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Editorial

The Wisconsin Journal of Arts and Sciences (WJAS) aspires to be a vehicle for inspiring and disseminating peer-reviewed multidisciplinary research papers (research articles, case studies, reflective essays, review articles, research briefs, policy and practice briefs) by academics, research scholars, corporate and practitioners with substantial experience and expertise in their respective fields. The journal seeks to become the leading journal in higher learning education within Africa and beyond. We are pleased to bring you the first edition of the 6th volume of the WJAS.

The first article, “Examining the Ghanaian Pension System: An economic perspective”, is authored by Elias Kwaku Megbetor. This study sought to determine whether the pensions paid to beneficiaries are adequate, financially sustainable, and affordable. It also addressed the coverage of pension payments and explored the challenges in pension implementation in Ghana. The analysis utilized the World Bank Multi-Pillar Pension Evaluation Model. Telephone interviews were conducted to gather information from pensioners and pension fund managers, supplementing the secondary documents used. This research employed a qualitative approach using a thematic method of analysis. The main findings indicate that Ghana’s pension system provides inadequate pensions, faces sustainability threats, hinders equity, and reduces affordability for private-sector employers. Additionally, there are identified investment risks, a lack of robustness, weak supervision, and distortions in the labour market. However, the pension system is deemed predictable and contributes to economic growth. Recommendations for Ghana include setting a relatively low pension premium by managers to attract low-income earners and the creation and adoption of electronic contribution and payment systems to facilitate easy access and regular contributions.

The title of the second article is “Factors influencing the adoption of Electronic Commerce among Small and Medium Scale Enterprises in Ghana”, which is authored by Nicholas Otu Mantey, Rene Charlotte Nkrumah, and Massouko Traore. Using a quantitative method, this study aimed to investigate the factors influencing the adoption of e-commerce among SME businesses in the Ghanaian market, employing the Technology Acceptance Model (TAM) as its theoretical framework. The study involved twenty SME business owners in Ghana who had implemented e-commerce strategies for product marketing. Using questionnaires, the research examined the drivers of e-commerce adoption among SMEs and explored the associated benefits, challenges, and strategies for ensuring successful adoption in the Ghanaian context. A key recommendation arising from the study is that SME business owners should implement robust security systems to safeguard against fraud or hacking. Additionally, it is essential for the management of e-commerce platforms to make substantial investments in information technology (IT) to develop infrastructure and enhance human capacities in support of e-commerce adoption. Furthermore, the findings suggest that e-commerce platform providers should focus on promoting the benefits of e-commerce to encourage other SMEs to adopt their services. The study also recommends that the government utilize legislative tools to establish a comprehensive regulatory framework supporting e-commerce, thereby safeguarding businesses and customers from potential hacking and fraud.

The third article, authored by Nana Kofi Annan and Charles Jnr. Asiedu, is entitled “The Impacts of Massive Open Online Courses (MOOCs) on Teaching and Learning in the Digital World. A Case of Wisconsin International University College, Ghana”. In response to the significant advancements in digital learning, especially accelerated by the COVID-19 pandemic, this paper presented a focused investigation into the implications of Massive Open Online Courses (MOOCs) on teaching and learning practices. A thorough literature review on e-learning, drawing from various researchers and educational institutions, set the stage for this exploration. The study emphasized the use of MOOCs as a pivotal component in supporting educational endeavours within academic settings. Adopting a quantitative research methodology, the paper analysed data from 500 participants, including 450 students and 50 lecturers, primarily from Wisconsin International University College, Ghana. This analysis sheds light on the nature of course content, time allocation, preferred MOOC platforms, and pedagogical styles, as well as comparisons between popular free and paid platforms. The findings reveal a distinct preference among students for YouTube, an unstructured MOOC platform, while lecturers show a preference for Coursera, known for its hybrid approach. This dichotomy in platform preferences offers insights into the diverse ways MOOCs are being utilized in academic contexts.



The last article titled “Customers’ perception of e-commerce usage during the Covid-19 pandemic: Evidence from selected online firms in Ghana” was authored by Grace Yaa Agyemang, Bennett Amekquadzi, and Eric Ansong. The primary focus of this study was to investigate consumers’ perceptions of e-commerce enterprises in Ghana during the COVID-19 pandemic. The study utilized a quantitative design and adopted a positivism philosophy. Randomly, 200 staff and consumers of e-commerce firms in the Ga East Municipal District in the Greater Accra Region were surveyed for the study. The results were analyzed using multiple regression. The findings indicate that benefits, self-efficacy, and ease of use have a positive and statistically significant relationship with customer perception, whereas trust and security show no statistically significant relationship with customer perception. Furthermore, the study reveals that the COVID-19 pandemic had a positive effect on the operations of e-commerce firms. The recommendation is for firms to develop and establish a pandemic or emergency response strategy and policy to guide their response in terms of communication and business strategy. This proactive approach can help protect their firm and consumers, ultimately boosting growth and sustainability. Additionally, the government is encouraged to invest in ICT infrastructure and provide support to players in the ICT space through favourable tax and regulatory conditions. Such measures would incentivize investments in the sector and contribute to its growth.

We would like to take this opportunity to express our gratitude to the distinguished members of the Editorial Board, for their commitment and for sharing their knowledge and experience in supporting the WJAS. Again, to our reviewers for making time to offer constructive reviews of the manuscripts. Finally, we would like to express our gratitude to all the authors, who submitted their works. A special appreciation goes to the Dean of the School of Research and Graduate Studies – WIUC, and the Deputy Registrar (Academics)- WIUC, for the insight and support in reviving the WJAS.

We hope that you, the readers, find the Wisconsin Journal of Arts and Sciences an interesting and valuable source of information for your continued work.

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Examining the Ghanaian Pension System: An economic perspective

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Abstract:

The pension industry plays a critical role in ensuring old-age income security. If the elderly are not well catered for, it may lead to hardship and fiscal pressure on the government, with potential negative implications for the labour market, financial markets, savings, and overall economic growth. This research provides an economic analysis of the Ghanaian pension system, evaluating it in accordance with World Bank recommendations. The study sought to determine whether the pensions paid to beneficiaries are adequate, financially sustainable, and affordable. It also addressed the coverage of pension payments and explored the challenges in pension implementation in Ghana. The analysis utilized the World Bank Multi-Pillar Pension Evaluation Model. Telephone interviews were conducted to gather information from pensioners and pension fund managers, supplementing the secondary documents used. This research employed a qualitative approach using a thematic method of analysis. The main findings indicate that Ghana's pension system provides inadequate pensions, faces sustainability threats, hinders equity, and reduces affordability for private-sector employers. Additionally, there are identified investment risks, a lack of robustness, weak supervision, and distortions in the labour market. However, the pension system is deemed predictable and contributes to economic growth. Recommendations for Ghana include setting a relatively low pension premium by managers to attract low-income earners and the creation and adoption of electronic contribution and payment systems to facilitate easy access and regular contributions.

Keywords: Pensions; Social Security; Challenges of Pension Systems; Defined Benefits; Defined Contribution.

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1. Introduction

The aspiration to live, at least, a moderate life after retirement can be achieved if adequate preparations in terms of financial investments are established. However, many individuals are mostly not economically prepared for retirement because of either limited savings or a lack of assets to generate income (Diaw, 2017). Furthermore, the financial preparedness of individuals for retirement is often poor. As a result, most countries institute various social security programmes including pension plans to alleviate the plight of their citizens from this economic quagmire.

In Ghana, the population of the elderly or those individuals who have reached a statutory minimum pensionable age has increased more than seven-fold since the 1960 population census. The figure increased from 213,477 in 1960 to 1,643,381 in 2010, constituting 6.7 percent of the total population compared to 4.5 percent in 1960. Following this trend, it is projected that Ghana's elderly population will reach 2.5 million by 2025 and 6.3 million by 2050 (Ghana Statistical Service, 2013). The country's life expectancy increased from 50.03 in 1975 to 60.03 years in 2010. The 2020 estimate of life expectancy is 64.9 years with 63.8 years for men and 66.1 years for women (United Nations Population Prospects, 2020). These statistics show that Ghana has one of the highest proportions of persons aged 60 years and over in sub-Saharan Africa (Mba, 2010). The rise in the elderly population coupled with the gradual rise in life expectancy has important implications for old age income security and the pensions of retirees.

Despite this gradual increase, the existing social cash transfer programme in Ghana termed Livelihood Empowerment Against Poverty (LEAP) introduced in 2008 to transfer cash to extremely poor households across the country, allocated only 10 percent of its funds to the elderly over 65 years who are eligible for benefits (Ghana Statistical Service, 2013). Beneficiaries across the country in 2016 numbered 90,785 of which only about 9,079 were elderly individuals. Unfortunately, the beneficiary households in 2017 received a paltry USD 11.20 a month depending on the household size of eligible members. Given the predicament of the Ghanaian elderly, there is a need for a pension system or other social assistance programmes that will ensure their income security. This research, therefore, provides a criteria-based analysis of the Ghanaian pension system.

