that is different and valuable from another perspective.” Twenty respondents reported on the supportive environment of the group. “This group helps to reduce the isolation I feel on campus as I have an opportunity to meet, learn from, and appreciate colleagues from other disciplines.” “This is the closest to scholarly mentoring I have found on campus.”

ASSESSMENT #2 - FOCUS GROUP

Discussion during the focus group session was similar to the written assessment. People reiterated the value that being in the group had on their writing and on their career. One individual asked for clarification and further detail about the definition of a topic sentence.

Members from three groups expressed challenges of finding a meeting time that worked for everyone as teaching schedules changed from semester to semester. Another challenge included keeping to the task of reviewing writing when they had come to know each other on a personal level.

DISCUSSION AND RECOMMENDATIONS

The outcomes of the writing groups are very positive. Assessments show that faculty have learned how to be scholarly writers, and have learned the skills to be successful in the environment of our research institution, or what Hirsch (1987) refers to as cultural competency. nformal conversations with administrators revealed that they viewed the groups as a strategy to help the University achieve its goal of increasing national prominence and grant success. While Gray’s model espouses the positive outcomes of interdisciplinary review of writing, many expressed initial doubt. The success of having members from a variety of unrelated disciplines was a surprise to participants. Additionally, forming a strong social and supportive connections was an unexpected outcome and certainly a very positive one.

The assessment of outcomes has been valuable in deciding whether to expand the number of groups and in reporting outcomes of the Center’s work. Informal comments, the formal written results, and the focus group session have all contributed to realizing the value and recognizing the challenges of the groups. This information can then be shared at sessions that recruit individuals to join groups and also to administrators who fund the budget needed to buy Gray’s book.

Based upon our outcomes, the following recommendations are made to those wanting to increase faculty writing productivity and teach faculty the skills needed in order to be successful in a research-oriented academic culture:

1. Conduct writing group information sessions and present the Gray model for successful academic writing.

2. Create interdisciplinary writing groups of 5 to 6 individuals. Help them get started by assisting in forming ground rules and distributing Gray’s book or other similar

books that describe a model of a) writing 15 to 30 minutes every day, b) keeping records of writing, and c) sharing work with others.

3. Be prepared for membership to change and keep a list of interested individuals who want to join so they can be matched with groups that need a replacement.

4. Regularly assess outcomes using informal and formal methods. Formal methods can be challenging since groups operate autonomously and membership changes. The identification of one point of contact for each group enables ongoing assessment to occur.

5. Communicate to administrators the outcomes of assessments. Positive outcomes give tangible evidence about the value of the work of faculty development centers and show that the work of these centers can help the institution reach important goals.

Hopefully, participants at the conference and readers of these proceedings will find this information of value and incorporate the steps we followed to increase faculty skill and success in the academic culture. Additionally, some of what has been learned from our faculty writing groups could be transferred to other types of adult writing groups.

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AN IMPROVED DECISION SUPPORT SYSTEM FOR SOFTWARE EVALUATION USING WEIGHTED SUM TECHNIQUE

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ABSTRACT

This research study focused on an improved decision support system for software evaluation using weighted sum. Given the increase in the number of software packages in the market today, there is a challenge of knowing which is most effective to solve the problems of an organization without creating problems. It is in view of the need to select the most appropriate software among alternatives that gave rise to the concept of software evaluation. Software evaluation is the process of assessing the quality of different software systems so as to choose the most productive one. Evaluating and selecting software packages that meet an organization's requirements is a difficult software engineering process. Selection of a wrong software package can turn out to be costly and adversely affect business processes. One of the most common techniques used for evaluating software components is weighted sum. In this technique, the criteria for evaluating the software are clearly defined and values are assigned as weight to each criterion. The total of the weight placed on each criterion reveals the level of effectiveness of the software component. For the scope of this study, the evaluation is carried out under three different criteria categories which are; vendor, hardware/software requirements and cost/benefits.

KEYWORDS: Improved, Decision Support System, Software Evaluation, and Weighted Sum Technique

1. Introduction

A successful evaluation is not simply picking a product based on intuition. It involves a formal process, the right mixture of evaluators, and a specific quantifiable set of evaluation criteria. The process should include how to handle differences in scoring by the evaluators. The task of choosing a software component for a specific function in order to integrate it in a software system is a typical case of multi-criteria decision making that frequently occurs in Software Engineering. Consider a decision maker with a set of components to fulfill a function in a software system, for example creating digital signatures on files. A number of decision factors will come into play such as functional suitability, security, performance efficiency, interoperability and costs. Some of these may pose conflicts: For example, increased security may come at the price of decreased performance efficiency or increased price. The decision maker has to follow a trustworthy and repeatable procedure to choose the component that best fulfills the objectives at hand (Becker et al, 2013). The domain of component selection presents an interesting case of multiple criteria decision support systems (MCDSS) since it exhibits a number of peculiarities:

i. A comparably large number of decisions of a very similar kind is made.

ii. The number of alternatives and decision criteria can be quite large.

iii. The decision criteria are rather well understood in terms of the facets and quality aspects that are evaluated.

Software can be evaluated with respect to different aspects, for example, functionality, reliability, usability, efficiency, maintainability, portability. In earlier times evaluation of software took place at the end of the developing phase, using experimental designs and statistical analysis, evaluation is nowadays used as a tool for information gathering within iterative design: “Explicit human-factors evaluations of early interactive systems (when they were done at all) were poorly integrated with development and therefore ineffective. They tended to be done too late for any substantial changes to the system still be feasible and, in common with other human-factors contributions to development, they were often unfavourably received.

Decision Supports Systems (DSS) are computer-based information systems designed in such a way that help managers to select one of the many alternative solutions to a problem. It is possible to automate some of the decision-making processes in a large, computer-based DSS which is sophisticated and analyze huge amount of information fast. It helps corporate to increase market share, reduce costs, increase profitability and enhance quality. The nature of problem itself plays the main role in a process of decision making.

1.2 Statement of the Problem

As institutions and organizations spend huge amount on Enterprise resource planning (ERP) packages and other computer software that cost hundreds of thousands and even millions of dollars, purchasing a software solution is a high expenditure activity that consumes a significant portion of companies’ capital budgets. Selecting the right solution is an exhausting process for companies. Therefore, selecting a software package that meets the requirements needs a full examination of many conflicting factors and it is a difficult task. Most times the software bought do not meet the needs of the institution or organization despite the huge amount. To avoid the problem of software ineffectiveness, this has led researchers to investigate better ways of evaluating and selecting software packages.

1.3 Aim and Objectives of the Study

The aim of the study is to develop an improved decision support system for software evaluation that will help organizations to determine the effectiveness of a software product based on its features and capabilities. The following are the objectives of the study:

1. To design a decision support system for software evaluation using quantitative method for software evaluation and selection.

2. To develop a software that will assess the software features to determine their level of effectiveness.

3. To compare a system that will maintain record of software evaluation records.

1.4 Scope/Significance of the Study

This study covers advanced decision support system for software evaluation using weighted sum. It is limited to the capturing of the weighted sum of software features and the determination of the best software option based on the total weight of its features. Evaluation is based on three different criteria categories which are: The vendor, hardware/ software requirements and cost/benefits of the software system.

However, the significance of the study is that it will help institutions and organizations evaluate the effectiveness of a software product. The study will also serve as a useful reference material to other researchers seeking for information concerning the subject.

2. LITERATURE REVIEW

2.1 Software Selection using Decision Support Systems

According to Bandor (2006), when performing purchase analysis and selecting a product as part of a software acquisition strategy, most organizations will consider primarily the requirements (the ability of the product to meet the need) and the cost. The method used for the analysis and selection activities can range from the use of basic intuition to counting the number of requirements fulfilled, or something in between. The selection and evaluation of the product must be done in a consistent, quantifiable manner to be effective. By using a formal method, it is possible to mix very different criteria into a cohesive decision; the justification for the selection decision is not just based on technical, intuitive, or political factors. Decision making is considered one of the most critical activities done in organizations. To support this complex process for individuals, a variety of independent, standalone information systems called Decision Support Systems (DSSs) have been developed in the two last decades.

2.2 Decision Support System Overview

Decision support systems (DSS) emerged in the 1970. It is defined as a computer-based system designed to actively interact with an individual decision maker in order to assist him to make better decisions based on information obtained. The decision process is broadly defined as a bundle of correlated tasks that include: gathering, interpreting and exchanging information; creating and identifying scenarios, choosing among alternatives, and implementing and monitoring a choice. Briefly, the decision process refers to some techniques or processing rules aiming at structuring the context, timing or content of communication. DSS was designed to solve ill or non-structured decision problems. Problems where priorities, judgements, intuitions and experience of the decision maker are essential, where the sequence of operations such as searching for a solution, formalization and structuring of problem is not beforehand known, when criteria for the decision making are numerous, in conflict or hard dependent on the perception of the user and where resolution must be acquired at restricted time (Bhargadav and Power, 2015).

2.3 Multi-Criteria Decision Support System (MCDSS) for Software Component Selection

According to Becker et al (2013), numerous approaches have been proposed for the general problem of software component evaluation and selection. Most methods for component selection employ a variation of the standard five steps:

1. Define criteria
2. Search for components
3. Shortlist candidates
4. Evaluate candidates
5. Analyze results and choose component

Frequently employed approaches for evaluating and selecting components include the usage of simple scoring and weighted sum approaches, the Analytic Hierarchy Process (AHP), or iterative filtering. Others use methods based on utility analysis to tackle the incommensurability of decision factors. In particular in cases of strict requirements on trustworthiness and reliable selection of components, evidence-based decisions using controlled testing are recommended (Becker and Rauber, 2010). For the scenario of component selection, using goal-based requirements modeling and utility analysis is especially suitable for a number of reasons: The decision models strongly build on quality attributes that lend themselves to requirements engineering approaches; the anomaly of rank reversal should be avoided; and the number of analytical steps that for example the application of the AHP requires is in many cases prohibitive. Still, the problematic aspect of all approaches for component selection that can be considered trustworthy, i.e. evidence-based and formalized, is the high complexity and effort involved in creating suitable evidence. This begins with the unambiguous specification of criteria for quality attributes, which can be quite challenging, and extends to the evaluation of components, i.e. the process of assigning values to decision criteria.

2.4 Software Evaluation Techniques

Software evaluation is multi-criteria decision making problem that refers to making preference decisions over the available alternatives. At this point, the various software evaluation techniques are discussed and their strengths and weaknesses are examined.

1. Analytic Hierarchy Process (AHP) Software Evaluation Technique

AHP has been widely used for evaluation of the software packages. AHP has been identified as an important approach to multi-criteria decision-making problems of choice and prioritization. AHP is based on a hierarchical framework of criteria. The upper level deals with the goal of the selection process. The next level defines the major factors which are subdivided into their constituents in lower levels of hierarchy. The bottom level contains the alternatives to be analyzed.

Strengths of Analytical Hierarchy Process (AHP):

i. AHP enables decision makers to structure a decision making problem into a hierarchy, helping them to understand and simplify the problem.
ii. It is flexible and powerful tool for handling both qualitative and quantitative multi-criteria problems.

iii. AHP procedures are applicable to individual and group decision making.

Weaknesses of Analytical Hierarchy Process (AHP):

i. AHP is time consuming because of the mathematical calculations and number of pair-wise comparisons that increases as the number of alternatives and criteria increases.
ii. The decision makers need to re-evaluate alternatives when the number of criteria or alternatives are changed.
iii. Ranking of alternatives depends on the alternatives considered for evaluation hence adding or deleting alternatives can lead to changes in the final rank.

2. Feature Analysis Software Evaluation Technique

Feature analysis technique for software evaluation uses different software feature criteria to evaluate the software such as:

Process Related Criteria

1. Development lifecycle: What development lifecycle best describes the methodology (e.g. waterfall)?
2. Coverage of the lifecycle: What phases of the lifecycle are covered by the methodology (e.g. analysis, design, and implementation)?
3. Development approach: What development approach is supported (i.e. top-down or bottom-up)?
4. Application domain: Is the methodology applicable to a specific or multiple application domains?
5. Scope of effort: What size of MAS is the methodology suited for (i.e. small, medium, or large)?
6. Agent nature: Does the methodology support only homogeneous agents, or heterogeneous agents?
7. Support for verification and validation: Does the methodology contain rules to allow for the verification and validation of correctness of developed models and specifications?

Strength of Feature Analysis Software Evaluation Technique:

i. Evaluation can be done to any required level of detail by organizing evaluation in different ways such as screening mode, case study, formal experiment and survey.
ii. It is used not only for technical evaluation but also for evaluation of viability of supplier.

Weakness of Feature Analysis Software Evaluation Technique:

i. Producing the single number from the individual scores may be misleading because many different combinations of numbers can produce the same aggregate score.

3. Weighted Average Sum (WAS) Software Evaluation Technique

Another technique used for evaluation of software package is the weighted scoring method. In this method weights and rating scales are assigned to each criterion. The weight reflects the relative importance of each of the criteria while the rating scale indicates how easily each package is able to meet the specific criterion. The rating scales are then multiplied by weight factor of each criterion. Using this scheme a score is calculated for every criterion for each tool. These scores are then totaled to produce a score for each criteria category and the average is also computed. Finally, the categorical scores are compared to determine the highest.

There are many different methods for deriving risk values, but descriptions of these methods are out of scope for this report. Additional references on risk can be found in the bibliography. Regardless of which risk calculation method you choose to follow, it is important to keep in mind that the scoring mechanism presented above is based on a “higher is better” score, and most risk calculations are based on a “lower is better” score. The two methods should be used individually and not combined into a single score for evaluation purposes. Table 2.1 shows an example legend for scoring when using weighted average sum evaluation technique.

Table 2.1: Example legend for scoring requirements

Score Value	Definition
1.0	Alternative fully satisfies business requirement or decision criterion.
0.5	Alternative partially satisfies business requirement or decision criterion.
0.0	Unknown or null/balanced (The alternative neither satisfies nor dissatisfies business requirement or decision criterion.)
-0.5	Alternative partially dissatisfies business requirement or decision criterion.
-1.0	Alternative fully dissatisfies business requirement or decision criterion [Litke 02].

Source: Bandor (2006)

Strengths of Weighted Average Sum Software Evaluation Technique:

i. Main advantage of WAS is its ease of use.

Weaknesses of Weighted Average Sum Software Evaluation Technique:

i. Weights to the attribute are assigned arbitrary and it is very difficult to assign weight when number of criteria is high.
ii. To obtain a score using this method a common numerical scaling is required.
iii. Difficulties emerge when WAS is applied to multi-dimensional MCDM problems.

2.5 Weighting Sum Software Product Selection Factors

Before selecting specific products, institutions should consider each of the factors or criteria for evaluation, balancing as far as possible the merits of specific products against the general features of the system. The selection of a specific product requires attention to:

i. Software reliability.
ii. Availability of technical support by the institution to the users.
iii. Availability of support by the software supplier to the institution and the users.
iv. Cost to the institution (i.e., local server support).

A quantification approach, using weighted average mean can be used for the software product evaluation. The evaluation responses may be weighted using points scoring criteria and scorecards. Results can then be compared quantitatively according to the evaluation totals and average. The review and the analysis of the responses are recommended to be performed in the following sequence.

i. Analyze each evaluation response using a 'score card'.
ii. Review each requirement listed in the score card and check the answer(s). It is recommended to use a simple 'Yes or No' marking, or a combined weighting and scoring method to indicate to what degree the score card requirements are met by the evaluator.
iii. Repeat the process, using a new scorecard for each software product.
iv. The evaluation criteria have to formalize the requirements towards the software products.

Table 2.2: Matrix weighted evaluation score card

SCORECARD	Reviewer: Requirements	Date: 8/1/06	Products: A	Software qualification
Evaluation Criteria	**Weighting**	**Evaluation Score**	**Points**	**Notes**
Workflow functionality	3 x	3	9	good
Purchase order	3 x	3	9	strong
cost	3 x	3	9	excellent
Needs for training	3 x	3	9	limited
TOTAL SCORE				
MAX SCORE				

Source: Stoilova and Stoilov, (2005)

By using a defined and understood set of discrete values, the subjectivity of the evaluation is significantly reduced. The raw values can be based on the information shown in Table 2.3. There are only five values used, ranging from 1.0 to -1.0 in increments of 0.5. Note the use of negative values and the effects on the scoring. Instead of just assigning a value of 0, the use of negative values permits the application of a "penalty" value where not meeting the criterion would be detrimental.

Table 2.3: Scoring legend for software criteria evaluation

Score Value	Definition
1.0	Alternative fully satisfies business requirement or decision criteria
0.5	Alternative partially satisfies business requirement or decision criteria
0.0	Unknown or null/balanced (The alternative neither satisfies nor dissatisfies business requirement or decision criterion)
-0.5	Alternative partially dissatisfies requirement or decision criterion
-1.0	Alternative fully dissatisfies requirement or decision criterion

2.6 Software Evaluation Models

Balsamo et al (2006) in contrast to software evaluation techniques, software evaluation models determine the frame of the evaluation, which consists of:

i. Choosing techniques appropriate for the life cycle, and

ii. Setting the focus with respect to the objects under study and the measurement criteria.

Evaluation models may provide a standardized treatment of establishing (potentially) successful procedures in the practice of evaluation, and are a necessary tool for a comparing different types of software evaluation. Any descriptive evaluation procedure must be combined with some kind of predictive technique to result in an applicable evaluation model; furthermore, some preparatory steps are necessary. For example, the evaluation model, which consists of the IsoMetric questionnaire as a basic technique, standardizes the preparatory steps “choosing the tasks” and “choosing the user group(s)”; it also standardizes the preparation of the report by an expert, and the structure of a “usability review”, which consists of a standardized result presentation and a Walkthrough technique. There are three classes of evaluation models:

Method Driven Models: These models offer a frame for software evaluation based on a collection of techniques. The models are only applicable if the evaluation procedures fits perfectly the problems encountered by the user and the system developers.

Criteria Driven Models: More or less abstract criteria are defined and refined; the evaluation in these models aims at a measurement of the criteria.

Method Driven Evaluation Models: The centre of method driven evaluation models consists of the arrangement of evaluation techniques, amended by the regulation of preparatory and subsequent tasks. A method driven evaluation model can be perceived as a complex evaluation technique as well. An example is EVADIS (Evaluation of Dialogue Systems II) , which is well tested for office automation software. The EVADIS II model combines interviews, simplified task analysis, and expert judgement in the following steps:

1. Installation and exploration of the software.
2. Analysis and relevance weightings of the tasks, construction of test tasks.
3. Analysis of the user characteristics. Selection of relevant ergonomic test items.

4. Evaluation of the software, based on the results of the first three steps.
5. Interpretation of the results and composing a test report.

The first three preparatory steps can be handled in parallel; they result in testing tasks and a list of ranked ergonomic evaluation criteria, mainly based on the principles of ISO 9241 (Part 10). The ranks of the criteria are deduced from the user profile, and they determine the test items which are chosen from an item database. In step four, the testing tasks are evaluated by an expert who steps through the tasks, and answers the questions formulated in the ergonomic items. The recorded answers form the basis for the test report. Every step of EVADIS II is supported by a large amount of supporting material such as databases and guidelines, which allows a domain expert with only a small amount of knowledge of software evaluation to form a well-founded opinion on the topic.

2.7 Empirical Related Work

Koziolek (2009) surveyed the state-of-the-art in research of performance evaluation methods for component-based software systems. The survey classified the approaches according to the expressiveness of their performance modelling language and critically evaluated the benefits and drawbacks. The area of performance evaluations for component-based software engineering has significantly matured over the last decade. Several issues have been understood as good engineering practice and should influence the creation of new approaches. A mixed approach, where individual components as well as the deployment platform are measured and the application architecture and the usage profile are modelled, is advantageous to deal with the complexity of the deployment plat-form while at the same time enabling early life-cycle performance predictions. The necessary parameterized performance modeling language for software components has become more clear. Including benchmarking results for component connectors and middleware features into application models using model completions exploits the benefits of model-driven development for performance evaluation.

The survey conducted by (Koziolek, 2009) benefits both researchers and practitioners. Re-searchers can orient themselves with the proposed classification scheme and assess new approaches in the future.

They can select methods according to their specific situation and thus increase the technology transfer from research to practice.

Babar et al (2015), conducted a study on a framework for classifying and comparing software architecture evaluation methods. The researchers opined that different software engineering communities have developed different techniques for characterizing their respective quality attributes and the methods to evaluate software systems with respect to that particular quality attribute, e.g., real-time, reliability, and performance. These assessment techniques study a specific quality attribute in isolation. In reality, however, quality attributes interact with each other. For example, there is generally a conflict between configurability and performance; performance also impacts modifiability, availability affects safety, security conflicts with usability, and each quality attribute impacts cost. That is why it is important to find an appropriate balance of quality attributes in order to develop a successful product. One of the most significant features of method differentiation and classification is the number of quality attributes a method deals with.

The software architecture (SA) evaluation methods specifically studied by (Babar et al, 2015) are: Scenario-based Architecture Analysis Method (SAAM), Architecture Tradeoff Analysis Method (ATAM), Active Reviews for Intermediate Design (ARID), SAAM for Evolution and Reusability (SAAMER), Architecture-Level Modifiability Analysis (ALMA), Architecture-Level Prediction of Software Maintenance (ALPSM), Scenario-Based Architecture Reengineering (SBAR), SAAM for Complex Scenarios (SAAMCS), and integrating SAAM in domain-Centric and Reuse-based development (ISAAMCR). These are scenario-based methods, a category of evaluation methods considered quite mature. There are also some attribute model-based methods and quantitative models for SA evaluation, but, these methods are still being validated and are considered complementary techniques to scenario-based methods. There is, however, little consensus on the technical and non-technical issues that a method should fully address and which of the existing methods is most suitable for a particular issue. There is not much work done on systematic classification and comparison of the existing methods. Moreover, there is not much guidance on the desirable features of the evaluation methods and their usefulness.

Software Architecture (SA) evaluation can be performed for a number of purposes, e.g., risk assessment, maintenance cost prediction, architecture comparison, trade-off analysis and so forth. No one method can be considered as equally good for all types of assessment objectives as different methods are optimized to achieve different evaluation goals. The common goal of most of the evaluation methods is to evaluate the potential of the designed architecture to facilitate or inhibit the achievement of the required quality attributes. For example, some architectural styles, e.g., layered architectures, are less suitable for performance sensitive systems, even though they usually result in highly flexible and maintainable systems. In order to achieve maximum benefit from an assessment activity, the goals of the evaluation need to be explicitly defined. The goals of assessment help software architect make a number of critical decisions with regard to selection of a specific method and deliverable required.

There is at least one common goal found in all surveyed methods, which is prediction-based assessment of the quality of a system at the architecture level. However, each method has a specific view and different approach to achieve the goal: SAAM and its variants (specifically SAAMCS and ISAAMCR) are mainly geared to identify the potential architectural risks. However, SAAMCS focuses on exposing the boundaries of SA with respect to flexibility using complex scenarios, while, ISAAMCR integrates SAAM in domain-centric reusable development process; SAAMER evaluates the designed SA for evolution and reusability and provide a framework for SA analysis; ALMA specializes in predicting one quality attribute (i.e., modifiability) and there are three possible objectives to be pursued: risk assessment, maintenance cost prediction, and SA comparison; ARID performs suitability analysis of intermediate design artifacts; ATAM identifies and analyses sensitivity and trade-off points as these can prevent the achievement of a desired quality attribute.

Bandor (2006) also conducted a research on Quantitative Methods for Software Selection and Evaluation. The author was of the opinion that when performing a “buy” analysis and selecting a product as part of a software acquisition strategy, most organizations will consider primarily the requirements (the ability of the product to meet the need) and the cost. The method used for the analysis and selection activities can range from the use of basic intuition to counting the number of requirements fulfilled, or something in between. The selection and evaluation of the product must be done in a consistent, quantifiable manner to be effective. By using a formal method, it is possible to mix very different criteria into a cohesive decision; the justification for the selection decision is not just based on technical, intuitive, or political factors. The report describes various methods for selecting candidate commercial off-the-shelf packages for further evaluation, possible methods for evaluation, and other factors besides requirements to be considered. It also describes the use of a decision analysis spreadsheet as one possible tool for use in the evaluation process.

In addition, Koziolek, (2009) carried out a study on Performance Evaluation of Component-based Software Systems: A Survey. He believed that Performance prediction and measurement approaches for component-based software systems help software architects to evaluate their systems based on component performance specifications created by component developers. Integrating classical performance models such as queuing networks, stochastic Petri nets, or stochastic process algebras, these approaches additionally exploit benefits of component-based software engineering, such as reuse and division of work.

3. System Analysis and Design

3.1 Research Methodology

The data used for the development of the research was gotten from the internet, textbooks and articles. The contributions of other researchers on the subject were examined so as to gather relevant information. Questionnaire forms were also issued to experienced users of the software to be evaluated in order to obtain raw data to ascertain their effectiveness.

The system analysis and design methodology used to analyze the system is Object Oriented Analysis and Design Methodology (OOADM). OOADM applies object orientation in the analysis and design as a software engineering approach that models a system as a group of interacting objects. Object oriented analysis and design is the analysis and design of a system from the object point of view.

3.2 System Analysis

System analysis has to do with examining a system in order to understand its step by step operations so as to identify its benefits and areas of limitation that require improvements. Analysis of the existing and proposed system is examined at this point.

3.2.1 Analysis of the Existing System

In the existing system of software evaluation using weighted sum, it is manually carried out on a sheet known as an evaluation score card. Fig 3.1 below, gives an illustration of how software evaluation is manually done using a score card.

Architecture of the Existing System

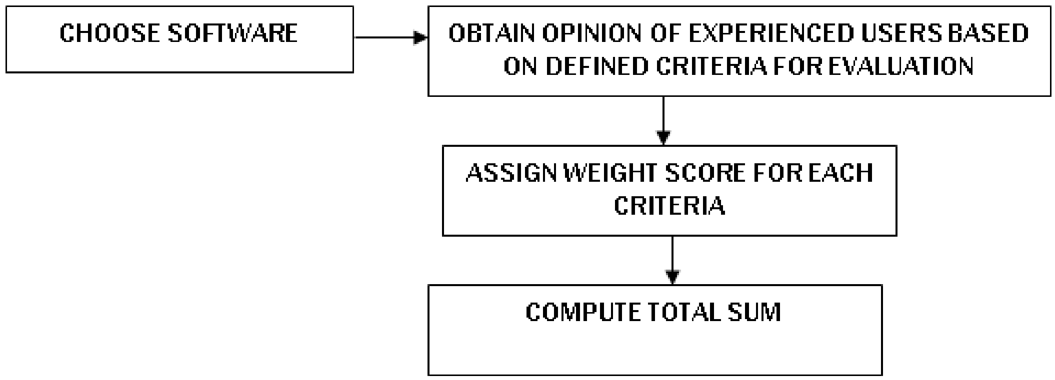

Fig 3.1: Architecture of existing system

In the architecture of the existing system shown above, the software to be available is chosen, the opinion of users of the software is obtained based on the defined criteria. Weighted score values are assigned to the defined criteria and the total weight sum is computed.

3.2.3 Analysis of the Proposed System

The proposed system is such that it will provide a grading or evaluation interface that will enable users carry out software evaluation of different software that are of the same application category. The software will be evaluated side by side. The system will also provide expert system remark on the level of reliability after assessment. The evaluation will be done based on three different criteria which are:

- Vendor evaluation
- Hardware/software evaluation
- Cost/benefits evaluation.

Each criterion for software evaluation outline above has sub-criteria that will be assigned evaluation values ranging from 2 to -2. At the end, the total sum is computed and the percentage sum is also computed. Expert system remark is also provided indicating which software is better. The evaluation key values and their meaning are shown in figure 3.2 below:

EVALUATION KEY	
VERY SATISFIED	2
SATISFIED	1
NEUTRAL	0
DISSATISFIED	-1
VERY DISSATISFIED	-2

Fig 3.2: Evaluation key values

Architecture of the Proposed System

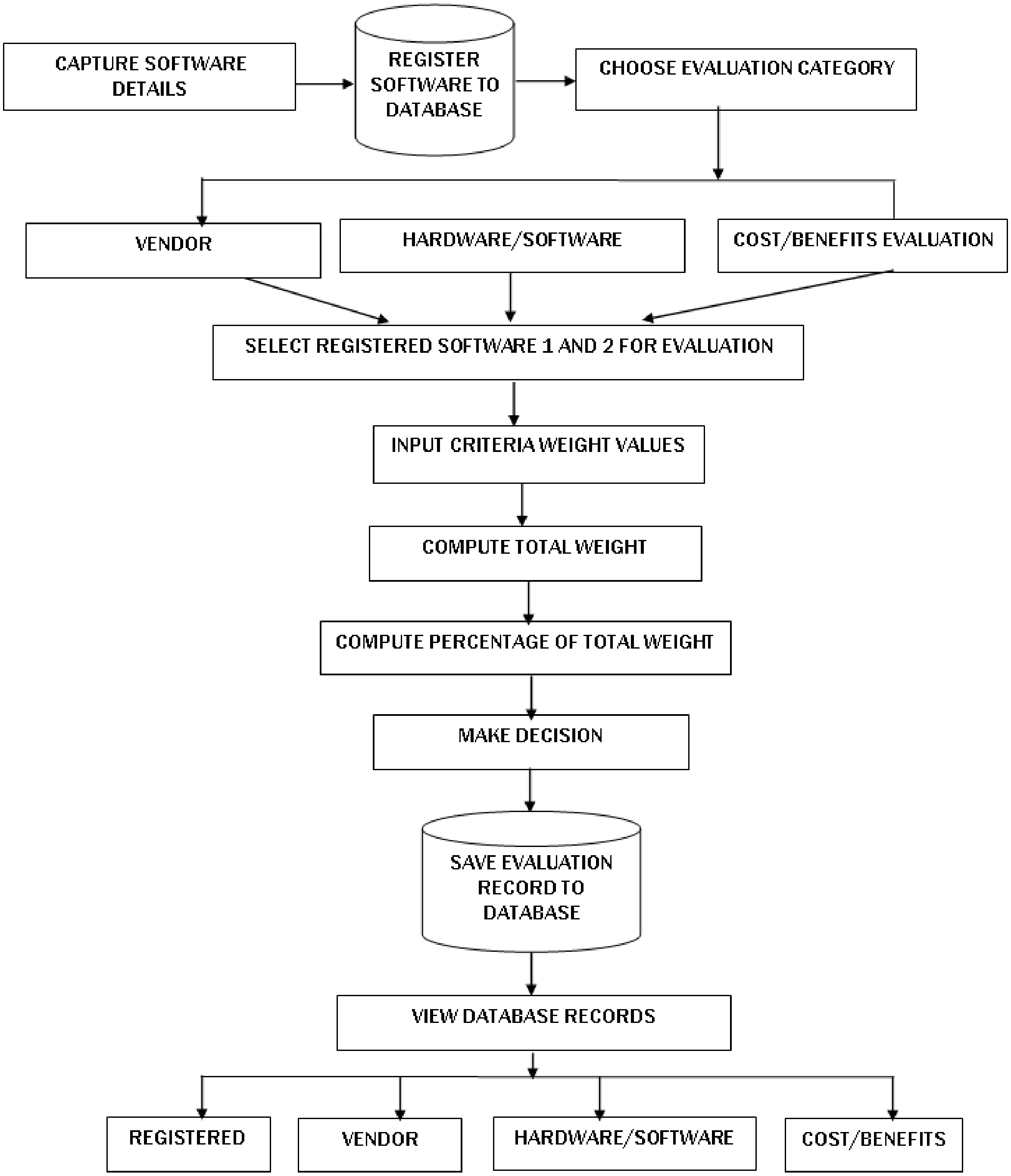

Fig 3.3: Architecture of proposed system

3.3 System Design

The system design has to do with the layout of the system and it comprises of the input and output layout and Algorithm design and program flow chart.

