



Achieving Sustainable Development Goal Four (4) in Africa: Spotlighting the role of quality education and innovation orientation

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Abstract: The novel coronavirus (COVID-19) has damaged the global economy and business ecosystem. Also, quality education and skills mismatch have become critical in today's working environment post-COVID-19. Furthermore, one of the 17 Global Goals comprising the 2030 Agenda for Sustainable Development is quality education, yet Africa pays less attention to this and its impact in the workplace and organizations. This study, therefore, examined the effects of quality education on the innovation orientation of selected consumer goods companies listed in Nigeria and their role in achieving SDGs in Nigeria, the most populous and largest economy in Africa. Findings showed that quality education had a significant effect on innovation orientation. This study recommends that management and stakeholders consider the benefits of quality education in innovation and innovation orientation and, therefore, channel resources to achieve and align with Sustainable Development Goal 4.

Keywords: educational diversity, FMCG, organizational performance, competitive advantage, innovativeness, innovative capability, sustainable development

1. Introduction

Quality education is one of the seventeen (17) Global Goals comprising the 2030 Agenda for Sustainable Development. Education is fundamental and a stand-alone (Sustainable Development Goal 4) of the United Nations. This ensures inclusive and equitable quality education and promotes lifelong learning opportunities (Olubiyi, Jubril, Sojину & Ngari, 2022; Pandey, 2018). However, education and skills mismatch has become critical in today's working environment (Jones, Mavromaras, Sloane, & Wei, 2014; Saini, Sengupta, & Singh, 2023). This mismatch and low priority on education continue to impede the employability and productivity of organizations in recent times. As a signatory to the Sustainable Development Goals (SDGs), Nigeria has pledged to provide inclusive



and equitable quality education for all, but this is less noticeable in the country. Education and present-day skills are among the most significant socioeconomic challenges confronting human societies in the twenty-first century (OECD, 2014).

However, job mismatch and the lack of present-day skills are seen to harm employees' outcomes, innovative capabilities, and innovation orientation in literature (Kastens & Manduca, 2017; Sloane, 2014; Sánchez-Sánchez & McGuinness, 2015). The need for innovation in organizations is supported by quality education and Sustainable Development Goal 4 of the United Nations. So, education cannot be stuck in the traditional ways of teaching. Education needs to address new societal and business challenges best and promote higher quality standards (Tamrat, 2021). However, this is not the case in Africa, particularly within the consumer goods industry, which supports household needs and essentials. This trend has increased fears and worries in the minds of business operators and management about the possible aftermath, with long-run effects such as declining business performance and thwarted and low innovation orientation considered. As a result, this paper aims to fill the gap by providing background information on quality education and innovation orientation, as well as examining the relationship between selected listed companies in Nigeria, which is the most populous and the largest economy in Africa. Therefore, this study aims to investigate the effect of quality education on the innovation orientation of selected listed consumer goods companies in Nigeria post-pandemic. The study also seeks to contribute to a greater understanding of the United Nations Sustainable Development Goal Four (4) and the relationship to innovation orientation in organizations, particularly consumer goods companies in Nigeria.

2. Main focus

The views of SDGs and the Goal Four (4)

In 2015, the United Nations (UN) established the Sustainable Development Goals (SDGs), sometimes called the Global Goals, as a global call to action to eradicate poverty, safeguard the environment, and ensure that everyone enjoys freedom and harmony by 2030. (De Villiers *et al.*, 2021; Olubiyi, Adeoye, Jubril, Adeyemi, and Eyanuku, 2023, Saini, Sengupta, & Singh, 2023). The Sustainable Development Goals (SDGs) consist of 167 objectives and 17 goals (UNDG). This paper is focused on goal 4, which seeks to foster opportunities for continuous learning and equitable, high-quality education for children between the ages of 6 and 18. However, this goal can only be achieved when the teachers are prepared for the challenge ahead. Sustainable Development Goal 4 under the Sustainability Development Program is motivated to provide quality education by removing the barriers of poverty, funding, costly education, discrimination, and unavailability of resources (Paulette, 2019). The United Nations (UN) has made ongoing efforts to promote peer-to-peer interaction, experience sharing, and discussions on difficulties encountered, insecurities felt, and lessons learned to bridge the gap in adopting teaching methods and technologies that could enhance developments in education globally (UN, 2020). To accomplish sustainable development by 2030, all nations must commit to implementing global goals (Naidoo & Fisher, 2020; Olubiyi, Adeoye, Jubril, Adeyemi & Eyanuku, 2023; Saini, Sengupta, & Singh, 2023).

Historical context of the Nigerian consumer goods industry

According to data from the Nigerian Stock Exchange (NSE), the consumer goods sector is one of the most dynamic in Nigeria's economy. Before roughly fifty years ago, Nigeria's distribution channels for fast-moving consumer goods consisted of large foreign-owned wholesale and retail outlets (such as Leventis, Kingsway, G. B. Olivant, etc.) and small individual retailers operating in open-air markets. Over time, the sector has become a colossal and significant portion of the national economy. The Nigerian consumer goods industry is comprised of numerous products that are frequently purchased and utilized daily. One factor that attracts businesses to the sector is the country's large population. In addition, the sector has evolved to recognize and appeal to the diverse demographic characteristics of the consumer goods industry, which are available at varying income and preference levels.