In relation to the justification for this study, since the implementation of the new pension reforms in Ghana in 2008, some challenges have been identified. Chief among them is the evidence emanating from the first batch of beneficiaries in 2020. The Ghana Trade Union Congress observed that workers who retired in 2020 became victims of the pension system reform that promised better retirement income but delivered worse outcomes than its predecessor. The conditions in the new pension reforms raise insecurity for pensioners compared to the old system. In addition, private-sector employers have adopted a strategy of channelling workers' remuneration into allowances to reduce their share of pension obligations. This practice lowers the actual amount of pension contribution, which inevitably leads to low pensions. It is also found that little empirical evidence has been generated, and there is no comprehensive analysis of the new system. These revelations have motivated this research to analyse the extent to which the Ghanaian pension system complies with the recommendation of the World Bank's Multi-Pillar Pension Evaluation Criteria.

2. Literature Review

2.1 Evolution of Pension System in Ghana

This section presents a summary of Ghana's pension system from the colonial era to date. The colonial administration introduced a pension programme to encourage loyalty, improve performance among colonial civil service workers, and ensure at least a basic pension during retirement (Kpessa, 2010). The retirement benefit was non-contributory and was considered a reward for diligent services rendered to the queen and



colony. It also covered other public sector workers who complied with the loyalty criteria approved by the colonial administrators (Government of Ghana, 2006). Unfortunately, this income protection policy covered only urban workers who were mainly Europeans and a limited number of Africans (Asamoah & Nortey, 1987). Later, the colonial government enacted a National Pension Scheme known as “CAP 30” coined from Chapter 30 of the Pension Ordinance of 1946. The scheme was to replace and merge the existing pensions into a single unified scheme that provided equal benefits to expatriates and local employees (Government of Ghana, 2006). Originally, the scheme was a non-contributory scheme for civil servants and armed forces personnel. Later, it was amended to a PAYG system, but the members of the Ghana Armed Forces, the Police and Prison Services, and senior staff of public universities and research institutions were not migrated because the government yielded to the pressure from union leaders who insisted to remain on the old non-contributory scheme.

A major weakness under the CAP 30 pension scheme was that a public servant who was sacked or fired lost all retirement benefits. This scheme also posed a fiscal drain on the budget of government due to its Defined Benefits and PAYG nature. A reform was therefore initiated. In 1965, the immediate post-independence government introduced a Provident Fund scheme that covered other categories of workers such as the private sector which was not previously captured under the CAP 30 scheme (Kpessa, 2010).

2.1.1 Post-Independence Provident Fund

The Provident Fund scheme established in 1965 was an improved national pension scheme for public and private sector workers and alleviated the fiscal risks of a Defined Benefit system. The scheme paid contributors a lump sum financial benefit that accrued from membership contributions over some time and yields from the investment of funds (Dixon, 2000). One challenge of this system was that the returns generated from investment in government bonds were low. To address some of the shortcomings of the Provident Fund scheme, especially regarding coverage and management, a new Act was passed in 1972. This led to the establishment of the Social Security and National Insurance Trust (SSNIT) as an independent corporate body to manage pension schemes in Ghana. Although SSNIT continued to operate as a Provident Fund scheme, it provided compulsory coverage for workers in all establishments that employ at least five workers. Membership was also opened to firms with less than five employees to join voluntarily. The economic instability in Ghana in the 1980s rendered the lump sum benefits paid to pensioners woefully inadequate hence, the formation of a national Social Security Pension Scheme that paid monthly annuities to pensioners until their death (Anku-Tsede et al., 2014; Dei, 1997; Dorkenoo, 2006). The scheme took into consideration three main contingencies: old age, invalidity, and survival benefits. Coverage under this scheme included private and self-employed workers, civil servants, and all other public sector employees who were employed from the 1st of January 1972.

2.2 The Need for Reform

The plight of the aged in Ghana required a significant improvement in pension income. This is because the previous pension regimes did not provide adequate retirement income for workers. The socio-cultural setting places responsibilities on older people who usually act as heads of families and are the first point of call when family members need financial help, especially for funerals and other family engagements. These additional social responsibilities make it difficult for the elderly to spend less during retirement. Public outcry about the inadequacies of pensions to maintain moderate living conditions so far did not yield any meaningful results. The difference between pension schemes also raised concerns. Workers under the SSNIT pension scheme received lower pensions compared to their counterparts who were still members of the CAP 30 scheme. For example, security personnel in the Ghana armed forces, police, and prison service staff continued to enjoy a lump sum end-of-service benefit. Unfortunately, the Social Security Pension Schemes did not cover the informal sector, which employs over 80 percent of workers (National Pensions Act, 2008 -Act 766). These concerns led to protests by workers’ unions and consequently the calls for the pension level to be raised to match those on CAP 30, and the abolition of the SSNIT pension scheme. In 2004, the government of Ghana responded to these demands by initiating major pension reforms, which are discussed in the next section.



2.3 The Current Three-Tier Pension Scheme

In July 2004, the President of Ghana appointed a nine-member presidential commission to examine the existing pension schemes. The Commission submitted its final report to the government in March 2006. The main recommendation of the commission is the creation of a new three-tier pension system consisting of three pillars: two mandatory and one voluntary pillar. The new Act 766 specified that the full retirement age be maintained at 60 years and 55 years for those who work under hazardous conditions such as underground mining, quarry or steelworks, or any other employment where the worker stands the risk of contracting industrial diseases (sections 75 & 76 of Act 766). The new system is a hybrid of Defined Benefit (DB) and Defined Contribution (DC) plans designed to generate better retirement benefits.

It must be noted that for the Tier-One (DB) scheme, SSNIT assumes the mandatory responsibility of providing pensions to workers during their retirement. However, with the Tier-Two (DC) scheme, employers make regular contributions to workers' retirement accounts but are not mandated to provide an annuity to retired employees since the function of this tier is only to top-up pension received from Tier-One. With the Tier-Three scheme, adequacy becomes the sole responsibility of the recipient of the lump-sum amount. Contributions to the Tier-Three scheme can either be made by individual members or both individuals and employers. This pillar aims to enhance individuals' asset levels toward retirement. The details of the pension system are discussed in the following sections.

2.3.1 Tier-One

Tier-One is a mandatory contributory DB scheme designed strictly for formal sector workers under the management of SSNIT. The aim is to provide a basic monthly pension to workers in the formal sector. Contributions for Tier-One are fully tax-exempt and are financed by both employers and employees. While the employer contributes 13 percent of the worker's monthly basic salary, the employee contributes 5.5 percent with a total contribution rate of 18.5 percent. Of the 18.5 percent, the employer remits 11 percent within 14 days of the ensuing month to SSNIT towards the employee's monthly pensions (Tier-One), 5 percent to designated private fund managers towards Tier-Two contribution, and 2.5 percent to National Health Insurance Scheme (NHIS), a contributory social health insurance scheme.

The Tier-One scheme requires workers to contribute for at least 180 months to qualify for a full pension instead of 240 months under the previous Pension Act 247. The scheme will only pay monthly benefits (no lump-sum payment) to employees upon retirement and is protected against inflation and market risks. A contributor who fails to meet the minimum 180 months before retirement will receive accumulated contributions plus interest calculated at 75 percent of the Government 91-Day Treasury Bill rate.

The calculation of employee benefits is based on the National Pensions Amendment Act, (2014), (Act 883). This Act stipulates that those who contributed for the minimum period of 180 months are entitled to 37.5 percent pension right times (average of the three best years' salary). Every additional twelve months' contribution gives the member a 1.125 percent annual accrual rate up to a maximum of 60 percent. That means an employee who has worked continuously for 35 years (420 months) qualifies for the maximum provision. The scheme also pays a lump sum of 15 years monthly pension to the survivors of a deceased member who have made contributions for at least 180 months.

Similarly, if an employee is deceased before the mandatory 180 monthly contribution baseline, the survivor(s) will receive a lump sum benefit equivalent to 15 years of final pension proportional to the contributions made. When a pensioner dies before age 75, the survivor(s) will receive the balance of unpaid pensions until the age 75 years of the deceased. Thus, a pension is guaranteed to be at least 75 years. However, a pensioner above 75 years continues to live on a pension until death.

It is important to note that the 2014 Act 883 was an amendment to the 2008 Act 766. The amendment aims to achieve the following:



- i) To reduce the age exemption from 55 years to 50 years for those affected by Act 766 from its inception on January 1, 2010.
- ii) To adjust the formula for the computation of pensions that is stated incorrectly in Act 766.
- iii) To introduce an Emigration Benefit under Tier-One.

A non-Ghanaian member whose service ended and is leaving Ghana will receive whatever benefit is due to him/her, paid as a lump sum in Ghanaian currency. Act 883 stipulates that any information that may be required from employers by fund managers (SSNIT) must be provided within seven (7) working days to ensure effective regulation.