3.3.1 Input layout

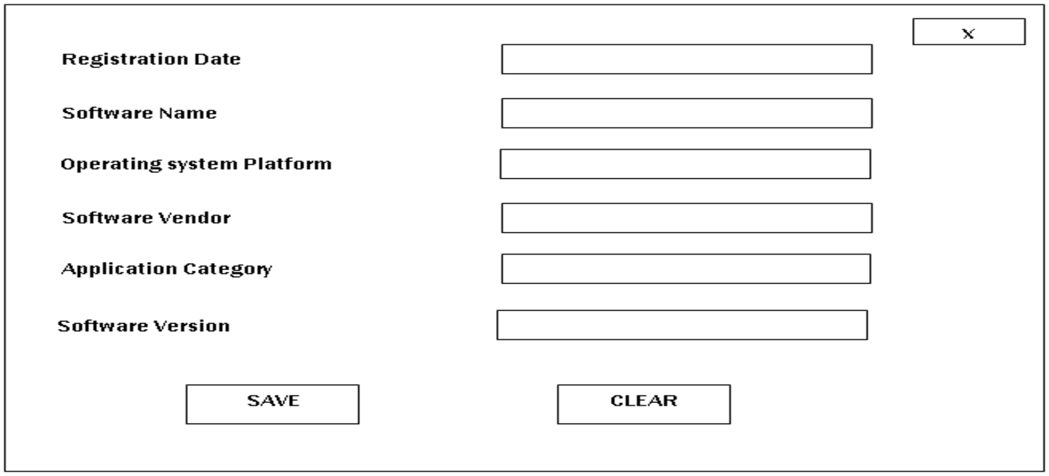

Fig 3.4: Software registration input layout

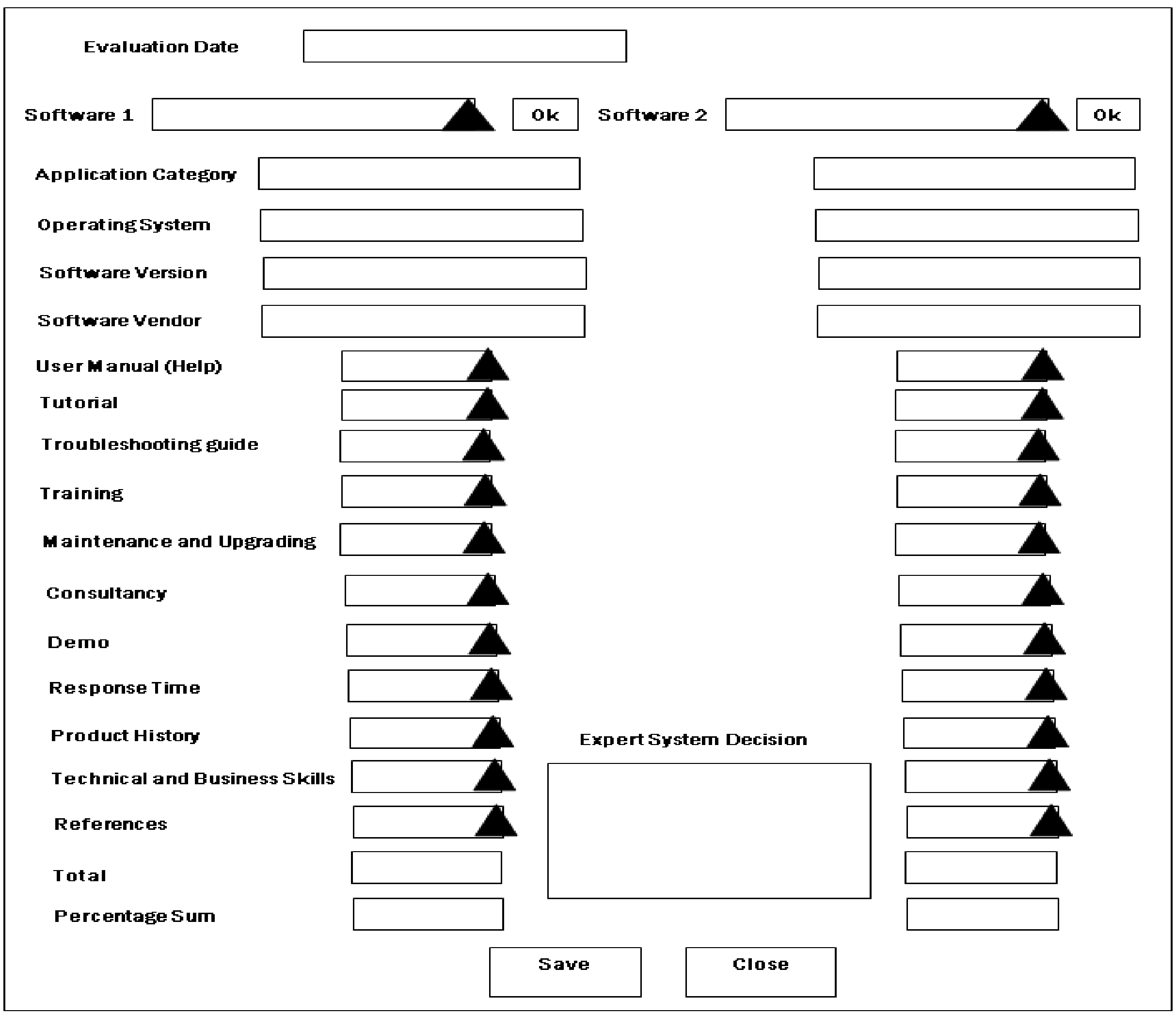

Fig 3.5: Vendor Evaluation input layout

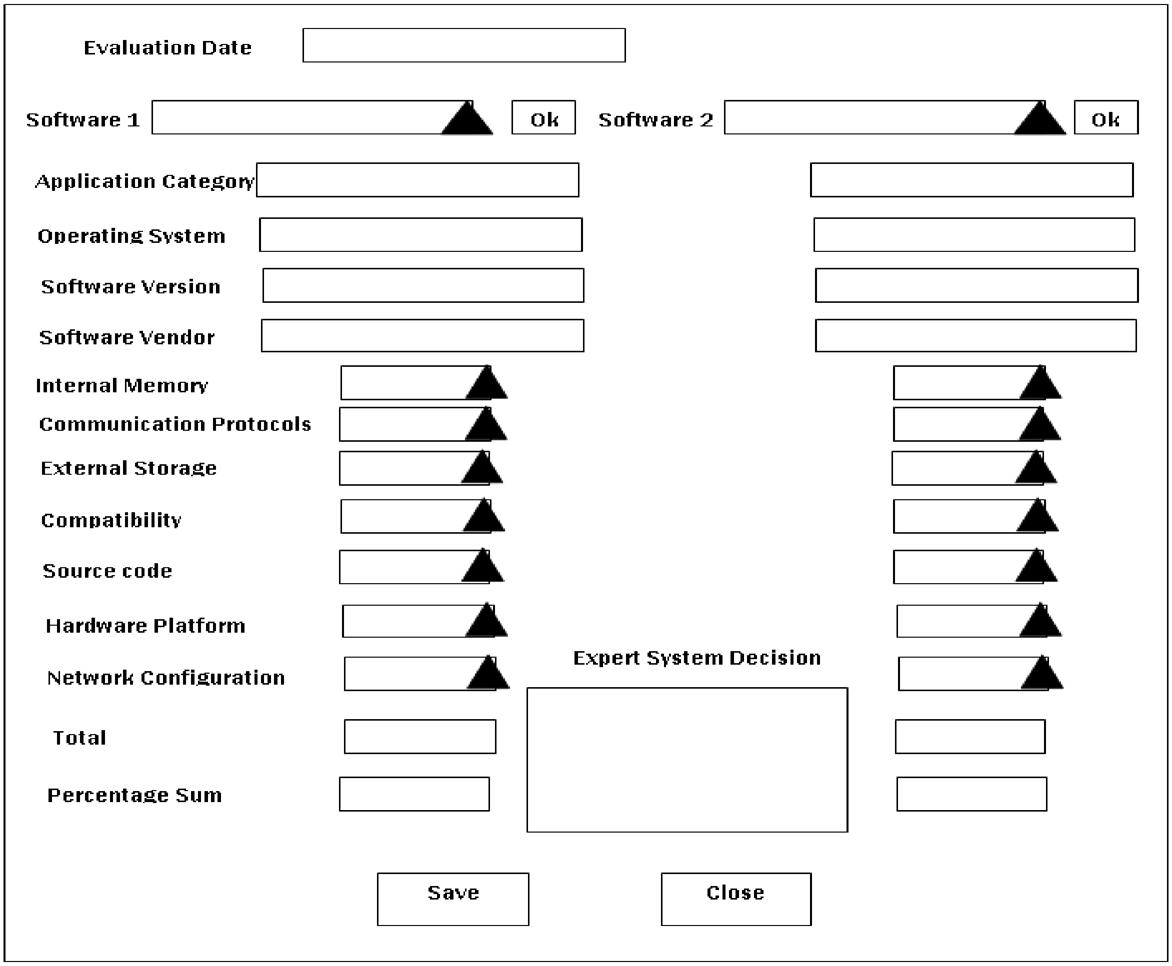

Fig 3.6: Hardware Software Evaluation input layout

3.3.2 Output Layout

See Appendix B

3.3.3 Algorithm

Step 1: Start
Step 2: Login
Step 3: If login is success goto step 4 else goto step 2
Step 4: Display main menu
Step 5: Input choice
Step 6: If choice is software registration goto step 7 else goto step 8
Step 7: Input registration details and save to database.
Step 8: If choice is reliability evaluation goto step 9 else goto step 12
Step 9: Input evaluation category
Step 10: If evaluation category is vendor goto step 11
Step 11: Select software 1 and 2 and Input vendor evaluation details
Step 12: Compute total weight

Step 13: Compute Percentage of total weight
Step 14: Display expert system decision
Step 15: If evaluation category is hardware/software goto step 16
Step 16: Select software 1 and 2 and Input hardware/software evaluation details
Step 17: Compute total weight
Step 18: Compute Percentage of total weight
Step 19: Display expert system decision
Step 20: If evaluation category is cost/benefits goto step 21
Step 21: Select software 1 and 2 and Input cost/benefits evaluation details
Step 22: Compute total weight
Step 23: Compute Percentage of total weight
Step 24: Display expert system decision
Step 25: If choice is database records goto step 26
Step 26: Input choice
Step 27: If choice is registered goto step 28
Step 28: Display database of registered software
Step 29: If choice is vendor evaluation goto step 30
Step 30: Display database of vendor evaluation records
Step 31: If choice is hardware/software evaluation goto step 32
Step 32: Display database of hardware/software evaluation records
Step 33: If choice is cost/benefits evaluation goto step 34
Step 34: Display database of cost/benefits evaluation record.
Step 35: If choice is quit goto step 36
Step 36: Stop

4. System Implementation and Documentation

4.1 System Design Diagram

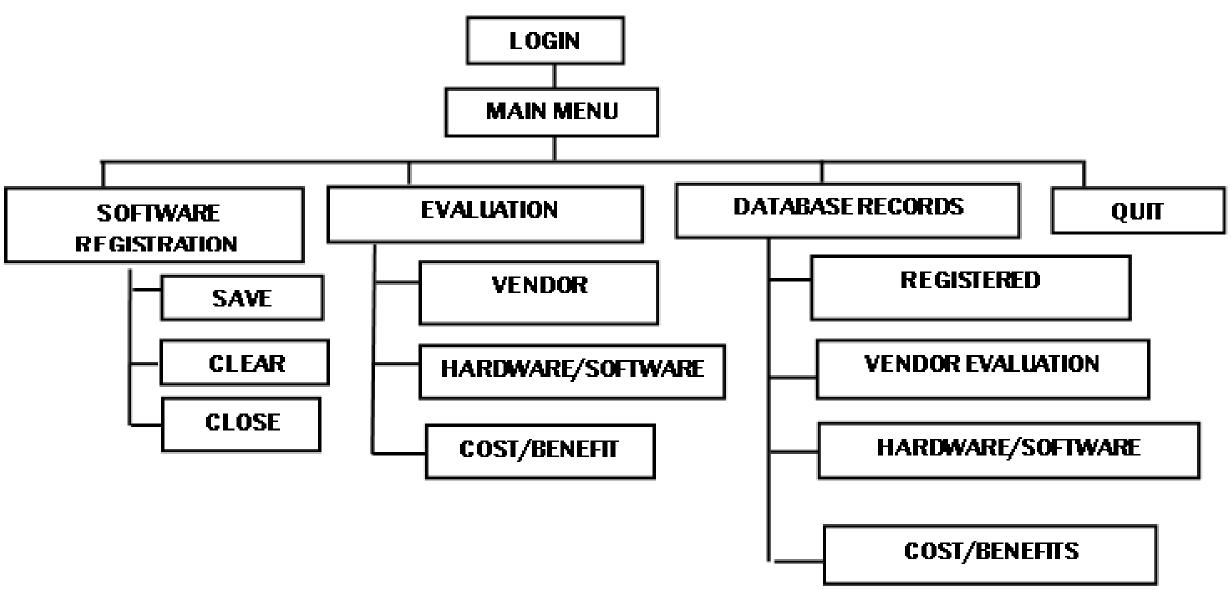

Figure 4.1: System Design Block Diagram

4.2 Choice of Programming Language

The programming language used is Visual BASIC.NET. The language was chosen because it enables the creation of applications with a graphical user interface, containing controls such as text fields, combo box, labels, command buttons etc.

4.3 Analysis of Modules

The system is made up of four main modules as shown in the system flow diagram. They are;

Software Registration: This module enables the registration of software for evaluation

Evaluation: This module aids the evaluation of registered software. It is made up of three sub-modules namely: vendor, hardware/software, cost/benefits. These sub modules are the criteria for evaluating the software, so as to arrive at a decision.

Database Records: This module aids the user to view the database records of registered software, vendor evaluation records, hardware/software evaluation records and cost/benefits evaluation records.

Quit: This module terminates the program

4.4 Programming Environment

The programming environment used for the development of the application is windows 7 operating system and the integrated development environment (IDE) chosen for the development of the system is Visual BASIC 6.0.

The hardware and software requirements for successful implementation of the system are stated at this point.

The hardware requirements are;

- Pentium iv computer system
- Super video graphic array monitor
- 1 GB RAM
- Keyboard
- Mouse
- Uninterruptible power supply (UPS)

The software requirements are:

- Microsoft Visual Basic 8.0 (Visual Basic.NET)
- Microsoft Access 2003

4.5 Implementation

Implementation is the process of replacing the old system with the new system. There are four different ways of replacing the old system with the new system. The reasons for choosing one implementation type over another depend upon; how quickly must the changeover happen? How important is it to prevent data loss? What will the cost of the changeover be?

Phased implementation: Takes longer to complete the implementation but the risks to the business are less than for direct changeover. The new system can be split into separate working parts, part of the old system is replaced with the new one until the replaced part is working properly. Continue the process until the entire old system has been replaced by the new system.

Direct changeover: In this system the old system is no longer available and everything must run on the new system. Problems with the new system can cause major problems for the business, only suitable for non-critical systems.

Parallel Running: Highly fault tolerant, new system and the old system are used with extra staffs recruited to run the new system but it is very expensive. Both systems continue to run until the new system is working properly then the old one is discarded.

Pilot Running: If the business has many different offices or sites then this is an option. One single site is chosen and the old system is replaced with the new system in the same way as direct changeover but only on one site, the rest of the business continue to use the old system. Once the new system is shown to work well in that one ‘pilot’ site then the new system can replace the old one in the rest of the company.

The system implementation method recommended and chosen by the system developer is the parallel running so as to prevent data loss.

5. Conclusion and Recommendations

5.1 Conclusion

From the foregoing, it can be seen that a successful evaluation is not simply picking a product based on intuition. It involves a formal process, the right mixture of evaluators, and a specific quantifiable set of evaluation criteria. The process should include how to handle differences in scoring by the evaluators. Defining the evaluation technique used for the evaluation is very important.

Weighted sum evaluation technique can be adopted to easily ascertain the effectiveness of software based on defined criteria. From the foregoing, it can be seen that, requirements drive selection criteria, careful consideration must be given to the identification of selection criteria, pilots and demonstrations are essential selection tools, product and technology maturity must be considered. By systematically analyzing co-occurrence, correlation and impact of decision criteria across cases, it should be possible to integrate recommender systems into the decision making workflow that can provide increased guidance and warn decision makers of potential risks and opportunities based on others’ experiences.

5.2 Recommendations

The following recommendations are offered based on the study:

- More research should be conducted on decision support system for software evaluation/assessment.
- Software development companies should conduct survey programs to assess the reliability of their software product.
- Raw data used for the assessment should be obtained from users of the software system.
- The criteria utilized in making decision on the effectiveness of a software should be expanded to include more aspects so as to improve the reliability information.
- Proper testing and debugging should be done before software systems are published or placed in the market.
- Trial versions of software are important for users to assess the effectiveness of the software.

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ESTABLISHING THE RELIABILITY OF AN INSTRUMENT TO MEASURE STUDENTS' PERCEPTION OF QUALITY SERVICE

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ABSTRACT

The purpose of this study was to establish the reliability of an instrument to measure students' perception of quality service at Historical Black College and University (HBCU). The participants included 350 students, who responded to an online student satisfaction survey over a six-year period. The researchers employed a factor analysis to determine the factors or principal components of the instrument and found an internal consistency of .977 Cranach's Alpha.

KEYWORDS: historically black colleges and universities (HBCU), student satisfaction, quality service, classroom experience, administrative experience

ESTABLISHING THE RELIABILITY OF AN INSTRUMENT TO MEASURE STUDENTS' PERCEPTION OF QUALITY SERVICE

Over the years, students expressed their opinions about the services they received from several individuals and departments in the College of Education. Their views were usually in verbal or written format, but sometimes, in silence. The latter is usually more harmful because those who are offering the service are not always cognizant of dissatisfied customers who leave quietly, but spread negative publicity publicly. In this regard, service providers must ensure that the quality of the services be of optimum quality at all times. In fact, "successful service organizations are customer driven to provide quality service as they rely upon the contributions of all organizational members to achieve stated objectives" (Emanuel & Adams, 2006, P. 537). Like the business sector, education should constantly provide quality service to all their customers.

After all, former students can be effective recruiters for the institution especially during a time when university enrolment across the country is steadily declining, and recruiting of students is becoming more and more competitive. It is therefore important that in order to have the current students assist in the recruitment exercise, whether directly or indirectly, the institution needs to provide quality service to the student body. It is for this reason that Nadiri, Kandampully, and Hussain (2009) stated that educational eminence measures pupil satisfaction. Indeed, students should be the main clients of any institution. If there are no students, then certainly, there is no school. This is why it would be advantageous for administration faculty and staff to treat students with the best service possible. Extending quality services to the students will produce positive relationships (Ahmed et al., 2010). This however, does not mean the administration, faculty and staff, should compromise the standard of the institution in order to please the students. It is essential to keep in mind that there are laws and guidelines that must be adhered to and penalties for breaking these laws.

Nevertheless, "in order to attract students, serve their needs and retain them, higher education providers are actively involved in understanding students' expectations and perceptions of service quality" (Nadiri, Kandampully, & Hussain, 2009, p. 523). It is extremely important that colleges provide quality service to their students. Although there is no empirical evidence that shows providing quality service for students will keep them in college, satisfaction with the service provided can make a big difference (Parasuraman, Zeithaml & Berry, 1996).

Hence, providing quality service for students is one way to keep them in college. The fact is that graduation rates are on the decrease while enrolments are on the increase (only for Hispanic population). College administrators have a responsibility to ascertain the reason students are leaving college prematurely (Kelly, Lavergne, Boone, & Boone, 2012), and if it turns out to be the quality of service, then administrators must do something about the services.

LITERATURE REVIEW

Regardless of how good any service is, there will always be disgruntled customers who complain. This is no different in the college system. Nevertheless, college administrators must ensure that the institution provides quality service to the students at all times. Students are the best recruiters since they usually tell others about the programs and their experiences during their tenure at the institution. Reichheld (2003) also agreed that when costumers are satisfied with the service and treatment they receive, they would be more than willing to purchase extra products and services. Those customers are also willing to extend encouraging word-of-mouth recommendations to other potential customers to bring in new ones.

Consequently, having students as recruiters would follow the same premise. If students are not satisfied with the quality of services they receive, they will not spread any news about the college and the university in general. Even though Reason, Terenzini, and Domingo (2007) revealed that students' insights of the support of their institution's setting positively connected to an increase in their social and personal capability, student recruiters can eventually affect the institution's future growth in terms of enrolment. There are universities that seek to increase enrolment and are forming partnerships with our majors and leveraging the student's relationships. Others are even forming connections with company recruiters to address the problem (Koch & Kayworth, 2009).

While there are heightened efforts in attracting and retaining student customers, today institutions are also dealing with students who may view the world differently from their predecessors. Some students enter college without ever having the opportunity to face adversity on their own, and as a result, they fail to develop skills in facing challenges that will serve them in life. Students from the millennial generation frequently see themselves as unique, and they often have very specific expectancies that their needs/wants will be met.

Good customer service is expected from all members of faculty and staff and not just administration. The fact is that in most cases students have closer interactions with faculty and support staff than they have with administration. Students spend more time with their instructors than they do with the support staff and administration.

FACTORS THAT INFLUENCE STUDENTS' SATISFACTION

Students' satisfaction can take on several forms, which are very important in determining the quality of service offered students. Remember, that in the College of Education, students are the main customers and if those customers are not satisfied with the services provided, very soon they might leave. In addition, some of these students might endure to complete their degrees but they will not encourage anyone to come to the college to pursue their studies. The underlying foundation for this study will take on the factors that determine students' satisfaction. These factors form the framework for this study. The factors include:

- Administrative services
- Classroom experience
- Quality services
- Students' satisfaction

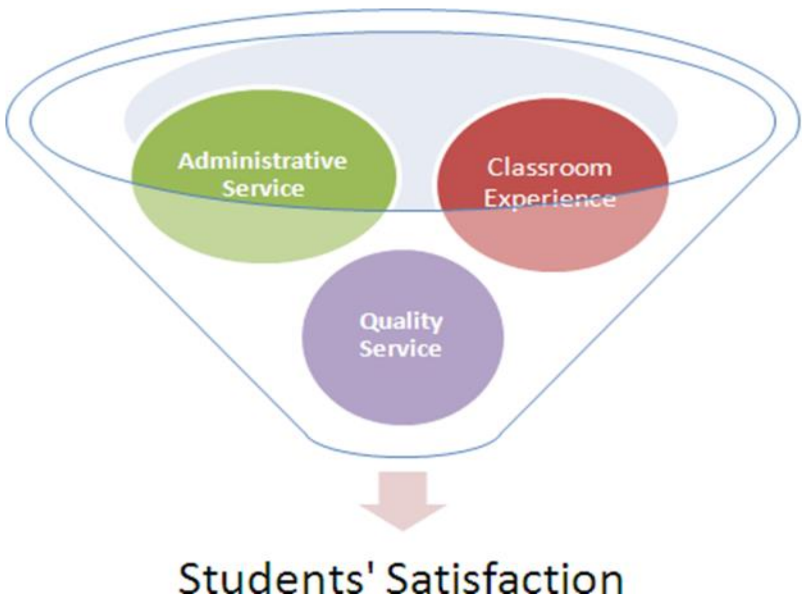

Figure 1: Factors that influencing students' satisfaction

ADMINISTRATIVE SERVICES

Usually the administrative supports are the first and most frequent services students get when they enter the college. This can be from the assignment of advisors, setting up appointments for advisors, providing guidance with degree plans, and just meeting the daily needs of students. In addition to many duties, some administrative staff members do not directly have contact with students but play a very crucial role in the services (Arena, Arnaboldi & Azzone, 2010) that the college provides for its students. According to Dado, Petrovicova, Riznic and Rajic (2011), one of the mistakes some administrative officers make is that they are reluctant to treat students as customers. In education students are our clients and therefore we must treat them with the highest level of respect by all.

CLASSROOM EXPERIENCE

The classroom experiences of college students are very important to their whole stay in the institution. Barfield (2003) believed that "college classroom creates various instructional, learning and social communication advantages" (p. 356). Some teachers in the classroom just stick to the core curriculum that they teach. Although students are responsible for their own learning, it is the teachers' responsibility to create that learning experience for the students. To support this claim, Race & Pickford (2007) indicated that excellent learning must evidence excellent teaching. The bottom line is that the college, through the teachers, must facilitate students so they are satisfied with the classroom experience during their tenure with the college. These satisfied students will eventually spread the news about the quality of service with the college.

QUALITY SERVICES

The quality of service can dictate the efficiency and the longevity of the college.

Importantly, "the quality of education is the capability of students' knowledge to satisfy stated requirements set by employers, accrediting bodies, professional societies" (Karapetrovic & Willborn, 1997, p. 287). This is extremely essential because even though students are the main customers of the college, they are the product produced by the college for the market. Therefore, the employers of the students are the judge of the quality of service provided by the college. In the same way, most quality efforts observed in higher education to date have focused on non- academic areas (Quinn, Lemay, Larsen & Johnson, 2009).

STUDENTS' SATISFACTION

The culmination of students' satisfaction in education is the ability of the college to offer quality service to the students. When administrative services are at their best and the classroom experience is enriched with the quality of services provided by the college, this will enhance students' satisfaction and encourage them to offer high ratings on their evaluations and encourage prospective students to enroll. According to Round (2005),

> Accurate expectations are consistently associated with good adjustment and satisfaction. Expectations and satisfaction with experience show correlations in specific areas, such as workload, time management, social adjustment and teaching methods. However, students' expectations of academic interactions with staff, rather than of the personal qualities of staff seem to determine their perceptions of staff approachability. Students generally feel quite well prepared for university, although the majority feels that their preparation was acceptable or adequate rather than very good (p. 6).

It is quite natural for the college administration to recognize that providing quality service for students can only be an asset to the college. Satisfied students usually sell the institution in such a way that it increases the enrolment.

METHODOLOGY

In an effort to understand students' perceptions of quality services offered by a HBCU, a number of questions were developed based on the literature that addresses several areas related to student satisfaction. The instrument is a five-point Likert-type rating scale, ranging from strongly agree to strongly disagree. It measured students' level of satisfaction of the quality of service within various sections of the college. Some of these sections ranged from satisfaction with the instructor teaching style, facilities, technology, and many more. The study includes a sample of 350 students who were randomly selected from a number of participants who responded to an online survey over a six-year period.

RESULTS

The data for this exploration were collected from a sample of 350 participants. The ethnic composition of the 350 participants were, 85.4% (n = 299) African Americans, 4.3% (n = 15) Hispanics, 5.7% (n = 20) Whites, and 4.3% (n = 15) Others (0.3%, n = 1 missing data). In terms of gender, there were 22.6% (n = 79) females and 75.1% (n = 263) males (2.3%, n = 8 missing data). The majority of the participants were graduate level students (73.7%, n = 258), followed by seniors (18.3%, n = 64), then juniors (4.6%, n = 16), and sophomore (3.1%, n = 11) -- one missing data (0.3%, n = 1).

In order to extract the major components of the survey, we employed an Exploratory Factor Analysis with Varimax rotation as our data reduction technique. The Varimax rotation is an orthogonal rotation which assumes that the factors are uncorrelated. To determine the number of factors to retain, we used the number eigenvalues greater than one. The eigenvalues indicate how much of the variance in the data is explained by the factors. We also observed the scree plot (see figure 2) which shows three factors on the curve before the line flattens. Thus, we retained three factors.

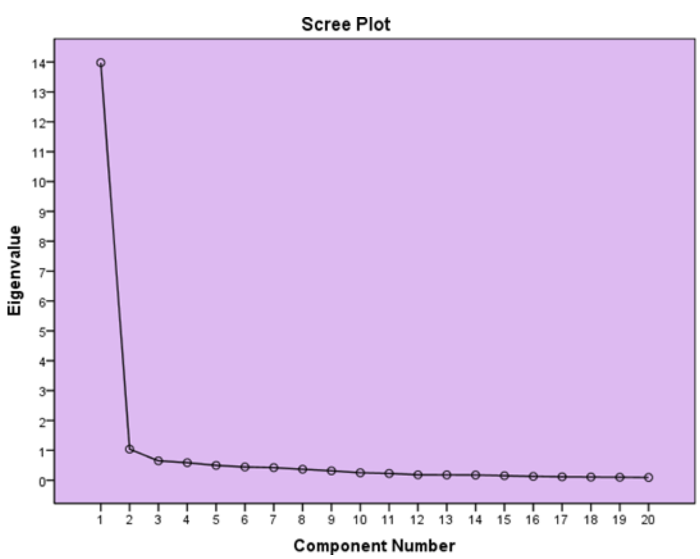

Figure 2: Scree Plot

Subsequently, we reviewed the factor loadings which are an indication of the strength and direction of the factors on the variables – thus how strongly the factors influence the variables.

To group the variables into factors we used the factor loadings that were 0.5 or greater. In order to ascribe labels to the resulting three factors we used our conceptual framework of factors that influence students' satisfaction – Administrative services, Classroom Experiences, and Quality Services. Then we examined the patterns of the factors to identify which variables or items had factor loadings above 0.5 for the three factors. These were the variables or items that clumped together to constitute the three factors: Administrative services (8 items), Classroom Experiences (9 items), and Quality Services (3 items, see figure 3).

To establish the reliability of the overall instrument and the subscales (factors) we computed Cronbach's Alpha Reliability Coefficients. The overall Cronbach's Alpha Coefficient was .977 for the 20 items survey. For the subscales, Administrative Services, Classroom Experience, and Quality Services, the reliability coefficients were .956, .963, and .866, respectively (see Table 1). Explicitly, the over survey and the three subscales have very high reliability coefficients, thus making the survey very reliable.

Table 1: Reliability Statistics

Scale	Cronbach's Alpha	# of Items
Administrative Services	.956	8
Classroom Experience	.963	9
Quality Services	.866	3
Overall	.977	20

CONCLUSIONS

With a valid and reliable instrument, college administrators can better understand the adult learner and find some of the reasons they leave a program before completion. College graduation rates are on the decline and if administrators can identify these areas, then they will know how to cater to the needs of the students, which will help to retain them in college. Because students are the main clients of any institution, administers will have an instrument to measure how students feel about the quality of services offered by the college.

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ACCOUNTING AUTOMATION TOOLS AND THEIR EFFECTIVENESS IN MITIGATING FRAUD IN THE BANKING SECTOR of NIGERIA

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ABSTRACT

This study explores the effectiveness of accounting automation tools in mitigating fraud within the banking sector, with a focus on Nigerian banks. Given the increasing prevalence of financial fraud and the adoption of technological solutions, this research aims to assess how automation tools, such as Robotic Process Automation (RPA), Artificial Intelligence (AI), Machine Learning (ML), and Blockchain, can help reduce fraudulent activities in financial operations. The study employs a descriptive survey research design, utilizing a sample of 400 respondents from various banks across Nigeria. The research investigates the most commonly used automation tools, their perceived effectiveness in fraud detection and prevention, and the challenges faced by banks in implementing these technologies. The findings reveal that RPA and AI-based tools are the most widely adopted, with respondents highlighting their effectiveness in identifying fraudulent transactions. However, challenges such as high implementation costs, lack of skilled personnel, resistance to change, integration with legacy systems, and data security concerns were identified as significant barriers to the widespread use of automation tools. Despite these challenges, the majority of respondents believe that automation tools are crucial in reducing fraud and enhancing operational efficiency. The study concludes with several recommendations for Nigerian banks, including investing in staff training, addressing integration issues, ensuring robust cybersecurity measures, and fostering a culture of acceptance toward technological change. The research provides valuable insights into how accounting automation tools can be leveraged to strengthen the banking sector's ability to detect and prevent fraud, contributing to the overall financial stability and trustworthiness of the sector.

KEYWORDS: Accounting automation, fraud detection, fraud prevention, banking sector

Introduction

The banking sector plays a pivotal role in the economic stability and growth of any nation, serving as a custodian of financial resources and a facilitator of economic transactions. However, this sector is highly susceptible to fraudulent activities, which can undermine financial institutions' trustworthiness and profitability. As technological advancements continue to reshape industries, the integration of accounting automation tools has emerged as a significant development in combating fraud. These tools leverage machine learning, artificial intelligence (AI), and data analytics to detect anomalies and prevent fraudulent transactions.