Additionally, the industry is one of the most significant employers in the country. Utilizing the country's population and vast market space, businesses in this industry have consistently expanded into remote towns and villages in order to increase their market share and promote growth. Several other economic sectors, including agriculture, supply chain, and support industries such as packaging, media, etc., have also impacted the sector. Presently, Nigeria's consumer goods industry comprises foreign companies, robust Nigerian companies, and a significant number of small domestic companies. The consumer goods sector on the Nigeria Stock Exchange, now known as Nigeria Exchange Group Plc, is comprised of automobiles/auto parts, beverages brewers/distillers, beverages-non-alcoholic, food products, food products-diversified, household durables, and personal/household products firms. The sector has twenty listed companies with a market

capitalization of N4.69 trillion as of the 31st of July 2023, representing 13.35% of the NSE market capitalization. The consumer products sector contributes significantly to Nigeria's manufacturing economy. As with all other manufacturing industries, the consumer goods industry has a low production value added. According to numerous reports, the sector confronts various challenges, including post-pandemic repercussions such as a lack of access to raw materials, foreign exchange scarcity, and costly bank fees. Given the scale of the Nigerian consumer goods sector, the dwindling opportunities, and the lack of infrastructure, it is necessary to examine strategies for enhancing the business outcomes of companies operating in the sector.

Quality education and education diversity in the workplace

The 21st century is undergoing unprecedentedly profound transformations. This results from the worldwide recognition that education is essential for national, social, and individual development. Education is indispensable for moulding individuals and preparing them for future challenges (Matthew & Kazaure, 2020). Education aids in eradicating poverty, ignorance, innovation, and creativity, which are essential to the development of a nation, including businesses (Olubiya, 2022). Meanwhile, education diversity refers to the educational qualifications, that is, the certification the employees have acquired from their school, institute, college, and university. Not only does the education qualify the employee to acquire jobs and positions in the hierarchy of the organization, but also it emphasizes the competency required by them to perform assigned job responsibilities (Cortés, Ramírez, & Molina, 2022). Education goals are fundamentally reflected in Sustainable Development Goal 4 (SDG 4) for 2030, which aims to ensure inclusive and equal quality education for all and promote opportunities for lifelong learning (Demirba & Sezgin, 2021; Shiohira, 2021; Saini, Sengupta & Singh, 2023).

Workgroups have become the central structural units of most existing firms (Kastens & Manduca, 2017). The idea that group members have varied perspectives, ideas, proficiencies, levels of education, and information supports this trend. When an organization faces problems, diverse workgroups are better prepared and equipped to deal with these complex problems (Akinnusi, Sonubi, & Oyewunmi, 2017). Members of work teams in specific business sectors have been taught common key contents. Members with various educational levels are required due to distinct, complicated team jobs (Tamrat, 2021). People can acquire academic skills according to availability, capability, and experience. Moreover, educational background impacts the employee's perception of workforce diversity. Hence the educational background of the employee is a secondary dimension, depending upon the type of education acquired and skill acquired can make the person capable of doing the designated jobs (Ozgen, Nijkamp, & Poot, 2017).

According to Risberg and Gottlieb (2019) and Shiohira (2021), diversifying workers from different educational backgrounds creates opportunities for greater innovation and more creative solutions to problems (Ditomasso, 2015). Erasmus (2016) discovered that different types of education and levels of education expect different mobility rates. For instance, various occupations are available for different sets of people (Maxwell, Blair, & McDougall, 2015). The type of occupation available for someone who has gained some years of work experience but does not have a university degree in the course of study is different from the one who has the required certificate from the university. Based on Green, López, Wysocki, Kepner, Farnsworth, and Clark's (2015) findings, a person's productivity depends on the level of education he/ she has acquired. Scarborough, Lambouths, and Holbrook (2019) discovered that organizations and employers usually refuse to employ those they perceive lack the adequate education, training, knowledge, skills, experience, or expertise to fill a position within the organization. This signifies that education is very vital to both employers and employees. As such, without adequate or proper education, individuals cannot get employed or perform well if they are eventually employed in the organization (Guillaume, Dawson, Priola, Sacramento, Woods, Higson, Budhwar & West, 2014). Educated people can do certain tasks more easily and efficiently than uneducated or less educated people (Akpakip, 2017). This is by the dictum that knowledge is power. It implies that a knowledgeable person can perform better at tasks that require that knowledge (Macnamara, Hambrick & Oswald, 2014). Honicke and Broadbent (2016) argued that knowledge is a chief weapon that makes a person effective, and therefore, a leader should be educated, experienced, and qualified. Well-trained individuals know the scope, expectations, and department of their jobs and will be able to add building blocks to their professionalism as they progress through their careers (Priti, 2014). According to Maingi (2015), the educational background reflects the cognitive strength and personality of the employee. An employee educated in computer science has different cognitive skills than someone educated in finance (Phillips, Slepian, & Hughes, 2018). Eshegbe and Dastane (2015) found that employers commonly reject employing employees with inadequate training, experience, or education. On the other hand, this meant that educational background is important to employees. Employees cannot find a job and perform well without an adequate educational background. Besides that, Kerga and Asefa (2018)