2.3.2 Tier-Two

Tier-Two is a mandatory fully-funded occupational DC scheme that is privately managed with monthly contributions of 5 percent of the basic salary of all formal sector employees. This pillar aims to improve pensions by providing a supplementary lump-sum benefit to members upon retirement in addition to the monthly annuity that will be received from Tier-One. Contributions are fully tax-exempt; thus, they are deducted from workers' monthly gross earnings before income tax. To boost pension income, cash withdrawals from this account are not allowed until retirement. Lump-sum benefits are paid to individuals upon retirement, and they comprise all contributions made to the scheme in addition to returns earned on the investment. If an employee is deceased before retirement, the next of kin will receive a lump sum benefit equivalent to the contributions made in addition to interest income from investment. This scheme is privately managed but regulated by the National Pensions Regulatory Authority (NPRA), the licensed service provider.

2.3.3 Tier-Three

Tier Three is a voluntary or optional DC scheme consisting of two components; a voluntary provident fund for formal sector employees and a personal pension scheme targeted at informal workers and other individuals. Firstly, formal sector workers make voluntary savings to a provident fund scheme with a discretionary monthly contribution that varies among workers aside from the mandatory contributions made towards Tier One and Tier Two. Although employers are not mandated to contribute to the Tier-Three scheme, most employers do so to motivate workers to stay longer on the job and to reduce high labour turnover. However, the contribution rate may vary from one employer to another (Anku-Tsede et al., 2014). Act 766 stipulates that employers who contribute to Tier-Three are entitled to some tax benefits as these contributions are tax-exempt. Members of the Tier-Three scheme will receive a lump sum benefit upon termination of service, death, or retirement. Similar to Tier-Two, this scheme is also managed privately by approved pension fund managers and custodians licensed by the Security and Exchange Commission and registered with the NPRA.

This scheme gives contributors access to a maximum of 50 percent of contributions for specific needs. For example, contributors may use their share to purchase land, establish another business to generate extra income, fund their wards' higher education, and act as collateral for a mortgage towards the acquisition of residential property before retirement. These may cushion members from the burden of financial constraints, indebtedness, and rent payment, and ensure adequate financial preparation towards retirement. One other provision of this plan is that although contributors have access to their funds, any cash withdrawal before at least ten years of contribution attracts a 15 percent tax levy on the total sum withdrawn. In the same vein, termination of the account before the tenth year of contribution will attract a tax rate of 15 percent of the accumulated savings. The intention is to discourage contributors from early withdrawal so that they can accrue sufficient funds. Cash withdrawal from the fund is tax-free after ten years.

Most importantly, the second component of the voluntary plan which is the Personal Pension Scheme is more focused on workers in the informal sector who constitute about 80 percent of the Ghanaian working population and are not covered by a pension scheme (National Pension Act 2008, Act 766). Secondly, the Personal



Pension Scheme aims to provide additional cover for individuals who desire to make voluntary contributions to enhance their pension benefits beyond the mandatory first and second-tier schemes and any provident fund scheme. Contributors to this scheme will have two separate accounts: the retirement account that will provide benefits on retirement and a personal savings account with rules for withdrawals (set by the fund holders) before retirement. Unlike the provident fund scheme, withdrawals from Personal Pension Accounts are tax-exempt. This implies that informal workers can make pension contributions without worrying about how much the government will deduct from their hard-earned savings. This provision serves as an incentive to contributors and a morale booster for more workers to enroll. The scheme pays a lump sum benefit upon termination of service or death. Additionally, informal workers in Ghana do not pay personal income tax. This is so because their activities are not regulated, and they hardly keep records of their earnings which are often irregular. However, they pay tolls or obtain Business Operating Permits for a specified period depending on the nature of the job.

2.4 Theoretical review

2.4.1 Positive Theory of Social Security

The positive theory of social security proposed by Sala-i-Martin (1996) and supported by Tabellini (2000) is also a relevant theory for the analysis of pensions. The theory stipulates that an economy would induce a higher aggregate output if elderly workers were replaced with younger ones. Thus, planning and securing the future for older workers would enable them easily to exit the labour market. The theory points out that there are positive externalities in the average stock of human capital and that skills devalue with age. More so, elderly workers have on average less energy and are deficient in new skills that have adverse effects on productivity. According to Verbon (2012), when the value in skill levels between the young and the old generation is compared and the difference is large enough, then the national output should be higher if elderly workers exit the labour market. In this case, retirement is desirable for the elderly, and social security transfers serve as retirement inducement. Verbon (2012) posited that the positive theory is one of the most dominant in explaining the existence of public pension schemes.

The theory explains that pensions are a means to induce retirement, thus paying the elderly to relinquish jobs for the young and redistributing income across generations. According to this theory, a pension programme can achieve this objective because they usually require records of contribution as a prerequisite for participation. Pension programmes encourage the young to work in return for future transfer payments. In this case, income is moved away from the young towards the elderly who are eligible. It is further argued that pensions in general and public pensions, in particular, have the potential to influence work decisions and efforts. By discouraging work among the non-working aged, labour allocation to jobs may improve and this may further reduce distortions in the labour market. However, such redistribution may not occur without welfare implications which explains why most pension programmes focus on income redistribution (Sala-i-Martin & Mulligan, 2000).

Sala-i-Martin (1996) testified in his study that this theory is consistent with social security and pension schemes and reforms. It brings the understanding that effective and efficient planning towards the welfare of older workers induces economic growth, especially with regard to issues about labour market participation. The impact of this theory (though arguable) is that elderly workers are less productive and must exit the labour market for the younger ones that have more energy and skills to work. They, therefore, need financial reparation for this important exit.

But the question remains whether elderly workers are indeed less productive. Van, Jan, and Stoeldraijer (2010) opined that an effort to establish a direct link between age and productivity is not easy. According to the authors, productivity at the workplace is usually measured collectively and is complex to isolate at the

individual level. Since workers are made of individuals of different ages, identifying the relationship between age and productivity is not easily discernible and can only be determined on rare occasions; for instance, in testing average speed in sports contests (Van & Stoeldraijer, 2010). However, it is essential to indicate that physical running only reveals the physical state of an individual and may not necessarily reflect on total productivity.

2.5 Research framework

2.5.1 The World Bank Pension Evaluation Model

An effective pension system must meet the functions of saving, re-distribution, and insurance simultaneously (World Bank, 2005). To achieve these objectives, a multi-pillar approach is required and regarded as essential for a comprehensive assessment of pension systems. This section briefly discusses the Multi-Pillar Pension Evaluation Criteria recommended by the World Bank.

2.5.2 The World Bank's Multi-Pillar Pension Evaluation Criteria

After the consideration and application of the Multi-Pillar Model by a nation, the World Bank in 2005 further proposed that the entire pension system design be evaluated with the aid of primary and secondary criteria that are discussed in the sections below.

i) Primary Evaluation Criteria

The primary criteria used by the World Bank (2005) are the ability of the pension reform to maintain adequacy, affordability, sustainability, equity, predictability, and robustness while ensuring that the objective of income smoothing and welfare enhancement of the aged is achieved at a country level. These criteria are now discussed briefly.

- Adequacy: This addresses the need for the pension system to provide benefits sufficiently to the entire population to prevent old-age poverty at a country-specific level.
- Affordability: It is required that the pension system must be within the financing capacity of individuals and their respective nations. It is also required that the system does not impose a heavy fiscal burden on the state or unduly displace support for other social or economic needs.
- Sustainability: Another important aspect of a pension system is its sustainability. The framework requires that the pension system possesses a sound financial standing that can be maintained over a long period of time.
- Equitability: An equitable pension system requires that some redistribution occurs by channeling income from wealthy individuals to the lifetime poor to promote social fairness.
- Predictability: To ensure predictability, the World Bank (2005) framework proposes that:
 - a. There is a legal benefit formula upon which computations are based. Arbitrary determination of benefits by policymakers or managers infringes on the transparency and fairness of the system.
 - b. The formula in the DB system is designed to protect individual contributors against price fluctuations (inflation-indexed). Likewise, the investment policy in the DC system may protect individuals against market volatility prior to retirement but bears the market risk after retirement.
- Robustness: A robust pension system refers to the ability of the system to withstand major economic, demographic, and political shocks.



ii) Secondary Evaluation Criteria

In addition to the primary criteria, the World Bank (2005) extended the pension systems framework to include the secondary evaluation criteria which seeks to evaluate the system's contribution to output and growth. This consideration is based on the fact that any well-functioning pension system modelled on the aforementioned criteria is capable of ensuring economic growth and stability. The relevant criteria in this respect include minimization of labour market distortions, contribution to savings mobilization, and contribution to financial market development. Irrespective of the pension system design, benefits are ultimately linked to the economic environment and output. It is therefore essential that the systems over time contribute to growth and output to be able to deliver the promised benefits.