In recent years, financial institutions have faced increasingly sophisticated fraud schemes. According to the Association of Certified Fraud Examiners (ACFE), occupational fraud causes global losses amounting to billions of dollars annually, with the banking and financial services sector being one of the most affected industries (ACFE, 2022). The advent of automation tools such as robotic process automation (RPA), forensic accounting software, and AI-driven fraud detection systems has offered new avenues for mitigating these challenges. These tools enhance accuracy, reduce human errors, and provide real-time monitoring of financial activities.

Fraudulent activities in the banking sector have become more frequent and intricate, driven by the digitization of financial services and the increasing volume of online transactions. Traditional manual accounting systems and fraud detection methods often fail to keep pace with these evolving threats, leading to significant financial and reputational losses. Despite the potential of accounting automation tools to mitigate fraud, their effectiveness remains under-researched, particularly in understanding how these tools perform in diverse banking environments. This gap in research raises concerns about the extent to which automation tools can replace or complement traditional fraud prevention mechanisms.

Objectives of the Study

The study aims to investigate the effectiveness of accounting automation tools in mitigating fraud within the banking sector. The specific objectives are:

1. To identify commonly used accounting automation tools in the banking industry.
2. To assess the impact of these tools on fraud detection and prevention.
3. To examine the challenges associated with implementing automation tools in banking.

Research Questions

The study seeks to address the following questions:

1. What are the most commonly utilized accounting automation tools in the banking sector?
2. How effective are these tools in detecting and preventing fraud?
3. What challenges do banks face when implementing accounting automation tools?

Literature Review

Accounting Automation

The prevalence of fraud in the banking sector has driven financial institutions to adopt sophisticated technological tools, such as accounting automation systems, to mitigate fraud risks. This chapter critically examines existing literature on the role of accounting automation tools in detecting and preventing fraud in the banking sector. The review is structured into theoretical frameworks, types of tools, their applications, benefits, challenges, and emerging trends. Accounting automation has emerged as a transformative force in financial management, leveraging advanced technologies to streamline processes, enhance accuracy, and mitigate risks. The growing complexity of financial transactions, coupled with the need for efficient fraud detection and compliance, has driven the adoption of automation tools across industries, particularly in the banking sector. This section explores the evolution, drivers, and significance of accounting automation, setting the stage for understanding its role in mitigating fraud.

The automation of accounting processes can be traced back to the introduction of computer-based systems in the mid-20th century. Early tools, such as spreadsheets and general ledger software, marked a shift from manual bookkeeping to electronic data management. Over time, advancements in technology enabled the development of more sophisticated systems, including Enterprise Resource Planning (ERP) software and cloud-based accounting platforms.

The integration of Artificial Intelligence (AI), Machine Learning (ML), and Robotic Process Automation (RPA) in recent decades has further revolutionized the field. These technologies enable systems to process large volumes of data, identify patterns, and perform complex analyses with minimal human intervention (Davenport & Kirby, 2016). Today, accounting automation tools are integral to financial management, offering capabilities such as automated reconciliation, fraud detection, and real-time reporting.

Types of Accounting Automation Tools

Accounting automation tools have evolved significantly, offering a diverse range of technologies designed to streamline processes, enhance accuracy, and mitigate fraud risks. These tools vary in functionality, complexity, and application, catering to different needs within the financial and banking sectors. Below are some of the primary types of accounting automation tools, each playing a critical role in modern accounting practices.

Robotic Process Automation (RPA)

RPA involves the use of software robots to automate repetitive and rule-based tasks, such as data entry, transaction processing, and account reconciliation. Studies have shown that RPA can significantly reduce errors and enhance efficiency in accounting processes (Aguirre & Rodriguez, 2017). Moreover, RPA tools can continuously monitor financial transactions, flagging suspicious activities for further investigation.

Artificial Intelligence (AI) and Machine Learning (ML)

AI and ML algorithms are increasingly used in fraud detection due to their ability to analyze vast amounts of data and identify patterns indicative of fraudulent behavior. According to a study by Ngai et al. (2011), AI-based systems can detect anomalies and predict fraudulent transactions with high accuracy, thereby providing an effective tool for banks to mitigate fraud.

Forensic Accounting Software

Forensic accounting software combines traditional accounting techniques with advanced data analytics to investigate and detect financial fraud. These tools can analyze financial statements, audit trails, and transaction records to uncover irregularities and support legal proceedings. Research by Kranacher et al. (2010) highlights the role of forensic accounting software in enhancing fraud detection and supporting the prosecution of fraudulent activities.

Impact of Accounting Automation Tools on Fraud Detection and Prevention

Accounting automation tools have significantly transformed the landscape of fraud detection and prevention in the financial sector. These tools leverage cutting-edge technologies such as artificial intelligence (AI), machine learning (ML), robotic process automation (RPA), and blockchain, to automate and optimize accounting processes while simultaneously enhancing fraud prevention capabilities. By reducing human intervention, improving accuracy, and providing real-time data analysis, automation tools play a pivotal role in identifying and mitigating fraudulent activities, which have long been a major concern in the banking and financial industries.

One of the key ways accounting automation tools impact fraud detection is through real-time monitoring and data analysis. Traditional manual accounting processes often left a window for fraud to go unnoticed, either because of delays in detecting discrepancies or because of the limited ability to process vast amounts of financial data. However, automation tools can continuously monitor financial transactions and accounting activities in real-time. Machine learning algorithms can analyze patterns in transaction data and detect anomalies that may indicate fraudulent behavior. For example, AI-based systems can flag unusual account activity, such as transactions that deviate from typical patterns or involve amounts larger than usual, helping to prevent fraud before it escalates (Zhang et al., 2015).

Furthermore, automation tools, particularly those utilizing AI and machine learning, are able to learn from historical data and continuously improve their fraud detection algorithms. Unlike traditional systems that rely on predefined rules or fixed criteria, machine learning models evolve over time, adapting to new types of fraud schemes. This adaptability is crucial in an environment where fraud tactics are constantly changing. By analyzing large volumes of transactional data, these systems can identify emerging fraud patterns and enhance the predictive capabilities of fraud detection systems, making them more effective at spotting previously unknown fraud techniques (Ngai et al., 2011).

The use of Robotic Process Automation (RPA) in accounting processes also aids in fraud prevention by automating repetitive tasks that are vulnerable to human error or manipulation. RPA can handle tasks such as invoice processing, payment reconciliation, and data entry, ensuring that they are performed consistently and accurately. Since RPA systems follow predefined rules and cannot make exceptions, the risk of fraud due to human error or intentional wrongdoing is minimized. Additionally, RPA can ensure compliance with internal control protocols by automating processes according to set guidelines, making it more difficult for fraudulent activities to slip through the cracks (Aguirre & Rodriguez, 2017).

Blockchain technology, which is widely used in accounting automation, further strengthens fraud prevention mechanisms. The inherent transparency and immutability of blockchain ensure that all financial transactions are recorded in a decentralized and secure ledger. Once a transaction is recorded on the blockchain, it cannot be altered or tampered with without altering the entire chain, making it an effective tool for preventing fraud. In banking and financial services, blockchain provides an additional layer of trust and accountability, reducing the potential for fraudulent activities such as double-spending, transaction manipulation, or unauthorized access (Tapscott & Tapscott, 2016).

Moreover, audit trails generated by accounting automation tools play a crucial role in fraud detection and prevention. These tools create detailed, time-stamped logs of every financial transaction and action taken within the system. This transparency allows auditors and financial managers to trace and verify every entry, making it more difficult for fraudulent transactions to go undetected. If any irregularities or discrepancies are found, audit trails provide a clear record that can be used for further investigation. The ability to conduct automated audits in real-time also means that discrepancies can be detected immediately, reducing the risk of fraud slipping through undetected for extended periods (Vasarhelyi & Halper, 2018).

Another significant impact of accounting automation tools on fraud prevention is their ability to improve internal controls. Automation tools ensure that financial data is processed according to pre-set rules and guidelines, reducing the likelihood of errors that can lead to fraudulent activities. Automated systems can enforce segregation of duties, for example, by ensuring that no one individual has access to both the approval and processing of payments. This reduces opportunities for collusion and increases the overall integrity of the accounting processes. Furthermore, automated systems can provide alerts or notifications when actions fall outside the established control framework, prompting immediate investigation into potentially fraudulent activities (Aguirre & Rodriguez, 2017).

In addition to these direct impacts, automation tools also contribute to greater efficiency and reduced pressure on staff, which can indirectly mitigate fraud risks. In traditional accounting systems, staff may be overwhelmed with routine tasks, increasing the likelihood of errors, oversights, or even intentional wrongdoing. By automating time-consuming processes, employees can focus on higher-value activities, such as decision-making and strategic planning. This reduction in manual workload not only enhances productivity but also minimizes the stress and fatigue that can sometimes lead to ethical lapses or fraudulent behavior (Kotter, 1996).

Despite the advantages, it is important to recognize that the implementation of accounting automation tools requires careful management. While these tools significantly improve fraud detection, they are not foolproof. Fraudsters may still attempt to bypass automated systems or exploit vulnerabilities in the technology. Therefore, it is essential for organizations to regularly update and refine their automation tools, invest in employee training, and integrate these tools within a broader risk management framework to ensure their continued effectiveness in preventing fraud (PWC, 2022).

Thus, accounting automation tools have a profound impact on fraud detection and prevention in the banking sector. By automating processes, providing real-time data analysis, enhancing transparency, and strengthening internal controls, these tools help organizations identify and mitigate fraudulent activities before they can cause significant harm. As fraud schemes continue to evolve, the adoption of advanced automation technologies will be crucial in staying one step ahead of fraudsters and maintaining the integrity of financial systems.

Challenges in Implementing Accounting Automation Tools

Despite the numerous benefits of accounting automation tools, their implementation is often fraught with challenges that can hinder their effectiveness. These challenges arise from technological, organizational, and financial constraints, as well as concerns related to data security and employee adaptability.

One of the most significant challenges is the **high cost of implementation**. The initial investment required to purchase, customize, and integrate automation tools can be substantial, especially for small and medium-sized enterprises (SMEs). This cost includes not only the price of the software but also associated expenses such as infrastructure upgrades, staff training, and ongoing maintenance. For many organizations, these expenses can be a major deterrent, particularly in resource-constrained environments (Aguirre & Rodriguez, 2017).

Another challenge lies in the **technological complexity** of integrating automation tools with existing systems. Many banks and financial institutions still operate on legacy systems that are incompatible with modern automation technologies. Upgrading these systems or ensuring seamless integration often requires technical expertise, which may not be readily available in-house. Moreover, the risk of disruptions during the transition phase can discourage organizations from adopting these tools (Vasarhelyi & Halper, 2018).

Resistance to change among employees is another obstacle to implementing accounting automation tools. Employees may perceive automation as a threat to their job security, leading to reluctance or outright opposition. This resistance is often compounded by a lack of familiarity with the new technologies, which can create a steep learning curve. Effective change management strategies, including transparent communication and comprehensive training programs, are essential to address these concerns and facilitate smoother adoption (Kotter, 1996).

Data privacy and security concerns also pose a significant challenge. Automation tools handle sensitive financial data, making them prime targets for cyberattacks. The potential for data breaches not only undermines trust in the system but also exposes organizations to regulatory penalties under laws such as the General Data Protection Regulation (GDPR). Ensuring compliance with data protection standards and investing in robust cybersecurity measures are critical to addressing these risks (GDPR, 2018).

Additionally, organizations face the challenge of **limited scalability and customization** in some automation tools. Off-the-shelf solutions may not fully address the specific needs of a banking institution, leading to inefficiencies or gaps in functionality. Customizing these tools to meet unique organizational requirements often incurs additional costs and time, further complicating their implementation (PWC, 2022). Lastly, **cultural and structural barriers** within organizations can impede the successful implementation of automation tools. In traditional banking environments, decision-making processes may be slow, and there may be resistance to adopting new methodologies. Overcoming these barriers requires strong leadership, a clear vision, and a commitment to fostering a culture of innovation and adaptability (Kotter, 1996).

While these challenges are substantial, they are not insurmountable. By adopting strategic approaches to implementation, including phased rollouts, stakeholder engagement, and prioritizing cybersecurity, organizations can mitigate these obstacles and fully leverage the benefits of accounting automation tools in mitigating fraud and enhancing operational efficiency.

Methodology

This study employs a descriptive survey research design to examine the effectiveness of accounting automation tools in mitigating fraud within the banking sector. The target population consists of banking institutions that have implemented automation tools and banking professionals involved in fraud detection, prevention, and automation processes. A sample of 400 respondents will be selected using a multistage sampling technique to ensure comprehensive representation. The study will begin by dividing Nigeria into key regions with significant banking activity. The regions will be selected based on factors such as the presence of major commercial banks and the extent of automation tool adoption in fraud management. Within each region, the respondents will be categorized into three strata: banking executives and decision-makers (such as risk managers and compliance officers), IT professionals who implement automation tools, and fraud prevention specialists. This will allow for a well-rounded understanding of how various roles perceive the effectiveness of accounting automation tools. A proportional number of respondents will be selected from each stratum to ensure representation across all relevant stakeholders in the banking sector. The data collection will be carried out through a structured questionnaire designed to capture respondents’ perceptions of automation tools' effectiveness in detecting and preventing fraud. The questionnaire will consist of closed-ended questions measured on a 5-point Likert scale, ranging from “Strongly Agree” to “Strongly Disagree.” The questionnaire will be pre-tested for clarity and relevance, with expert reviews by professionals in banking, finance, and automation to ensure content validity. A pilot study will be conducted in a neighboring city with 30 participants to refine the instrument. Based on the feedback from the pilot study, adjustments will be made to the questionnaire. The reliability of the instrument will be assessed using the Cronbach's alpha coefficient, with a targeted value of 0.80 or higher, which indicates acceptable reliability. Data gathered from the questionnaires will be analyzed using descriptive statistics (such as frequencies, percentages, and means) to summarize the overall trends in automation tool usage. Inferential statistics, including regression analysis and correlation tests, will be used to assess the relationships between automation tool adoption and the reduction of fraud incidents in Nigerian banks.

Result and Discussion

Analysis of respondent demographic variables

Demographic Variable	Category	Frequency (N=400)	Percentage
Gender	Male	250	62.5%
	Female	150	37.5%
Age Group	18-30 years	120	30%
	31-40 years	150	37.5%
	41-50 years	80	20%
	51 years and above	50	12.5%

Demographic Variable	Category	Frequency (N=400)	Percentage
Educational Qualification	Bachelor's Degree	250	62.5%
	Master's Degree	100	25%
	Doctorate Degree	20	5%
	Others (Diploma, Certification)	30	7.5%
Work Experience	Less than 5 years	100	25%
	5-10 years	150	37.5%
	11-20 years	100	25%
	More than 20 years	50	12.5%
Position	Junior Staff	100	25%
	Mid-Level Staff	150	37.5%
	Senior Management	100	25%
	Executive Management	50	12.5%

The majority of the respondents were male (62.5%), while 37.5% were female, indicating a relatively higher male participation in the study. Age Group: The largest group of respondents were aged 31-40 years (37.5%), followed by 18-30 years (30%). This suggests that the majority of participants were in the prime of their careers, likely to be involved in decision-making and the adoption of automation technologies. Educational Qualification: The majority of respondents held a Bachelor's degree (62.5%), with a smaller proportion holding Master's degrees (25%) or Doctorate degrees (5%). This suggests that the respondents were relatively well-educated, which could influence their understanding and adoption of accounting automation tools. Work Experience: A significant portion of respondents (37.5%) had 5-10 years of work experience, while 25% had less than 5 years of experience. This indicates a balanced mix of newcomers and more experienced professionals in the study sample. Position: Most respondents were mid-level staff (37.5%) or junior staff (25%), followed by senior management (25%) and executive management (12.5%). This distribution reflects a cross-section of staff at various levels within the banks, providing insights into how automation tools are perceived across different hierarchical levels.

Research question One: What are the most commonly utilized accounting automation tools in the banking sector?

Table 2: percentage analysis of most commonly utilized accounting automation tools in the banking sector

Theme/Category	Response Item	Frequency (N=400)	Percentage
Robotic Process Automation (RPA)	Used to automate repetitive accounting tasks and data entry processes.	180	45%
Artificial Intelligence (AI)	AI tools used for detecting fraud patterns and automating decision-making processes.	150	37.5%
Machine Learning (ML)	ML tools for predicting and preventing fraudulent activities through data analysis.	120	30%
Blockchain Technology	Used for securing transactions and ensuring data integrity in accounting.	80	20%
Enterprise Resource Planning (ERP)	ERP systems integrated with accounting automation tools to streamline financial reporting and compliance.	100	25%

In Table 2, Robotic Process Automation (RPA) emerged as the most commonly utilized automation tool, with 45% of respondents indicating its use. Artificial Intelligence (AI) and Machine Learning (ML) were also highly reported, reflecting their growing role in fraud detection and prevention. Blockchain technology, although more niche, was mentioned by 20% of respondents for its role in securing accounting processes and transaction verification. ERP systems integrated with automation tools were reported by 25% of respondents, showing their utility in streamlining accounting tasks.

Research question two: How effective are these tools in detecting and preventing fraud?

Table 3: percentage analysis of effectiveness tools used in detecting and preventing fraud

Theme/Category	Response Item	Frequency (N=400)	Percentage
Highly Effective	Tools are highly effective in preventing and detecting fraud with minimal errors.	180	45%
Moderately Effective	Tools show a moderate level of effectiveness but require continuous optimization.	150	37.5%
Somewhat Effective	Tools have some effectiveness, but manual intervention is still necessary.	50	12.5%
Ineffective	Tools have limited impact on fraud detection and prevention.	15	3.75%
Uncertain/No Opinion	Respondents were unsure about the effectiveness of the tools.	5	1.25%

In Table 3, 45% of respondents rated the tools as highly effective in detecting and preventing fraud, indicating a strong belief in their ability to reduce fraud risk. 37.5% of respondents viewed the tools as moderately effective, highlighting that while the tools are useful, there is still room for improvement. A small percentage (12.5%) of respondents reported that the tools were somewhat effective, emphasizing that manual oversight remains a crucial part of fraud prevention. A very small group (3.75%) found the tools to be ineffective, suggesting that the technology has not yet fully met expectations for fraud reduction in certain cases. A negligible portion (1.25%) of respondents were uncertain or did not have an opinion on the effectiveness of the automation tools.

Research question three: What challenges do banks face when implementing accounting automation tools?

Table 4: percentage analysis of challenges do banks face when implementing accounting automation tools

Theme/Category	Response Item	Frequency (N=400)	Percentage
High Implementation Costs	The cost of adopting and integrating automation tools is a major barrier.	200	50%
Lack of Skilled Personnel	There is a shortage of trained professionals to manage and operate automation tools.	180	45%
Resistance to Change	Employees are resistant to adopting new technologies due to fear of job loss or disruption.	150	37.5%
Integration with Legacy Systems	Difficulty in integrating new automation tools with existing accounting systems and infrastructure.	160	40%
Data Security and Privacy Concerns	Concerns regarding the security of sensitive financial data when using automation tools.	120	30%

In Table 4, 50% of respondents highlighted high implementation costs as a significant challenge, indicating that the financial burden of adopting and maintaining automation tools is a major concern for banks. 45% of respondents mentioned the lack of skilled personnel to manage and operate automation tools effectively. This indicates that banks may struggle with finding or training employees with the necessary technical expertise. 37.5% of respondents identified resistance to change as a major hurdle. Many employees are wary of automation due to concerns about job security or fear of disrupting traditional work processes. 40% of respondents noted difficulties in integrating automation tools with legacy systems, indicating that older accounting infrastructure may not be compatible with newer technologies, thus hindering smooth implementation. 30% of respondents expressed concerns about data security and privacy, underscoring the potential risks to sensitive financial information when automation tools are integrated into banking operations.

Discussion of Findings

The study found that the most commonly utilized accounting automation tools in Nigerian banks are Robotic Process Automation (RPA), Artificial Intelligence (AI), Machine Learning (ML), Blockchain, and Enterprise Resource Planning (ERP) systems. Among these, RPA was identified as the most frequently used tool, with 45% of respondents reporting its use. RPA is especially useful in automating repetitive and manual accounting tasks, such as data entry and transaction reconciliation, which significantly reduces the risk of human error and fraud (Aguirre & Rodriguez, 2017). The adoption of AI and ML for fraud detection was also highlighted, with 37.5% of respondents indicating their use. AI and ML algorithms can analyze vast amounts of data, identify suspicious patterns, and detect fraudulent activities that may otherwise go unnoticed (Ngai et al., 2011). These technologies are increasingly critical in modern fraud detection systems because of their ability to learn from data and continuously improve their accuracy over time. Blockchain technology (20%) was cited less frequently, though it is gaining recognition for its potential to enhance data security and ensure the integrity of financial transactions (Tapscott & Tapscott, 2016). The fact that only 20% of respondents reported using blockchain may reflect its still-niche status in the Nigerian banking sector, though its potential is widely acknowledged.

The study’s findings revealed that accounting automation tools are highly effective in fraud detection and prevention, with 45% of respondents rating them as highly effective. This aligns with the findings of previous studies that highlight the success of automation in reducing fraud in financial operations. RPA, in particular, reduces the likelihood of human errors, and AI and ML provide sophisticated fraud detection capabilities by recognizing anomalous transactions that may indicate fraudulent behavior (Vasarhelyi & Halper, 2018). Despite the positive responses, 37.5% of respondents considered these tools to be moderately effective, suggesting that while the tools do provide value, they may require continuous refinement and optimization to reach their full potential. This finding mirrors the reality that no single tool is perfect, and ongoing monitoring and adjustment are needed to address emerging fraud tactics (Ngai et al., 2011). A smaller percentage of respondents (12.5%) noted that the tools were somewhat effective, emphasizing that manual oversight is still necessary. This reflects a critical challenge in banking: automation tools, though highly beneficial, cannot completely replace human judgment, especially in complex or ambiguous fraud detection scenarios (Aguirre & Rodriguez, 2017). Additionally, the findings show that a significant portion of respondents (3.75%) believed that the tools were ineffective, which may indicate issues such as poor tool implementation, inadequate training, or lack of integration with existing systems.

The challenges faced by banks in implementing accounting automation tools align with those found in the broader literature on technology adoption in the banking sector. High Implementation Costs (50%): The substantial cost of acquiring and maintaining automation tools remains a significant barrier. As noted by Vasarhelyi and Halper (2018), the initial investment required for automation technologies can be prohibitive, especially for smaller banks with limited budgets. The costs not only include the tools themselves but also training, integration, and system maintenance, which can be a significant financial burden. Another key challenge highlighted in the study was the shortage of skilled professionals who can manage and operate these complex systems. The adoption of advanced accounting automation tools requires expertise in both finance and technology, which many banks struggle to find (Aguirre & Rodriguez, 2017). This shortage of skilled personnel can hinder the effectiveness of automation tools, as poorly trained staff may fail to leverage the full potential of the technology.

Conclusion

In conclusion, accounting automation tools, such as RPA, AI, and ML, are perceived as highly effective in mitigating fraud within the banking sector. However, challenges such as high costs, lack of skilled personnel, and resistance to change continue to hinder their full adoption. These findings underscore the importance of addressing the organizational, technical, and financial barriers to automation implementation in the Nigerian banking sector. Further research is needed to explore the long-term impact of these tools on fraud prevention and the overall financial stability of banks.

Recommendations

Based on the findings from this study on the effectiveness and challenges of accounting automation tools in mitigating fraud in the banking sector, several recommendations can be made to enhance the successful implementation and optimization of these tools in Nigerian banks:

To address the challenge of **lack of skilled personnel,** banks should invest in comprehensive training and development programs. These programs should focus on enhancing employees' technical skills related to automation tools such as Robotic Process Automation (RPA), Artificial Intelligence (AI), Machine Learning (ML), and Blockchain technology. By upskilling the workforce, banks can ensure that employees are equipped to manage and operate these advanced tools effectively. Training should be continuous, keeping pace with technological advancements and evolving fraud patterns.

Given the **resistance to change** identified in the findings, banks must develop and implement strong **change management strategies** to facilitate smooth transitions when adopting new automation technologies. Change management should focus on minimizing employee resistance by clearly communicating the benefits of automation, emphasizing how automation tools enhance productivity and reduce human error, rather than replacing jobs.

Banks can also offer employee incentives, recognition programs, and transparent communication channels to ensure that all stakeholders feel involved in the transition process. Engaging employees early on, addressing concerns, and providing reassurance about job security are essential steps for fostering acceptance of new technologies.

Banks should also work closely with technology providers to ensure that the automation tools they adopt are compatible with existing systems and that integration is streamlined. A thorough **systems audit** can help banks identify integration challenges early on and plan accordingly.

Banks must ensure that all automation tools comply with local and international data protection regulations (such as Nigeria’s Data Protection Regulation, NDPR, or the EU’s GDPR) to safeguard customer information and build trust with their clients. Regular audits and updates to security protocols are crucial to addressing emerging cybersecurity threats.

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COMMUNICATION AS MECHANISM AGAINST CRISIS: A SEMIOTIC APPROACH ON WHAT MANAGERS SHOULD LEARN FROM HABERMAS THEORY OF COMMUNICATIVE ACTION

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ABSTRACT

An organization is a conglomeration of individual cultural practices and not just a system of human beings acting and interacting with each other (Dy, 1997). This communion can either result to thought conflict or agreement. Presently, conflict is more observed within the organization. In response, this critical action research aimed to situate Habermas' communicative action among leaders' role in unifying organizations. Semiotic analysis found that Habermas emphasized dialogue and open communication as unifying agents for interpersonal relationship and solidarity within the organization. He clarified that leaders should consider the organization as an integral part of family relationship where every member is heard equally. Moreover, empowerment and encouragement among members of the organization were emphasized as contributory factors to strengthen the organization. Lastly, competent leaders systematically and orderly organized and deliberate things along with the other members in the organization. Hence, leaders' self-reflection and effective communication provides a better way of social and organizational formation and transformation. Leaders, therefore, must equip themselves with the necessary skills and techniques on communicative administration for the good of the organization. There is a must to change the view of society born from labor into a society which grows from interaction of people living and dreaming together.

KEYWORDS: Sociology, communication, organization, management, critical analysis

1.0 Introduction

Understanding the social structure provides us with a better analysis on the society's cultural practices. It further provides us a picture of how social relations interact in the socialization process within a social structure. This reflects the reality that society is not just a mere conglomeration of individuals in a situation but a system or systems of human beings acting and interacting with each other (Dy, 1997) in a productive process. Many sociological experts and social scientists viewed these interactions of individuals differently. Movements and developments of society were interpreted through various sociological perspectives – functional, structural or conflict. Famous among others in the field of social evolution is Karl Marx (2011).

Marx's emphasis is on class conflict as constituting the dynamics of social change, his awareness that change was not random but the outcome of a conflict of interests, and his view of social relations as based on power. He stressed that the force transforming latent class membership into a struggle of classes is class interest. Out of similar class situations, individuals come to act similarly. They develop mutual dependence, a community, a shared interest interrelated with a common income of profit or of wages. From this common interest classes are formed, and for Marx, individuals form classes to the extent that their interests engage them in a struggle with the opposite class. His was a conflict view of modem (nineteenth century) society (Rummel, 1977). However, upon deep reflection, Jürgen Habermas, a 20th century philosopher, formulated his own perspective on social development different from that of Marx. Habermas (2001) introduced his own theory – the theory of communicative action – which tries to explain the development of society in a more rational way. He emphasized on the importance of communication for social cooperation and development.

Moreover, the distinguishing feature of the human species for Marx is that it uniquely raises itself above nature by virtue of the fact that human beings produce their own means of material subsistence. In other words, human society materially reproduces itself—developing the means to clothe, house, and feed itself—by engaging in social cooperation in the struggle to conquer the forces of nature (Owen 2002). Being in the competitive world where chaos and a lot of misunderstandings reign, it is but proper for leaders and managers to think for better ways to develop deep communication for better understanding and cooperation among members in the organization. It is almost a daily experience that because man is competitive by nature, influence and manipulation rule over equal integration of opportunities. It is then very important for our modern leaders to learn models of peaceful integration of the various needs and demands of their constituents. Habermas provides us a simple way.

Framework of the Study

This study applies as theoretical framework the Habermassian principle of ‘communicative action’ and ‘consensus’ through deliberation and reasoning. Habermas, in his Moral Consciousness and Communicative Action, defines the concept of communicative action as follows: “Communicative action can be understood as a circular process in which the actor is two things in one: an initiator, who masters situations through actions for which he is accountable, and a product of the transitions surrounding him, of groups whose cohesion is based on solidarity to which he belongs, and of processes of socialisation in which he is reared” (Habermas, 1981). Communicative action in this sense is a type of action that Habermas says uses all the human ways of thinking, and language. This combination will allow school governance stakeholders to understand and agree with one another and to make plans for common action. The act of coming together and agreeing (communicative action) takes the place of revolution as a mode of change (Mabovula, 2010).

2.0 Methodology

This descriptive-narrative study is a critical action research which utilized all available relevant literatures of Habermas' reconstruction of Marx's Dialectical Materialism. From the identified thirty-four (34) books, articles, periodicals and journals surveyed, there are only eight (8) books, articles and journals considered as reliable and authentic source for narrative analysis. Some philosophy experts helped the identification of resources to ensure the genuineness and meaningfulness of the data.

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- Jürgen Habermas, The Theory of Communicative Action, 2 vols., trans. Thomas McCarthy (Boston: Beacon Press, 1984 and 1987) (German edition, 1981).
- Jürgen Habermas, "Toward a Reconstruction of Historical Materialism," in his Communication and the Evolution of Society, trans. Thomas McCarthy (Boston: Beacon Press, 1979), pp.130-77. (The essay was published in German in 1976.)
- Jürgen Habermas, Knowledge and Human Interests, trans. Jeremy J. Shapiro (London: Heinemann, 1972) (German edition, 1968).

Thereafter, logical investigation was made using semiotic analysis through the help of experts in the field of linguistics and philosophy. Afterwards, logical categorizations of meaning derived from the analysis were made under different heads focusing on the theme of investigation. Interpretation, description, comparison, appraisal, cross examination, and thematic analysis of different ideas or concepts in the context of major questions under consideration were also employed as a qualitative analytical technique observed by the researcher.

3.0 Results and Discussion

Habermas's View of Society/Institution

Habermas believed that we are confronted today not only by system theory's intellectual repression of the discursive structure of social life, but also by the real repression of processes of reaching understanding in favor of systemic forms of integration. Evident to this is the market or the bureaucratic state, which to a certain extent function behind the backs of the participants and achieve their ends by means of steering mechanisms. The aforementioned system, often times creates not a cooperative and productive environment, instead, it compromises individual views for the sake of bureaucracy which tries to govern individuals. Thus, Habermas tried to reconstruct society from a chaotic industrial revolution to a society evolve from the communicative aspect of each individuals. He tried to change the view of society born from labor into a society which grows from interaction of people living and dreaming together. Here in this aspect grows the value of language.

Habermas once said, "Language is a medium of domination and social force. It serves to legitimize relations of organized power" (Cooke, 1997). Here, language as a means of organizing society is not use as a power to dominate but categorized as a tool of undamaged inter-subjectivity which reconciles differences and unites visions of people within the structure. This language unifies the organization or institution into a more profound socialization which leads to a quality production. It is an action which elevates individual from being a simple mean of production in an industrialized culture as espoused by the Marxian society to a person which manages, controls and operates the mode of production.

Figure 1 reflects how Habermas as stipulated by Dy (1997) considers language as a medium of utterances for norms of production and socialization. It is the focal subject of unity in an institution. Moreover, it plays a constitutive role with regard to institutional norms and customs: it is only through the articulation of language that institutional norms and purposes can also be changed.