also found that various levels and types of education might expect different mobility rates. For example, the occupations available to those with working experience but who do not possess a certified tertiary paper may differ from those with such education level (Mwatumwa, 2016). Mobility may differ across these occupations, causing the mobility of individuals with working experience to differ from those with non-working experience who possess a degree certificate. According to Mayer, Warr, and Zhao's (2016) study, an individual will be more productive depending on their education level. The more education the individual worker receives, the more productive the worker will be. Kyalo (2015) explored this idea and found that cities with higher percentages of tertiary education level workers will enable individuals of all education levels to have higher wages. Education diversity brings new skills, knowledge, information, and unique perspectives to the organization and enhances effective problem-solving and decision-making processes (Selvaraj, 2015). This boosts the employees' performance because of the information exchanged among themselves, the various alternative solutions they reflect on, and the different perspectives they analyze, ultimately leading to higher, better, and more effective decision-making, creativity, and innovation (Gong & Girma, 2020). Though having different educational backgrounds is beneficial both to employees and the organization, when employees group themselves into in-groups (members who are perceived to be highly competent, have access to valuable sources of information, can communicate unique information, and are better prepared to handle any task given to them) and out-groups, information may be withheld from members of the out-group (those who are perceived to be lower competence because of their knowledge, demographic characteristic or occupation) (Oyewunmi, 2018). Information and decision-making theories propose that workforce diversity can positively affect employee performance by increasing the employees' information knowledge, skills, and abilities by drawing from the large pool of resources brought into the organization by diverse employees. The researcher defines educational diversity as organizational actions that promote greater inclusion of employees from different educational levels and experiences.

Innovation orientation

Innovation in the workplace, which could be described as the propensity of an organization to deviate from conventional industry practices by creating or adopting new products, processes, or systems, is an essential component of competitiveness and survival and is considered by many scholars as one of the most important determinants of firm performance (Arif & Hasan, 2021; Han & Li, 2015; Kahn, 2018; Kaya, Abubakar, Behraves, Yildiz & Mert, 2020; Olubiyi, 2022b). Schiavone, Romano, Campanella, Della-Peruta & Del Giudice, (2014) also portray innovation as playing an important role in driving economic growth, while Naranjo-Valencia, Jiménez-Jiménez, and Sanz-Valle (2016) and Moustaghfir and Schiuma (2013) confirm innovation as a way to sustained economic growth and long-term business competitive advantage. From a managerial perspective, it is important to identify the antecedents to innovation, differentiate between important and less important drivers of innovation, and effectively manage these drivers (Camisón & Villar-López, 2014; Olubiyi, 2022b; Rehman, Elrehail, Alsaad, & Bhatti, 2021). According to Stefan and Bengtsson (2017), facilitating innovation is an essential management function of managers, as it is interconnected with organizational performance. Innovation orientation can be understood as the ability of employees to transform innovation inputs into outputs and, thus, transform innovation capability and effort into market implementation (Ferraris, Santoro & Dezi, 2017). Innovative performance results in innovation market success (Ruchika, 2017). For enterprises, the only way to gain continuous competitiveness in the fierce competition market is to train and motivate staff creativity, achieve individual innovation performance, and promote the innovation performance of teams and organizations. Finally, enterprises can develop further. Subhash and Archana (2017) define innovation orientation as receiving, generating, and implementing new ideas, processes, products, or services by employees of an organization. According to Verbano and Crema (2016), innovation orientation results from individual behaviour in introducing and applying the 'new' things that benefit the organization at various levels. Agostini and Nosella (2017) define innovation orientation as idea generation and idea applications in individual tasks, by groups, or by the organization. Likewise, innovation orientation is defined as "the intentional creation, introduction, and application of new ideas within a work role, group or organization, to benefit role performance, the group or the organization (Janssen, 2000: 288). Innovation can be generated by exploring opportunities and identifying performance gaps or proposed solutions to a problem. The opportunities to generate new ideas within the organization will affect customer satisfaction and improve organizational performance. Innovation orientation is a multi-dimensional aspect of employee behaviour. Agostini, Nosella, and Filippini (2017) state that innovation orientation is often associated with the phases of the innovation process. Buenechea-Elberdin, Saenz, and Kianto (2018) outlined a three-dimensional behaviour of generating innovative ideas, combinations of ideas, and implementation of ideas. Bedford (2015) categorized innovation orientation into four dimensions: exploration of ideas, idea

generation, championing the idea, and implementation. Novitasari, Siswanto, Purwanto, and Fahmi (2021) gave five dimensions: opportunities exploration, idea generation, formative investigation, championing the idea, and implementation of the idea. It is concluded that innovation orientation is the process of exploring new ideas through to the realization of the idea. Employee innovative performance commences with opportunity exploration in which employees recognize a challenge or a problem at work, or they try to think about work procedures, products, and services in alternative ways. Subhash and Archana (2017) found several common innovative behaviours in this first stage, such as paying attention to opportunity sources, looking for opportunities to innovate, recognizing opportunities, and gathering information about opportunities. Birkinshaw and Mol (2006: 84) specified that dissatisfaction with the status quo, such as "a future threat, a current problem or a means to escape a crisis" can also be a starting point for the opportunity exploration behaviours in employees. Idea generation is the next stage of employee innovativeness. Awareness of a need or an opportunity is insufficient to construct new solutions and address the needs. In our daily lives, we can recognize countless problems and opportunities to innovate, but that does not guarantee that innovation will be made to solve those problems. Also, in an organization's routine operation, an employee must produce clear and concrete ideas about how they will exploit those opportunities after exploring opportunities. According to Purwanto, Asbari, Hartuti, Setiana, and Fahmi (2021), idea generation refers to generating concepts for improvement. Abstein and Spieth (2014) argued that creativity is a crucial component of innovation orientation, particularly at the beginning of the innovation process, which is undoubtedly true and well-proven. The researcher defines innovation orientation as the quality of the innovation and creativity put in place by employees to improve the products, processes, and procedures that increase the significance, usefulness, and performance of the products and services.