3. Methodology

A qualitative approach aided by an exploratory research design is used for this study. This study extensively employed secondary data that are made available in government policy documents on pension and social security, the World Bank, the ILO, and the OECD report on pensions, as well as other relevant journals and publications in the field of pensions and social security. This study also gathered primary data from in-depth interviews to enhance evidence obtained from secondary sources. The use of interview-guide made allowances for open-ended questions to create the opportunity for the interviewer to obtain more information on responses, and to also allow for questions and queries on the part of the participants. According to Saunders and Townsend (2016), participants from a homogeneous population must be selected with expert knowledge to achieve the requisite level of adequacy and point of saturation during qualitative interviews. Francis et al (2010) opine that an adequate level of saturation and sufficiency is attained if the interviews involve a homogenous population of 6 to 12 participants with expert knowledge. Furthermore, Saunders (2012) suggests that a range of 4 to 12 participants from a homogenous population provides saturation and sufficiency of data collection during qualitative interviews. However, Creswell (2007) suggests a sample size of 12 to 30 for interviews involving a heterogeneous population. This study selects respondents from a homogeneous population of pension fund managers and regulators who have expert knowledge of the topic under investigation and whose responses provide first-hand information to assist in achieving the intended research goals. Questions included in the interview guide are designed in line with the World Bank Multi-Pillar Pension Evaluation Criteria. These criteria informed the main themes for research discussions.

3.1 Sampling Technique and Selection of Participants

The purposive sampling technique was used to draw information from twelve (12) pensioners and twelve (12) pension fund managers who are the subjects of interest in this study, and who have expert knowledge of the topic under investigation. In addition, the method is supplemented by a review of relevant documents published by pension institutions to enhance the robustness and promote the credibility of the inquiry process.

To recruit participants, first, the researcher requested a gatekeeper's letter from the Public Affairs Manager of Social Security and National Insurance Trust (SSNIT) at the head office in Accra as clearance to conduct interviews. SSNIT was approached because it is the largest, and the only state pension fund management institution in Ghana. Telephone numbers of the managers including some deputies were obtained. The researcher contacted the pension fund managers individually by telephone for a formal introduction, the declaration of intention, and the exchange of email addresses. This was followed by the issuance of an informed consent form through the respective email contacts of the proposed participants. Managers who were willing to participate and had consented to do so became the "study participants". Thereafter, interview dates and times were decided.

In the case of recruiting pensioners, the researcher contacted the Area Head of the Church of Pentecost, Ghana at Madina municipality in Accra to express his intention to collect data from pensioners in the church,



specifically the Madina central congregation. A gatekeeper's letter was obtained from the Reverend Minister as clearance to collect data. Subsequently, telephone numbers of pensioners were obtained from the church's register. Thereafter, the researcher contacted the pensioners individually by telephone for a formal introduction, declaration of intention, and exchange of email addresses. This was followed by the issuance of an informed consent form through the prospective participants' respective email contacts. The researcher then selected twelve (12) pensioners who agreed to participate. Thence, the interview date and time were finalized.

The church was also approached because, as one of many COVID-19 safety protocol measures, religious groups in Ghana were required to keep a register that contains records of all church participants as outlined by the president of Ghana in the "14th National Address on COVID-19" on July 26, 2020. The Madina central congregation was chosen because the researcher's preliminary investigations revealed the existence of such records. The church's records showed 39 regular members who were pensioners, out of which twelve (12) were selected for telephonic interviews.

3.2 Data Collection Method

Taking into account the COVID-19 pandemic situation, interviews were conducted via telephone on a one-on-one basis and on dates convenient for the participants with each session lasting between 35 and 45 minutes. The reason for the choice of the telephone interviews is that the method presents researchers with a more suitable option, and access to participants in situations where it requires that both parties keep an acceptable physical or social distance, as is required since the outbreak of the COVID-19 pandemic. In these circumstances, face-to-face interviews may be very risky and unsuitable, because both the interviewer and respondents may become infected if one of them is asymptomatic or symptomatic or if one of them handles objects contaminated by the virus or enter a high-risk group or hotspot COVID-19 area. Secondly, interviews by telephone make it possible to interview individuals who may not otherwise be available due to their location or constraints of internet connectivity.

The researcher asked permission from participants to audio-record the interview session to ensure accurate transcription. Handwritten notes were also taken during each interview. The researcher observed the following procedures to recruit participants for the study:

- i. Only those who are pensioners or pension fund managers were selected.
- ii. Only those who signed the consent form were included.
- iii. Individuals who indicated to be available for the interview were contacted.
- iv. Individuals who may have the time to complete the interview process were considered.
- v. Individuals who would not demand and insist on financial inducement before, during, and after the interviews were considered.

3.3 Method of Analysis

The thematic method of data analysis was employed to allow for systematic classification, analysis, and interpretation of the evidence gathered. The analysis relied on the World Bank's Pension Systems Evaluation Criteria, where each variable in the model constitutes a theme for discussion.

3.4 Trustworthiness

To strengthen the quality and integrity of this study, the researcher applied Lincoln and Guba's (1985) evaluative criteria. This study employed data triangulation, member checks, and peer reviews to strengthen the credibility and conformability of the study. The researcher also performed an audit trail by keeping track and accounting for all the research activities to enhance the dependability of the research. Finally, to ensure the



authenticity of the findings of the study, attentiveness was ensured to report the true feelings of respondents as expressed during the data collection process and to depict the actual issues for possible action.

4. Results from Interviews

This section presents a summary of the findings from interviews conducted to supplement the evidence gathered from the literature and document survey. Twelve pensioners and twelve pension fund managers participated in the telephone interviews. The pensioners ranged in age from 61 to 80 years, and they worked between 20 to 44 years before retirement. The work experience of the fund managers interviewed ranged from 6 to 15 years. Sections 4.1 and 4.2 present a summary of the salient information obtained from pensioners and pension fund managers respectively. The responses reemphasized some of the issues highlighted in documents and literature.

4.1 Responses from Pensioners

All twelve respondents indicated that the level of pensions is too low, leaving most of the pensioners in poverty. One respondent remarked:

“If I am to depend on the pension alone, my living condition would have been miserable”.

Five of the participants mentioned poor supervision and management, leading to delays in processing pension payments to new retirees. One of them indicated that:

“The collapse of Social Security Bank and Merchant Bank owned by SSNIT are typical examples of SSNIT’s mismanagement of pensioners’ resources”.

Another also mentioned that:

“SSNIT’s inability to retrieve a colossal amount of four billion Ghana cedis (Gh¢4billion) owed it by the government of Ghana as stated in the 2021 Ghana’s Auditor General report is a clear manifestation of SSNIT’s poor supervision and management”.

One participant also mentioned cumbersome bureaucratic administrative processes leading to long delays in pension payments, especially for new retirees.

One participant mentioned high administrative costs concerning staff remuneration. He asked:

“How can the CEO of SSNIT earn (Gh¢ 75,000 in 2020) more than the president of the country?”

The two Cap 30 pension recipients were more satisfied than beneficiaries of the Three-Tier pension scheme.

Six participants indicated that they did not contribute to the voluntary pension scheme because of a lack of confidence in the financial sector due to investor fraud.

Eight participants did not properly understand the components of the voluntary scheme, while the remaining four retired before the introduction of the voluntary scheme.

4.1.1 The respondents further gave the following general advice:

All twelve respondents warned against early retirement especially if workers did not make adequate financial savings or have vibrant businesses to depend on during old age. They advised that workers begin early in their careers to save and invest for their retirement; this is very important for all young workers.

Workers must plan their families carefully to prevent expenditures on education during retirement (six participants).



Workers are encouraged to pay their pension contributions regularly no matter the level of their income. One interviewee remarked:

“Every worker must contribute to a pension since half a loaf is better than none”.

The National Health Insurance Scheme for pensioners should extend its coverage to more diseases to assist pensioners (all twelve participants).

Pension funds should be managed well and invested in more profitable ventures that will benefit retirees (eight participants).

Workers must plan to have extra income to supplement their pension due to unforeseen circumstances (ten participants).

Supervision and control of the financial sector should be improved to allay workers’ fears of participating in voluntary private pension schemes (seven participants).

Education and publicity of the components of the voluntary pension scheme should be improved (eight participants).

SSNIT and the government should collaborate to provide affordable housing to pensioners (all twelve participants).

Annual pension increments (indexation) should reflect the prevailing economic conditions in the country (eleven participants).

Pensioners should be represented on the National Pension Board to ensure their concerns receive attention (two participants).

The government as an employer should remit its share of contribution to SSNIT timely and regularly to ease part of SSNIT’s problems (one participant).

The government should strengthen the effort to unify all parallel schemes as enshrined in the Pension Act 766 to avoid discrimination (two participants).

Fund management boards should follow the pension computation formula strictly and apply it carefully (one participant).

The government should give certain incentives to pensioners such as subsidized utility bills and public transport fares (one participant).

4.2 Responses from Pension Fund Managers

The Ghanaian pension system lacks any provision to protect the low-income group.

Benefits are adjusted upwards annually depending on the inflation rate; however, the impact of these adjustments is insignificant due to the generally low levels of pensions.

The financial markets in Ghana are small and less developed compared to advanced countries such as the United Kingdom.

The capital market in Ghana is volatile due to fluctuating interest and inflation rates and as a result, has little foreign participation.

A further problem in financial markets in Ghana is attributed to the late (2012) licensing of credit rating agencies, which are yet to gain public and corporate recognition.

There exists legislation to prosecute recalcitrant employers who evade contributions.