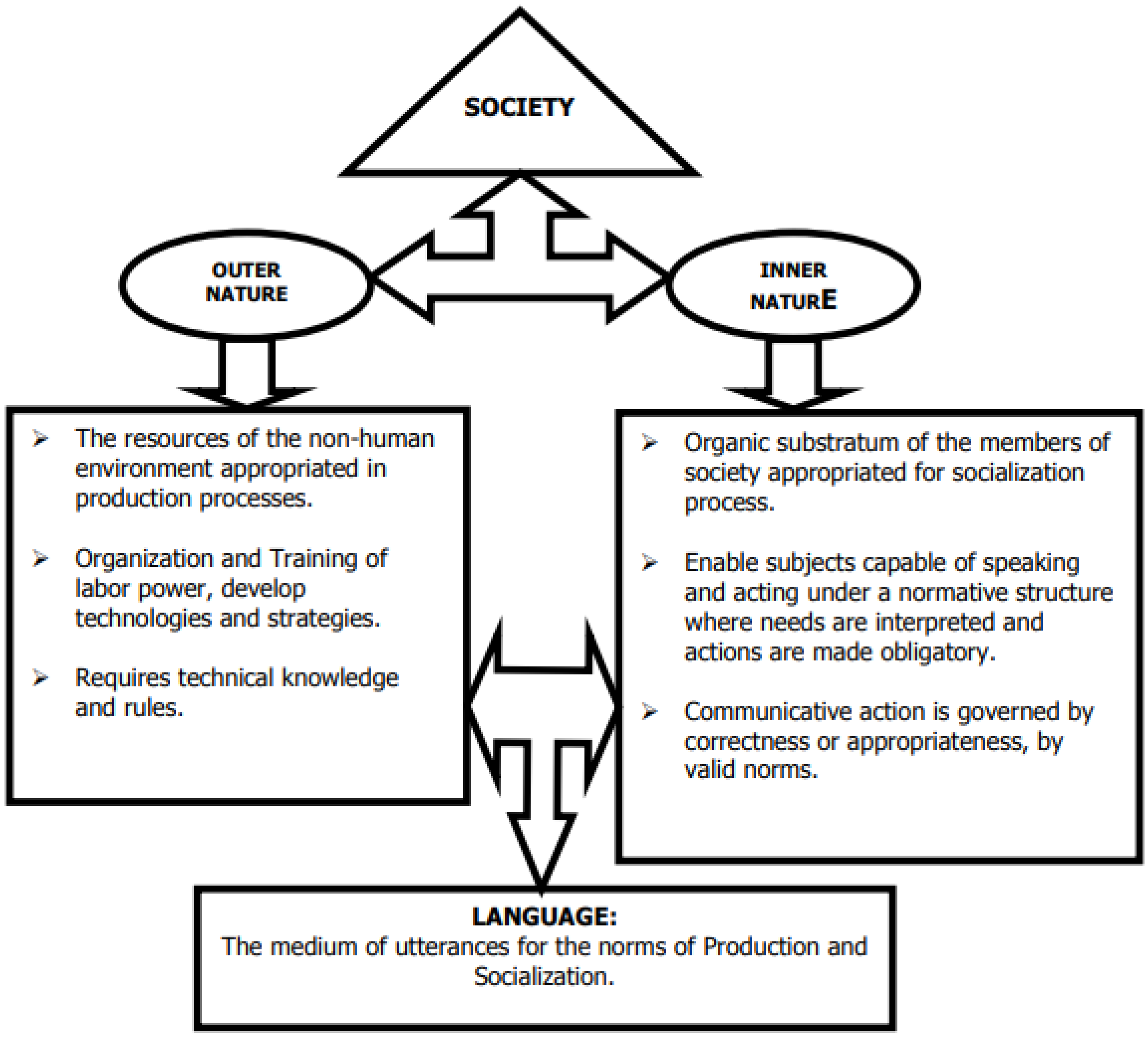

Figure. The Role of Language in the Society (Dy, 1997)

Reflected also in the diagram is the two natures of society, namely, the inner and the outer nature. The inner nature comprises the organic subject capable of speaking, acting, socializing, and communicating. This is the human environment working under a normative structure and living together under valid norms. On the other hand, the outer nature is the non-human resources necessary for production processes. This involves the needs for training, developments, technologies, strategies, rules, and technical knowledge to maintain and sustain the flow of operations and production in the society. These two natures, in the eyes of Habermas, should properly understand each other's' role through communication. In these ways, the society can live through communication on the necessary things required for development.

From this, we could say that Habermas refers society as an institution by which individuals regulate their interpersonal relationships, and by which solidarity is secured. The social integration of the lifeworld links up new situations with the life world context in the dimension of social space through language; that is, the sociocultural lifeworld supplies new situations with action coordinating functions by providing structures of legitimately regulated intersubjective relations (Owen 2002). We can therefore say that open communication and integration of needs among individuals in an organization/institution is a must for a peaceful agreement of a cause. Every working personnel differ in needs, and leaders must understand that these needs are from the inner nature of man which longs for security. It is therefore necessary for a leader to have a heart that hear the inner and outer demands of personnel and, one by one, integrate them to formulate certain programs or projects that would respond together these claims.

Moreover, Habermas tried to emphasize that understanding can only be achieve whenever there is an available space, time, and effort for personal, social, and professional conversation. Dialogue, therefore, creates a productive, dynamic, and motivated culture within the organization. Dubrin (2012) stressed that "communication has been described as the glue that holds the organization together. Effective communication is a leader's most potent tool for inspiring workers to take responsibility for creating a better future." Looking at the negative side, poor communication is the number one problem in virtually all organizations and the cause of most problems. Looking at this perspective, a communication can either strengthen or weaken organizations. A challenge therefore is for the leader to mediate and facilitate flows of communication between and among members of the organization making it sure that no other organization members are influenced, manipulated or even compromised.

Habermas's Concept on Social Labor

After a rigorous study on the different articles, books, and journals which narrates and describes Jurgen Habermas concept on social labor, the following items are the common concept which he espoused in his struggle to establish a distinction between pure labor and interaction. As reflected in the table, Habermas' concept on social labor moves away from the conflict society espoused by Marx. He emphasized a social role system that eventually comes to integrate social labor in a human society through linguistic and cultural organization. This, however, requires highly competent individuals, and is crucially dependent on the transmission of competences from one generation to the next. Thus, he maintains that the specifically human mode of reproducing life cannot be adequately described without recognizing the familial principle of organization, alongside the system of social labor. He concludes that, production and socialization are "equally" important for a human species that reproduces itself through social labor and that depends for its social integration on the interactive competences of a social role system (Fleming, 2012).

Table 1: Habermas' concept on social labor

Habermas' Concept on Social Labor	Description
Social labor is basically essential.	The development of a social labor is considered as a result of a communicative behavior. The social organization of labor and distribution precedes the emergence of linguistic communication, and this in turn results to the formation of a free social system.
Social labor is associated with family cooperation	The bond which best describes social labor is comparable to the relationship established by family bond. Jurgen Habermas explained that social labor means not only labor processes but also cooperation between individual groups. This elevates man from a consideration of pure animal to a rational being.
The structures of role behavior mark a new evolutionary threshold. Rules of communicative action cannot be reduced to instrumental strategic action (Dy, 1997).	In contexts of social action, the agent intuitively chooses between an orientation towards success and an orientation towards reaching understanding. These types of actions are exclusively defined as strategic and communicative. In strategic actions, agents' plans are coordinated through influence, and in communicative actions, they are coordinated through consensus. Of the two, consensus is preferable than influence.
Production and socialization, social labor and care of the young, are of equal importance for the reproduction of the human species (Dy, 1997).	The familial structure is fundamental for the integration of both outer and inner nature. Just as family relation and understanding are strengthened by communication, social labor are also strengthened and reinforced through clear and dynamic communication among individuals in the workplace.

On the aspect of leadership, leaders have to ensure that quality services are rendered without compromising the working conditions and relations of the personnel. Just as Habermas believes that society emerges from communication, leaders must also consider that organization grows not from forceful implementation of codes and rules but in the proper communication of goals. Moreover, the development of communicative action reminds every leader that they are part of the organization. They take the role as leaders and model in doing organizational related activities. Habermas clarified that the organization is an extension, expansion, and even considered it as an integral part of the family relationship where every member is heard and catered accordingly and equally.

Leaders, therefore, must not be coercive or compelling towards work. A leader is a true guide who empowers, encourages, and motivates other members of the organization to faithfully perform duties as a contributory factor to strengthen organization. Leaders see their constituents as not just followers, but rather as stakeholders striving to achieve that same common purpose, vision, and values. These follower and stakeholder constituents have their own individuality and autonomy which must be respected to maintain a moral community. Leader, then, embody the purpose, vision, and values of the organization and of the constituents, within an understanding of ethical ideals. They connect the goals of the organization with that of the internal employees and external stakeholders. Leaders work to create an open, two-way conversation, thereby maintaining a charitable understanding of different views, values, and constituents' opinions. They are open to others' opinions and ideas because they know those ideas make the organization they are leading better (Freeman & Stewart, 2006).

Habermas's Stages of Communication as Mechanism of Crisis

Since Habermas fight on the theory of communicative action tries to negate Marx's conflict society, he must have some processes of communication to oppose violence in crisis. After reading and examining closely the narratives of Habermas and his ideology, the following process of communication is formulated.

Table 2: Habermas' stages of communication

Stages of Communication	**Descriptive Characteristics**
Symbolically Mediated Interaction	♣ Behavioral expectations of participants are bound to their performative attitude ♣ Actions, motives and acting subjects are perceived on a single place of reality (Dy, 1997) ♣ One considers the needs of others to the extent that meeting those needs will help him fulfill his own needs
Propositionally Differentiated Speech	♣ Speaking and acting separate for the first time ♣ One can connect a performative attitude of the participant with the propositional attitude (Dy, 1997) of the observer ♣ The reciprocal behavioral expectations of participants constitutes a system of social roles ♣ Actions and norms separate
Argumentative Speech	♣ The validity claims of speech acts can be made thematic and argued upon ♣ Norms and roles appear in need of justification, their validity can be contested (Dy 1997) and grounded in principles

Habermas' stages of communication reflect the flow of conversation from being individualistic towards the achievement of a social agreement. Through a social conversation, individuals who first are bounded by his own actions and motives began to consider the needs of others as his/her own needs. This movement starts the reciprocal behavioral expectations of individuals towards a system of social roles. Finally, upon verification of argument and when validity of speeches are attained, agreement of norms and principles will now be justified and established.

A competent leader systematically and orderly organized, situate, and deliberate things on the table along with the other members in the organization. Management gurus would always emphasize that managers and leaders need to strengthen the basic skills of planning, organizing, decision making, directing, and controlling to ensure smooth operation in the organization (Barnard, 1968). These are basic skills which defines how effective and efficient the leader or manager is in taking control of the organizations' entire system of work. Habermas, however, emphasize the strong relationship between communication and action. Both are necessary skills leader must possess to facilitate differences and individualism in the organization.

4.0 Conclusion

The findings of this critical study lead towards a conclusion that leaders' selfreflection and effective communication provides a better way of social and organizational formation and transformation. For a society to develop, a mode of open communication is of vital importance for social integration. There is a must to change the view of society born from labor into a society which grows from interaction of people living and dreaming together. In this aspect, communicative leadership creates an organization that welcomes every thought of every member and considers it a unit very important for organizational development. Hence, organizational formation and transformation, just like that of any society, cannot be brought about by coercive leadership and class conflicts but by a bi-dimensional learning process. Class conflicts threaten the identity and integration of society. Learning processes may take a long span of time. In the long run, however, they are the only alternative to violence (Dy, 1997).

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NAIRA BASED TRANSACTIONS AS A TOOL FOR STRENGTHENING NIGERIA'S LOCAL INDUSTRIES AND INFRASTRUCTURES

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ABSTRACT

This study investigates the impact of Naira-based transactions on infrastructural development in Nigeria. With the growing importance of financial transactions in driving economic growth, understanding their role in infrastructure development is crucial for policymakers. Using a quantitative approach, the study examines the relationship between transaction volume, transaction type (cash vs. digital), frequency of transactions, and the GDP impact of Naira transactions on various infrastructure development indicators. The research employs Multivariate Analysis of Variance (MANOVA) to analyze data from surveys and secondary sources. Results indicate that transaction volume, frequency of transactions, and the GDP impact of Naira transactions significantly contribute to infrastructural development, while transaction type (cash vs. digital) does not have a significant effect. The findings suggest that increasing the volume and frequency of Naira transactions, as well as leveraging their GDP impact, can help drive infrastructure growth in Nigeria. Based on these results, the study recommends policies to promote transaction volumes and frequencies, as well as initiatives to further explore the economic benefits of Naira transactions for infrastructure development.

KEYWORDS: Naira Based Transactions, Strengthening, Local Industries, Infrastructures, and Nigeria

INTRODUCTION

The economic framework of any nation is built on its ability to foster local industries and enhance infrastructural development. In Nigeria, the challenge of economic sustainability has been compounded by reliance on foreign currencies, particularly the United States Dollar, for most transactions. This practice has exposed local industries to the adverse effects of exchange rate volatility, inflation, and external economic shocks. In this context, the use of the Naira for domestic transactions has emerged as a significant tool for bolstering local industries and developing infrastructure.

Nigeria's over-dependence on foreign exchange is evident in its import-dominated economy, where even the smallest goods and services are valued against foreign currencies. This situation often weakens the purchasing power of the Naira and hampers the competitiveness of local businesses. A strategic pivot toward Naira-based transactions could mitigate these challenges, promoting domestic economic activities, stabilizing the local currency, and fostering growth in local industries and infrastructure.

The role of currency in shaping economic development cannot be overstated. Scholars like Oyejide (2020) argue that a strong and stable local currency fosters economic inclusivity, reduces dependency on external financing, and encourages investment in domestic industries. The Naira, as the currency of the most populous African nation, holds the potential to drive significant economic change if utilized effectively. Through deliberate policy frameworks, it can serve as a catalyst for industrialization, infrastructural development, and economic diversification.

Statement of the Problem

Despite its vast resources and potential, Nigeria has struggled to achieve sustainable economic development. A key challenge has been the over-reliance on foreign currencies for trade, investment, and even domestic transactions. This dependency has resulted in multiple adverse effects, frequent fluctuations in the value of the Naira relative to foreign currencies create uncertainty for businesses, deterring investment in local industries (Ebi & Imoh, 2021). With foreign currency often prioritized for external debts and imports, limited resources are allocated to infrastructure projects critical to local economic growth (Adesina, 2019).

A shift to Naira-based transactions can address these issues by prioritizing local production, stabilizing the currency, and encouraging infrastructural investment. However, the existing policy and institutional frameworks have yet to fully harness this potential, leaving a gap in understanding the practical mechanisms for utilizing the Naira to strengthen local industries and infrastructure.

Objectives of the Study

The primary objective of this study is to examine the use of Naira-based transactions as a tool for strengthening Nigeria’s local industries and infrastructure. Specifically, the study aims to:

1. Analyze the impact of Naira-based transactions on the growth of local industries.
2. Evaluate the role of Naira transactions in stabilizing the local economy and currency.
3. Assess how Naira-based transactions can improve infrastructural development in Nigeria.

Research Questions

The study seeks to address the following research questions:

1. How do Naira-based transactions influence the growth of local industries in Nigeria?
2. What is the role of Naira-based transactions in stabilizing Nigeria's economy?
3. In what ways can Naira-based transactions contribute to infrastructural development in Nigeria?

Hypotheses

This study is guided by the following hypotheses:

- $\mathbf{H_{01}}$: Naira-based transactions do not significantly impact the growth of local industries in Nigeria.
- $\mathbf{H_{03}}$: Naira-based transactions do not significantly contribute to infrastructural development in Nigeria.

LITERATURE REVIEW

Naira-Based Transactions and Local Industries and Infrastructure Development in Nigeria

Naira-based transactions refer to economic activities conducted using Nigeria's local currency, the Naira, as the medium of exchange. This encompasses financial dealings in trade, investments, loans, and other commercial activities. The adoption of local currency in transactions mitigates the risks associated with foreign exchange dependency, such as currency volatility, inflation, and economic shocks (Adewumi & Ojo, 2021). The Central Bank of Nigeria (CBN) has implemented several policies to encourage Naira-based transactions, such as the cashless policy and restrictions on foreign currency usage for certain imports. These efforts aim to enhance the utility of the Naira in domestic economic activities, fostering the growth of local businesses and reducing capital flight (Olayemi, 2019).

Local industries refer to businesses that produce goods and services within Nigeria, often relying on domestic resources, labor, and markets. These industries include manufacturing, agriculture, and services, which are critical for employment generation and economic growth. The development of local industries is closely tied to the availability of affordable financing, stable economic policies, and supportive infrastructure (Ebi & Imoh, 2021). Infrastructure development encompasses the construction and maintenance of essential facilities, such as transportation networks, energy systems, and communication infrastructure. It is a fundamental driver of economic growth, enabling efficient business operations and improving living standards (Adesina, 2019). The use of local currency in financing infrastructure reduces dependence on external debt, thereby minimizing exposure to foreign exchange risks.

Challenges of Promoting Naira-Based Transactions

Currency Volatility: One of the significant barriers to Naira-based transactions is the volatility of the Naira, driven by external factors such as fluctuating oil prices and global economic trends. This instability discourages businesses from relying solely on the local currency for transactions (Olayemi, 2019).

Inflationary Pressures: High inflation rates in Nigeria erode the purchasing power of the Naira, making it less attractive for transactions. This challenge underscores the need for sound monetary policies to stabilize the currency and foster its adoption (Ebi & Imoh, 2021).

Institutional Weaknesses: Weak institutional frameworks and governance issues hinder the effective implementation of policies promoting Naira-based transactions. Corruption, inadequate regulatory enforcement, and bureaucratic inefficiencies limit the currency's role in economic development (Adesina, 2019).

Public Perception: There is a general perception among Nigerians that foreign currencies, particularly the US Dollar, are more stable and reliable than the Naira. This preference for foreign exchange undermines efforts to promote Naira-based transactions (Okonkwo & Ahmed, 2022).

Modern Monetary Theory (MMT)

Modern Monetary Theory (MMT) highlights the advantages of monetary sovereignty, arguing that countries with their own currencies can finance public projects and stimulate economic growth without relying on foreign exchange. Kelton (2020) notes that such nations can leverage their currencies to fund infrastructure and local industries, provided inflationary pressures are managed. This framework supports the idea that Naira-based transactions can be strategically employed to achieve Nigeria's economic objectives.

Empirical Review

Several studies have explored the impact of local currency transactions on industrial growth. Oyejide (2020) found that a robust local currency fosters the growth of small and medium enterprises (SMEs), which form the backbone of Nigeria's economy. By reducing reliance on foreign exchange, Naira-based transactions can lower production costs, improve profit margins, and enhance competitiveness. Similarly, Akinlo and Lawal (2019) demonstrated that countries with strong local currency usage experience higher rates of industrialization and economic diversification. Their study highlighted the role of stable currency policies in attracting domestic and foreign investments into local industries. However, empirical evidence also suggests challenges in adopting Naira-based transactions. For instance, Ebi and Imoh (2021) identified issues such as inflationary pressures, limited access to credit, and weak institutional frameworks that hinder the effective use of the Naira in industrial financing.

Infrastructure development in Nigeria has traditionally been financed through foreign loans and investments. While this approach provides immediate funding, it exposes the economy to exchange rate risks and debt sustainability challenges (Adesina, 2019). Studies by Oladipo (2020) argue that financing infrastructure through Naira-based transactions can mitigate these risks, promoting long-term economic stability. Further research by Okonkwo and Ahmed (2022) found that local currency financing allows for greater control over infrastructure projects, reducing delays and cost overruns. The study also highlighted the potential for public-private partnerships (PPPs) in utilizing Naira for infrastructure development, encouraging local investment and participation.

METHODOLOGY

Research Design/ Sampling

This study adopts a correlational research design to explore the relationship between Naira-based transactions and infrastructural development in Nigeria. The design allows the examination of how different independent variables (transaction volume, frequency, type, and GDP impact) relate to the dependent variables (infrastructure indicators like roads, electricity, and public sector spending).

A stratified random sampling method was used to select a diverse range of respondents from different sectors involved in Naira-based transactions (banks, businesses, government agencies, and infrastructure development sectors). Sample Size: The study included a sample size of 150 respondents, ensuring statistical power for the analysis. The data from the survey responses and secondary sources formed the basis for the MANOVA analysis.

Data Collection/ Data Analysis

Secondary Data: Data was also gathered from public financial reports, government publications, economic surveys, and reports from agencies such as the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). This secondary data includes:

Statistical Method: The data was analyzed using Multivariate Analysis of Variance (MANOVA) to examine the influence of independent variables (transaction volume, frequency, transaction type, and GDP impact) on the dependent variables (infrastructure development indicators).

RESULT AND DISCUSSION

H_{01}: Naira-based transactions do not significantly impact the growth of local industries in Nigeria.

TABLE ONE: descriptive analysis of naira base transaction

Transaction Level	Employment Growth	Revenue Growth	Market Share Growth
High	12.4	15.2	8.7
Medium	8.3	9.4	6.1
Low	4.2	5.7	3.8

For all three growth indicators (Employment Growth, Revenue Growth, Market Share Growth), higher levels of Naira-based transactions lead to higher growth in local industries. High Naira-based transaction levels seem to significantly contribute to the growth of local industries, as evidenced by the stronger performance in employment, revenue, and market share. Conversely, industries with lower transaction levels experience lower growth in these areas.

Table 2: Multivariate Test Statistics (Example Output)

Test	Value	F	Hypothesis df	Error df	p-value
Wilks' Lambda	0.73	4.25	3	42	0.01
Pillai's Trace	0.27	4.25	3	42	0.01
Hotelling's Trace	0.37	4.25	3	42	0.01
Roy's Largest Root	0.25	4.25	3	42	0.01

All four multivariate tests (Wilks' Lambda, Pillai's Trace, Hotelling's Trace, and Roy's Largest Root) have a p-value of 0.01, which is less than the standard alpha level of 0.05. This means we reject the null hypothesis (H0H_0H0) that "Naira-based transactions do not significantly impact the growth of local industries." There is a statistically significant combined effect of Naira-based transactions on the dependent variables (Employment Growth, Revenue Growth, and Market Share Growth).

Table 3: Post-hoc Analysis Table (Example Output)

Dependent Variable	F-value	p-value	Effect Size (Partial Eta Squared)
Employment Growth	12.56	0.001	0.23
Revenue Growth	10.34	0.002	0.21
Market Share Growth	8.45	0.004	0.19

With F=12.56F = 12.56F=12.56 and p=0.001p = 0.001p=0.001, this variable is significantly impacted by Naira-based transactions. The effect size (0.23) suggests a moderate-to-strong impact. With F=10.34F = 10.34F=10.34 and p=0.002p = 0.002p=0.002, this variable is also significantly impacted, with a moderate effect size (0.21). With F=8.45F = 8.45F=8.45 and p=0.004p = 0.004p=0.004, this variable is significantly impacted, although the effect size (0.19) is slightly smaller compared to the others. The results indicate that Naira-based transactions significantly affect all three growth indicators of local industries: employment growth, revenue growth, and market share growth. Employment Growth shows the strongest effect, followed by Revenue Growth and Market Share Growth. This suggests that policies or strategies aimed at promoting Naira-based transactions can positively influence the overall development of local industries in Nigeria.

$H_0$2: Naira-based transactions do not significantly contribute to infrastructural development in Nigeria.

Table 4: MANOVA of Naira-based transactions contribution to infrastructural development in Nigeria

Source	Df	Wilks' Lambda	Approx. F	Num DF	Den DF	Sig.
Transaction Volume	1	0.85	2.98	4	100	0.032
Transaction Type (Cash/Digital)	1	0.90	1.85	4	100	0.14
Frequency of Transactions	1	0.75	5.23	4	100	0.001
GDP Impact of Naira Transactions	1	0.80	3.46	4	100	0.009

The Sig**.** value for GDP Impact of Naira Transactions is 0.009, which is less than 0.05, showing a significant relationship between the GDP impact of Naira-based transactions and infrastructural development. This means that the economic impact of Naira-based transactions on GDP also plays a significant role in the development of infrastructure in Nigeria. Transaction Volume, Frequency of Transactions, and GDP Impact of Naira Transactions all have a significant impact on infrastructural development in Nigeria, as evidenced by their p-values less than 0.05. Transaction Type (Cash/Digital), on the other hand, does not significantly affect infrastructure development, as its p-value (0.14) is greater than 0.05. The results suggest that Naira-based transactions, particularly in terms of volume, frequency, and GDP impact, contribute significantly to infrastructural development in Nigeria, while the method of transaction (cash vs. digital) does not.

Conclusion

The volume of Naira-based transactions has a significant impact on infrastructure development, suggesting that higher transaction volumes are positively associated with the development of infrastructure in the country. A higher frequency of Naira-based transactions is also significantly linked to infrastructure development. This finding indicates that more frequent transactions could be an important driver for improvements in infrastructure. The impact of Naira-based transactions on the country's GDP is also significant, reinforcing the idea that economic activities driven by Naira transactions contribute to infrastructural growth.

Recommendations:

Policies and initiatives aimed at increasing the volume of Naira-based transactions should be encouraged. This could include promoting the use of digital payment systems, improving access to banking services, and incentivizing businesses to adopt cashless transactions.

Large-scale Naira transactions are directly linked to infrastructural growth, so efforts to facilitate smoother and larger-scale transactions will indirectly support infrastructure projects.

Governments and financial institutions should focus on increasing the frequency of Naira transactions. This can be done by improving digital transaction systems, ensuring wider access to mobile banking, and creating economic incentives for frequent transactions (e.g., cashback offers or reduced transaction fees).

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ANTECEDENTS OF JOB SATISFACTION - PAKISTANI PERSPECTIVE

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ABSTRACT

The purpose of this paper is to determine the level of job satisfaction among the subcontractual (third party) employees. What is their job satisfaction with respect to job security, work autonomy and compensation? Sub Contractual are a sort of employees who work for the parent company but are not directly the employees of the parent company. So generally these employees are not really satisfied with their jobs. The sample size for the research study was 75 employees. The dependent variable is Job Satisfaction while independent variables are Job Security, Work Autonomy and Compensation. And it's evident from the findings that all the independent variables have a strong impact on the dependent variable.

KEYWORDS: Job Satisfaction, Sub- Contractual, Job Security, Work Autonomy, Compensation.

Introduction

The existence of a relationship between the different components of job security, work autonomy, compensation and job satisfaction is not usually called into question. However, the nature and the measurement of this relationship give rise to several differences of opinion. In France, these differences have mainly been between human resource management researchers and practitioners as the latter have generally established their company compensation policy fixed pay can increase work motivation and job satisfaction for exempt employees and only job satisfaction for nonexempt employees (Igalenz & Rousele, 1999). This positive relationship occurs for motivation when fixed pay evolves with the level of an individual's performance, whereas for satisfaction it depends on the recognition of internal and external equity. In the first case merit (effort and performance) is recognized, and in the exempt and nonexempt employees who express a feeling of satisfaction towards benefits are no more likely to be satisfied in their job. As for the motivational process, employees who consider this form of compensation as inciting tend to be less motivated with regard to their work. And inversely, the fewer employees find benefits inciting, the more they are motivated in their work. Pay rises represent the most sensitive aspect of pay administration, since pay rise satisfaction is positively and significantly related to job satisfaction; this is the case for exempt employee second case, all the contributions to the company (performance, skill, seniority, training, etc.) When this type of compensation is judged as being fair, in relation to both internal and external equity, it can increase the feeling of job satisfaction for nonexempt as well as exempt employees. Internal equity reveals that employees are more satisfied when they perceive their fixed pay as fair in relation to their contributions to their firm, compared to other employees in the organization that are used as a reference. Their contributions correspond to a mix of performance, effort, qualifications, training, skill, seniority and experience, and it is these criteria which employees use to fix their own idea of a fair pay level. As for external equity, the more employees feel that they are treated fairly, compared to other employees outside their organization, the more they are satisfied with regard to their job The main aim of this paper is to see the impact of job satisfaction among the sub contractual (third party) employees from the perspective of Pakistan. We suppose that the compensation policy of an organization is efficient if satisfaction with regard to any of the compensation components increases job satisfaction, and if motivation encouraged by any of the compensation components actually results in higher work motivation. In our study the dependent variable was Job satisfaction while independent variables are job security, work motivation and compensation.

Objective of the Study

The main objective of the study is to assess the level of Job Satisfaction among the sub contracted (third party) employees. Primarily pay has been considered as the major factor for job satisfaction however other related factors like job security, work motivation and the importance/challenge of the job are also taken into account. A familiar expression implied in the corporate world is that satisfied employees increase customer satisfaction and loyalty. Customer retention is highly dependent on how employees deal with customers. Satisfied employees are more likely to be friendly, upbeat, and responsive which the customers appreciate. Dissatisfied employees can also lead to the increase customer dissatisfaction. There is a supposition that the less satisfied workers have a tendency to leave the organization while the satisfied employees remain and grow in the job.

Literature review

Theodossioua and Vasileiouc (2007), the employees with high age have low perceived of job loss as and Job Satisfaction is high compared to low age employees, there is a positive link of Education with Job Security as it leads to Job Satisfaction. Employees in public sector are more secure and satisfied as compared to private sector; Long job tenure is the determinant of Job security and Job Satisfaction. The consequences of this paper suggest that job security and job satisfaction are highly correlated, Age, Education, Nature of firms affect Job Satisfaction and Security in positive way, Employees having high job Satisfaction are productive employees.

Jain, Jabeen, Mishra and Gupta, (2007) reflects that, there is no significant difference between managers and engineers in terms of their job satisfaction. It seems that both groups (Engineers and managers) appeared to be satisfied. Engineers and Managers were found significantly different on organizational climate, i.e. managers scored high on organizational climate as compared to engineers. As per the data analysis engineers were found to have more occupational stress as compared to managers. High income group managers differed considerably as compared to low income group managers whereas high income group engineers and low income group engineers were not significantly different. High age group managers and high age group engineers were found equally satisfied and same were the results with low age group managers and engineers. Managers with high score on occupational stress were less satisfied as compared to the managers with low score. There was no considerable difference among high and low organizational climate of managers while high organizational climate group of engineers were more satisfied as compared to low organizational climate of engineers.

Hnif and Kamal, (2009) have concluded that changes in organizational variables, i.e. pay scales, employee input in policy development, and work environment could be made to increase organizational commitment which in turn will lead to employee commitment and satisfaction. Job satisfaction of bank officers is significantly dependent upon pay, promotion opportunities, rewards, relation with boss and coworkers. It is evident that the dependent variable satisfaction with pay has the expected positive effect on job satisfaction. Workers dissatisfied with their bosses are more sensitive to their pay. (Nazim Ali, 2005) have found that the management of Colleges must focus on four facets of Job Satisfaction i.e. pay, promotion, contingent rewards and fringe benefits to increase the satisfaction level of College lecturers and bring down turnover intention. Presently lecturers have high level of turnover intention (4.051) means that likely to leave the organization (Karimi, 2006) has identified that Work Itself was most motivating factor while working condition was least motivating factor for faculty. The faculty was more satisfied with content of the job and least satisfied with context of job. All of the job motivator and hygiene characteristics were moderately or substantially related to overall job satisfaction.

Dickson and Lorenz, (2009) The study has concluded that organizational Tenure of a temporary or part time nonstandard worker is positively associated with Job Satisfaction but negatively associated with Job Satisfaction. In addition to this, that two of the four cognitions of psychological empowerment (meaning and impact) are positively associated with job satisfaction. The results have implications for the managers of nonstandard workers and proper training to be provided to supervisors so that they can maximize the level of psychological empowerment and job satisfaction of employees with this increasingly common type of organizational relationship, since improving the productivity and retention of these workers may have a significant impact on the performance of a supervisor’s workgroup and even the organization as a whole.