3. Theoretical review

Social identity theory

Tajfel initially formulated this theory in 1978 to explain exclusion in the workplace. Tajfel (1978) said social identity theory is "that part of an individual self-concept which originates in his/her membership in a social group(s), along with the importance and the emotional importance attached to that group membership". This theory predicts that people tend to group themselves into specific groups based on certain areas of personal importance, such as demographic characteristics like ethnicity, gender, age, education, culture, etc. The result is that they tend to favour their in-group colleagues at the out-group expense. A key assumption in social identity theory is that individuals are intrinsically motivated to achieve positive distinctiveness (Haslam, 2001). Individuals "strive for a positive self-concept" (Haslam, 2001). Social identity theory details various strategies that may be invoked to achieve positive distinctiveness. The individual's choice of behaviour is posited to be dictated largely by the perceived intergroup relationship. In particular, the choice of strategy is an outcome of the perceived permeability of group boundaries (e.g., whether a group member may pass from a low-status group into a high-status group), as well as the perceived stability and legitimacy of the intergroup status hierarchy. The self-enhancing strategies detailed in social identity theory are explained under three conditions. The first is individual mobility: it is predicted that individuals are more likely to engage in individual mobility strategies under conditions where the group boundaries are considered permeable. That is, individuals disassociate from the group and pursue individual goals designed to improve their lot rather than that of their in-group. Social creativity is where group boundaries are considered impermeable, and where status relations are considered reasonably stable, individuals are predicted to engage in social creativity behaviours. Under this condition, low-status in-group members can still increase their positive distinctiveness without necessarily changing the objective resources of the in-group or the out-group. This may be achieved by comparing the in-group to the out-group on some new dimension, changing the values assigned to the group's attributes, and choosing an alternative out-group by which to compare the in-group. Social competition: Here, an in-group seeks positive distinctiveness and requires positive differentiation via direct competition with the out-group in the form of in-group favouritism (Haslam, Ellemers, Reicher, Reynolds, & Schmitt, 2010). It is considered competitive in that favouritism for the in-group occurs on a value dimension shared by all relevant social groups (in contrast to social creativity scenarios). Social competition is predicted to occur when group boundaries are considered impermeable and status relations are reasonably unstable (Haslam *et al.*, 2010). Supporting this theory, Korte (2007) revealed that social identity theory is a theory that explains the conditions under which a person perceives the collection of people (plus themselves) as a group as well as the consequences of perceiving people in group terms. This theory puts forward a negative effect on workforce diversity and performance. Similarly, O'Flynn *et al.* (2001) indicated that when individuals assign themselves to a particular group, it raises the perceived similarity between their social

identity and the identity of the group, and the perceived differences between their group and other groups are increased. As a result, such individuals do not see themselves as unique anymore but now see themselves as a representative member of the group where they belong and that their behaviour symbolizes the group's model social identity. Furthermore, it is possible for people to easily identify themselves with their ethnic group, seeing that it connects them with those who are from the same background and share a common culture; it also gives them a sense of belonging. Thus, when people identify themselves with a certain ethnic group, which usually happens, the social identity theory expects that individuals will most likely favour those who share the same ethnicity with them (in-group) over those of other ethnicities (out-groups). Criticizing this theory, it has been posited that social identity theory suggests that similar groups should have an increased motivation to differentiate themselves from each other (Turner & Reynolds, 2001). Subsequently, empirical findings where similar groups are shown to possess increased intergroup attraction and decreased in-group bias have been interpreted as problematic for the theory (Brown, 2000). Also, social identity theory has been criticized for having far greater explanatory power than predictive power (Hogg & Williams, 2000). That is, while the relationship between independent variables and the resulting intergroup behaviour may be consistent with the theory in retrospect, that particular outcome is often not what was predicted at the outset (Hogg & Williams, 2000). This theory is relevant for this study to understand how individuals develop and maintain social identities and groups in a diverse work group.