There are monitoring measures to maintain a clean pension register to prevent payments to non-existing retirees.

Pension funds are invested only in domestic financial markets. The investment portfolio of the fund is divided into equities, fixed income, and alternative investments such as investments in residential and non-residential properties and loans.

NPRA and SSNIT have strategized to revamp public education. These include measures to enroll more members, strengthen the supervisory role, and arrest recalcitrant and defaulting employers. These should raise contributions and make the system sustainable.

Life expectancy is gradually rising, implying a rise in pension expenditure but no decision has been taken yet about increasing the retirement age.

Myopia is the main challenge that limits the participation rate. Myopia in this context refers to labour supply and savings decisions by individuals that postpone savings because individuals regard retirement as far in the future and not important when they are young.

Tiers two and three have brought new private fund management institutions, which have enhanced savings mobilization and created many jobs.

5. Discussion of Findings

The discussion follows the World Bank's pension system evaluation criteria as discussed earlier.

5.1 Sustainability

The SSNIT pension scheme undergoes periodic actuarial evaluation to determine the financial sustainability of the scheme. The results of such evaluation vary over time. For example, the 2004 actuarial report projected that at a two-percentage point return on investment and a three-percentage point annual increase in coverage, the scheme could be sustainable for a fifty-year (2004-2054) period (Kpessa, 2010). Notwithstanding this projection, the 2011 actuarial report revealed that the scheme (Tier-One) faced long-term sustainability constraints and should reach its equilibrium in 2018 (Kwabla-King, 2017). This means that with the current rate of contributions, the cost of benefit payments and administrative expenses are projected to exceed income from contributions and investments after 2018. However, it is difficult to validate this claim since the institution must still conduct its actuarial evaluation for 2022.

Meanwhile, the last available actuarial report in 2014 indicates that the SSNIT pension scheme is not financially sustainable for the period to 2064 (SSNIT Annual Report, 2016). According to this report, "given the applicable financial rules, the demographic and economic environment in which the scheme operates, the current assets together with the future contributions of members will not be sufficient to pay all future benefits, administrative and operational expenses over the period covered by the projection" (SSNIT Annual Report, 2016). Indeed, predictions of these reports have started manifesting as the rate of change of total pension incomes fell below total pension expenses, and the rates of the differences were -15.65 and -47.98 in 2015 and 2016 respectively (SSNIT Annual Report, 2016). From these facts, it appears that the Tier-One scheme managed by SSNIT is encountering a financial challenge. During the same period, benefit payments and administrative costs increased but contribution inflows and investment returns dwindled. For example, benefits payments outweighed contributions by GH¢531,314,000 and GH¢230,354,000 in 2015 and 2016 respectively (SSNIT Annual Report, 2016). Immediate efforts instituted by SSNIT to address these challenges are legislation to prosecute recalcitrant employers who evade contributions, and the implementation of measures to maintain a clean pension register to prevent payments to non-existing retirees. Because of this sustainability threat, revamping the pension system becomes essential.



5.2 Adequacy

Pension adequacy can be determined by the income replacement rate (IRR), which is the ratio of retirement income to pre-retirement earnings. OECD (2017) proposed an average IRR of 72 percent to ensure a moderate living standard. Ghana's new pension reforms pegged the IRR at a minimum of 37.5 percent for 180 months (15 years) contribution and a maximum of 60 percent for 420 months (35 years) contribution. These rates are lower than the minimum of 50 percent and a maximum of 80 percent of the previous scheme because it is expected that the lump sum benefits from the mandatory Tier-Two and the voluntary tier should raise the total retirement benefits.

The practicality of the computation formula of the new pension reforms was put to test in 2020 when the first batch of retirees started receiving their benefits. The meagre nature of the lump sum benefits from the mandatory Tier-Two led to public outcry and the rejection of the formula by the Trades Union Congress (TUC) and other labour unions. Pensioners were disgruntled about the benefits they received and called for immediate changes in the computation formula (Trades Union Congress, 2020). The September 23, 2020, edition of the Daily Graphic published that: "the Trades Union Congress has called on the government to take responsibility for the shortage in the payment of lump sums to pensioners who started retiring from this year under the new pensions Act, 2008 (Act 766). It was the stance of the labour union that the government topped up the shortage on pensioners past credits and second Tier contributions computed under the new law".

According to the general secretary of the TUC of Ghana, it cannot be justified that the retirees of 2020 be paid amounts far lower than what they would have received under the previous (PNDC Law 247) scheme. He gave examples of members who retired in 2020 and received lower lump sums compared to their juniors in the same organisations who retired in 2019, under the defunct PNDC Law 247 (Trades Union Congress, 2020). The TUC, therefore, demands that the amortisation method used in calculating workers' lump-sum pensions be replaced with PNDC Law 247 to calculate retirees' lump-sum payments to improve pensioners' position. They requested that new retirees who are affected in 2020 must be duly compensated. The government promised to compensate the affected individuals although this will increase its fiscal liabilities. An affected respondent made the following remark in an interview conducted for this study:

"Unfortunately for me, despite the government's promised 10-day duration, it has been three (3) months now; I have not received my lump-sum pension payment although I have completed all the necessary documentation. I followed up to my workplace but to no avail. I feel it will even be worse for other pensioners in institutions that do not have fund managers and whose funds are still in the custody of the government. CAP 30 is available for Senior University staff only and does not extend to us as junior staff".

Given the evidence emanating from this first batch of beneficiaries, the TUC observed that workers retiring in 2020 have become victims of the pension system reform that promised improved retirement income but delivered worse outcomes than its predecessor. The conditions in the new pension reforms raise insecurity for pensioners compared to the old system. These matters require prompt attention from government and pension managers to ensure that the goal of pension adequacy is achieved.

Another factor that explains the inadequacy of pensions in Ghana is that low-salaried individuals find it difficult to make contributions or extend contributions to the voluntary pillar to improve their pension income. According to a statement by the Director of SSNIT 50 percent of pension fund contributors earned less than GH¢ 1,100 (US\$ 196.43) a month, about 35 percent earned less than Gh¢700 (US\$ 125), and only 5 percent or less earned GH¢ 5000 (US\$ 892.86) or more a month (Trades Union Congress Press Statement No.2021/01). Interviews conducted for this study revealed that due to low salaries generally, pensioners without supplementary pension provisions usually fall into poverty.



This finding is consistent with the results of Dorfman (2015) on pension system adequacy in Sub-Saharan Africa. According to Dorfman (2015), pensions in the sub-region are inadequate, especially for workers who lack supplementary pension provisions, and who represent the majority of the labour force. According to the Director-General of SSNIT, the pension income workers receive at retirement reflects the level of their salaries (Trades Union Congress Press Statement No.2021/01). Low earnings result in low contributions and eventually, result in low pension income since the computation of pension correlates with salaries. The situation is made worse by a strategy adopted by employers to channel workers' remuneration into allowances to reduce their share of pension obligations. This practice lowers the actual amount of pension contribution, which inevitably leads to low pensions. One way to resolve this problem is to encourage employees to negotiate better-structured salaries. In addition, employees must ensure that employers pay their contributions regularly. However, the reality is that workers cannot easily negotiate for higher salaries because there is excess labour supply, leading to a 4.5 percent unemployment rate in 2020, which is a decrease from 10.2 percent in 2015 Ghana Statistical Service, 2015; Verbon, 2012).

Another emerging trend in Ghana is that due to the high unemployment rates, employers have resorted to offering jobs on a part-time basis and renewing such contracts upon expiry. Others also employ National Service Personnel and yearly request for a fresh batch. By using these tactics, employers avoid the mandatory contribution toward the worker's pension to decrease operational costs. This development can have a dire consequence on pensions and therefore needs urgent redress. One could argue that pension contributions should be paid no matter the type of employment, whether full-time/part-time or permanent/temporary.

5.3 Affordability

Pensions in Ghana are not financed by the government through taxation, and no government support is provided to the poor elderly. Since the 1970s Ghana's macroeconomic and fiscal position has been dwindling. Despite the economic reform agenda pursued to achieve fiscal stability, it failed to yield many transformations. Worsening economic indicators in recent years attest to the uncertain performance of the Ghanaian economy. External debt stock has been rising from \$US 7.34 billion in 2005 to \$US8.36 billion in 2010. In 2020, the figure escalated to \$US 42.16 billion (Historical data, 2020). The debt-GDP ratio rose from 16.58 in 2008 to 39.22 in 2016. It increased further to 70.12 in 2020. The continuous depreciation of the cedi led to a deteriorating currency value from US\$ 1.00: GH¢1.00 in 2008 to \$US 1.00: GH¢6.19 in September 2021. The situation is depressing from a foreign trade perspective. The trade deficit was -\$US5.6 billion in 2015 but reduced to -\$US3.08 billion and -\$US 0.75 billion in 2016 and 2018 respectively (Historical data, 2020). Against the present macroeconomic background of Ghana, it could be argued that Ghana does not have the adequate financial capacity to implement and sustain a poverty-prevention pension pillar.