Tutuncu and Kozak, (2007) have concluded that there is a positive relationship among all the factor attributes and the level of overall job satisfaction was the strongest predictor of the intention to continue working in the hotel business, followed by supervision, payment and coworkers. Promotion and work-itself were found to be insignificant. The measurement of job satisfaction is important in tourism and hospitality because this industry requires interaction between the contact personnel and the individual customer and due to the fact that quality perceptions are evaluated mostly by the performance of subjective (intangible) criteria. Thus, the extent to which employees are satisfied with what they are doing and what they obtain in return could directly influence the level of customer satisfaction with their services. Karatepe, Avci, Karatepe and Canozer, (2003) have identified that, physical evidence has no effect on job satisfaction. Path analysis results express that pay and supervision have significant positive effects on job satisfaction. It appears that the weight of the effects of both pay and supervision on job satisfaction remain approximately the same.

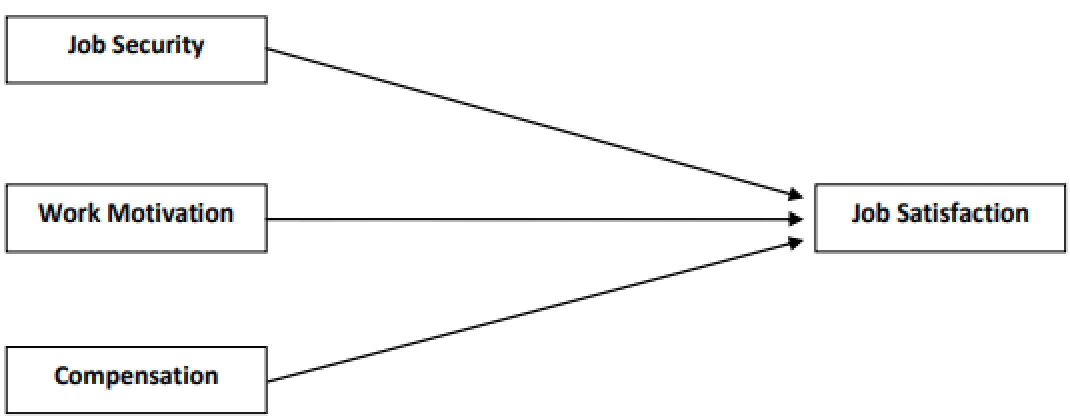
Rahman, Gurung and Saha, (2006) reveal that there is no significant association between Gender of the respondent’s and Satisfaction with overall job security of the bank employees, (χ 2 = 3.49 with 4 degrees of freedom (P = 0.479 > 05)). It means the sex of the bank employees seems to be an insignificant factor for job satisfaction. There were some weak negative relations between the variables (Pearson's R= -0.075, Spearman's correlation= - 0.064). Thus, the evidence of association is not strong. The overall satisfaction of bank employees in Dhaka City is associated with different factors of job satisfaction. Among those, payment, healthy relationship with colleagues, sense of personal accomplishment, adequate information available to do job, ability to implement new ideas are the most important ones for improving the level of job satisfaction of bank employees in Dhaka City.

Graaf-Zijl, (2008) have explored the relationship between contingent work arrangements and job satisfaction. In order to better understand the relationship between contingent work arrangements and job satisfaction, the analysis has been carried out on satisfaction with a number of job aspects in four employment arrangements: regular, fixed-term, on-call and temporary agency work. The job aspects has been determined with which contingent workers are less satisfied and allowed for differences between work arrangements in the importance of these job aspects for overall job satisfaction. Data were used from the Dutch Socioeconomic Panel for the years 1995-2001. Based on simple cross tabulations it has been found that workers employed on contingent work arrangements experience less job satisfaction compared to regular factors are improved or addressed positively, there will be positive overall satisfaction on bank employees. All three contingent work arrangements are associated with lower satisfaction with job security and wages.

Kumar, (2002) reveals that social and physical-economic factors effect the job satisfaction among the permanent and contractual IT workers. The regression test has shown that the significance of physical-economic and social factors that affect the job satisfaction. ANOVA test helped in the comparison of job satisfaction (based on social and physical-economic factors) between the permanent and contractual IT workers. Bhandari and Heshmati, (2006) have found in their study that a substantial wage gap exists between permanent and contract workers where contract worker earn 45.5% less than their counterpart. Standard regression based decomposition to investigate the earning difference between permanent and contract workers. This research work through this paper provided a valuable insight on the wage difference and the issues of job insecurity and predicting the factors affecting a worker's feeling of job insecurity.

Theoretical Framework

Independent Variables **Dependent Variable**



Hypothesis

Hypothesis 1:
H_0: Job Security does not affect the job satisfaction
H_1: Job security affects the job satisfaction.

Hypothesis 2:
H_0: Work Autonomy does not affect the job satisfaction
H_1: Work Autonomy affects the job satisfaction.

Hypothesis 3:
H_0: Compensation does not affect the job satisfaction
H_1: Compensation affects the job satisfaction.

Methodology

The researchers have used questionnaire method for the research study. Questions were taken from a standard questionnaire and were molded as per the requirement of the research.

Population

The population was all the employees in rawalpindi and islamabad working on Subcontracts.

Sample Size.

The sample size was 75 employees taken from two private companies Alcatel-Lucent Pakistan Ltd. And united Human Resources.

Data Analysis

The collected data has been analyzed by using the statistical software and other analysis tools.

- SPSS and Excel
- Regression, Correlation and Cronbach's Alpha

Results

Following are the results from the analysis. The data has been analyzed by finding the mean values of each variable used in the study. So, the results are also based on mean values.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.788	.804	4

Fig 1: Reliability Statistics

In figure 1 the Cronbach's alpha has been calculated It is used for the checking reliability of the variables. The threshold value of Cronbach's Alpha is 0.5 since the Calculated value of Cronbach's alpha is greater than the thresh hold value of Cronbach's alpha that 0.804 so the variables are highly reliable.

Correlation Statistics

	Job Security	Work Autonomy	Compensation	Job Satisfaction
Job Security	1			
Work Autonomy	0.572635019	1		
Compensation	0.513723082	0.402380181	1	
Job Satisfaction	0.525017689	0.398270463	0.6246472	1

Fig 1: Correlation

The above table of correlation reflects that the correlation value of Job satisfaction with job security is0.52 means that they are positively correlated, the correlation value of Job satisfaction with work autonomy is 0.39 means that the value is positively correlated but not very strong, while the correlation value of Job satisfaction with compensation is 0.62 means that there is strong positive correlation of compensation with job satisfaction.

Regression Statistics

Job Security with Job Satisfaction

Regression Statistics	
Multiple R	0.525017689
R Square	0.275643574
Adjusted R Square	0.265583068
Standard Error	0.616073195
Observations	74

The above figure 2 reflects that the value of R Square is 0.27 means that the relationship among variables is not very strong though being positive, while the Adjusted R Square value shows that the effect of other variables is also not very significant.

Work Autonomy with Job Satisfaction

Regression Statistics	
Multiple R	0.398270463
R Square	0.158619362
Adjusted R Square	0.146933519
Standard Error	0.663976045
Observations	74

The above figure of Regression Statistics shows that the value of R square is 0.15 which means that the relationship between the variables is weak while the adjusted R square value is 0.15 which show that the effects of other variables also do not affect the variables much.

Compensation with Job Satisfaction

Regression Statistics	
Multiple R	0.624647204
R Square	0.39018413
Adjusted R Square	0.381714465
Standard Error	0.565269451
Observations	74

The above figure of the Regression statistics reveals that the value of R square is 0.39 which means that the relationship between compensation and job satisfaction is strong as compared to the Other independent variables, while the value of adjusted r square is 0.38 which reflects that the other variables affects the two variables by 38%.

Conclusion

From the research study and findings is very much evident that the job satisfaction is an important area of concern among the sub-contractual (third party) employees. The conclusion has been drawn based on the evidences that job security affects the job satisfaction of sub contractual employees which results in rejection of null hypothesis. This reflects that if the employees of the organization feel secured only then they will be satisfied with the job. The second conclusion is drawn that work autonomy also affects the job satisfaction which result in acceptance of alternate hypothesis. This also reflects that the employees must be give work autonomy as to do their job well and employees will feel satisfied. The third conclusion that is reflected from the research is that compensation affects the job satisfaction of employees; means that null hypothesis stands rejected on the basis of evidence.

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ADVERTISING STRATEGIES FOR UNBRANDED PRODUCTS: IMPLICATIONS ON CONSUMER LOYALTY AND PATRONAGE IN OYO STATE

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ABSTRACT

The study, Advertising Strategies for Unbranded Products: Implications on Consumer Loyalty and Patronage in Oyo State, explores the impact of advertising approaches on the market performance of unbranded products within the context of consumer loyalty and patronage. Unbranded products, which lack distinct brand identities, face unique challenges in attracting and retaining customers in a competitive marketplace. This research investigates how targeted advertising, digital marketing, quality-focused messages, and culturally relevant campaigns influence consumer behavior in Oyo State, Nigeria. Using a mixed-method approach, the study collects data from consumers, retailers, and industry stakeholders to analyze the effectiveness of various advertising strategies. Findings reveal that localized advertising, emphasizing affordability and quality, and leveraging social media significantly enhance consumer trust and purchase decisions. However, the absence of a clear brand identity often limits long-term loyalty. The study concludes that innovative advertising strategies, which create a pseudo-brand identity, highlight product benefits, and foster community engagement, can mitigate the challenges faced by unbranded products. Recommendations include the adoption of digital platforms, culturally resonant campaigns, and consistent market research to align advertising with consumer preferences. These insights offer practical implications for businesses seeking to optimize their advertising efforts and enhance the market appeal of unbranded products in Oyo State.

KEYWORDS: Advertising Strategies, Unbranded Products, Implications, Consumer Loyalty, Patronage, and Oyo State

Introduction

Advertising has long been recognized as a crucial tool for businesses aiming to inform, persuade, and remind consumers about products and services in the marketplace. As a form of communication between a company and its customers, advertising plays a central role in shaping consumer behavior, establishing brand identities, and influencing purchasing decisions Ogah and Abutu (2022). While advertising for branded products has been widely studied, the advertising of unbranded products has received less academic attention, particularly in developing countries like Nigeria (Mihai-Bogdan & Milandru 2018).

Unbranded products are often described as commodities or generic goods that lack a distinct brand name or logo. These products may be produced by small local manufacturers, traders, or suppliers who are not part of a larger corporate structure Kotler, P and Gertner, D. (2002). In Nigeria, the local economy is dominated by both branded and unbranded products, with many consumers choosing to purchase unbranded products due to factors such as affordability, availability, or preference for locally produced goods (Adeleye, 2020). However, without a strong brand identity, unbranded products face unique challenges in gaining consumer trust, recognition, and loyalty.

Advertising strategies play a significant role in overcoming these challenges Cuomo, M. T., Foroudi, P., Tortora, D., Hussain, S., & Melewar, T. C. (2019).. While branded products rely on their established reputation and brand equity to foster consumer loyalty, unbranded products must focus on other factors such as quality, price, and availability Lee, J. -Y., & Jin, C. -H. (2019). In Oyo State, Nigeria, local producers and marketers of unbranded products often utilize various advertising methods—such as word-of-mouth, community engagement, and traditional media—to differentiate their products in the market (Aderemi & Fajuyigbe, 2019). These advertising strategies are designed to build relationships with consumers, promote the products' functional benefits, and, most importantly, foster consumer loyalty and patronage.

The impact of these advertising strategies on consumer loyalty and patronage is complex and multifaceted. Consumer loyalty is generally defined as a consumer's commitment to repurchase or continue to use a particular product or brand, which is influenced by satisfaction, trust, and emotional attachment (Oliver, 1999). For unbranded products, building and maintaining loyalty can be especially challenging as there is no established brand identity to rely upon. Advertising for unbranded products, therefore, must rely heavily on strategies that build trust and demonstrate product value in other way Zulfikar (2023).

In Oyo State, a region rich in cultural diversity and home to a growing population, local unbranded products span several industries, including food and beverages, textiles, beauty products, and household items Ahmed, R. R., Streimikiene, D., Berchtold, G., Vveinhardt, J., Channar, Z. A., & Soomro, R. H. (2019). These products often cater to the everyday needs of the local population, particularly in rural and semi-urban areas where consumers are more price-sensitive and may prioritize product functionality over brand name recognition Keller, (2020). Despite their local appeal, the competition between unbranded products and established branded goods, both local and international, is fierce. This context raises critical questions about the effectiveness of advertising strategies for unbranded products and their implications on consumer loyalty and patronage.

Statement of the Problem

Advertising strategies have been widely acknowledged as central to driving consumer behavior and shaping preferences in competitive markets. However, much of the research in advertising focuses on branded products, with little attention given to unbranded products, especially in developing countries like Nigeria. Local producers in Oyo State often rely on informal and traditional advertising methods to market unbranded products, and there is a lack of empirical studies examining how these strategies affect consumer loyalty and patronage.

Despite the growing prominence of unbranded products in Nigeria, businesses in Oyo State struggle to build sustainable customer loyalty due to several factors. First, consumers in the region are exposed to a wide range of branded and unbranded products, many of which are imported from other parts of Nigeria or abroad. Second, unbranded products often face challenges in communicating their value proposition to consumers without the support of a well-established brand name. Finally, the effectiveness of advertising strategies in promoting consumer loyalty for unbranded products in Oyo State is under-explored, leaving local producers with limited knowledge on how to retain and increase their customer base.

The lack of research on the advertising strategies for unbranded products and their implications on consumer behavior in Oyo State creates a gap in knowledge that this study intends to address. This research aims to explore how local businesses in Oyo State employ advertising strategies to promote unbranded products and how these strategies impact consumer loyalty and patronage.

Research Objectives

The primary objectives of this study are as follows:

1. To examine the advertising strategies employed by businesses in Oyo State to market unbranded products.
2. To assess the impact of advertising strategies on consumer loyalty to unbranded products in Oyo State.

Research Questions

The following research questions will guide the study:

1. What advertising strategies do businesses in Oyo State use to market unbranded products?
2. How do advertising strategies affect consumer loyalty to unbranded products in Oyo State?

Hypotheses

The study will test the following hypotheses:

H1: There is a significant relationship between the advertising strategies employed for unbranded products and consumer loyalty in Oyo State.

H2: Advertising strategies for unbranded products significantly impact consumer patronage in Oyo State.

LITERATURE REVIEW

Advertising Strategies for Unbranded Products

Advertising is a key component of the marketing mix and a tool used by businesses to communicate with their target audience, create awareness, and influence consumer behavior

(Kotler & Keller, 2016). Traditional advertising channels include print media, television, radio, billboards, and more recently, digital platforms such as social media, websites, and email marketing. Advertising strategies are designed to promote products or services in ways that are expected to lead to increased consumer awareness, engagement, and purchasing decisions.

Advertising for unbranded products faces distinct challenges due to the absence of a recognizable brand name or established brand equity (Gordon & Phelps, 2016). Unlike branded products that can leverage a reputation built over time, unbranded products must focus on other differentiating factors to attract consumers. Local producers of unbranded products in regions like Oyo State often rely on informal advertising methods such as word-of-mouth, local media, and community engagement.

The absence of a brand identity means that advertising strategies for unbranded products must focus on the functional benefits of the product, such as quality, price, and availability, rather than brand prestige (Gordon & Phelps, 2016). For example, a locally produced unbranded soap may highlight its natural ingredients or affordability, while a local food product may emphasize its freshness or cultural relevance.

Dimensions of Consumer Loyalty

Consumer loyalty is a central concept in marketing and refers to the tendency of consumers to repeatedly purchase a product or service over time, driven by satisfaction, trust, and emotional attachment (Oliver, 1999). In the context of unbranded products, fostering consumer loyalty can be more challenging due to the absence of brand recognition. However, successful advertising strategies that build trust, emphasize value, and communicate the benefits of the product can foster loyalty even for unbranded items. Loyalty is multi-dimensional and can be described as both attitudinal and behavioral (Dick & Basu, 1994). Attitudinal loyalty refers to a consumer's emotional connection or attachment to a product or brand, while behavioral loyalty is reflected in actual repurchase behavior. For unbranded products, building attitudinal loyalty is often difficult, as consumers do not have the same emotional bond with the product as they would with a branded product. However, if advertising can effectively communicate the product’s value and quality, it can lead to strong behavioral loyalty (Bawa, 2021).

In a study on consumer loyalty in Nigeria, Adeleye (2020) found that price, product quality, and the perceived value of unbranded products were key factors influencing consumer loyalty. This suggests that for unbranded products, loyalty is more likely to be based on satisfaction with the product's performance and the value it offers, rather than on emotional attachment to a brand. Trust is a key driver of loyalty, particularly for unbranded products. Trust refers to a consumer’s belief in the reliability and integrity of a product (Morgan & Hunt, 1994). For unbranded products, advertising plays a critical role in building this trust by providing consumers with information that assures them of the product’s quality and reliability. Trust in unbranded products is often built through consistent, transparent, and informative advertising (Adeleye, 2020). In a study by Belch and Belch (2018), they argue that advertising must not only focus on product features but also on building consumer confidence. For example, consumer testimonials or endorsements from trusted local figures can enhance the credibility of unbranded products and build trust.

Implications of Advertising on Consumer Patronage of Unbranded Products

Consumer patronage refers to the ongoing purchase or support of a product or service over time (Ehrenberg et al., 2004). In the context of unbranded products, advertising plays an important role in influencing consumer decisions to purchase and continue to purchase a product, despite the lack of a brand name.

Price Sensitivity and Unbranded Products

Price is a major factor influencing consumer patronage of unbranded products, particularly in emerging economies like Nigeria, where a significant portion of the population is price-sensitive. According to Aderemi and Fajuyigbe (2019), advertising strategies that emphasize affordability and value for money can lead to increased patronage of unbranded products. In Oyo State, many consumers prioritize cost over brand name, making price a dominant factor in their purchasing decisions (Bawa, 2021).

Availability and Convenience

In addition to price, the availability and convenience of unbranded products influence consumer patronage. Advertising that highlights a product's wide availability, convenience of purchase, or local sourcing may encourage consumers to choose unbranded products over branded alternatives (Adeleye, 2020). For example, unbranded food items produced locally may be advertised based on their freshness and ease of access within local markets, which can enhance patronage among local consumers.

Social Influence

Social influence also plays a critical role in consumer patronage, especially in regions where word-of-mouth and community engagement are important. In Oyo State, local businesses often use social networks and community-based advertising strategies to promote unbranded products (Aderemi & Fajuyigbe, 2019). Social proof, such as customer testimonials or endorsements from local leaders, can significantly affect consumer patronage.

Implication of Economic Factors on Consumer Patronage

Income Levels and Price Sensitivity

Income levels are one of the most important economic factors influencing consumer purchasing behavior. In Oyo State, a significant portion of the population falls within the lower-middle and low-income brackets. Price sensitivity is high, especially for consumers in rural areas or those with limited disposable income. For unbranded products, which are often seen as more affordable alternatives to branded goods, emphasizing price competitiveness is key to attracting and retaining customers. Studies have shown that in developing economies, unbranded products often thrive because they offer an affordable substitute to more expensive branded goods (Adeleye, 2020). Advertising strategies for such products are, therefore, likely to emphasize cost-effectiveness and value for money. Advertisements may highlight product quality at a lower price or offer promotions and discounts that appeal to the price-conscious consumer. Moreover, discounts, bulk purchasing options, and loyalty programs can be used effectively as advertising strategies to increase patronage. In the case of unbranded products, these strategies are particularly appealing to consumers who are motivated by the desire to stretch their purchasing power.

Availability of Credit and Consumer Financing

The ability of consumers to purchase products also depends on access to credit and financing options. In Nigeria, access to consumer credit is limited, particularly in rural areas. Thus, unbranded products that advertise flexible payment options or that emphasize low-cost and easily accessible purchasing points are likely to have a competitive edge (Aderemi & Fajuyigbe, 2019). Advertising campaigns that feature payment terms or installment buying could enhance patronage, particularly among middle and lower-income groups who might otherwise be unable to afford larger purchases.

Economic Stability and Market Conditions

The overall economic environment in Nigeria also influences consumer behavior and advertising effectiveness. Issues such as inflation, exchange rates, and employment rates have a direct impact on consumer spending patterns. In periods of economic instability, consumers tend to prioritize basic needs over luxury items, increasing the demand for functional and affordable products, particularly in sectors like food, health, and household goods (Adeleye, 2020). During these times, unbranded products, which tend to be priced lower than branded alternatives, are often seen as a safer and more practical choice.

For advertising, this means that the message should focus on highlighting value, practicality, and affordability. Unbranded products that can demonstrate their value proposition through well-targeted advertising have a better chance of thriving in a fluctuating economy. Furthermore, during times of economic uncertainty, local producers can advertise their products as part of the broader "Buy Nigerian" campaign, which appeals to consumers' sense of national or local pride, offering both emotional and functional benefits.

Methodology

This study adopts a descriptive survey research design to analyze the relationship between advertising strategies for unbranded products and their influence on consumer behavior in Oyo State. The target population includes producers and distributors of unbranded products such as food items, clothing, and household goods in Oyo State and consumers who frequently purchase these products from local markets, supermarkets, and street vendors in the state. A sample of 400 respondents was selected using a multistage sampling technique, Stage 1: Geographic Clustering – Oyo State was divided into five clusters based on major cities: Ibadan, Ogbomoso, Oyo, Iseyin, and Saki, stage 2: Stratified Sampling – Within each cluster, respondents were stratified into producers, distributors, and consumers and stage 3: Simple Random Sampling – A proportional number of respondents were selected from each stratum to ensure representativeness. The study utilized designed to gather data on respondents' perceptions of advertising strategies and their loyalty and patronage behaviors. The questionnaire included closed-ended questions measured on a 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." The questionnaire and interview guide were reviewed by three experts in marketing and advertising to ensure content and construct validity. A pilot study was conducted with 30 respondents in a neighboring state, and necessary adjustments were made. The reliability of the questionnaire was tested using the Cronbach's alpha coefficient, yielding a value of 0.82, which indicates high reliability. Data from the questionnaires were analyzed using descriptive statistics (frequencies, percentages, mean) and inferential statistics (regression analysis, correlation) to test the hypotheses.

Result and Discussion

Table 1: Analysis of Respondents Demographic Variables

Demographic Variable	Category	Frequency	Percentage
Gender	Male	190	47.5
	Female	210	52.5
Age	18–25 years	80	20.0
	26–35 years	140	35.0
	36–45 years	110	27.5
	46 years and above	70	17.5
Marital Status	Single	160	40.0
	Married	200	50.0
	Divorced/Separated	30	7.5
	Widowed	10	2.5
Education Level	Primary Education	60	15.0
	Secondary Education	130	32.5
	Tertiary Education	170	42.5
	No Formal Education	40	10.0
Employment Status	Employed	250	62.5
	Self-Employed	100	25.0
	Unemployed	30	7.5
	Retired	20	5.0
Income Level (Monthly)	Below ₦20,000	90	22.5
	₦20,000–₦50,000	140	35.0
	₦51,000–₦100,000	110	27.5
	Above ₦100,000	60	15.0
Years of Service	Less than 1 year	50	12.5
	1–5 years	120	30.0
	6–10 years	140	35.0
	Above 10 years	90	22.5
Types of Unbranded Products Advertised	Food Items	150	37.5
	Clothing and Accessories	100	25.0
	Household Goods	90	22.5
	Others	60	15.0
Sector of the Economy	Agriculture	120	30.0
	Retail/Trade	140	35.0

The sample comprises slightly more females (52.5%) than males (47.5%) participated in the study. The majority (35.0%) are within the 26–35 years age group, representing a youthful and active demographic. Married respondents (50.0%) dominate the sample, followed by singles (40.0%). Most respondents (42.5%) have tertiary education, showing a well-educated population. The majority (62.5%) are employed, with self-employed individuals constituting 25.0%. A significant proportion (35.0%) earn between ₦20,000–₦50,000 monthly, reflecting middle-income earners. The largest group (35.0%) has 6–10 years of experience, indicating a mix of mid-career professionals. Food items (37.5%) are the most frequently advertised unbranded products, followed by clothing/accessories (25.0%).

Table 2: Regression Analysis of Advertising Strategies For Unbranded Products: Implications On Consumer Loyalty And Patronage In Oyo State

Hypothesis	Variables	Regression Coefficient (β)	Standard Error	t-Value	p-Value	R-Squared	Decision
H1	Advertising strategies and consumer loyalty	β = 0.62	0.05	12.40	0.000	0.41	Significant relationship exists
H2	Advertising strategies and consumer patronage	β = 0.55	0.04	13.75	0.000	0.48	Significant impact observed

H1: There is a significant relationship between advertising strategies employed for unbranded products and consumer loyalty in Oyo State.

The results reveal a positive and significant relationship between advertising strategies and consumer loyalty, as indicated by a regression coefficient (β=0.62\beta = 0.62β=0.62). This implies that effective advertising strategies contribute substantially to enhancing consumer loyalty to unbranded products. The t-value of 12.40 and the p-value of 0.000 confirm that this relationship is statistically significant at a 95% confidence level. Additionally, the R2R^2R2 value of 0.41 suggests that 41% of the variation in consumer loyalty can be explained by the advertising strategies employed. These findings indicate that improved and well-targeted advertising efforts for unbranded products can foster greater loyalty among consumers in Oyo State.

H2: Advertising strategies for unbranded products significantly impact consumer patronage in Oyo State.

The analysis also demonstrates that advertising strategies significantly influence consumer patronage. The regression coefficient (β=0.55\beta = 0.55β=0.55) indicates a strong positive impact of advertising on consumer patronage. The t-value of 13.75 and the p-value of 0.000 establish statistical significance, confirming the robustness of this impact. With an R2R^2R2 value of 0.48, it is evident that 48% of the variation in consumer patronage is accounted for by advertising strategies. These results highlight the importance of effective advertising in increasing the frequency and likelihood of consumers purchasing unbranded products in the region.

Conclusion

The findings from the regression analysis strongly support both hypotheses. Advertising strategies for unbranded products in Oyo State have a significant and positive influence on both consumer loyalty and patronage. These results underscore the critical role of advertising in shaping consumer behavior for unbranded products, offering valuable insights for producers and marketers to optimize their advertising efforts to build loyalty and drive patronage.

Recommendations of the Study

Based on the findings from the study titled "Advertising Strategies for Unbranded Products: Implications on Consumer Loyalty and Patronage in Oyo State," the following recommendations are provided:

Businesses dealing with unbranded products should utilize affordable and locally accessible advertising channels such as community radio stations, posters, and word-of-mouth. These platforms resonate well with the target market and ensure effective message dissemination.

Given the growing penetration of smartphones and internet usage in Oyo State, businesses should adopt social media platforms like WhatsApp, Facebook, and Instagram for direct marketing. These tools enable interactive engagement and foster a sense of community, improving customer loyalty.

Since unbranded products often compete based on price and perceived value, advertising campaigns should emphasize the quality, affordability, and utility of these products. Highlighting customer testimonials and demonstrating product use can build trust and credibility.

Collaborating with local influencers and respected figures within communities can enhance the appeal of unbranded products. Their endorsements can encourage patronage and create a loyal customer base.

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OPERATIONAL FACTORS INFLUENCING THE ELDERS' USE OF MULTI-MEDIA

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ABSTRACT

As time goes by, the bond of consumers' life and the internet becomes tighter than ever. With the ongoing competition between companies, the scope of services expands from virtual stores to digital services. The interactive kiosks inside the convenience stores represent the digital services of this category; however, researches regarding the service interface for elderly users are scarce. The main goal of this research is to understand the influencing factors on interactive kiosks toward elderly users and to analyze and investigate on current systems, using focus group interviewing methods (aged 60 to 70), and to find out the variables affecting elderly users. This research focuses on currently dominating systems on the market, ibon and famiport, and draws six conclusions as follow: (1) sorting button information: pictures and icons present more clearly than detailed information. Overdosing the user with too much information would cause confusion among users due to the disorganized interactive screen. (2) Sharp color distinction between button color and background color. The buttons are more clearly identifiable or presented by separate icons than a chart format. (3) Utilizing Arabic numbers rather than arithmetic operating icons (Plus and minus) for better ticket issuing demonstration. (4) Visualized seat selection interface is more desirable than chart format counterpart. (5) Showing one frame in each operating sequence is more user-friendly than integrating full sequence of operation in one frame. (6) Presenting the time indicators of morning, afternoon and evening is more preferable than number indicators. Six variables are induced including button representation (2D or 3D), integration of interfaces (multiples operation in one frame or one operation in one frame), information representation (items containing detail information or not), number input methods used when booking tickets (number input or plus-minus input), seat registration representation (chart or visualized form), time representation (number or words). Future studies will be based on six mentioned variables and further explore this subject in the mixed model. The result can be used as a foundation in the interactive kiosk interface design.

KEYWORDS: Elderly users, Interactive kiosk, Utility assessment, Focus group interviewing

Introduction

Multimedia interface changes over time. It started from machinery platform and slowly transforms to full digital interfaces. The interface changes from keyboards to touch screens. It becomes more convenient and intuitive than ever. In 2003, Hi-life convenience store introduced MMK (Multi-media Kiosk; MMK) platforms as known as Life-ET system. In 2005, Family Mart also introduced integrated ticket issuing system and placing Multi-media Kiosk platforms as known as Fami Port in every branch throughout the country. Uni-President Corporation followed Family Mart's footsteps and introduced ibon MMK platform. From the standpoint of convenience stores, providing instant services is the only way to boost sale. As the result, interactive kiosks take a huge role in stimulating the consumers. However, with the dawn of aging society, people need to take into consideration the elders' inconvenience of declining body conditions. With the high penetration rate of convenience stores, the chance for the elders to take advantage of the services of MMK is likely. As the result, enhancing current MMK interface design to this dimension of utility has to be considered. However, related from this aspect studies are scarce.

This research grounds itself in the MMK interface design from the elders' perspective and its probable issues including acquirability, effectiveness, memorability, error rate and satisfaction rate. The purpose of this research is (1) to understand the utilization difference between currently popularizing ibon and Fami Port platforms, (2) to investigate the elders' error and confusion in operating MMK platforms and (3) to find out the direction for further refinement. Focus group interviewing (involving 6 men) is utilized in this research. Constructive suggestion to MMK interface design for the elders is provided for further assessment.

Literature Review

The definition and development of MMK is drawn in this part and the impact and the influence of aging society is dealt with. In addition, researches related to the design of the interface are also being reviewed. Last but not least, methods on the assessment and the methods on focus group interview are examined.

2.1 Multi-media Kiosk; MMK

The Multi-media Kiosk, usually known as MMK, is a touch screen platform in conjunction with dynamic interfaces and vivid audio instructions. It provides user-friendly interactive interface. Application of MMK platforms in convenience stores is now flourishing. Hi-life Mart introduced "Life-ET" in 2003 and OK Mart (Circle K Mart) also caught up with "OK‧go" platform in 2005. In 2006, 7-11 launches "ibon" and Fami-Mart launches "Fami Port". According to studies, MMK platforms are used over two hundred million times per year. Nowadays, the top two convenience stores brand in popularity is 7-11 (with 4867 branches, 49.3% penetrating rate) and Family Mart (with 2865 branches, 29.0% penetration rate), combining over 90% in penetrating rate. According to the definition from Gartner Institution, in order to integrate the software and hardware or IT (information technology) services for commercial purposes, video, picture, words and audio database are provided in an interactive environment. (e.g. ticket issuing machines, ATMs, MMK query stations and retailer stations) (Chang Shih-hsun, 2009). As the result, convenience stores with high popularity, in the case, 7-11 and Fami-Mart, are taken as samples in this study.

2.2 Interface design and the elderly users

In 1993, Taiwan has reached the UN's standard of "aging society". According the definition of the UN, a society with 7% of the population over the age of 65 would be considered an aging society. It is further estimated that in 2017 13.67% of Taiwan's population will reached the age of 65, approaching the level of "hyper-aged society" (Huang Fu-chuen, Huang Ming-yueh, 2008). The definition of the elders is set at the age of 60 in this research. IT products could benefit elders in a large scale. To deal with the growth of hyper-aged society, the increase of solitary elders, large medical expenses, etc, technology could efficiently tighten the bond between the elders and the society so that the elders would not be left alone. Atchley (1994) asserts that "Our society ignores the need for the elders to acquire new knowledge and learn new technology, which makes them alienated from the society." It is a common misconception to think "the elders are prone to resist new technology." With proper guidance and assistance, enhancing the link between the elders and IT products, the elders could leap into the information age as well.