4. Empirical review

Relationship between quality education and innovation orientation

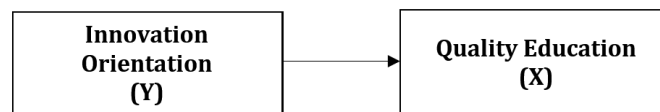
On quality education diversity and innovation orientation, several studies (Amo (2013), Bhargava and Anbazhagan (2014), Magoshi & Chang, 2018; Makhdoomi & Nika, 2018; Mapuranga & Bukaliya, 2014; Mulilima, 2019; Ncube, 2016; Ramírez-Montoya, Castillo-Martínez, Sanabria-Zepeda, & Miranda, 2022; Nicolaidis, 2016; Nyamubarwa, 2014; Ogbo & Ukpere, 2014) adopted survey research design. The survey obtains more robust data representation and better approximation to the reality experienced. The major limitation of survey research design is usually associated with controversial questions and responses that the participants may not properly answer because of the probable difficulty of recalling the information related to them. Furthermore, all the studies used questionnaires as research instruments for the collection of primary data. The major limitation of this type of data collection method is attributed to some respondents not giving timely responses; as such, they may give false, socially acceptable and exciting answers and try to cover up the realities. Also, a large number of the studies reviewed (Alghazo & Shaiban, 2016; Azam & Waheed, 2018; Busolo, 2017; Ehimare & Ogaga-Oghen, 2018; Ekot, 2017; Foma, 2014; Gellner & Veen, 2019; Gitonga, Kamaara, & Orwa, 2016; Kamonjoh, 2015; Kundu & Mor, 2017; Madhuku, 2017; Magoshi & Chang, 2018; Makhdoomi & Nika, 2018; Mapuranga & Bukaliya, 2014; Mulilima, 2019; Ncube, 2016; Nicolaidis, 2016; Nyamubarwa, 2014) adopted regression analysis as method of data analysis. Regression analysis is used to show the effect of the independent variable's contribution in explicating the variance of the dependent variable, be it simple linear regression or multiple regression. The studies of Bhargava and Anbazhagan (2014) and Amo (2013) demonstrated that education significantly affects innovation orientation. Poorly educated employees produce low-quality products, which could result in dissatisfied consumers and cause the company to decline in sales (Amo, 2013). A study by Filbeck, Foster, Preece, and Zhao (2017) looked at the effects of education level on job performance in two ways. First, it reviews the relationships between education level and dimensions of job behaviours representing task, citizenship, and counterproductive performance. It was deduced that education stimulates the performance of core workplace tasks by equipping individuals with more authoritative and technical expertise with which they can complete their responsibilities. Also, Pant and Vijaya (2015) conducted a study to assess how workers' education and spillovers affect performance in plant-level production functions. The study's findings revealed that education positively and significantly affects innovation orientation in plant-level production functions. Likewise, Berry (2016) examined the effects of cross-cultural workforce diversity on employee performance in Egyptian pharmaceutical organizations. The study explored the impact of gender, age, and educational background on employee performance in the Egyptian pharmaceutical industry, which is renowned for employing a highly diversified workforce. The results indicated that only two variables, gender and educational background, were significant in explaining the variance in employee performance when different workforce work together, while surprisingly, age diversity does not. Quality education is shown to have a positive relationship with employee group performance (Saini, Sengupta, & Singh, 2023). Also, Maingi (2015) showed that different educational backgrounds and global experiences strongly correlate with how an organization is strategically positioned, which impacts its innovation orientation. Though having

different educational backgrounds positively impacts the employees and the organization process, it can also negatively affect the performance of groups and group cohesion (Yadav & Lenka, 2020). The study also showed a negative correlation between quality education and innovativeness (Durga, 2017). According to a study by Buengeler, Leroy, and De Stobbeleir (2018), diversity in educational background positively affects team performance because it fosters a broader range of cognitive skills and improves innovation orientation. The study of Mwatumba (2016), Zhuwao (2017), and Akpakip (2017) also showed that there is a positive relationship between education diversity and innovation orientation.

H₀: There is no significant relationship between quality education and innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic.

Conceptual model

Figure 1: Authors' conceptual model (2024)



The model sheds light on the relationship between quality education and innovation orientation, which is the research framework. This research's independent and dependent variables are quality education (X) and innovation orientation (Y), respectively.

Model Specification

The model sheds light on the relationship between quality education and innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic, which is the research framework, given the mathematical derivative function, which gives the value of the slope at any value (x_1 to x_n) since intuition explains that as $\Delta x \rightarrow 0$, then $\Delta y \rightarrow 0$. This can be deduced mathematically since a firm's business outcomes are a function of competitive strategies; $y = f(x_1, \dots, x_n)$.

5. Methodology

The research context is the enumerated consumer goods companies, and the study employed a survey research design. The justification for adopting the survey is based on its usefulness in assessing the thoughts, opinions, and emotions of various groups of individuals and enabling them to provide more accurate and sincere feedback on the subject of study. This study relied on the methodologies of Olubiyi, Adeoye, Jubril, Adeyemi, and Eyanuku (2023), Adeyemi and Olubiyi (2023). Olubiyi, Egwakhe, and Egwuonwu (2019); Olubiyi, Egwakhe, Amos, and Ajayi (2019); Olubiyi, Lawal, and Adeoye (2022). Olubiyi, Lawal, and Adeoye, (2022); Olubiyi, (2022a); Olubiyi, (2022b); Olubiyi, Jubril, Sojину, and Ngari, (2022); Ukabi, Uba, Ewum, & Olubiyi, (2023); Uwem, Oyedele, and Olubiyi, (2021). Olubiyi, Jubril, Sojину, and Ngari (2022), Olubiyi (2024), Uwem, Oyedele, and Olubiyi (2021) with cross-sectional have adopted this methodology in their respective studies and found it to be beneficial. Regular employees of top and middle-level administrators of listed consumer goods companies on the Nigerian Stock Exchange, now known as the Nigeria Exchange Group (NGX), were considered for the study population. The study was contextualized for consumer goods businesses in Nigeria due to the country's fierce competition, multinational operations, large population, and data availability. Nigeria is also the continent's largest economy; twenty per cent of Sub-Saharan Africa's total population resides there. For this study, seven (7) out of the twenty (20) consumer goods companies listed on the Nigerian Stock Exchange, now referred to as Nigeria Exchange Group, were selected from the population. This is based on the capitalization criteria derived by multiplying the share price at the close of trading on the 31st of July 2023 by the number of shares in the issue and the dividend payment trend. BUA Foods Plc, Nestle Nigeria Plc, Nigerian Breweries, Dangote Sugar, Guinness Nig. Plc, Flourmills Nig. Plc, International Breweries, and Unilever Nig. Plc represents the seven (7) most capitalized consumer goods companies listed on the Exchange, and the companies have been consistent with dividend payments. The justification for the selection was that the seven companies represent 93.08% of the sector's total market capitalization of N4.69 trillion and that each of the companies has above N100 billion capitalization as of the cut-off date of 31st July 2023. The sampling units are the regular employees and top and middle-level managers of the selected consumer goods companies listed on the Nigerian Stock Exchange. The population comprised 22,466

staff of the market-leading consumer goods companies. The Research Advisors Table was adopted to determine the sample size, which gave 491 respondents, and proportionate sampling was used to determine the number of respondents per company. Table 1 and Table 2 below present the information:

Table 1: Research computation from Nigerian Stock Exchange Data

No	Name of company	Market Capitalization	Number of Staff
1	BUA foods Plc	N2.44Tr	1,890
2	Nestle Nigeria Plc	N 793bn	2,194
3	Nigerian Brew Plc	N375bn	2,740
4	Dangote Sugar Refinery Plc	N 327bn	2,253
5	Guinness Nig Plc	N131bn	839
6	Flour Mills Nig Plc	N116bn	11,964
7	International Brew Plc	N116bn	586
Total Population			22,466

Source: Researchers' computation (2024).

Table 2: Proportionate sample size

Companies	No of Employees	Proportionate Sample Size	%
BUA foods Plc	1,890	42	8.4
Nestle Nigeria Plc	2,194	48	9.8
Nigerian Brew Plc	2,740	60	12.2
Dangote Sugar Refinery Plc	2,253	49	10.0
Guinness Nig Plc	839	18	3.7
Flour Mills Nig Plc	11,964	261	53.3
International Brew Plc	586	13	2.6
Total	22,466	491	99.97

Source: Researchers' computation from annual reports (2023).

6. Data analysis

The main aim was to analyze and clarify the link between quality education and innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic. Google Forms was utilized to administer the questionnaire. This ensured that every query was answered and decreased the number of invalid responses – the retrieval of 491 usable responses for the analysis. The analysis was conducted using version 24 of the Statistical Package for the Social Sciences (SPSS). The rest were either unreturned or had missing responses; the detail of the responses is shown in Table 3.

Table 3: Response rate

Response Rate	Frequency	Percentage
Fully filled and returned	491	100%
Incomplete or unreturned	0	0%
Total	491	100%

Source: Researcher's computation (2024)

Restatement of research objective and research question

Research objective: Examine the effect of quality education and innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic.

Research question: How does quality education affect the innovation orientation of selected consumer goods companies listed in Nigeria?

The objective was to assess the effect of quality education on the innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic. On a six-point Likert scale, the respondents were asked to rate their perception of various items about the quality education and innovation orientation of selected consumer goods manufacturing firms in Lagos State, Nigeria. These points formed the weights for calculating the score for each item. The results are presented below in Tables 4(i) and 4(ii).

Restatement of hypothesis

H₀: Quality education has no significant effect of quality education on the innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic

Simple linear regression analysis was performed to test the hypothesis with innovation orientation as the dependent variable and quality education as the tested independent variable. The data for quality education and innovation orientation was generated by adding scores of responses of all items for each of the variables. Data from four hundred and ninety-one (491) respondents were analyzed. The results of the regression analysis are shown in Tables 4(i).

Table 4(i): Regression analysis of quality education and innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic

	Model $y_1 = \beta_0 + \beta_1 x_1 + e_i$	Unstandardized		Standardized	T	Sig.
		Coefficients		Coefficients		
		B	SD. Error	Beta		
N	(Constant)	3.676	0.204		17.992	0.000
491	Quality education	0.263	0.045	0.290	5.874	0.000

Dependent Variable: Innovation Orientation
 $R = 0.290$, $R^2 = 0.084$, $T(377) = 5.874$, $p = 0.000 < 0.05$

Interpretation

Table 4(i) presents the results of the descriptive analysis of innovation orientation. The results of the descriptive analysis reveal that 36.34% of the respondents feel that greater ease of ordering is very high, 32.7% of the respondents feel it is high, 11.3% moderately high, 4.5% of the respondents feel moderately low, 0.5% low while 0.3% is deficient and 14.2% is missing. On average, most respondents opined that greater ease of ordering was moderately high, with a mean of 4.42 and a standard deviation of 1.996. Also, the results of the descriptive analysis revealed that 35.9% of the respondents opined that ensures that the service is delivered on time to resolve any issues quickly is very high, 45.6% of the respondents selected high, while 11.1% moderately high, 4.0% of the respondents moderately low, 0.8% low while 0.3% is deficient and 2.4% is missing. On average, most respondents opined that ensuring that the service is delivered quickly on time to resolve any issues is high, with a mean of 5.02 and a standard deviation of 1.157.

Furthermore, descriptive analysis reveals that 43.3% of the respondents opined that a sustainable focus on research and development for process improvement is very high, 28.5% of the respondents felt high, 21.4% moderately high, 2.6% felt moderately low, and 0.8% low. In comparison, 0.3% of respondents opined it is shallow, and 3.2% is missing. On average, the respondents opined that a sustainable focus on research and development for process improvement is high, with a mean of 4.97 and a standard deviation of 1.289. Also, the results of the descriptive analysis revealed that 35.4% of the respondents opined that the value of service in their augmented product offering was very high, 41.2% of the respondents high, 15.3% moderately high, 4.2% of the respondents moderately low, 1.1% low and 0.3% respondents very low and 2.6% is missing. On average, the respondents opined that the value of service in their augmented product offering is high, with a mean of 4.94 and a standard deviation of 1.214.