Furthermore, one way to make pension contributions affordable to private sector employers and prevent them from shifting to appointing contract workers and national service personnel may be to make the contributions of both employers and employees the same. This implies reducing the contribution of employers and raising the contribution of employees. It would also mean that the general low salary structure of workers needs attention, possibly through minimum wage legislation, after analyzing all the possible negative implications.

Participation in Tier-Three is voluntary, and contributions are at the discretion of contributors. This freedom of choice does not mitigate the problem of myopia, which puts retirement income security at risk (Kpesssa, 2011). This tier is designed to provide coverage to informal sector workers who constitute the majority of Ghanaian workers whose incomes are generally low. The flexibility of this scheme inhibits participation, and as a result, adequate coverage suffers.

Another concern is that there are no limitations on the charges providers can levy to cover their administration and operation costs. This is problematic because service providers are at liberty to deduct any amount to meet management costs. The situation becomes worse when contributions are relatively low and irregular.



5.4 Equitability

The government should promote equity by ensuring a minimum pension to low-income earners financed through progressive income taxes to improve old age income security. Obviously, the absence of a universal pension scheme coupled with low coverage does not promote equity and indicates that old-age poverty is still predominant in Ghana. As mentioned earlier, those who receive pensions are the few employed in the formal sectors of the economy. The voluntary scheme that makes provision for workers in the informal sector where most Ghanaians work has not been well communicated. Besides, there is a prevalence of inadequate information (Darko, 2016). It can therefore be inferred that the Ghanaian pension system does not promote equity. Therefore, the government will have to reconsider social pensions without disregarding its fiscal position. This issue is highlighted by a remark by a 62-year-old interviewee:

“A few pensioners are okay, but the majority especially those who retire in lower-rank jobs are living in very poor conditions. I think it is so because the pension payments are too low and woefully inadequate. My lump sum as a retired basic schoolteacher was not more than GH¢6000 (US\$ 1,071.43), and my monthly pension is GH¢375 (US\$66.96). The health insurance policy we have from SSNIT does not cover a lot of critical and expensive ailments so that is not very convenient. Though the initial idea behind the pension scheme is to alleviate poverty among retired persons in society, in my opinion, this agenda has failed due to poor management”.

5.5 Predictability

A predictable pension scheme specifies how benefits are determined. The system protects contributors from the negative effects of inflation before retirement and automatically indexes benefits during retirement (World Bank, 2005). This is particularly characteristic of Defined Benefit Schemes. Benefit calculation under the first pillar of Ghana’s pension reform is clearly indicated and it is predictable. As discussed earlier, an employee’s benefit computation is determined by provisions in the National Pensions Amendment Act, (2014) (Act 883). This Act stipulates that those who contribute for the minimum period of 180 months are entitled to 37.5 percent pension rights (average of the three best years’ salary) after that, every additional twelve (12) months contribution provides the member an annual accrual rate of 1.125 percentage points up to a maximum of 60 percent. This method of benefits computation differs from the old system, and there are questions about the accuracy of its calculation.

As a DB scheme, the retirement benefits of Tier-One are indexed against inflation. However, for the privately managed DC Tiers, there is no protection against capital loss. Benefits depend on investment returns and the value of contributions. Most custodians try to guard against inflation by investing in equities on the stock market. Other categories of investments include government stocks, bonds, residential and commercial properties, loans, and short-term cash deposits (SSNIT Annual Report, 2016).

5.6 Robustness

There are threats to retirement income security in Ghana (Kpesssa, 2011). The private tiers have no robust mechanisms to protect pension contributions against market volatility. The lump-sum benefits of contributors are not protected against risks that may come from market failures or defaults by service providers. By design, access to private schemes is not restricted, and workers can make their own choices. This, therefore, implies inherent risks for contributors.

In Ghana, the inflation rate fluctuates and is usually relatively high. The annual average rates were 17.45, 12.37, and 18.6 in 2016, 2017, and 2021 respectively. The figure rose further to 31.7 by July 2022. There is also a high possibility of investor fraud. The safety of invested funds in private institutions and companies is a major concern for many investors in Ghana. This concern is genuine because investors in recent years suffered from financial improprieties. Some individuals have lost their investments through fraudulent investment



schemes and insolvent financial institutions. For instance, the Bank of Ghana closed seven banks during the 2017 to 2018 banking sector clean-up exercise (Nyalatorgbi, 2018). This preceded the collapse of 23 savings and loans and 370 microfinance institutions (Arku, 2019; Fiifi, 2020). In 2019, the Security and Exchange Commission also closed 53 investment companies (Frimpong, 2019). A respondent indicates:

“Tier-Three is good. It can help workers save more to avoid the financial problems we are facing now in retirement. However, private investment companies are disincentives to investment in the country. Recently, I believe you heard how people lost their money through fraudulent investment schemes. So people are scared and sceptical to invest in pension schemes managed by private companies. I mentioned Tier Three to my son, but he told me he is scared of losing his money. Security and Exchange Commission should not only be warning investors about the existence of such schemes but rise to their regulatory duties”.

Compelling workers to invest their retirement incomes in the private financial market that is inadequately supervised is a risky venture. This market exposes the aged to retirement income security risks. It is therefore imperative for the Central Bank to strengthen its supervision network to regulate and severely punish such unscrupulous private institutions to improve the living conditions of the aged in the informal sector. It also calls for innovative measures to build confidence in the reliability of pension funds invested in private companies.

Although the National Pensions Regulatory Authority (NPRO) is mandated by law to supervise all pension activities in Ghana, the institution is plagued with challenges. Prominent among these challenges is the frequent change of Chief Executive Officers (CEOs). Principle 2 of the IOPS requires that pension supervision authorities have operational independence and that the CEOs be appointed or removed through explicit procedures with transparent mechanisms (IOPS, 2010). The NPRO has failed to comply with this provision. In the past ten (10) years, the regulator has had six different CEOs. This implies that on average, each CEO stayed in office for less than two (2) years. The reasons for this are political interference, misappropriation of funds, and the lack of transparent operations. These frequent changes did not promote the stability of the NPRO because each CEO assumed office with a different management style and strategy. This situation undermined the credibility of the pension system in the eyes of contributors, especially in a system where coverage is low, thus it hampered the smooth progress of work by the regulator.

5.7 Labour Market Impact

The new pension schemes have a direct positive impact on the labour market. The introduction of the two additional tiers created new jobs for citizens. Before the Three-Tier pension reforms, pension schemes were managed only by SSNIT. But with the reforms, Tiers Two and Three are managed by private firms. According to the NPRO, from February 2015, the country had 25 corporate trustees, 62 pension fund managers, and 16 pension fund custodians. The total fund under the management of the private pensions at the end of 2018 was GH¢ 13.0 billion (USD 2.41 billion). These new schemes have helped to create new jobs and have simultaneously boosted the financial sector of the economy (Attah-krufi, 2020).

Nonetheless, the financial contributions required from employers have a negative impact on employment because it leads to higher costs of labour. To mitigate this cost, some employers have channelled workers' remuneration to allowances to reduce their basic salary which is used for the calculation of pension deductions. These actions deprive workers of the full amount of pension contributions and ultimately lead to lower pensions.

5.8 Contributions to savings mobilization and financial market development

Despite the challenges experienced during the implementation of the new pension schemes, pension funds contributed about 4.06 percent to GDP in 2016 (National Pensions Regulatory Authority, 2018). The asset value reached GH¢ 22.2 billion (USD 4.11 billion) in 2018 constituting 6.27 percent of GDP. Of the value,



Tiers Two and Three contributed GH¢13.0 billion (USD 2.41 billion), representing 3.68 percent of GDP (National Pensions Regulatory Authority, 2018). Given the drive to extend pension coverage, the proportion of pension assets to GDP is expected to increase further.

As part of the SSNIT's investment policy objectives, the scheme expects to achieve a Real Return on Investments (RROI) of at least 3.25 percent per annum. The investment portfolio of the fund is divided between equities, fixed income, and alternative investments such as investments in properties (residential and non-residential) and loans. The latter constituted about 32.34 percent of assets in 2016. Investment Assets under Management (AUM) grew from GH¢3,972.69 million in 2012 to GH¢7,896.61 million in 2016, representing a compounded annual growth of 18.74 percent over the period (SSNIT Annual Report, 2016). However, the retention of contributions of Tier-Two funds, deposited in the Temporary Pension Fund Account in the Bank of Ghana, deprives the financial firms of the opportunity to invest such funds in a diversified manner.

5.9 Supervision

The International Organization of Pension Supervisors (IOPS) recommends that pension authorities follow suitable risk assessment methodology and techniques of supervision to address market exposures (IOPS, 2010). Risk-based supervision requires ample data collection and management that makes relevant forecasting as well as effective decision-making. Unfortunately, the NPRA does not have such a robust risk-based supervision system. A key challenge for the regulator is the unavailability of data. Two years after the commencement of the new pension scheme, a third-party service provider tasked with the responsibility of providing and managing data on Tier-Two contributions did not have any records due to weak supervision (Okine, 2012). This constitutes a violation of an essential component of pension system supervision. What made matters worse was the inability of NPRA to provide proof of how funds paid into the Temporary Pension Fund Account (TPFA) were invested (Okine, 2012). Ensuring and enforcing employers to comply with industry regulations alone is not enough to cushion the industry against market shocks. It is expected that by moving towards risk-based pension supervision, NPRA must establish a functional research unit that will generate adequate data needed for effective supervision that meets international standards.