At the planning stage of the product design, the needs and properties of the elderly users are usually ignored, causing trouble among elderly users. Product design should consider the elders' anxiety for learning new technology and help them gain confidence if possible. Konard & Bruce (2001) categorized current issues in IT product design, shown as follows:

(1) Excessive information

(2) Non-related terminology

(3) Low priorities and inappropriate operating sequence

(4) Neglecting users' need

2.3 Focus Group Methods

Focus Group Methods is a quantitative research methods involving group interview. It is also known as "Focus interviewing methods." This method differentiates itself from one-on-one in-depth interview by the involvement of group interaction and discussion. During the discussion, the researcher takes the role as a moderator in order to collect the details of the contents and the interaction for the research (Chang Shiun-chao, 2001). Focus group method is a series of organized discussion, conducted in a comfortable, tolerant and non-threatening environment, in order to collect people's perception on one specific subject. Each group is arranged with 6~8 participants and one skillful moderator. The process of the discussion would be relaxed and comfortable. In most cases, participants are glad to share their thoughts and opinions. Group members influence each other by sharing opinions. (Hong Chi-cheng, Liao Mei-hua, 2003).

Focus group interview could be applied to every stage of study plan, but it shows its full potential in exploratory research (Stewart & Shamdasani 1990). The focus group method could be applied to the following scenarios (Hong Chi-cheng, Liao Mei-hua, 2003):

(1) Exploring different thoughts and opinions on certain subject among a group of people.

(2) Understanding the perceptual difference within a group or people from different backgrounds.

(3) The study goal is to explore multi-dimensional factors that might influence people's thought.

(4) Gaining new information through group interaction.

Research Methods

3.1 Research methods

The research is to investigate and compare the distinction of ibon ticket issuing interface of 7-11 and Fami Port interface of Family Mart. The discussion provided in group interview is based on the studies above and further probing the elderly participants about under what circumstances will functional issues occur. Explanatory is requested from the participants. The main goal of using focus group method is to uncover the difficulties of the elderly users with the interface design by group interaction and brainstorming for ideas, especially emphasizing on MMK usage and to find out the factors causing functional issues. The full interview would be recorded for further analysis.

3.2 Background analysis

Figure 3.1 shows that 6 female participants, aged 60-76, were selected. Among the 6 participants, 4 of which live with their family; one of which lives with its spouse and the other lives alone. Though the participants have little experience on MMK platform, their level of education and comprehension is high; therefore, terminology is easily understood during the discussion.

Table 3.1 Interviewee background

Interviewee background				
	Gender	Age	Lvl of education	Living status
A	Female	60	a	With spouse
B	Female	61	H	With family
C	Female	64	a	With family
D	Female	65	a	With family
E	Female	70	H	Solitary
F	Female	74	H	With family

a =Associate degree; H=High school degree

3.3 Interview guide

After investigating and comparing the distinction of ibon ticket issuing interface of 7-11 and Fami Port interface of Family Mart, probing the elderly participants about under what circumstances will functional issues occur and explanatory is issued from the participants. In terms of interviewing the elderly participants, Krueger (1994) and Morgan (1997) suggested that the question should be brief and simple and the language should be understood by the participants. The interview is suggested to begin with general questions; then to specific ones. The interview would be recorded with (1) a SONY-UX553F recorder and (2) a new ipad.

3.4 Interview procedure and structure

6 participants were selected for this research. The interview would be conducted at the leisure time for participants. Before the interview, the participants are unaware of the purpose of the interview. The whole process would be recorded and the participants would be requested to complete an anonymous questionnaire for basic background information. The privacy of the interviewees is ensured so that they could speak at will. The duration of the interview is estimated 1 hour and adjustments would be made according to interviewees' response. Gifts would be given after the interview to show gratitude for participation.

The location of the interview is set at Chinese Baptists Church. This church provides free elder classes for people with an age of 65 and above. The interviewees are selected from the drawing class and after the researchers contacted the related personnel of the church, they suggest that the initial contact with the elders is advised as volunteers of the class, collecting the will and gaining trust for the participation of this research. Participants and time are selected as the class period for ensured participation. The duration of the interview is one hour without any break.

The ideal interview location should be familiar with and comfortable for the interviewee. As the result, the location is set as the interviewees' classroom. No hierarchy arrangement among the seats. Square table is used to that every interviewee could interact with each other and it is feasible for the researchers to observe interviewees' reaction in order to control the discussion toward a more constructive direction.

The Result and Analysis

4.1 Button design

After the verbatim text of the recoded interview is completed, the results are as follows: Family Mart MMK machines have larger icons with more solid and layered; on the contrary, 7-11's counterparts are more two-dimensional (Interviewee A). 7-11's MMK platforms only show squares on the screen. There are no instructions whatsoever to indicate that they are to be pressed; however, Fami Port interfaces provide clear and layered squares and contrasting colors between the button and the background to indicate the button.

Figure 4.1 Two- and Three-dimensional buttons

4.2 Organized interfaces

This interface is complicated. No idea how to operate it (Interviewee D). I have no idea what to choose from (Interviewee F). I would have been better if it's simplified (Interviewee E). Two or more tasks in one screen make up of a complex screen, for example, a screen consists of ticket selection and ticket price selection, which is not advised by the interviewees. One task in one frame is more understandable; for instance, placing ticket selection and ticket price selection in two separate screen frames.

Figure 4.2 a complex interface

4.3 Information arrangement

7-11's MMK platforms use too many words. I can't tell where to press (Interviewee A). Fami Port is better because it's simple and clear (Interviewee C). 7-11's ibon places detailed service instruction behind every button; on the other hand, Fami Port uses brief instructions and enlarges the service tag. Interviewees consider Fami Port to be a more comprehensible platform.

Figure 4.3 ibon information arrangement and Fami port arrangement

4.4 Methods of number key-in

We have no idea what it is about. No idea why they put arithmetic operating icons (plus and minus) in there. You can just type in (number) 1, 2, 3, 4. You will have to press so many times if you want many tickets. I would be better just to type in numbers (Interviewee B). There are two ways to key-in numbers: arithmetic icons and Arabic numbers. The interviewees prefers using Arabic number than the other. They could not understand the meaning of the icons plus and minus in the screen.

4.5 Seat representation

I can’t figure out it’s seat selection part (Interviewee C). Maybe they can draw a bus or something to make it clearer (Interviewee B). The seat selection screen is a chart representing the plane figure of the bus; seats are labeled with numbers. It’s difficult for interviewees to understand through the chart that are seats available. It is advised to remove the label to simplify the screen. Showing seat number on the printed ticket is enough.

Figure 4.5 Seat chart and Visualized Plain Chart

4.6 Indication of Time

7.11's platform makes the screen difficult. Kind of blurry to me (Interviewee F). Fami Port uses words to indicate time. It's crystal clear (Interviewee A). There are two ways to indicate time: numbers and words. Numbers are shown as follows: 8:00~12:00; and words are shown as follows: Morning, Afternoon and Evening. Interviewees consider the latter to be more comprehensible.

Figure 4.6 Time indication in numbers and words

Conclusion

This research compares ibon and Fami Port interfaces in focus group interviewing approach. The result shows that in button instructions, less information is clearer than detailed information. Overdosing users with information may cause confusion. Button color contrasting the background is advised. Arabic number key-in is more understandable than arithmetic operating icons (plus and minus). Graphic interface in seat selection is more comprehensible than chart ones. One task in one screen frame is easier to operate. Using words like morning, afternoon and evening is clearer than numbers.

Based on the results above, researchers suggest that when designing interfaces, the operation procedures are to be considered based on users' cognition and background knowledge to be more understandable. Visualization helps the users identify the operation more intuitively. Not only could the size of words influence the elderly users, the visualization and simplification of the operation is crucial. It not only could benefit the elders by easily understanding the interface and the contents, but also minimized the distraction of the operation. Further research will base on the six concluded variables and gain further understanding with mixed experimental design method. The conclusion could services as a suggestion for future MMK interface design.

Table 5.1 Operational factors influencing the elders' use of Multi-media Kiosk interfaces

	Factors	Contents
Visual	Button design	Button color shown in contrasting color to the background is advised; otherwise, the button would be unidentifiable. Independent solid items would be clearer than charts.
	Detailed information	Icons without detailed information attached are clearer than details attached. Too much information would cause confusion.
	Seat representation	Visualized graphic interface is more comprehensible than chart interface.
Operational	Organized interfaces	One task in each screen frame is more operational than multiple task in one screen frame.
	Time indication	Using words to indicate time, such as morning, afternoon and evening, is clearer than indicating time in numbers.
	Methods of numbers key-in	Typing in numbers is more advisable than pressing arithmetic operating icons (plus and minus)

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A SU-FIELD ENHANCED CONCEPT MAPPINGDIAGRAM FOR GENERATING NEW PRODUCT IDEAS

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ABSTRACT

Idea generation is a vital preliminary stage in new product design and development, whose principal aim is to generate novel productideasfor further refinement and embodiment. It is considered a goal-directed problem-solving process that relies heavily on human experience, creative thinking, and related knowledge. Based on the integrated application of TRIZ Su-field analysis and concept mapping techniques,this paperpresents an idea generation approach for generating new product ideas. This approach can be used as a pictorial tool to develop creative thinking,clarify and articulate the knowledge needed to solve problems, as well as generate novel product ideas.

KEYWORDS: TRIZ,Su-field analysis,Concept mapping,Idea generation

1. Introduction

Facing today's highly competitive and uncertain market environment with short product life cycles, companies typically consider new product design and development as the first stage in generating and commercializing new products within the overall strategic process of product life cycle management used to maintain or grow their market share. Previous studies indicated that a new product cannot emerge without new product ideas (Koberg et al., 2003; Tauber, 1972; Troy et al.,).Idea generation is the process of creating, developing, and communicating ideas which are abstract, concrete, or visual. This process encompasses constructing the idea, innovating the concept, developing the process, and bringing the concept to reality. Research on idea generation for new products has mainly been centered on the notion of creativity (Amabile et al., 1996; McAdam & McClelland, 2002; Thompson, 2003; Yilmaz & Seifert, 2011). How to effectively generate novel product ideas continues to be a critical issue for both design scholars and practitioners.

Various idea generation techniques have been developed and employed in the literature, such as role playing, active search, attribute list, brainstorm, concrete stimuli, critique, encompass, storyboards, etc. (please refer to Herring et al., 2009).Idea generation is mainly aimed at the act of generating novel and applicable ideas, which is the activity frequently associated with creative problem solving (Titus, 2000). As the ideas generated in this stage are used throughout the creative process, taking the idea generation phase seriously is crucial to the success of the creative problem solving process (Davenport & Völpel, 2001;Majaro, 1988; McAdam, 2004;Van Beveren, 2002).TRIZ refers to a Russian acronym translated into English as "Theory of Inventive Problem Solving (TIPS)".It is regarded as a scientific methodology for creative problem solving. Conventional idea generation techniques are sensitive to the demographic profiles and life style biases of respondent groups. Most of them involve intuitive belief systems with more or less arbitrary sources rather than empirically validated theory. Within a given problem domain, conventional idea generation techniques emphasize the importance of a contextual survey with respect to problem solving, whereas TRIZ methods support the problem definition phase as well as inventive problem solving.

Previous research has suggested that a prerequisite for developing better idea generation procedures is to achieve a fundamental understanding of how ideas actually come into being through conceiving the characteristics of the cognitive processes and structures (Dugosh et al., 2000; Nijstad et al., 2003; Ward, 2007). Idea generation requires not only being creative and systematic but also being knowledgeable. Many researchers have investigated the positive relationship between knowledge creation and idea generation (McAdam, 2004; Popadiuk & Choo, 2006; Schulze & Hoegl, 2008). Tseng et al. (2008) indicated that ideas can be effectively generated by transferring knowledge through analogical mapping, which implies the construction of orderly correspondences between the elements of a source analog and those of a target. The technique of concept mapping has been heralded as a cognitive method to help people integrate new knowledge into their existing set of knowledge. It can be used as a tool to develop analogical association ability through structuring the relevant domain knowledge in the idea generation process. The use of concept mapping can promote a fundamental understanding by identifying cause-effect relationships, prioritizing and organizing concepts, and displaying other meaningful patterns of ideas (Romance & Vitale, 1999). Further, concept mapping offers unique features of underlying creative thinking and problem solving by revealing combinations and analogies with previous domain knowledge.

Idea generation techniques focus on using insight to formulate an idea. Conventional idea generation methods mainly focus on the effectiveness of problem solving and idea generation but do not provide a structured conceptualization manner to formulate potential problems and avert trial-and-error iterations. To bridge the gap, this paper presents a Su-field enhanced concept mapping diagram for generating new product ideas, the purpose of which is to develop an effective idea generation approach that integrates TRIZ's Su-field analysis and concept mapping technique into a pictorial ideation method. This method can be used to assist designers in developing novel product ideas.

2. Methods

2.1. TRIZ and Su-field model

Pioneered by Althuller in the mid-1940s, the TRIZ methodology is a systematic approach for analyzing challenging problems where inventiveness is needed, and provides a range of strategies for finding solutions (Allshuller, 1996)The aim of TRIZ is to provide designers with a strategic and predictable problem-solving process to advance further in the direction of the specific inventive solution with a minimum number of trial-and-error iterations. The TRIZ problem solving process comprises the following four steps: (1) problem definition; (2) problem classification and tool selection; (3) solution generation; and, (4) evaluation. Problem definition is aimed at clarifying common design questions and involves analytical tasks that are conducted using TRIZ analytical tools such as project definition, functional modeling and functional analysis, technological evolution analysis, ideality and ideal final result (IFR) analysis, and S-curve analysis. After having finished problem definitions, designers have to classify the problems into categories and then select appropriate tools for the problems. For each problem category, there are some knowledge-based tools available to resolve the problems, such as 39 design parameters and the contradiction matrix, 11 separation principles for physical contradictions, 40 inventive principles for technical contradictions, 76 standard solutions for substance-field (Su-field) analysis, and 8 evolutionary patterns for forecasting technology trends (Ideation International Inc., 1999). By using the corresponding tools, many possible solutions can be generated and then evaluated to determine the best solution to the problem.

Contradiction problems often occur in a new product design process. In TRIZ, there are two main types of design contradictions, namely physical contradictions and technical contradictions. A physical contradiction is a situation in which a subject or an object has to be in two mutually exclusive physical states, whereas a technical contradiction is a situation in which efforts to improve some technical attributes of a system can lead to the deterioration of other technical attributes. Conventional design methods treat contradiction problems based on the philosophy of compromises and trade-offs. Contrary to these methods, TRIZ offers various tools to overcome design contradictions. Among these tools, substance-field (Su-field) analysis is one of the most popular tools used for functional modeling and functional analysis. In a Su-field model, the desired function represents the output from an object or a "substance" (S1) caused by another object (S2) with the action or means of a "field" (F). Any functional system can be modeled with a complete Su-field triangle, which can be used to identify potential problems through the analysis of undesired models. Taking advantage of the 76 standard solutions, the potential problems can be resolved.

2.2. Concept map

The presence of certain knowledge structures in individuals' minds largely determines their ability to characterize a particular problem domain and their problem-solving performance (Ausubel et al., 1978; Hao et al., 2010). The concept map technique, developed by Novak in the 1970s, is a graphical tool for organizing and representing knowledge (Novak, 1998). It makes concepts, as well as propositions composed of concepts, the central elements in the representation of knowledge structures and the construction of meanings (Novak &Musonda, 1991). Concept maps are not only a tool for capturing, representing, and archiving knowledge of individuals, but are also a powerful tool to create new knowledge. They can be used as a tool to clarify idea generation processes through conceptualizing domain knowledge and revealing combinations and analogies with previous domain knowledge.

In a concept map, concepts and propositions are the building blocks for knowledge in any conceptual domain. Knowledge graphs consist of nodes and links in which nodes represent concepts and links represent the relationships between the concepts (Novak &Gowin, 1984). Each node/concept is usually represented as a box and is connected with labeled arrows/links in a downward-branching hierarchical structure. The relationship between concepts can be articulated by linking words or phrases such as “represent”, “among”, “suffer from”, or “take into account”. With concept maps, key information can be presented in a condensed manner without the loss of completeness and meaning. The image of concepts, in any tangible form, can facilitate analogical association through a visual presentation that fosters an understanding of complex information at a glance compared to the dense presentation of words and verbal compositions. The construction of concept maps provides the opportunity for designers to break new knowledge into small parts/concepts, arrange and order concepts to make sense, and make connections between concepts. It helps designers see how individual concepts form a larger whole and how those concepts are generated and connected in a reasonable and reflective manner. Through the integration of new or related concepts and the establishment of new links or the re-arrangement of existing links, potential problems involved in the knowledge domain can be identified during the idea generation process.

2.3. Su-field enhanced concept mapping diagram

Problem definitions involve the formulation of real problem statements instead of the perceived problem for resolving the root cause of the problem. For innovative product design, the quality of solutions is critically dependent on precise problem definitions. A Su-field enhanced concept mapping diagram that combines TRIZ functional analysis diagrams with a concept map is proposed to represent the interrelationships among concepts and clarify the emerging knowledge of the idea generation task. It can be considered a semantics-based technology that helps designers understand the context of the knowledge domain concerning the aim of the product design and obtain a holistic and logical representation of problems broken down into a pictorial format.

The Su-field enhanced concept mapping process begins with the generation of a set of semantic statements/components which ideally represent the entire conceptual domain of the product design for the idea generation topic. A very important aspect of constructing a Su-field enhanced concept mapping diagram is to determine cross-links between concepts in different segments or conceptual domains that help to formulate how these concepts are related to one another. Based on the Su-field problem modeling, 5 types of interaction (useful, insufficiently useful, uncertainly useful, excessive, and harmful actions)are used in the diagram instead of the concept map’s link of labeled arrows to depict the relationships between concepts. Problems can be identified through analyzing the propositional situations with harmful, excessive, insufficiently useful, or uncertainly useful actions. According to the Su-field models derived from the Su-field enhanced concept mapping diagram, designers search for the possible solutions bemeans of the TRIZ 76 standard solutions and further develop concepts to support the derived solutions.

3. Results

Peeling and cutting fruits is something ordinary in our daily lives. However, current products mostly provide a single functionality, either peeler for peeling or knife for cutting. This section presents an illustrative case to demonstrate the applicability of the proposed Su-field enhanced concept mapping diagram. The present case was a teamwork that involves 3 graduate students who majored in Product Design. The aim of the illustrative case is to give a breakthrough for dealing with fruits by using a novel manner, making the use of product safer and more convenient. According to the methods given in Section 2, the implementation results are illustrated below.

3.1. Problem definition

According to the aim of the idea generation topic for dealing with fruits, aSu-field enhanced concept mapping diagram was constructed, asshown in Figure 1. In the diagram, a photo quoted from the Wikimedia Commons (licensed under the Creative Commons Attribution ShareAlike) was linked, which displays the three main varieties of the peeler–the Lancashire peeler, Australian(Dalsonclassic Aussie) peeler, and Y-peeler. This photo was beneficial to the participants'analogical mapping since it provides a revealing insight into the product's functional performance and physical structures. By analyzing the diagram, the main problems of the product design case were defined as follows:

Problem 1: The sharp blade can wound users' fingers by careless cutting.

Problem 2: The knife blade is difficult to be used for peeling.

Problem 3: Can we use the sheath as the frame for the peeler?

Problem 4: How about the disclosed knife-edge when we do not use the knife for peeling?

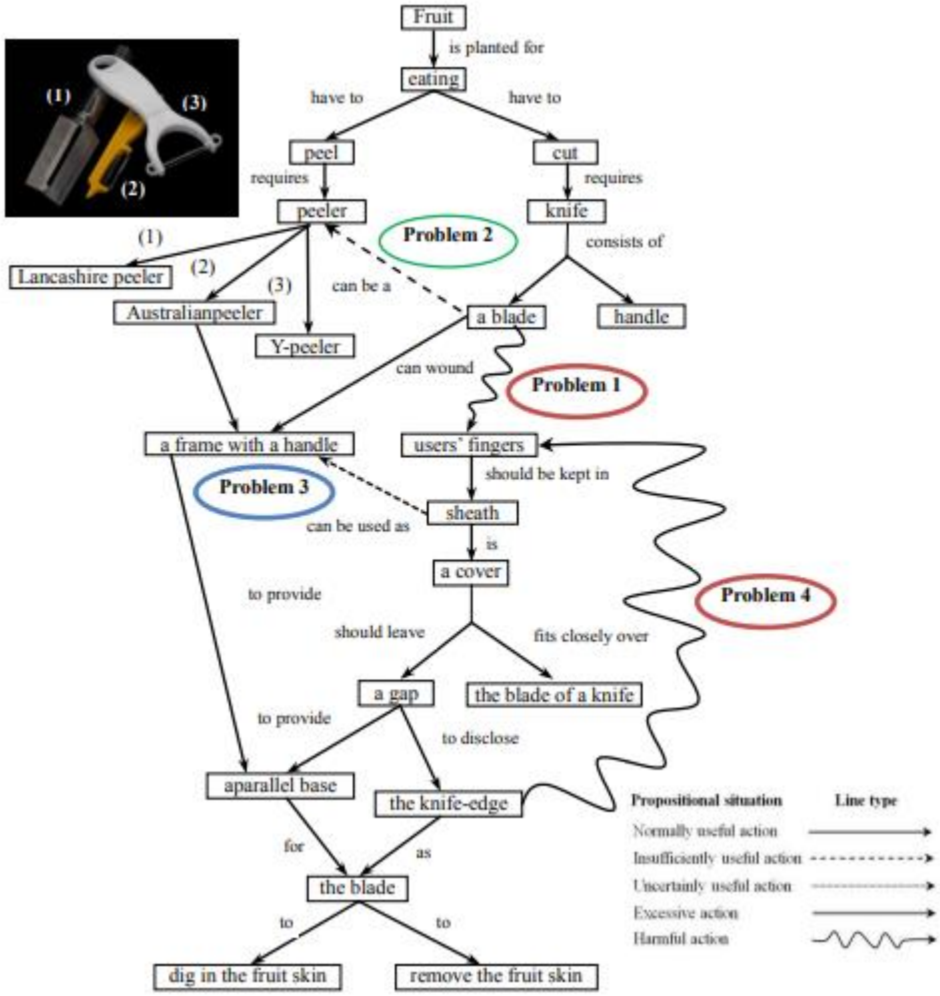

Figure 1. Su-field enhanced concept mapping diagram

3.2. Construction of Su-field models

The above problems are regarded as the imperfect functional structures, which occur when there are excessive, harmful, or inadequate useful functions, or lack of needed useful functions in the system. These problems can be resolved using functional improvement methods and TRIZ standard solutions. The Su-field models are shown in Figure 2. They are employed for solving the problems represented as unsatisfactory interactions between two or more of the system's components.

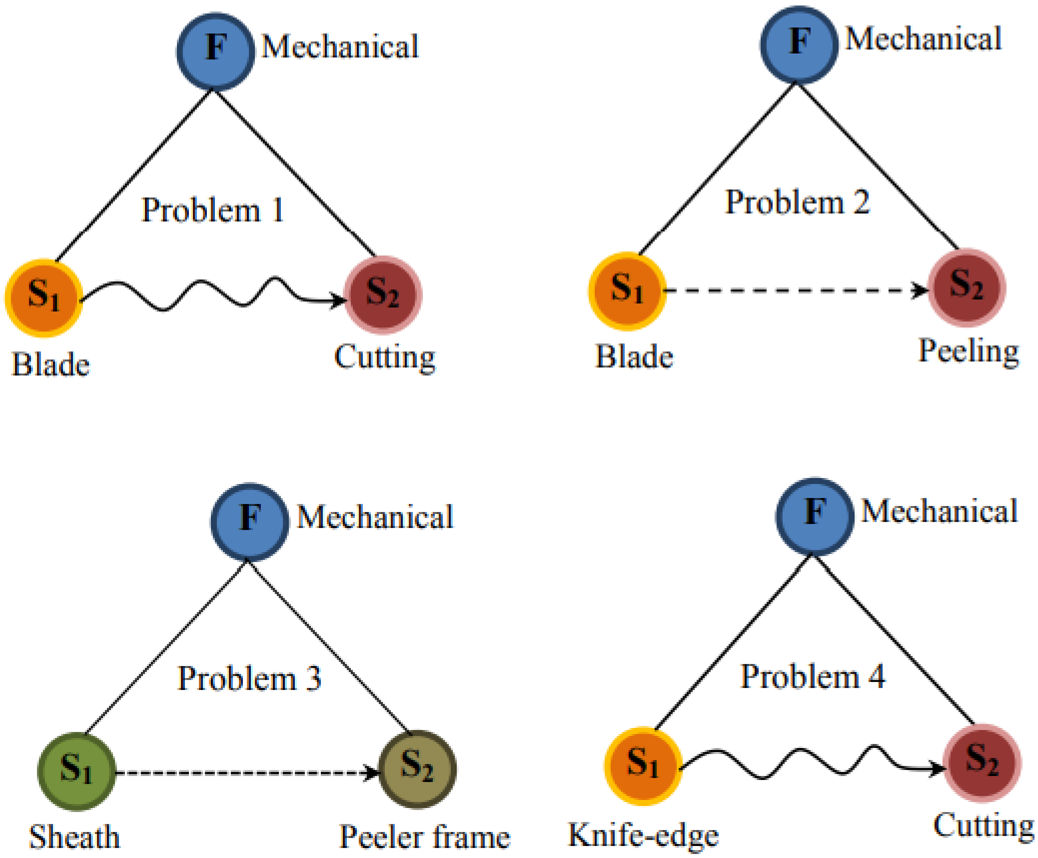

Figure 2. Su-field analysis models for the problems

3.3. Idea generation

A complex Su-field can be formulated by introducing an easily controllable admixture, possessing desirable properties into the substance. As shown in Figure 3, problem 1 can be resolved by adding a sheath as a substance (S1') for the sharp blade to avoid wounding the user's fingers. In problem 2, the type of Australian peeler can be used for peering fruits as it consists of a plastic handle which extends upwards to support both the base and tip of a partially rotating blade. For solving problems 3 and 4, the sheath should leave a gap to disclose a segment of the knife-edge and provide a raised base for the blade to dig in and remove the fruit skin, and users can put it back in the opposite side of the sheath when not using the knife. According to the Su-field analysis results, 4 ideas were generated as follows:

Idea 1: This product combines the knife with a peeler, and the design uses the sheath as the frame for the peeler.

Idea 2: The blade extends downward to form a handle covered with two corresponding plastic pieces.

Idea 3: The sheath should leave a gap to disclose a segment of the knife-edge and provide a raised base for the blade to dig in and remove the fruit skin.

Idea 4: The knife is engraved a straight groove on the center of the both blade faces that fits the rib inside the sheath.

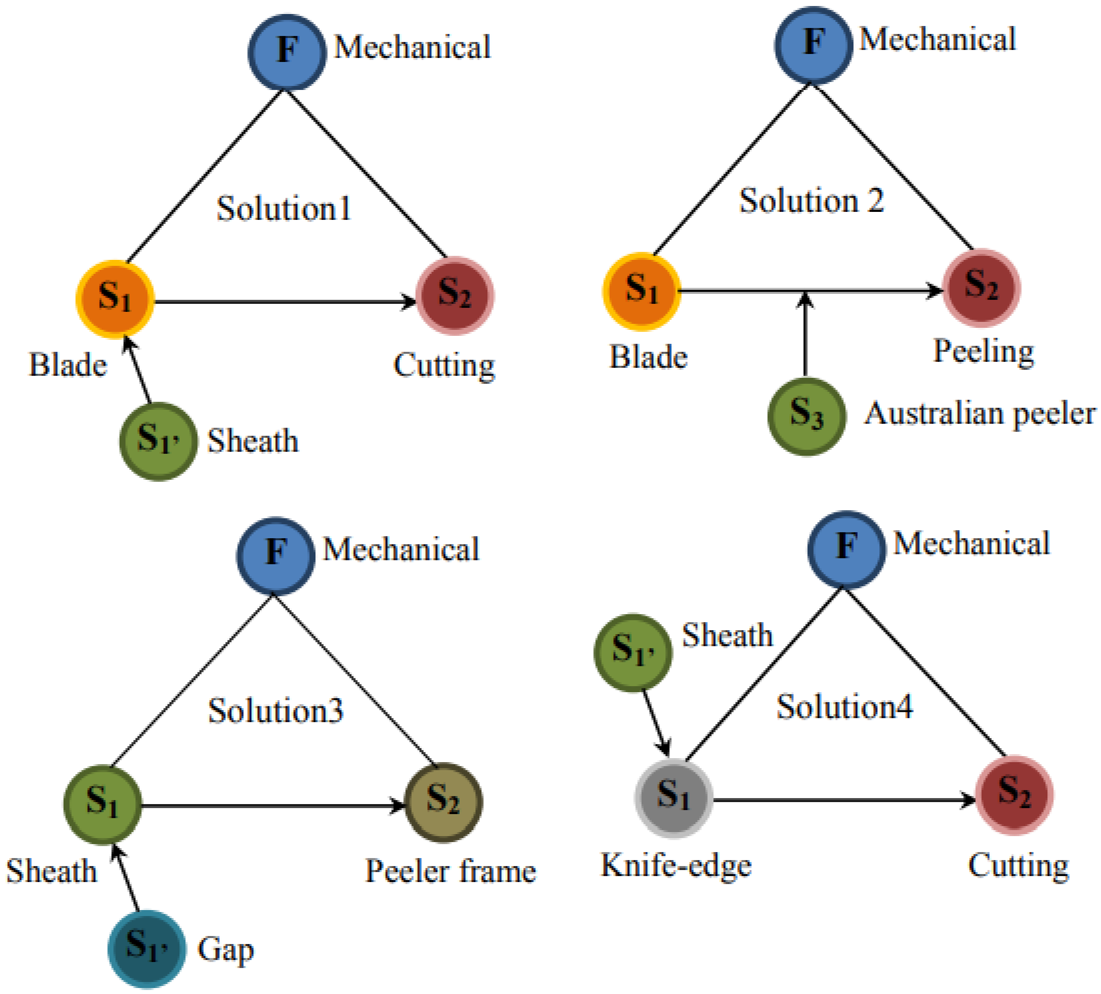

Figure 3. Su-field analysis for deriving solutions

3.4. Concept development

According to the generated ideas, we developed the product concept by using idea sketches. As the sheath plays an important role in this product design, we drew a lot of sheaths and analyzed how these sheath designs can fit the product's intended function and structure. After determining the idea sketches (see Figure 4), the final design was further completed in computer 3D representations as shown in Figure 5.