Also, the descriptive analysis reveals that 27.7% of the respondents opined that varied options at different levels based on different customers' preferences were very high, 49.9% of the respondents high while 11.6% moderately high, 5.8% of the respondents moderately low, 1.8% low while 0.5% respondent very low and 2.6% is missing. On average, the respondents opined that varied options at different levels based on different customers' preferences were high in the workplace, with a mean of 4.84 and a standard deviation of 1.230. The average score of the responses was 4.838, which means that the respondents indicated that the level of innovation orientation in the workplace was high, with a standard deviation of 1.377. Shows the respondents' level of convergence around the mean. Comparing the grand average scores of the responses for quality education and innovation orientation revealed that the respondents rated the measures of quality education as "moderately high" and rated the measures of innovation orientation as "high". This implied that respondents differ in their opinions on quality education and innovation orientation of selected consumer goods manufacturing firms in Lagos State, Nigeria. This implies that the respondents are dissimilar in their opinions on quality education and how it may affect the innovation orientation of selected consumer goods companies listed in Nigeria post-pandemic. This provided an answer to the research question and enabled the researcher to achieve the objective of this study.

Restatement of hypothesis

H₀: Quality education does not significantly affect the innovative orientation of selected consumer goods companies listed in Nigeria post-pandemic.

Simple linear regression analysis was performed to test the hypothesis with innovation orientation as the dependent variable and quality education as the tested independent variable. The data for quality education and innovation orientation was generated by adding scores of responses of all items for each of the variables. From four hundred and ninety-one (491) respondents were analyzed. The results of the regression analysis are shown in Tables 4(ii)

Table 4(ii): Regression analysis of quality education and innovation orientation of selected consumer goods companies listed in Nigeria, post-pandemic

	Model $y = \beta_0 + \beta_1 x_1 + e_i$	Unstandardized		Standardized	T	Sig.
		Coefficients		Coefficients		
		B	SD. Error	Beta		
N	(Constant)	3.676	0.204		17.992	0.000
491	Quality Education	0.263	0.045	0.290	5.874	0.000

Dependent Variable: Innovation Orientation
 $R = 0.290$, $R^2 = 0.084$, $T(377) = 5.874$, $p = 0.000 < 0.05$

Interpretation

The result presented in Table 4(ii) shows that quality education has a positive and significant effect on the innovation orientation of selected consumer goods companies in Nigeria, post-pandemic ($\beta = 0.263$, $t = 5.874$, $p < 0.05$). The R-value for the regression model is 0.290, which shows that quality education has a fragile but positive and significant relationship with innovation orientation. Furthermore, the R square value for the regression model is 0.084, showing that about 8.4% of variations in innovation orientation were caused by quality education, while the remaining 91.6% are caused by other factors not captured in the model. The result of the standard error of the estimate is 0.045. Standard error measures the adequacy of the model. This means that the variability in the prediction is 0.045. The model is adequate as the $S.E \leq 2.5$. The regression model used to explain the variation in innovation orientation due to the effect of quality education can be stated as follows:

$$IO = 3.676 + 0.263QE \quad (i)$$

where: IO = Innovation orientation;
 QE = Quality Education

The regression equation above shows that the parameter estimates of quality education complied with a priori expectation, which states that quality education will positively affect innovation orientation. The constant was 3.676, which implies that if quality education is at zero, the value of innovation orientation would still be favourable, implying that employees believe if their workplace is not educationally diverse, they can still have a level of innovation orientation. The coefficient of quality education was 0.263, indicating that a one-unit change in education diversity resulted in a 0.263 increase in the innovation orientation of selected consumer goods companies in Nigeria post-pandemic. This implies that an increase in quality education will subsequently increase the innovation orientation of selected consumer goods companies in Nigeria post-pandemic. Table 4(ii) also shows the T (377) statistics value is 5.874 at $p < 0.05$, which suggests that quality education significantly explained variations in innovation orientation. Based on the results, the null hypothesis (H_0), which states that quality education has no significant effect on the innovation orientation of selected consumer goods companies in Nigeria post-pandemic, was rejected.

Discussion of findings

The objective was to investigate the effect of quality education on the innovation orientation of selected consumer goods companies in Nigeria post-pandemic. The finding of the linear regression analysis revealed that quality education has a positive and significant effect on the innovation orientation of selected consumer goods companies in Nigeria post-pandemic ($\beta = 0.263$, $t = 5.874$, $p < 0.05$). This indicates that quality education is an essential predictor of the innovation orientation of selected consumer goods companies in Nigeria post-pandemic. The idea that group members have varied perspectives, ideas, proficiencies, levels of education, and information supports the findings of this study. When an organization faces problems, it is diverse workgroups that are better prepared

and equipped to deal with these complex problems (Akinnusi, Sonubi, & Oyewunmi, 2017; Ramírez-Montoya, Castillo-Martínez, Sanabria-Zepeda, & Miranda, 2022). Members of work teams in certain business sectors have been taught common key contents. Members with various educational levels are required due to distinct, complicated team jobs (Childs, 2016). According to Risberg and Gottlieb (2019), diversifying workers from different educational backgrounds creates opportunities for more incredible innovation and creative solutions to problems. Scarborough, Lambouths, and Holbrook (2019) discovered that organizations and employers usually refuse to employ those they perceive to lack the adequate education, training, knowledge, skills, experience or expertise to fill a position within the organization. This signifies that education is very vital to both employers and employees. Education diversity brings new skills, knowledge, information, and unique perspectives to the organization and enhances effective problem-solving and decision-making processes (Selvaraj, 2015). This boosts the employees' performance because of the information exchanged among themselves, the various alternative solutions they reflect on, and the different perspectives they analyze, which ultimately leads to higher, better, and more effective decision-making, creativity, and innovation (Gong & Girma, 2020).