The continuous existence of other parallel pension schemes in Ghana for some selected public sector workers is another area of concern, which also contravenes the Act that established the new pension reforms. According to the Pension Act 2008 (Act 766), within five years of the implementation of the reforms, parallel pension schemes (CAP 30) such as those for public universities, public research institutions, armed forces, police service, fire service, judges, and judicial service workers will be unified and become part of the new scheme. However, after more than a decade of pension reforms, the unification of parallel pension schemes has not yet occurred due to a lack of political will and the fear of revolt from the security forces.

Regrettably, the president of Ghana, Nana Addo Dankwa Akuffo-Addo in his State of the Nations Address on January 5, 2021, reiterated the government's decision to exclude all security agencies from pension unification. This statement is an affirmation that these agencies would continue to be on the non-contributory CAP 30 scheme. In reaction to this announcement, the Trades Union Congress issued a press release cautioning the government not to continue with such a discriminatory pension policy (Trades Union Congress Press Statement No.2021/01). According to the union, this approach can be criticized on several points. Firstly, such a decision undermines the solidarity principle that serves as the main guiding principle for the pension reform initiative. Secondly, the decision also violates the principle of equality of treatment in employment as specified in the ILO Convention 111, which was ratified in 1961 by Ghana. Thirdly, it entrenches a class system in pension administration where workers under the new contributory Three-Tier schemes receive lower pension benefits than those who do not contribute towards their pensions under the CAP 30 scheme. The union called on the government to convene a stakeholder consultation forum to discuss this issue and other relevant matters affecting the pension industry. According to the TUC, failure by the government to do so will compel the TUC



to refer the problem to the ILO. A retired police officer has this to say in an interview conducted for this study. He highlighted some of the problem areas of the pension system:

“My pension income as compared to others is more reasonable because we the security forces get a higher lump sum under the CAP 30 scheme. The pension is not enough to protect the aged from falling into poverty especially, those who are not on CAP 30. If I were younger, I would have saved more before retirement so that I can get more to supplement my pension”.

Lastly, the pension reforms have brought competition to the pension industry. The new schemes came with the establishment of private trustees, fund managers, and custodians. The responsibility of these companies is to manage the private pillars. Owing to the portability clause enshrined in the Pension Act (Act 766), employers may select their service providers and port their funds to different trustees at will. This aimed to put employees in a better position to enjoy higher returns on their investments. Unfortunately, it has been observed that trustees are reluctant to report recalcitrant employers who fail to remit the total contribution of workers within the regulated time to the NPRA due to a fear of losing clients to competitors (Attah-krufi, 2020). This unfortunate development may hamper the smooth operations and supervision by the regulator. Since employers may not always act in the best interest of employees, decisions on selecting service providers should involve both parties.

6. Conclusion and Recommendation

Given the critical roles pensions play in maintaining the living standards of the elderly, periodic evaluation of pension systems is necessary to address economic and demographic changes and to ascertain the resilience of the system based on predetermined criteria.

6.1 Conclusion

This study has revealed that pensions provided to Ghanaians are woefully inadequate. This is attributed to low levels of income, relatively short periods of contributions, the absence of a redistributive pillar, the prevalence of myopia, and the adoption of hiring and salary payment strategies that limit employers' share of contributions. Moreover, there is a lack of confidence in the financial sector due to investor fraud. The study revealed a sustainability threat as well as equity concerns. This is because the current assets and future contributions will not cover future benefits and other costs. There is also the absence of a redistributive pillar. The current Ghanaian pension system is not affordable to the private sector. Because of this, some employers have shifted more towards allowances payments to reduce the basic salary of workers which is used for the computation of pension.

Also, the study found that the direct labour market impacts of Ghana's pension system are mixed. With the introduction of two additional Tiers, new jobs have been created. However, the employers' pension contributions have led to higher costs of labour. As a result, some employers deliberately appoint contract workers and National Service Personnel instead of permanent workers. This development has negative implications for pension membership.

Furthermore, interviewees mentioned a high possibility of investment risks due to investment fraud and bankruptcy. They also revealed that the safety of invested funds in private firms is a major concern. Another challenge is that the voluntary pillar does not have the resilience to withstand economic and political shocks since contributors are mainly informal workers with low levels of income. These affect the robustness of the pension system.

The predictability of a pension system requires that a clearly defined benefit formula is enshrined in the pension scheme. Ghana's pension system concurs with this requirement. The benefit calculation for the first pillar is



well-defined and predictable. For privately managed Pillars, benefits depend on investment returns and the value of contributions.

The contribution to savings mobilization and financial market development of pensions constitutes a positive externality that boosts economic growth. This study reveals that the new Pillars in Ghana's pension reforms have contributed to output growth. The value of investment assets under pension management has also increased substantially.

Further conclusions are that there exists inadequate supervision. There is also discrimination in pension types and pensions received by public sector workers, and there is low coverage due to inadequate financial education. In addition, there are delays in the processing of benefits, especially for new retirees. Pension funds are invested in domestic financial markets only and the capital market is small and volatile. Additionally, the general public is not well-informed about the components of the pension system, especially about the voluntary Tier-Three, and the population is experiencing a gradual rise in life expectancy that increases pension expenditure if the retirement age is not changed.

6.2 Recommendations

The study recommends that the opportunity must be created for irregular contributions, especially, from the self-employed to serve as incentives to participate. In addition, electronic contribution and payment systems should be adopted and encouraged by private pension fund managers to enhance easy access and regular contributions. Furthermore, the government of Ghana should emphasize pension education and awareness to promote an adequate understanding of the system. Again, the government should consider an upward adjustment of the retirement age to mitigate the threat to the sustainability of pension funds, and the effects of demographic changes such as an increase in life expectancy. Lastly, fund administrators of the tier-one scheme should consider the lifetime average salary calculations of benefits instead of using the "average of best three years' salary" to avoid strategic manipulations and to strengthen the sustainability of the system. Further research is recommended to compare Ghana's pension system to other countries using the same or similar criteria.

7. Conflict of Interest Statement

The author declares no conflicting interest in the conduct of the study.

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Factors influencing the adoption of Electronic Commerce among Small and Medium Scale Enterprises in Ghana

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Abstract:

Small and medium enterprise (SME) business owners often face challenges when adopting e-commerce strategies for product marketing. By leveraging e-commerce technology and tools, SME business owners have the potential to expand their customer base and enhance overall business performance. Using a quantitative method, this study aimed to investigate the factors influencing the adoption of e-commerce among SME businesses in the Ghanaian market, employing the Technology Acceptance Model (TAM) as its theoretical framework. The study involved twenty SME business owners in Ghana who had implemented e-commerce strategies for product marketing. Through the use of questionnaires, the research examined the drivers of e-commerce adoption among SMEs and explored the associated benefits, challenges, and strategies for ensuring successful adoption in the Ghanaian context. A key recommendation arising from the study is that SME business owners should implement robust security systems to safeguard against fraud or hacking. Additionally, it is essential for the management of e-commerce platforms to make substantial investments in information technology (IT) to develop infrastructure and enhance human capacities in support of e-commerce adoption. Furthermore, the findings suggest that e-commerce platform providers should focus on promoting the benefits of e-commerce to encourage other SMEs to adopt their services. The study also recommends that the government utilize legislative tools to establish a comprehensive regulatory framework supporting e-commerce, thereby safeguarding businesses and customers from potential hacking and fraud.

Keywords:

E-commerce; Marketplace; Globalisation; Information Communication Technology.

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1. Introduction

The adoption and use of e-commerce technologies by small and medium enterprises (SMEs) have been the focus of considerable research over the past decade. The interest in this topic has been driven by a basic assumption that e-business and e-commerce information technology (EEIT) offer new opportunities for SMEs to offset competitive disadvantages of size, resources, geographic isolation, and market reach (Laudon & Laudon, 2022). It is a well-known fact that the Internet and e-commerce technologies can benefit an organization. The use and application of Internet-based technologies in commerce, government, and education are claimed to be undergoing extraordinary growth, with the World Wide Web significantly altering the manner in which traditional commerce is undertaken (Laudon & Laudon, 2022). According to Hu et al. (2019), e-commerce adoption is an enabler for global competition for small businesses through enhanced efficiency and better customer and supplier relationships. Indeed, e-commerce competition patterns are evolving as businesses leverage e-commerce with supply chain operations. Consumer and supplier interactions and payments are streamlined, with marketing made more flexible and accessible while extending business hours worldwide (Boateng et al., 2021). Organizations that adopt e-commerce are expected to gain several benefits, including reducing transaction costs, automatic product identification, and sharing information efficiently among organizations of the same and different industries.