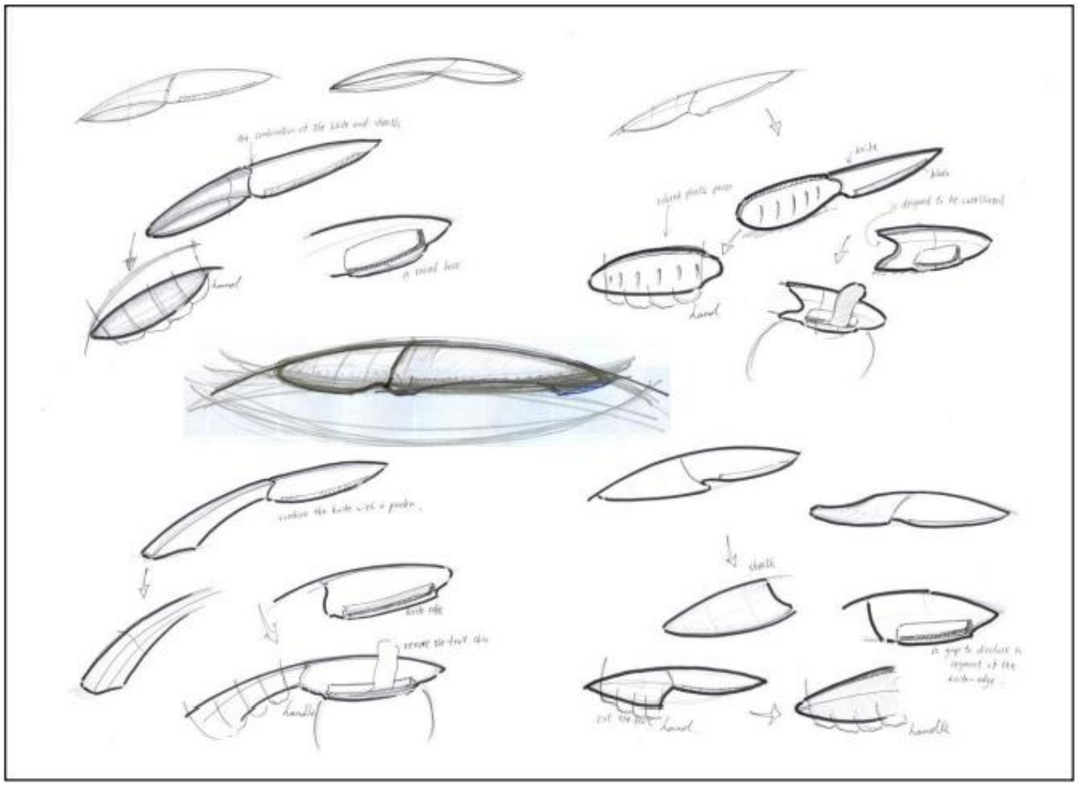

Figure e. Idea sketches for the peeling knife design

Figure 5. The final computer 3D representations of the Peeling Knife design

3.5. Design description

This product gives a breakthrough for dealing with fruits by using a novel manner. The unique design of the sheath is used as the frame of the peeler which supports the knife and provides a parallel base that the blade can dig in and remove the fruit skin. When users do not use the peeler and put the knife back in the opposite side of the sheath, the edge of the knife is concealed within the sheath. The main features of the product design are as follows:

(1) This Peeling Knife made of a stainless steel blade associated with a colored plastic handle and sheath, possesses a dual functionality of peeling and cutting.

(2) The sheath has a gap to disclose a segment of the knife-edge and provide a raised base for the blade to dig in and remove the fruit skin.

(3) The straight groove on the center of the both blade faces fits the rib inside the sheath. It not only makes the peeling steady, but also makes the drawing smooth when putting the knife into the sheath.

(4) The throat of the sheath is designed to be curvilineal, which can make the combination of the knife and sheath firmer and securer.

(5) For safety sake, users can put it back in the opposite side of the sheath when they do not use the knife.

(6) Total length: 21 cm

The largest width: 4.5 cm

Weight: 150 g (with the sheath)

4. Concluding remarks

Idea generation is considered a special type of problem solving activity, involving a complex cognitive process of resolving ill-structured problems. For solving ill-defined problems, the formulation of a problem is often more essential than its solution(Getzels & Csikszentmihalyi, 1975).However, most existing idea generation methods emphasize the importance of a contextual survey with respect to problem solving but do not provide a structured conceptualization manner to formulate potential problems involved in the knowledge domain of the product design. In the proposed approach, problems are formulated using a Su-field enhanced concept mapping diagram that combines TRIZ functional analysis diagrams with a concept map. Concept mapping has been heralded as a cognitive method to organize and represent the core ideas of a concept. It can be regarded as a transformative process to conceptualize and represent complex constructs in a clear and systematic manner (Sutherland& Katz, 2005). Functional analysis and functional decomposition diagrams are widely used in TRIZ as problem definition tools. TRIZ-based functional analysis provides a concise representation to structure problems, identify a range of function-related problems within a system, and rank them according to their importance of interaction. It can be used not only for finding existing problems but for identifying resources to increase the degree of ideality of the system. The proposed Su-field enhanced concept mapping diagram is a meaning-centered analytical tool that enables designers to formulate design problems by clarifying cause-effect relationships, organizing and prioritizing concepts, and displaying meaningful patterns of ideas. Through analyzing the propositional concepts with harmful, excessive, insufficiently useful, or uncertainly useful actions, potential problems involved in the knowledge domain of the product design can be identified. Taking advantage of the TRIZ standard solutions, product ideas can be generated and product concepts can be developed as well.

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APPLICATION OF COLLOQUIUM EXPLORATORY-BASED LEARNING METHOD IN INTRODUCTION TO BUSINESS COURSE IN DEPARTMENT OF MANAGEMENT, FACULTY OF ECONOMICS AND BUSINESS, UNIVERSITAS AIRLANGGA, INDONESIA

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ABSTRACT

Some problems were encountered in the implementation of teaching-learning process, yet Exploratory-based Learning method had given the students a set of educational situations in the form of involvement and brought the students for a real experience in a natural atmosphere that allowed them for doing some explorations and investigations in order to solve the business problems. The colloquium method is an independent of learning method that empowers the students as the teaching and learning resources that need to be managed, processed and developed so that students play the active roles as the subjects in the learning process and not as the objects which only accept the materials provided by the lecturers. Instead, the lecturers should act as the facilitators in the teaching and learning process that can help smoothing the process. The result of applying this method was the students enthusiastic in exploring the tasks given each meeting. Some students expressed the opinion that the students felt really understand the topics or the materials provided not only through reading books and materials descriptions from the lecturers, but also added the insight of all the things in the real experiences provided from the business through direct interviews or browsing by internet. In addition, the students also learned to work together with their friends in a group, to prepare the materials presented, to be dare to do a presentation and to improve their ability to communicate in the class discussions. This soft skill is certainly very necessary for them to form their soul of independent, creative and innovative, so that it will make easier for them to become young entrepreneurs and future generations of this nation. Moreover, through the exploration tasks undertaken by the students, made them to be able to find some real situations which were not found in the theories or concepts in the books. This became an interesting discussion about the reasons why there was inequality between real business situation and theories or conceptual matters.

KEYWORDS: entrepreneurial spirit, colloquium method, exploratory-based learning, exploration tasks, teaching and learning process

1. Introduction

The success of a teaching method can be identified through the results of the implementation process of teaching itself. One of the factors that affect the implementation of a good teaching method is to make a good design where the learning process becomes more meaningful and enables the students. The process of learning and teaching are two different things but forming a unified whole. The interaction of teaching and learning process is determined by the strategies or method of learning applied.

One important task of universities is to educate its human resources to be entrepreneurial minded people. Changing mindset from consumptive into entrepreneurial, has become an imperative for the universities and conducted institutional and private universities from all elements. In order for the students as one element of higher education that could be potential entrepreneurs who are able to think and act self-sufficient (independent), creative and adaptive, then the students should be given the opportunities to use all their abilities both physically and spiritually to be able to act independent, creative and adaptive. How to teach that is used to achieve these objectives should provide optimum flexibility for the students to train their abilities in variety of activities that require the contribution of these capabilities (learning by doing) in supporting the success of courses taught by the lecturers.

Introduction to Business course is taught such a basic subject for the first semester students in the Faculty of Economics, Universitas Airlangga, Surabaya, Indonesia. Therefore, the students will be expected and directed to become entrepreneurs who will create jobs, then this course is very appropriate to provide the fundamental insights or understanding of a very strong start for the students. All the students who follow this course are assumed to still require a lot of sufficient knowledge and insights in accepting and following the independent, active, creative and adaptive teaching process so that they have an interest, motivation and desire to understand and to study the behavioral aspects of management and business activities in preparing their selves to be true entrepreneurs.

Some problems were encountered in the implementation of this teaching-learning process. The first was that the students were less able to accept and absorb the course materials. In addition, the second problem was that the students were less able to familiarize themselves in exploring the lecture materials and issuing their opinions and thoughts. The students were less motivated and tend to be reluctant to seek some additional information discourses and lecture materials by other explorations, such as a bunch of browsing the Internet, searching some scientific articles in the library and others. This causeda lack of progress and enrichment of their knowledge and skills in understanding the senses and understanding of the activities and business conduct and the factors influencing it in general.

The third problem was that the students' habits were caused by their learning process from the education systems applied from the elementary and secondary education to the higher education. The habits that made the students had passive responses and tend not to dare to express their ideas and thoughts. The students were not accustomed to perform their activities in some discussions so that their abilities to express their opinions still poorly trained, as well as their abilities to accept differences of opinions from other people. This condition required the lecturers to have some creativities to create some innovative learning methods that enable the students to conduct discussions on the behavior and activities of business and other factors that influence it so that not only the transfer of knowledge and information sharing, but also there is the communication skills trained of the students themselves.

These constraints were expected to be reduced in line with the implementation of new methods and innovative learning in lecturing the course of Introduction to Business. Thus, the purpose of implementing this learning method achieved was to familiarize the students an effective learning process, to foster creative thinking skills, to make them independent and constructive, well-trained ability to communicate and explore the innovative things. These capabilities were very necessary to establish personal and entrepreneurial attitudes within every student. This was suitable with the purpose of this teaching and learning process that was providing a lot of true entrepreneurs who had capabilities in creating jobs, both for themselves and others.

2. Literature Review

The teaching method essentially is an interaction between educators and students. Various ways or forms of teaching methods used by the educators in the classes emphasize exercises, comprehensions, repetitions, memorizations, and so forth. The behavior of good teachers in the classroom as teaching, coaching and providing exercises, has the purpose and specific objectives tailored to the circumstances and students' interests. Therefore, there are relatively some effective teaching principles in general, namely the principle of development, individual differences, interests and needs, activity and motivation. (Ibrahim& Nana, 2003) The principle of development associated with the development of students' thinking abilities that differ from each other. At the time of choosing the learning method, should be considered and adapted to the abilities of students. The principle of individual differences associated with each individual learner. They will have the traits, characteristics, abilities, willingness, skills and other factors which differ from each other. This requires that educators have the creativity to develop the concept of learning.

The principle of asking for and needs related to the fact that every individual has the interest and needs of each, of course differ from one another. Therefore, teaching materials and the learning methods also be adjusted with the interests and needs. The principle states that activity is an effort made to teach educators that students are learning. In teaching, learners are the subject or the perpetrator's own learning activities. So that learners assume the role of the learning activities should be designed so that demands of teaching students many learning activities are interesting and useful for their future. The success of a teaching can be identified through the results of the implementation process of teaching itself. One of the factors that affect the implementation of good teaching is to make a good design where the learning process becomes more meaningful and enable the student. The process of learning and teaching are two different things but form a unified whole. Determined by the interaction of teaching and learning strategies or learning methods are applied. In expository teaching methods, a more active role played by teachers and students become passive. On the teaching methods that make students active as discovery / inquiry, problem solving and other, more active role played by students, not by the teacher. They are the subject of the academic process.

Learning is a series of efforts to develop the abilities and attitudes and values of students, both intellectual ability, social, affective psychomotor. (Ibrahim & Nana, 2003) learning methods (learning) has a variety of forms or types. This was triggered by the presence of different pressures on the learning aspects, such as pressure on the nature, shape, skills, processes, places of learning and others. Gagne (1970) distinguish between types of learning of intellectual skills contained therein. He suggests a hierarchy of skill or skills from the lowest to the highest or complicated, namely learning the signs, the learning stimulus response relationship, learning to master a series of things, learning verbal relationships, differentiate learning, learning concepts and learning problem-solving. Therefore, the teaching and learning activities that can not be separated, the teaching method should be developed that will determine the learning activities undertaken by the students. To develop students' skills, we need a creative way of thinking. Creativity is the ability to discover new relationships, understand the subject from a new perspective and form a new combination of two or more existing concepts in his thinking. (Evans, 1991) approach used to be able to motivate students to think creatively is to confront a student on a problem in the hope that students will be aware of the problem, to review the various points of view, to formulate the problem and sought to resolve the problem in different ways. (Rooijakkers, 2003).

Short colloquium method is a method of learning that provides opportunities for students to learn in-depth study materials and then discuss the material in class. (Rooijakkers, 2003) learning model like this is a model of independent learning that empowers students as teaching and learning resources that need to be managed, processed and developed. In this learning model, students take an active role as subjects in the learning process and not as an object which only accept the material provided by lecturers. Instead, professors should act as facilitators in teaching and learning that help smooth the learning process. If this method is carried out consistently and raise new topics in the fields of business, then indirectly the students will be "forced" to actively enrich their knowledge through active reading, at least they will get enriched by reading the topics they had discussed. Teaching with a new approach which focuses on the role of students in learning activities (experience-based instruction) in which the student seeks to achieve the goals of behavior through direct experience. (OemarHamalik, 2001) Exploratory-based Learning provides an alternative learning experience is more extensive, active and creative. This gives the students a set or series of educational situation in the form of involvement and brings students real experience in a natural atmosphere that allows for exploration and investigation in order to solve business problems. This learning method has the aim that the students can improve confidence and ability to actively participate in learning activities. In addition, this method is expected to create positive social interaction with the surrounding environment, especially the atmosphere of the class. Thus, students become trained to listen to others, appreciate or take into account the opinions of others, member restrictions on others, cooperate with others, look for the possibility of solving problems and others.

3. Method Development and Implementation Strategy

Below are the descriptions of teaching method development based on issues that arise in the course of Introduction to Business:

- Classical Lecture

  This course were given at the first semester, therefore classical lecture conducted at every encounter, although in different time proportion. This approach is important to let students adapt with university environment which has completely different teaching and learning process that they have experienced during high school. During first course, lecturer explain the learning process in higher education, as well as course contract, course material, text book that will be used during semester, exploratory assignment either field study (direct interview) or online.

- Exploration through direct interviews (field studies)

  This method was intended to develop students' ability to well communicate and get to know the characteristics of entrepreneurs who do real business. This assignment was not given for each meeting, yet subject to conditions outside the campus. This exploration method with direct interviewing (field studies) provided students with direct sharing experience with businessman or entrepreneur in business. Student’s entrepreneurial spirit were expected to arise which in turn trigging their motivation run their own business.

- Online exploration

  Students in groups are assigned to explore the internet to get informations that unable be obtained through direct interview. This assignment also train them to work in team. Peer evluation was implemented to avoid free riding.

- Discussions and Exploration Assignment presentation

  Lecturer moderated discussion was the core activity of colloquium learning methods where students discussed their ideas with their colleagues. They were trained to enshape communication ability with others, expressing opinion, as well as respecting other’s idea that may opposite from them. Communication skill is essential provision for students to become entrepreneurs. The presentation and discussion activity was conducted prior to the concept (theory) which presented by lecturer. Assessment of the discussion was not only done by lecturers, but also by students in other groups who were not presenting.

Strategy to implement Colloqium Exploratory-based Learning were conducted by this following scenario:

a) At the first meeting, each student listening and paying attention to the explanation of course rules as set out in the contract. They should scrutinize some informations about the process of teaching and learning in higher education, lecture materials, textbooks, job exploration through field study (interviews) as well as surfing the Internet. Classical lecture started to be given at this first face to face. Prior to end of the first meeting, students should form groups under the control of each class coordinator for exploration assignment that should be presented during second until twelfth meeting.

b) Lectures for the second to the sixth meeting began with two group exploration presentation. After finishing the presentation, students discuss each other. Group presentation appraisal conducted by students and lecturer and the individual contributions assessed by lecturer. In the end of the session, theory explained by lecturers in classical form. During the classical, lecture also explaining the possible incongruity between theory and business practice.

c) Mid-examinations were hold after the sixth meeting.

d) Seventh to the twelfth meeting conducted as like the second to the sixth meeting.

e) Final examination were held after the twelve-face meeting. The materials for final exam were evaluating the student's understanding of the topic or material that has been taught by lecturers.

4. Implementation

Pre mid-exam evaluation of Colloquium Exploratory-based Learning method for Introduction to Business course could be stated meet the expectation. Students showed their obedient to comply with contract that has been set in the first meeting. Although the process require more attention and time allocation, by doing the assignment in group make it easier to accomplished. Based on satisfaction measurement, some students stated that they could understand course materials. In addition, they also learn to work together in team, preparing the presentation materials, dare to stand up to do presentation and improve the communication ability. Soft skills are certainly very necessary for students to form the soul of independency, creativity and innovativeness.

By examining the presentation and discussion of exploration assignment, it can be stated that students understand and are able to improve their soft skills. Although there are some groups of students which shows lacks of seriousness in completing exploration assignment. The ability of the students and the outcome increasingly honed their explorations ability. This certainly occurred because the students become accustomed to and familiarize themselves to work together for the assignment. Likewise, the ability to communicate is also one of the purposes of applying this learning method. The students even better in doing presentations and discussions went more smoothly and active. They understand well that the ability to communicate will be critical in professional life.

One of the obstacles that occurprior tomidterm exam was limitation of internet connection. To overcome this, lecturers slightly changed the way students get information which no longer surfing through internet, yet face to face interview with experts. In addition, students are expected to get more benefits (added value) the ability to do the interview (a dialogue) with various types of businesses through field studies.

5. Barriers and Solutions in Implementation of the Method pre and post Middle Semester Exams

Each implementation of learning methods will surely not free from obstacles. As for some of the barriers that exist between other student complaints against internet access in the campus. They complained slow internet connection which certainly hampers fluency in exploration assignment. Therefore, students must be willing to spend extra funds for Internet access elsewhere. This is certainly burdensome for students. The solution of course depends on the faculty or university to make Internet access faster.

Another obstacle was when they have to do a field study. Their ability to conduct interview has not developed well. They complained about the difficulties to get credible interview sources. The solution to this obstacle course was by giving tutorial on conducting interview as well as motivates the students for not quickly despair in searching for information and data.

Another obstacle is the lack of the students to understand concepts or theories contained in the textbooks. They sometimes do not read and study material in text books so that the analysis and understanding stated in report sometimes too shallow. The solution to this obstacle is the very important role of faculty in promoting the spirit and motivation of students to keep reading theories or concepts and align them with the real world of exploration.

The last obstacle is related to the number of students in the class. The average number of students in each class was more than 50 students. This makes the application of the learning method a bit ineffective. The process of learning by this method cannot be done with a few numbers of students in small classrooms for student body a great faculty. The solution to these obstacles was implementation of U shape chair arrangement.

6. Class Performance Evaluation

The effectiveness and successful implementation of a learning method can be assessed by determining the performance indicators. Performance indicators in this case were measured from the results of student achievement and the performance of the implementation of teaching methods. In accordance with the design of the evaluation made by the previous lecture, to be able to find out the effectiveness of the course by using this method, it is necessary to determine how to evaluate them, namely:

- Written exam scores of students in the middle of semester and end of semester plus the value obtained during the execution of learning activities with this method.
- Team and individual score measurement.
- The Individual and groups activity in doing presentations and discussions.
- Questionnaire to asks their acceptance and satisfaction level.
- The presence or absence.

The effectiveness of the application of this method is not only measured through only test scores. However, the most important is the existence of positive benefits or added value perceived by the students. In addition, students have increased skills and ability to discuss the good and the experience / perform their own decision-making process, although only in the form of simulation.

Other performance indicators also can be considered as a measure of the successful application of this learning method is the level of student satisfaction and student responses obtained through the deployment questionnaire. Based on attached questionnaire score, most of the students expressed their positive valuation and agree that this learning method provide them with added value and benefits for them so they are motivated to attend every meeting. This is evidenced with a bunch of activity the students to attend and contribute in any discussions. Another thing that encourages students to be active in the discussion may also be due to the assessment of individual activity, in addition to the group assessment.

7. Advantages and Disadvantages Implementation

Excess application of learning methods using the Colloquium-based Exploratory Learning is students become more accustomed to accessing the Internet and conduct interviews (field studies) because the task of exploration to be done each time the lectures take place. This is of course to encourage and motivate students to improve the ability of both hard skills and soft skills to meet all the requirements requested in the following lecture course Introduction to Business. The weakness of the application of learning by Colloquium-based Exploratory Learning method is the limited facilities provided by the faculty. The facility in question is the means and infrastructure to support the completion of exploration tasks that have to use the internet. Because not all students have laptops that can be used to access the Internet, so it will need the provision of computers that can be used by students at any time. In addition, another weakness is that there are some students who are somewhat difficult to interact with internet and with others through interviews, but it can be overcome by giving encouragement and obligation to access the Internet, so that the students had to learn to access the internet and develop ability to conduct interviews (field studies) that the better.

8. Conclusions and Suggestions

Results of application of the Colloquium on the Exploratory Learning-based for Introduction to Business course wasstudents enthusiasm in the exploration assignment in each meeting. Although the students felt the task was quite heavy, but by working together to be felt not too heavy. Some students expressed the opinion that they feel really understands the topic or materials provided not only through reading books and materials from lecturers description, but also add insight to all things real experience shared through direct interviews or access the Internet. In addition, students also learn to work together with friends in one group, preparing the presentations, dare to appear to do a presentation and improve the ability to communicate in the discussion. The soft skills are certainly very necessary for students to form the soul of independent, creative and innovative making it easier for their endeavor to become entrepreneurs.

By examining student's presentation and discussion from exploration assignment, it can be stated pupils are understand and be able to improve their sofy skill. Although there are several groups of students who show their lack of seriousness in completing the exploration task given at every lectures. This can be seen in the recapitulation of mid test score as attached to this report. One more thing is quite encouraging, through the exploration assignment, students were able to get some real picture that cannot be found in classical learning.

From data that has been processed, majority of students stated agree that this learning method provide them with added value and positive benefits so they are motivated to attend lectures every week. This is evidenced with a bunch of activity the students attend and contribute in any discussions held. Another thing that encourages students to be active in the discussion may also be due to the assessment of individual activity, in addition to the group assessment.

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HUMAN RESOURCES MANAGEMENT STRATEGY AS AN EFFORT TO IMPROVE INNOVATION IN ORGANIZATIONS

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ABSTRACT

Innovation activity in organization needs human resources (HR) that are competent and has high capability. HR as the driving force of innovation needs to be managed within the organization to address the developments and changes in organizations. The global human resource management is the utilization of human resources globally to achieve the organizational objectives regardless of geographic boundaries. People involved in the global human resource management evolve and work through an integrated system of global human resource management. This is done in order to face the challenges of the current organizations, such as global competition, organizational design, and communication technologies. Therefore, organizational fostering is required as one of the strategy to increase innovation within the organization. Strategies to boost innovation in the organization can be carried out, which include sensitizing the organization, determining the strength of organizational culture, strengthening the organizational culture, creating organizational innovation and form a framework that is able to increase the sensitivity of the organization.

KEYWORDS: human resources management, organizational culture, innovation, organization

INTRODUCTION

Management is the process of utilizing raw materials and human resources to achieve the determined goals. This process involves the organization, direction, coordination and evaluation of the people in order to achieve these goals (Nawawi, 2003). The essence of management is the working activity with other people to achieve various results. Management is done through the process of integrating a variety of resources and tasks to achieve organizational objectives that have been pre-determined so that human resources management requires a strategy to optimize the organizational progress. The human resource management strategy is a fundamental formula on the utilization of human resources in an effort to maintain and improve the best (prime) ability of an organization through its employees. The implementation of the HR strategy is indispensable to the organization as a stable system, which is a manifestation of cooperation between individuals to achieve a common goal, to hold a certain level and division of tasks. The terms of the organization are:

a. Having a clearly defined purpose.

b. Having a clear division of tasks. An organization must consist of several positions, which all have clear responsibilities and duties. Despite allowing the change of people in an organization, the duties and functions of each position has not changed and remains as the organizational objectives.

c. Having a clear structure of authority. Not all positions in the organization have the same authority. Moreover in setting authority, every position is clarified of its responsibility.

d. Having basic/general rules (objectives, management board requirements) and special rules (details of activities, the process of board formation).

e. Informal relationship patterns. Organizations which are very tight, full of formal and rigid bureaucracy will eliminate the human element in performance among its members. Thus an organization should use an informal pattern in the relationship between its members to eliminate tension and become more familiar but still accountable to each other.

Organizations that require human resources capable of enhancing the innovation need a strategy especially in creating a competent resource and high capability to increase innovation within the organization. The goal of innovation process in organizations remains on each individual but still bounded by the rules of the organization. Most people consider in order that to maintain the stability of the organization, the members of the organization do not want innovation. However, in reality an organization is always dealing with innovation and that actually innovation is a process of organizational progress. Human resources is not only a tool in the organization but it has an important role in the organizational activities. The position of HR as a driving force and determinant of the production process and all the activities of the organization. HR has a large contribution in determining the development or advancement of an organization. Therefore, the progress of an organization is also determined by how the quality and capability of human resources in it.

Triggering aspects are necessary to be studied in the organization. One of those triggering aspect is organizational innovation. Organizational innovation increases when people equity in terms of human resources is also getting better (Schiemann, 2011, 2006). Innovation basically means renewal, which is sourced from creativity and initiative in productive thought processes. Training in this strategy is to achieve the ability to respond appropriately in accordance with the information results, which has vast opportunities to do so creatively. In other words, this strategy is utilized in training to realize the ability to develop products and services, in types, procedures and qualities (Soeratno, 2012). Innovation extremely needs human resources strategic thinking that are optimally applied. In order to spark creativity that can be transformed into all levels, there are rules that are necessary to the process of innovation and resource not only depend on the leadership and strategy, but also organized extensively in processes and resources within the organization. Innovation can be performed by human resources responsive to the changes and have the competent ability to create innovation in organizations.

Organizations must instill a supporting working culture that establishes creativity and new innovation. One of the way is to empower human resources in order to always be critical and follow up that critical nature with real action to quickly resolve encountered problems. The attitude then was given the opportunity to undertake a process of self-actualization which will lead to increased innovation in organizations. According Shahindra (2013) rules that exist in the organizational innovation are:

1. Urging strong leadership in portfolio decisions
2. Innovation integration in corporate culture and mentality as a core competency
3. Alignment of the number and type of innovation into the company business
4. Manage the natural tension between creativity and value added in a balanced manner so that it provides an optimal level of return on investment
5. Neutralize organizational barriers that can eliminate the best ideas
6. Knowing the basic building innovation in the form of networks between humans and the knowledge - both outside and inside the organization, and finally
7. Creating metric measurement and the right incentives to strengthen innovation.

These show that organizational innovation can be done if the human resources within the organization are able to operate all aspects of the value on both the culture and innovative thinking for organizational progress.

DISCUSSION

1. Organizational Sensitivity toward Innovation

Organization must have sensitivity toward innovation. According to Saputra (2009), there are five innovation characteristics such as:

1) Relative Advantage

Relative advantage is the degree to which an innovation is perceived as better/superior than ever before. It can be measured in several ways, such as in terms of economy, convenience, satisfaction and etc. The greater the perceived relative advantage by the adopters, the faster the innovation can be adopted.

2) Compatibility

Compatibility is the degree to which innovation is considered to be consistent with prevailing values, past experiences and the needs of the adopters.

3) Complexity

Complexity is the degree to which the innovation is perceived as difficult to understand and use. There are some specific innovations that can easily be understood and used by the adopters and some are otherwise. The more it is easily understood and understood by the adopters, the faster the innovation can be adopted.

4) The Ability to be Tested

The ability to be tested is the degree to which an innovation can be tested to a certain extent. Thus, in order to be quickly adopted, an innovation should to be able to show (demonstrate) its superiority.

5) The Ability to be Observed

The ability to observe is the degree to which the results of an innovation can be seen by others. The easier one sees the results of an innovation, the more likely the person or group of people to adopt.

To perform an innovation, companies often have to create huge changes, ranging from changing procedures, organizational structure, business model change, even forming a new business unit. To determine what changes are needed by the organization, it must first understand what the challenges are presented by innovation. Sensitivity in this matter means being associated with the extent to which the organization is sensitive to innovations (faster in receiving innovation). According to Saputra (2009) innovation is a combination of abilities that affect organizational sensitivity to innovation. Therefore, any measures taken must be based on innovation. Innovation does not only deal with new knowledge and new ways, but also with the values, because they have to be able to bring better results and that affects sensitivity to organizational innovation. These values relate to the point of view or perspective held by people or social groups in the society. Thus besides involving new science and technology, innovation also involves perspective and social change.

According to Saputra (2009), there are a few variables that affect the organizational sensitivity towards innovation, which are:

a. The size of an organization. The larger the size of an organization, the faster it accepts innovation.

b. Characteristics of organizational structure, which includes;

1) Centralization. Authority and power in the organization is controlled by a several selected people. This has a negative relationship to the organizational sensitivity.

2) Complexity. This means an organization consists of people who have the expertise and know-how. This has a positive relationship to the organizational sensitivity.

3) Formality. This means that this organization always emphasizes on the procedures and standard rules in organizing. This has a negative relationship to the organizational sensitivity.

4) The intimate relationships between members. It is also clearly have a positive relationship to the organizational sensitivity.

5) Organizational flexibility. This means the extent to which organizations wants to receive from outside sources that have no formal relationship. This has a positive relationship to the organizational sensitivity.

6) Individual (leadership) characteristics. When a leader has an open attitude towards innovation, the faster the organization to receive the innovation.

7) External characteristics of the organization. This relates to a system embraced by the organization. If the organization embraces an open system in the sense of willing to receive influence from outside the system, then the organization will quickly accept innovation.

2. Innovation Determine the Strength of Organizational Culture

According to Luthans (1989), the main factors which determine the strength of organizational culture are:

a) Togetherness

Togetherness is the extent to which organization members have core values that are adopted together. The degree of togetherness is influenced by the orientation and reward elements. Orientation is intended as guidance to organization members, especially new members where some are made through the guidance of a senior member to the new members as well as some through training programs. Through the orientation program, new organization members are given the cultural values that need to be jointly adopted by the members of the organization. Besides the togetherness orientation element, it is also influenced by the reward element. Rewards can be in the form of salary increases, tenure (promotion), gifts and other measures that help strengthen the commitment of the organization's core values.

b) Intensity

Intensity is the degree of commitment by the organization members to the core values of the organizational culture. The degree of intensity could be a result of the reward structure. The desire of employees to carry out the cultural and work values increases when they are rewarded. Therefore, the organization/company leaders need to pay attention and obey the reward structure granted to organization members in order to instill the core values of the organization.

Robbins (2010: 56) stated there are ten characteristics which when mixed and matched, will be the organizational culture. The ten characteristics of the organizational culture are as follows:

a) Individual Initiative.

The definition of individual initiative is the level of responsibility, freedom, or independence that belongs to each individual in expressing an opinion. The individual initiative needs to be appreciated by the group or organization leader as far as it is ideas to promote and develop the organization or company.

b) Tolerance towards Risky Actions.

An organizational culture is considered well, if it can provide tolerance to its members/employees to be able to act aggressively and innovatively in advancing the organization/company, and willing to take risks for what he/she has carried out.

c) Briefing.

The briefing is considered as the extent to which an organization/company can create clear goals and desired expectations. Goals and expectations are clearly stated in the vision, mission, and goals of the organization. This condition can affect the performance of the organization/company.

d) Integration.

Integration is considered as the extent to which an organization/company can encourage organizational units to work in a coordinated manner. Solidarity of organizational units in working can promote the quality and quantity of the produced work.

e) Management support.

Management support is considered as the extent to which managers can provide communication guidance, assistance and support that are clear to their subordinates. Management attention to subordinates (employees) is very helpful for the smooth performance of an organization/company.

f) Control.

Control tools that can be used are the rules or norms prevailing in an organization/company. Therefore, it is required a number of regulations and supervisory personnel (direct supervisor) that can be used to monitor and control the behavior of employees or subordinates in an organization.

g) Identity.

Identity is considered as the extent to which the members/employees of an organization/company can identify themselves as a unit within the company and not as a specific working groups or specific professional skills. Identity as a single unit in the company is very supporting management in achieving the goals and objectives of the organization/company.

h) Reward System

The reward system is meant as the extent to which the reward allocation (such as salary increases, promotion) based on the performance of the employee and is not otherwise based on seniority, favoritism, etc. Reward system based on employee job performance can encourage employees/subordinates of an organization/company to behave innovatively and look for the maximum performance corresponding to its capabilities and its expertise. Instead, reward system based on seniority and favoritism, will result in a workforce with the capability and expertise to be passive and frustrated. These conditions can result in the performance of the organization /company to be hampered.

i) Tolerance towards Conflict

The tolerance towards conflict is the extent where the employees/subordinates are encouraged to openly express conflicts and criticisms. Argument is a phenomenon that often occurs in an organization/company. However, differences of opinion or criticism that occurs can be used as a medium to develop strategic improvements or changes to achieve the objectives of an organization/company.

j) Communication Pattern

The communication pattern is the extent where the communication is limited by the formal hierarchy of authority. Sometimes the hierarchy of authority can prevent the occurrence of the communication pattern between superiors and subordinates or between employees themselves.