Theoretically, the similarity-attraction theory asserts that managers appreciate the need for competencies that will help organizational members navigate through heightened levels of complexity coinciding with expanding international landscapes, which can be derived by having employees of various areas of specialization (Story & Barbuto, 2011). Across most industries, working in teams is also becoming the preferred model for grouping employees (Richter, Dawson, & West, 2011). The synergistic effects of collaborative problem-solving brought about by quality education are now seen as an essential source of competitive advantage for many employers (Schaffer, 2018). Supporting the findings of this study, Bhargava and Anbazhagan (2014) and Amo (2013) demonstrated that education significantly affects innovation orientation. Poorly educated employees produce low-quality products, which could result in dissatisfied consumers and cause the company to decline sales (Amo, 2013).

Similarly, Pant and Vijaya (2015) conducted a study to assess how workers' education and spillovers affect performance in plant-level production functions. The study's findings revealed that education positively and significantly affects innovation orientation in plant-level production functions. Likewise, Berry (2016) examined the effects of cross-cultural workforce diversity on employee performance in Egyptian pharmaceutical organizations. The study explored the impact of gender, age, and educational background on employee performance in the Egyptian pharmaceutical industry, which is renowned for employing a highly diversified workforce. The results indicated that only two variables, gender and educational background, were significant in explaining the variance in employee performance when different workforces work together, while surprisingly, age diversity does not. In agreement with the findings of this study, quality education is shown to have a positive relationship with employee group performance (Bello-Pintado & Bianchi, 2018). Also, Maingi (2015) showed that different educational backgrounds and global experiences strongly correlate with how an organization is strategically positioned and impacts its innovation orientation. Though having different educational backgrounds positively impacts the employees and the organization process, it can also negatively affect the performance of groups and group cohesion (Yadav & Lenka, 2020). The study also showed a negative correlation between quality education and innovativeness (Durga, 2017). According to the study of Buengeler, Leroy, and De Stobbeleir (2018), diversity in educational background positively affects team performance because it fosters a broader range of cognitive skills and improves innovation orientation. The study of Mwatumwa (2016), Zhuwao (2017), and Akpakip (2017) also showed that there is a positive relationship between education diversity and innovation orientation.

7. Solutions and recommendations

The findings indicate that ($\beta = 0.263$, $t = 5.874$, $p < 0.05$) quality education significantly impacts the innovation orientation of selected consumer goods companies in Nigeria post-pandemic. The study concluded that competitive strategies are necessary for attaining business outcomes for a subset of listed Nigerian consumer goods companies. Because SDG 4 suggests that providing learners with a high-quality education is one of the SDG's most prominent objectives, it is therefore recommended that organizations consider high-quality training and development programmes for employees.

The low-cost capabilities are related to the economization of operational production processes, which makes it possible to produce products/services at a low cost. In contrast, differentiation capabilities are related to the uniqueness of operational processes on the value chain, which makes it possible to produce products/services in a way that increases the value of its products and, consequently, the price of its products as well. The study's findings imply that

management experts should emphasize competitive strategies in developing training programmes to improve business outcomes. The study recommends that consumer goods companies should formulate and implement competitive strategies. More so, develop mindsets that will help the firms discover and exploit adequate competitive strategies to gain competitive advantage, thereby expanding their business. A supply chain management integration model is also necessary at the corporate strategy level to flow information from suppliers to the consumer point of sale. This study recommends that the consumer goods industry work with universities and other academic and research institutions to research the problems facing them so that the best solutions can be derived for strategic management. Existing and prospective businesses and organizations should consider the outcomes of this study by understanding and embracing the conclusions of this study. Consumer goods companies can grow their firms by employing competitive strategies to increase business outcomes and increase sales.

8. Future research directions

The current study focuses solely on SDG4 objectives and goals, whereas for a sustainable environment, this is a limitation, therefore, the evaluation of all sustainable goals is of equal significance. This is a limitation of the study, which focused solely on consumer goods companies listed on the Nigerian Stock Exchange; a focus on different industry segments within the listed companies could have yielded additional insights. It is acknowledged that the findings and implications of this paper are specific to Nigeria and that consumer goods companies were the primary focus, which may limit the findings' generalizability. As a result, the cross-sectional nature of the paper prevents the author from making definitive causal claims. Similar studies could be conducted on large businesses or publicly traded corporations in Nigeria and other developing nations in Africa or beyond. The sample size can be increased by incorporating more respondents with innovative data collection techniques to achieve greater generalizability and reliability. Nevertheless, the limitations of this study can be recognized as research gaps for future studies, and it is recommended that additional replicated studies be conducted across multiple samples, regions, and countries.

Declarations

Ethics approval and consent to participate

Not applicable.

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Consent for publication

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Availability of data and material

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