3. Innovation to Strengthen Organizational Culture

According to Nasution (2010; 35) there are a few activity measures that can be done to strengthen the organizational culture by the leader of the organization as follows:

a) Establish the basic values of the organizational culture

Basic values of organizational culture can be translated as the business philosophy, the basic assumptions, the company/organization motto, the mission, and the general objectives of the organization and/or principles that describe the business

b) Guidance to organizational members

Once the basic values of the organizational culture are established, the next activity is to provide guidance to all organization members/employee. Direction of guidance is so that the basic values that become the organizational culture can be understood, internalized, and executed by organization members, especially new members. Guidance to members can be done two ways, namely through guidance and training.

c) Providing example

Providing example shown by a leader in behaving is a real guideline that will be quickly followed and emulated by the behavior of organization members

d) Creating routine events

Various routine events can be done, such as regular meetings, joint recreation, sports, arts night, and so on.

e) Giving assessment and reward

For the organization members who excel in planting organizational cultural values need to be rewarded with increased promotion/job title, salary, title giving, prizes, and so on.

f) Responsiveness to external and internal problems

Many external issues that affect organizational culture are competitions, customers, market shares, government regulations, the global influence, and so on. Internal problems that greatly affect organizational culture are conflicts within the organization, the demands of employees, and so on. These problems need to be anticipated and addressed through the actions of organizational culture.

g) Coordination and control

Organizational culture behaviors can be performed through coordination and control. Coordination can be done through formal meetings, coordination among company officials in stages, and so on. Monitoring results can be used as feedback to strengthen the organizational culture.

4. Innovation Creates a Learning Organization

According to Wibowo (2011; 87), learning organization is a concept that provides the power for an organization to be able to survive the development environment so that organizations have the flexibility to adapt to the changing more dynamic and unpredictable environment. Learning organization is an organization that proactively creates, acquires and transfers knowledge and change its behavior based on knowledge and new insights. Some of the characteristics of a learning organization include:

a) Learning organization actively try to incorporate new ideas or new information into the organization.

b) Learning organization strives to reduce structural, interpersonal and process barriers to share ideas, information and knowledge to all members of the organization.

c) Learning organization helps contributing an environment where organization members are encouraged to utilize the new operational behavior and processes in order to achieve organizational goals. Individual behavior should be changed as a result of the new knowledge.

5. Framework Establishment to Accelerate the Occurrence of Organizational Innovation Success

According to Terry (2003:209), a framework that can be used to identify four sets of variables related to effectiveness, such as the organizational characteristics, environmental characteristics, worker characteristics as well as management policies and practices. As for the explanation is as follows:

1) Organizational Characteristics

The emphasis of the organizational characteristics is the structure and technology because both variables strongly influence the organizational effectiveness. Innovative changes in the interactive relationship between the organization members or the preparation of human resources relations will improve organizational effectiveness. Organizational characteristics in the form of organizational structure include decentralized breadth factors, this factor will regulate or determine to what extent the organization members can make a decision or participate in making decisions. Another factor is job specialization which opens opportunities for workers to develop themselves in their fields of expertise.

Signs of a good and effective organization, among others: (a) The purpose of the organization is clear and realistic, (b) Labor division and employment relations between the units, sub-system or sub-system parts must be good and clear, (c) The organization must become an effective tool and place in achieving objectives, (d) Type and structure of organization must conform to the requirements, (e) Work units (departments, sections) are set based on the employment relationship,

(f) Control span of each part must be based on the volume of work and should not be too much, (g) type of authority on every officer should be clear.

2) Environmental Characteristics

Environmental characteristics explain that the success of an organization is strongly influenced by its ability to respond to its environment. In determining whether appropriate or not organizational response to environmental changes, there are three key variables that are used such as the level of environmental circumstance predictability, the perception accuracy of the environmental circumstance and the level of organizational rationality. In another sense, the more correct the response, the more successful the organizational ability to adapt to environmental changes. Continuous monitoring of environmental changes must be followed by a standard adjustment of organizational design, technology, goals and behavior.

3) Worker Characteristics

In addition to organizational characteristics and environmental characteristics, workers also affect the level of organizational effectiveness because the smoothness in achieving the organizational goals depends on the ability of the workers themselves. Plurality that exists in an organization defines individual differences among workers. Individual differences illustrate the differences in the views, goals, needs and abilities. The factor that is influenced in the achievement of effectiveness is the sense of belonging to the organization or the outreach identification of workers with their employers and individual job performance. The workers role greatly affects the process of achieving the goal because it involves the labor productivity level in generating output. If employees work productively and enhance and also facilitate the possibility of achieving organizational goals, then the effectiveness of the work will increase. On the other hand, if the workers are faced with a situation where their personal goals conflict with the organizational goals, then the work effectiveness will be reduced.

4) Management Policies and Practices

Management policies and practices is a mechanism that includes goal setting strategies, searching and using resources efficiently, creating an environment of achievement, the communication process, leadership and decision-making as well as organizational adaptation and innovation. In this case, the manager role is very important for directing the activities proportionately to achieve the goal. Gibson et al (1996:33) identifies three main managerial roles: the interpersonal role, decision-making role and information role. Each role has some related activities that distinguish one from the other roles. Interpersonal role activity clearly involves managers with other parties within and outside the organization. Decision-making role activity involves managers in making decisions from an operational view, resource allocation, and negotiations with organizational elements. Information role will involve manager as an information receiver or giver to various individuals and institutions. The management for organizations is very important, thus managers must be able to be a manager who understands the employees and appreciates them because without them, the managers do not have any meaning. Management policies and practices contribute to the organizational effectiveness, because the workers in the organization are the ones that determine whether or not an organization can be effectively driven by good managers to implement policies to achieve organizational goals.

CONCLUSION

Changes that occur in an organization area will lead to changes in other organization areas. For example, changes in technology can cause changes in human resources, where workers have to adjust their ability with the technology applied in the organization. Changes in the environment and around the organization are a necessity. So that all organizations must be aware of and prepare for the new changes for the sake of ongoing purpose of the organization itself. There are so many things that causes the organization obligated in making changes both internally and externally. There are the principles or the way to deal with change and all depend on the company objectives, so sometimes there are some suitable to be used and some are not. Therefore, we should understand what is the purpose of our company, understand how environmental conditions are, then carry out the changing principles for the sake of the company goals. Because reactive changes are changes made spontaneously by an occured event. Not all organizational changes are planned. Innovative steps in the organization, according to Saputra (2009) can be supported by several contributing factors such as the desire to change themselves, from being unable to being able and from unknowing to knowing, freedom of expression, the presence of the insightful and creative supervising, the availability of infrastructure, and harmonious environmental conditions.

SUGGESTION

One thing that should not be neglected in increasing innovation in organizations is the importance of integration, or integration between organizational planning and human resource planning. Organizational planning followed by human resource planning will result in the effectiveness level and achievement efficiency of organizational goals. On the other hand, the organizational planning that is not accompanied by the necessary planning and great human resources will only cause high costs and the large use of other resources.

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EMPLOYEE ONBOARDING AND ADMINISTRATIVE ASSISTANTS' JOB PERFORMANCE IN LAW FIRMS IN PORT HARCOURT, RIVERS STATE, NIGERIA

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ABSTRACT

This study investigated employee onboarding and administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria. The objective of the study was to examine the relationship between dimensions of employee onboarding such as workers' orientation and on-the-job training and administrative assistants' job performance in terms of document management and information management in law firms in Port Harcourt, Rivers State, Nigeria. For this study, cross-sectional survey research design was chosen. The target population of this study was 84 administrative managers and administrative assistants such as secretaries, administrative officers, and front desk officers of 21 law firms operating in Port Harcourt, Rivers State, Nigeria. Since the population was not very large, the entire population of 84 administrative staff was used without sampling which is the census method. Questionnaire was used as instrument for data instrument. The instrument was validated by experts in Human Resource Management, and Office and Information Management in terms of face and content validity. Cronbach Alpha was employed in determining the reliability of the instrument. Out of 84 copies of the questionnaire administered, 72 copies were retrieved. Pearson Product Moment Correlation was employed for the test of hypotheses at 0.05 alpha level using SPSS Version 26.0 Version. Based on the results, the following findings were made: There is a significant positive relationship between workers' orientation and administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria; it was also found that on-the-job training has a significant positive relationship with administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria. It was concluded that employee onboarding enhances administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria. It was recommended that managers should invest more in orientation programmes and continuous hands-on training to optimize administrative assistants' job performance.

KEYWORDS: Employee onboarding, workers' orientation, on-the-job training, administrative assistants' job performance, document management, and information management.

Background to the Study

The administrative system of every organization serves as the engine of operational activities. Managers and administrative usually work with a team of administrative assistants to ensure effective planning, organizing, coordination, communication, and effective implimentation of decisions. Administrative heads usually work with administrative assistants such as secretaries and personal assistants in handling secretarial functions. The role of administrative assistants in law firms is pivotal for ensuring smooth operations, effective document management, and efficient information dissemination (Nwoka *et al.*, 2022; Akanbi & Owoyemi, 2021). The effectiveness of administrative assistants' job performance may be closely linked to the quality of their onboarding experience, which encompasses workers' orientation and on-the-job training.

Employee onboarding, comprising workers' orientation and on-the-job training, plays a crucial role in shaping the initial experiences and subsequent performance of administrative assistants in law firms (Abdullahi, 2018; Idris & Salisu, 2019). Workers' orientation provides new employees with essential information about the organization, its culture, policies, and procedures (Saks & Gruman, 2014). Effective orientation programs familiarize administrative assistants with their roles, responsibilities, and expectations, helping them integrate into the organizational context and reducing the time required to become fully productive.

On-the-job training, on the other hand, equips administrative assistants with the specific skills and knowledge necessary to perform their job duties effectively (Noe, 2013). In law firms, on-the-job training may involve tasks such as document management, information retrieval, legal research, and client communication. Providing comprehensive and tailored on-the-job training enables administrative assistants to acquire the requisite competencies and confidence to fulfill their roles efficiently.

The job performance of administrative assistants in law firms is closely intertwined with their ability to manage documents effectively and disseminate information accurately and timely. Document management involves organizing, storing, and retrieving legal documents, contracts, correspondence, and other critical information (Thompson, 2017). Efficient document management ensures that important materials are accessible when needed, contributing to the overall effectiveness and reputation of the law firm.

Furthermore, administrative assistants play a crucial role in information dissemination within law firms, ensuring that relevant information reaches the appropriate individuals in a timely manner (Berkelaar, 2016). This includes distributing memos, emails, court filings, and other communications to lawyers, clients, and other stakeholders. Effective information dissemination enhances communication flow, collaboration, and decision-making within the firm.

Despite the importance of employee onboarding and administrative assistants' job performance in law firms, there is a noticeable gap in the literature concerning their relationship in the context of Rivers State. Existing research predominantly focuses on other industries, neglecting the unique organizational dynamics, cultural nuances, and operational challenges faced by law firms in Rivers State (Ogunkoya & Olaniyan, 2019; Yakubu, 2021; Ogunnaike & Idris, 2022). Therefore, this study aims to bridge this gap by investigating the relationship between employee onboarding (workers' orientation and on-the-job training) and administrative assistants' job performance (document management and information dissemination) in law firms in Rivers State, Nigeria. By examining the specific factors and mechanisms that influence this relationship, this research seeks to provide valuable insights for both theory and practice, ultimately contributing to the enhancement of organizational effectiveness and efficiency in the legal sector.

Statement of the Problem

In the legal landscape of Rivers State, Nigeria, the effective performance of administrative assistants is vital for ensuring smooth operations within law firms. Central to their success is the process of employee onboarding, which includes workers' orientation and on-the-job training. These aspects of onboarding are crucial for equipping administrative assistants with the necessary skills and knowledge to excel in their roles. However, despite its significance, there exists a notable gap in understanding the relationship between employee onboarding and administrative assistants' job performance, specifically in the context of document management and information dissemination within law firms in Rivers State.

While existing literature provides insights into the importance of employee onboarding and its impact on job performance in various organizational contexts, there is a scarcity of research focusing specifically on law firms in Rivers State (Abdullahi, 2018; Afolabi & Adetokunbo, 2020; Olowookere & Ajayi, 2020; Olajide, 2020). The unique characteristics of the legal sector, coupled with the socio-cultural dynamics of Rivers State, necessitate a localized examination of this relationship. Consequently, there is a knowledge gap regarding how the process of onboarding, tailored to the context of Rivers State, influences the job performance of administrative assistants in law firms.

Furthermore, while studies in other contexts have highlighted the importance of on-the-job training in enhancing employee skills and performance (Noe, 2013), there is limited research exploring its specific implications for administrative assistants in law firms in Rivers State. The effectiveness of on-the-job training programs, particularly in the areas of document management and information dissemination, remains understudied in this context. Moreover, although document management and information dissemination are critical aspects of administrative assistants' job performance in law firms (Berkelaar, 2016), there is insufficient research examining the factors that influence these dimensions of performance within the context of Rivers State. Understanding how employee onboarding practices, such as workers' orientation and on-the-job training, impact document management and information dissemination is essential for developing tailored interventions to enhance administrative assistants' performance in law firms in Port Harcourt, Rivers State, Nigeria.

Conceptual Framework

The researcher’s framework of how the study variables manifest in depicted in the conceptual framework below.

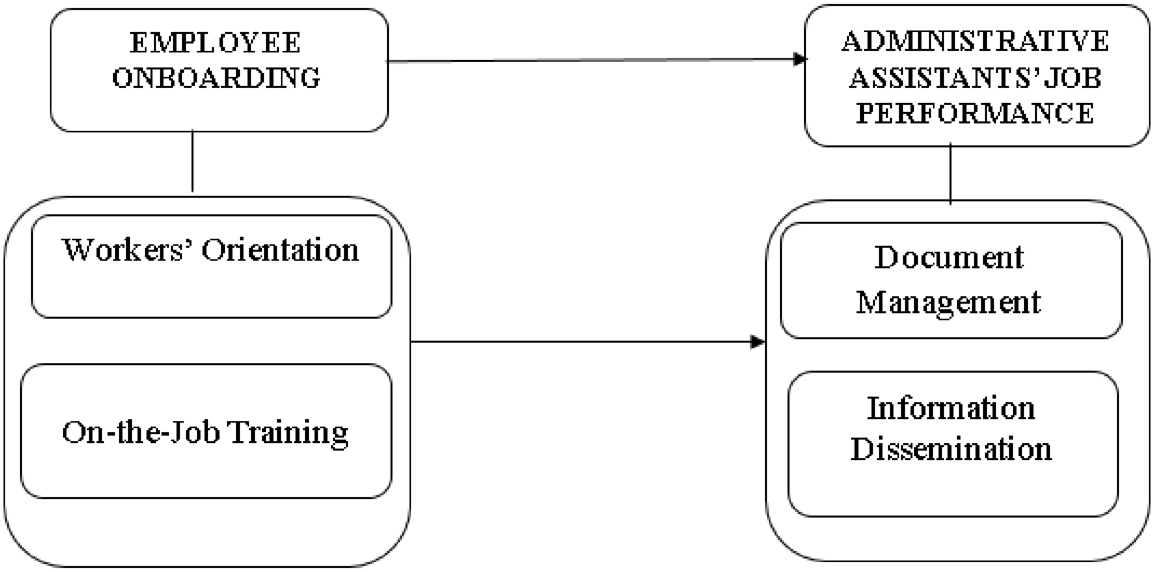

Fig. 1: Conceptual Framework
Source: Nwoka *et al.* (2022); Ogundele (2018).

Aim and Objectives

The aim of the study was to examine the relationship between employee onboarding and administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria. The specific objectives of the study were to:

1. ascertain how workers' orientation relates to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.
2. establish how workers' orientation relates to administrative managers' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.
3. examine how on-the-job training relates to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.
4. ascertain how on-the-job training relates to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Research Hypotheses

The following research hypotheses were tested at 0.05 level of significance.

Ho_1: Workers' orientation does not significantly relate to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.

Ho_2: Workers' orientation does not significantly relate to administrative managers' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Ho_3: On-the-job training does not significantly relate to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.

Ho_4: On-the-job training does not significantly relate to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Conceptual Review

The Concept of Employee Onboarding

Employee onboarding is a critical process that encompasses the orientation and training of new employees to familiarize them with the organization, its culture, policies, procedures, and job responsibilities (Saks & Gruman, 2014). In the context of law firms in Rivers State, Nigeria, effective employee onboarding is essential for ensuring the successful integration and performance of administrative assistants, who play pivotal roles in supporting legal professionals and facilitating the smooth functioning of the firm. Effective employee onboarding in law firms in Rivers State encompasses both workers' orientation and on-the-job training tailored to the specific needs and responsibilities of administrative assistants.

Workers' Orientation: Workers' orientation provides new employees with essential information about the firm's history, values, organizational structure, policies, and expectations (Saks & Gruman, 2014). This orientation helps administrative assistants understand the firm's culture, work environment, and professional standards, enabling them to adapt and integrate into their roles more effectively.

On-the-job Training: On-the-job training is equally crucial for administrative assistants in law firms in Rivers State, as it equips them with the practical skills and knowledge necessary to perform their job duties competently (Noe, 2013). Training may include instruction on document management software, legal research techniques, communication protocols, client confidentiality guidelines, and other relevant topics. Hands-on training allows administrative assistants to gain proficiency in their tasks and enhances their confidence and competence in document management and information dissemination within the firm.

The Concept of Administrative Assistants' Job Performance

The term administrative assistants refer to a category of workers employed and trainned to provide auxilary administrative assistance to departments, managers, and senior administrative heads in an organization. Administrative assistant job performance refers to the effectiveness, efficiency, and quality of work exhibited by individuals in administrative support roles within organizations. Ogunnaiki and Idris (2022) noted that this includes tasks such as managing correspondence, scheduling appointments, organizing files, coordinating meetings, and providing general administrative support to departments or executives. Effective job performance for administrative assistants often involves attributes such as attention to detail, organizational skills, time management, communication abilities, and proficiency in office software and technology. Ibrahim and Ogunnaike (2021) maintained that administrative assistants are expected to execute their duties accurately, promptly, and professionally to contribute to the smooth functioning of the organization and support the achievement of its objectives. Administrative assistants in law firms in Rivers State consist of secretaries, personal assistants and administrative officers responsible for responsible for various tasks secretarial and technical tasks listed above, including document management and information dissemination.

Measures of Administrative Assistants' Job Performance

Document Management: Document management involves organizing, storing, retrieving, and maintaining legal documents, contracts, correspondence, and other important records (Berkelaar, 2016). Administrative assistants must ensure that documents are accurately labeled, securely stored, and readily accessible to lawyers and other staff members when needed for legal proceedings, client consultations, or administrative purposes.

Information Management: Information dissemination is another crucial aspect of administrative assistants' job performance in law firms. It involves the timely and accurate distribution of memos, emails, court filings, legal briefs, and other communications to lawyers, clients, and other stakeholders (Berkelaar, 2016). Administrative assistants serve as conduits for communication within the firm, ensuring that important information reaches the appropriate individuals promptly and efficiently, thereby facilitating collaboration, decision-making, and client service delivery.

Theoretical Foundation

This study was anchored on Human Capital Theory propounded by Gary Becker in 1964. The Human Capital Theory emphasizes the importance of investments in education, training, and other forms of human capital development for enhancing individuals' economic outcomes and organizational performance.

Two assumptions underlying human capital theory are:

1. Rational Decision-Making: Human capital theory assumes that individuals are rational decision-makers who weigh the costs and benefits of investing in education, training, and skill development. They make investment decisions based on their expectations of future returns, such as increased earning potential and career opportunities.
2. Transferability of Human Capital: Human capital is transferable across different contexts and industries. Individuals can apply their skills, knowledge, and abilities acquired through education and training to various job roles and organizational settings, enhancing their adaptability and employability.

In the context of law firms in Port Harcourt, Rivers State, Nigeria, human capital theory provides insights into how investments in employee onboarding, particularly for administrative assistants, contribute to enhanced job performance. Employee onboarding, which includes workers' orientation and on-the-job training, serves as an investment in human capital development by equipping administrative assistants with the necessary skills, knowledge, and resources to perform their job responsibilities effectively (Ibrahim & Ogunnaike, 2021). By providing comprehensive orientation programs and on-the-job training, law firms in Port Harcourt, Rivers State, Nigeria invest in the human capital of administrative assistants, thereby increasing their productivity, efficiency, and effectiveness in tasks such as document management, information dissemination, and client support. The theory suggests that these investments yield positive returns in the form of improved job performance, higher job satisfaction, and greater organizational commitment among administrative assistants.

Methodology

For this study, cross-sectional survey research design was chosen. The target population of this study was 84 administrative managers and administrative assistants such as secretaries, administrative officers, and front desk officers of 21 law firms operating in Port Harcourt, Rivers State, Nigeria. Since the population was not very large, the entire population of 84 administrative staff was used without sampling which is the census method. Employee Onboarding and Administrative Assistants' Job Performance Questionnaire (EOAAJP) was the instrument used to collect primary data. Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly

Disagree (SD) = 1 were response options on the four-(4) point rating scale questionnaire design. The instrument was validated by experts in Human Resource Management, and Office and Information Management in terms of face and content validity. Cronbach Alpha was employed in determining the reliability of the instrument. Out of 84 copies of the questionnaire administered, 72 copies were retrieved. Pearson Product Moment Correlation was employed for the test of hypotheses at 0.05 alpha level using SPSS Version 26.0 Version.

Results

Ho_1: Workers' orientation does not significantly relate to administrative assistants' document management in law firms in Port Harcourt, Rivers State, Nigeria.

Table 1: Correlation between Workers' Orientation and Document Management

			Workers' Orientation	Document Management
Pearson	Workers' Orientation	Correlation Coefficient	1.000	.744**
		Sig. (2-tailed)	.	.000
		N	72	72
	Document Management	Correlation Coefficient	.744**	1.000
		Sig. (2-tailed)	.000	.
		N	72	72

**. Correlation is significant at the 0.01 level (2-tailed).
Source: SPSS Output.

Table 1 above reveals a correlation value of 0.744 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating workers' orientation and administrative assistants' document management. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho_1) which states that workers' orientation does not significantly relate to administrative assistants' document management in law firms in Port Harcourt, Rivers State, Nigeria was rejected and the alternate was accepted. The correlation value of 0.744 indicates that workers' orientation significantly enhances administrative assistants' document management in law firms in Port Harcourt, Rivers State, Nigeria to a strong extent.

Ho_2: Workers' orientation does not significantly relate to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Table 2: Correlation of Workers' Orientation and Information Management

			Workers' Orientation	Information Dissemination
Pearson	Workers' Orientation	Correlation Coefficient	1.000	.826**
		Sig. (2-tailed)	.	.000
		N	72	72
	Information Dissemination	Correlation Coefficient	.826**	1.000
		Sig. (2-tailed)	.000	.
		N	72	72

**. Correlation is significant at the 0.01 level (2-tailed).
Source: SPSS Output

Table 2 above reveals a correlation value of 0.826 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating workers' orientation and information management. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho_2) which states that workers' orientation relates to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria was rejected and the alternate hypothesis accepted. The correlation value of 0.826 indicates that there is a strong positive relationship between workers' orientation and administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Ho_3: On-the-job training does not significantly relate to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.

Table 3: Correlation between On-the-Job Training and Document Management

			On-the-Job Training	Document Management
Pearson	On-the-Job Training	Correlation Coefficient	1.000	.527**
		Sig. (2-tailed)	.	.000
		N	72	72
	Document Management	Correlation Coefficient	.527**	1.000
		Sig. (2-tailed)	.000	.
		N	72	72

**. Correlation is significant at the 0.01 level (2-tailed).
Source: SPSS Output

Table 3 above reveals a correlation value of 0.527 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating on-the-job training and document management. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho_3) which states that on-the-job training does not significantly relate to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria was rejected and the alternate hypothesis accepted. The correlation value of 0.527 indicates that on-the-job training moderately and positively relates to administrative assistants' document managemnet in law firms in Port Harcourt, Rivers State, Nigeria.

Ho_4: On-the-job training does not significantly relate to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Table 4: Correlation of On-the-Job Training and Information Dissemination

			On-the-Job Training	Information Dissemination
Pearson	On-the-Job Training	Correlation Coefficient	1.000	.267**
		Sig. (2-tailed)	.	.000
		N	72	72
	Information Dissemination	Correlation Coefficient	.267**	1.000
		Sig. (2-tailed)	.000	.
		N	72	72

**. Correlation is significant at the 0.01 level (2-tailed).
Source: SPSS Output

Table 4 overleaf reveals a correlation value of 0.267 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating on-the-job training and administrative assistants' information management. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho_4) which states that on-the-job training does not significantly relate to administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria was rejected and the alternate was accepted. With a correlation value of 0.267, this result indicates that there is a significantly weak positive relationship between on-the-job training and administrative assistants' information dissemination in law firms in Port Harcourt, Rivers State, Nigeria.

Discussion of Findings

The results of the test of hypotheses one and two revealed that workers' orientation is positive related to administrative assistants' job performance. This finding implies that the more workers' orientation is strategically done, the more administrative assistants become poised for better performance. This finding aligns with the findings of Smith and Brown (2022), that effective orientation programs offer administrative managers insights into organizational policies, procedures, and expectations, allowing them to navigate their responsibilities with confidence and clarity. Orientation sessions also facilitate the establishment of clear performance expectations, which are essential for guiding administrative managers' actions and decision-making processes (Jones, 2021). By familiarizing administrative managers with the organization's mission, vision, and values, orientation programs help align their efforts with organizational objectives, thereby enhancing their job performance. In the same vein, Johnson and Williams (2023) found that workers' orientation fosters the development of interpersonal relationships and collaboration among administrative managers and their colleagues which leads to optimal job performance. In another related research finding, Davis (2021) highlighted the importance of hands-on training and skill development sessions during orientation, where administrative managers learn how to utilize software systems, manage databases, and streamline administrative processes efficiently. Overall, the findings suggest that workers' orientation is instrumental in enhancing administrative managers' job performance by providing them with the knowledge, support, and resources necessary for success in their roles.

On-the-Job Training and Administrative Assistants' Job Performance

The test of hypotheses three and four revealed that on-the-job training is correlated to administrative assistants' job performance in law firms in Port Harcourt, Rivers State, Nigeria.

This implies that on-the-job training significantly enhances administrative assistants' job performance in law firms in Rivers State. This finding alligns with the findings of Adeleke and Onyeka (2023) which revealed a significant positive impact of on-the-job training on the performance of administrative assistants in legal firms in Lagos State. The findings revealed that targeted on-the-job training programs significantly improves administrative assistants' competencies, skills, and confidence in performing their job responsibilities, thereby enhancing their overall job performance. In the same vein, a study conducted by Okafor and Nwachukwu (2022), revealed that on-the-job training provides administrative assistants with opportunities to learn through real-life experiences, tasks, and challenges encountered in their daily work environment. Moreover, on-the-job training plays a crucial role in ensuring administrative assistants' alignment with the specific practices, procedures, and technologies utilized within law firms in Rivers State. Okafor and Nwachukwu (2022) emphasize that hands-on exposure to document management systems, legal research tools, case management software, and other relevant technologies enables administrative assistants to navigate their tasks efficiently and leverage available resources effectively. This familiarity with the firm's tools and processes enhances administrative assistants' productivity, accuracy, and effectiveness in performing document management, information dissemination, and other job responsibilities.

Conclusion

Consequent upon the results and interpretation of data, it was concluded that employee onboarding plays a crucial role in enhancing administrative assistants' job performance in law firms in Rivers State. By providing comprehensive workers' orientation and on-the-job training programs, law firms invest in the development of administrative assistants' skills, knowledge, and capabilities, thereby equipping them to excel in their roles. Through orientation, new administrative assistants gain valuable insights into the firm's culture, policies, and expectations, while on-the-job training enables them to acquire specific job-related skills such as document management, information dissemination, and client communication. It was also concluded that administrative assistants who undergo effective onboarding are better prepared to navigate their responsibilities, contribute to organizational success, and deliver high-quality support to legal professionals and clients within law firms in Rivers State.

Recommendations

Considering the role of employee onboarding in improving administrative assistant’s job performance, the following recommendations were made:

1. Managers should implement customized workplace orientation programs that are specifically designed to familiarize administrative assistants with the unique aspects of the law firm's operations, culture, and expectations.
2. Managers should ensure that orientations cover essential information such as firm policies, procedures, client confidentiality protocols, and relevant legal terminology.
3. Managers of law firms should develop job-specific training modules as part of the on-the-job training process to equip administrative assistants with the necessary skills and competencies required for their roles. These training modules should

focus on areas such as document management systems, legal research techniques, case management software, and communication protocols commonly used within the firm.

4. Managers should provide financial support or reimbursements for professional development activities to demonstrate the firm's commitment to investing in the growth and advancement of administrative assistants. By facilitating continuous learning opportunities, managers can empower administrative assistants to stay abreast of industry trends, expand their skill sets, and continually improve their job performance.

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List of Accessible and Selected Law Firms in Port Harcourt, Rivers State, Nigeria, Rivers State, Nigeria

S/N	Names of Law Firms
1.	Accord legal 7B Isaac Boro Street Port Harcourt, Rivers State, Nigeria.
2.	ILS Attorneys 3 Azikiwe Road Port Harcourt, Rivers State, Nigeria.
3.	Ojoko & Ojoko 15 Mbonu Street D/Line Port Harcourt, Rivers State, Nigeria.
4.	Okibe Lawhouse 12 Kaima Street/Okoroji Street D/Line Port Harcourt, Rivers State, Nigeria.
5.	Renewal Chambers 12 Industry Road Near NPA, Port Harcourt, Rivers State, Nigeria.
6.	Smart Choice Global Legal Solution 96 Igwuruta Road Elimgbu Port Harcourt, Rivers State, Nigeria.
7.	Solola &Akpana 12A Igbodo Street Old GRA Woji Port Harcourt, Rivers State, Nigeria.
8.	T-LOAK Solicitors Isiokpo Street D/Line Port Harcourt, Rivers State, Nigeria.
9.	Veraz Advocates 44 Aba Expressway Rumuomasi Port Harcourt, Rivers State, Nigeria.
10.	Alpha-Juris Chambers Igbo Etche Road, Aba Expressway Port Harcourt, Rivers State, Nigeria.
11.	Afam Law Consult 6 Womenike Lane Behind community hall D/Line PH.
12.	Amacheree & Amacheree Chambers 49 Moore House Street Port Harcourt, Rivers State, Nigeria.
13.	Bar. Samuel Ebiye Idhiarhi
14.	Chariot's Legal Consult 33 Elioparawon Road off Ada George Port Harcourt, Rivers State, Nigeria.
15	Iheoma Chambers 48 Aba Expressway Rumuomasi Port Harcourt, Rivers State, Nigeria.
16.	Legal Panacea Concern 14 Owu Street Rumukalagbor Port Harcourt, Rivers State, Nigeria.
17.	Legalpreneur 11 Eastern By-Pass Ogbunabali Road Port Harcourt, Rivers State, Nigeria.
18.	SN Webilor Chambers 1 Ogworlu Lane Rukpokwu Port Harcourt, Rivers State, Nigeria.
19.	T. Ibiama & Associates 1 Radio Estate Street Ozuoba Port Harcourt, Rivers State, Nigeria.
20.	The Legal Concierge 86 Olusegun Obasanjo Way Elechi Port Harcourt, Rivers State, Nigeria.
21.	Wilcox Abereton & Co 10 Khana Street Atali Port Harcourt, Rivers State, Nigeria.