Most SMEs in developing countries encounter several difficulties, including infrastructural problems and restricted diffusion of technical devices and information. Nonetheless, given the dynamic market climate and the need to thrive, SMEs must embrace e-commerce. Adopting innovative and informed e-marketing strategies by SMEs is necessary to remain distinct, profitable, and successful in domestic and international markets. Considering the fundamental role of technology in SMEs' development, it is regarded as a socio-economic development enabler and a critical tool for effective political governance. As a result, technology has been utilized by Ghanaians as a critical developmental tool to bridge the digital gap between their trading partners and themselves. Consequently, several policies and measures have been established over the years to facilitate ICT infrastructural developments and human resource capacity building and encourage the use of technology. The Ghana ICT for Accelerated Development policy and the ICT sector's liberalization are among some of the policies and measures which aim to spearhead the use of ICT for development (National Information Technology Authority (NITA), 2003). The ICT4AD policy is also intended to provide an enabling platform to safeguard the ICT industry's development and foster e-commerce and Internet usage in Ghana (Boateng et al., 2021). This research expands the theoretical discourse on the discipline of electronic marketing and offers significant practical welfare as well as managerial implications for SMEs in developing or emerging economies. Specifically, this study was guided by the following objectives:

1. To identify the drivers or enablers of electronic commerce adoption among SMEs in Ghana.
2. To examine the benefits that SMEs derive from using electronic commerce.

2. Literature review

Academic literature offers several theories and constructs which assist in investigating the determinant factors of e-commerce adoption by SMEs. This chapter reviews the theories that have been employed in technology adoption, especially e-commerce adoption in small and medium-sized enterprises. These theories include the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Technology-Organization-Environment (TOE) framework, Resource-Based Theory (RBT), the Perceived e-readiness Model (PERM), and the Diffusion of Innovation Theory (DIT).



2.1 The Theory of Planned Behavior (TPB)

The Theory of Planned Behaviour (TPB) is an extension of the Theory of Reasoned Action (TRA) established by Ajzen (2019). The theory posits that three constructs can be used to predict the intention to use an innovation. These constructs are perceived behavioural control, subjective norms, and attitude toward behaviour (Taylor & Todd, 1995; Choshin, 2017). Perceived behavioural control is described as the extent to which a person feels able to enact the behaviour. Subjective norms characterize a person's own evaluation of social pressure to perform the target behaviour (Ajzen, 2019). While attitude in the theory refers to a person's overall evaluation of the behaviour. The theory has been applied or modified to understand e-commerce adoption in the context of developing countries. For example, Sutisna and Handra (2022) used the theory to investigate the behavioral factors that influence e-commerce adoption as a case study. The authors found perceived advantages, accessibility, management support, internet, and complexity to have a major influence on e-commerce adoption decisions, while perceived disadvantages and other facilitating conditions do not affect e-commerce adoption decisions. Sutisna and Handra (2022) noted that their findings tend to agree with the TPB. However, attitude seems to weigh more than the subjective norm and perceived behavioral control.

According to Ajzen (2019), the strength of TPB is that it measures and predicts actions in the immediate future. However, the theory has been criticized for its inability to capture the complex interrelationships between SME owners, government agencies, customers, and other stakeholders. Ajzen (2019) also argued that TPB largely ignores the contextual nature of SMEs. For that reason, Ajzen (2019) suggested that researchers seeking to explore e-commerce adoption in SMEs will require an explanatory theory rather than the individualist prediction that TPB currently offers. The literature observed that TPB only focuses on user behaviour and largely ignores other factors that shape SMEs' e-commerce adoption, such as resources, customer readiness, and infrastructure. Consequently, TPB on its own cannot be used to understand SMEs' adoption of e-commerce in developing countries.

2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) has underpinned many studies related to Information Systems (IS) adoption. TAM was established by Davis (1989) to describe user adoption of new technology innovation in organizations. The TAM model posits that perceived usefulness (PU) and perceived ease of use (PEOU) are the two most important determinants of technology adoption. Perceived usefulness is defined in the model as the degree to which a person is certain that the continuous usage of a particular system will enhance his or her job performance. While perceived ease of use is the extent to which a person believes that using a particular system would be free of physical and mental effort (Hasni et al., 2021).

Several e-commerce researchers have used TAM as a model for understanding e-commerce adoption in organizations, including SMEs (Nyoro et al., 2015). For example, TAM has been used as the model to assess the usefulness and ease of using e-commerce among SMEs in India, Pakistan, and Thailand manufacturing and service industries (Singh et al., 2020). TAM has also been used to investigate the effect of perceived system risk on the behavioral intention of tourism organizations in Pakistan to use e-commerce (Hasni et al., 2021). These studies commend TAM as a useful model to understand and explain a user's intention to use e-commerce. Evidently, TAM is a key model that has been applied in many types of SME research for explaining the use, behaviour, and attitude of e-commerce adoption (Singh et al., 2020; Hasni et al., 2021).

2.3 Technology Organisation Environment (TOE)

The Technology Organisation Environment (TOE) framework was developed by Tornatzky and Fleischer (1990) to explain the factors that affect a firm's decision to adopt innovation. The framework posits that



technological innovation in organisations is influenced by three factors specifically: the technological, the organisational, and the external environment. Organisational factors consist of informal and formal methods, communication processes, and the size of the organisation. The environmental factors comprise characteristics such as government regulation market structure and technology infrastructure. Technological context encompasses the availability and features of the technology (Fonseka et al., 2022).

TOE has been used in studies related to e-commerce adoption in SMEs. For instance, Huy et al. (2012) and Hu et al. (2019) used the TOE framework to identify factors influencing e-commerce adoption in 926 Vietnamese SMEs. The researchers found that lack of skilled personnel, scarcity of resources, communication barriers between SMEs and supporting groups, limited options for online payment, and cultural barriers to online shopping were the main factors influencing e-commerce adoption. Huy, et al. (2012) commended the TOE framework as serving as a foundation for understanding the internal and external factors that could influence e-commerce adoption for all types of SMEs in Vietnam. One of the limitations of TOE in relation to SMEs in developing countries is that some of the constructs in the adoption predictors are presumed to be more applicable to large organisations due to the wealth of their resources. For this reason, TOE on its own is not sufficient in explaining the adoption of SMEs (Ocloo et al., 2020; Mohtaramzadeh et al., 2018). Therefore, Ocloo et al. (2020) suggested that the integration of TOE and TAM would offer a richer theoretical lens for understanding the adoption of e-commerce by SMEs in developing countries. The same point was also echoed by Fonseka et al. (2022), after conducting an empirical online study on retailing utilisation in digital transformation using TOE and TAM constructs in Sri Lanka.

2.4 Factors that Influence SMEs in Adopting of E-commerce

E-commerce adoption factors can be described as those that motivate or inhibit the adoption of e-commerce. This review adopts a four-dimensional framework for reviewing the factors affecting e-commerce adoption and use in SMEs. The framework has been slightly modified from Tornatzky and Fleischer's (1990) model. According to Tornatzky and Fleischer, the process by which a firm adopts and implements technological innovations is influenced by individual factors, technological factors, organizational factors, and environmental factors. These factors are now discussed.

2.4.1 Individual Factors

Issues surrounding individual persons are an important aspect of the adoption of ICT and e-commerce in any organisation. There is a need for SMEs to be generalists in the performance of their functions, as a result, the position of individuals matters. Most SME personnel either are in key managerial positions or are classified in a unit or function that performs a certain task or numerous tasks. A manager who is usually an owner runs most SMEs organisation (Demirbas et al., 2011).

2.4.2 Organisational Factors

Organizational factors are those defined by the nature and characteristics of the firm itself, typically making it unique. Several factors have been cited that hinder or motivate e-commerce adoption within the organization's boundaries. Organizational factors identified in the literature relate to enterprise size, types of products and services, capital, human resources, expertise, efficiency, priorities, and profitability (Al-Tit et al., 2019). Some studies have examined the influence of factors such as the information intensity of products and services (Al-Tit et al., 2019) on e-commerce adoption. Manideep and Reddy (2020) also examined efficiency, effectiveness, and expertise in e-commerce adoption, while Chouki et al. (2020) found cost, security, and training to be barriers to EEIT adoption. On the other hand, Susanty et al. (2020) found issues related to money to affect the adoption of e-commerce. Organizational factors, referred to as internal context factors by Caldeira and Ward (2002), include the availability of financial resources, human resources, users' attitudes, power relationships, organizational structure, and IS/IT competencies. Furthermore, Khosrow-Pour (2019) examined growth

orientation, ownership structure, and size of firms in addition to the information intensity of products/processes in relation to the adoption of e-commerce. In Susanty et al. (2020), their study revealed that the most frequently identified barrier to the adoption of EEIT was that staff has inadequate technical or web-specific skills.

2.4.3 Technological Factors

Technological factors refer to factors associated with the nature and characteristics of ICT which an SME intends to use or employs for the adoption of e-commerce (Scupola, 2003). Technological factors include technology availability, cost, security, reliability, and capabilities. (Al-Tit et al., 2019) examined technological factors including relative advantage, cost, and compatibility, whereas other literature (e.g., Laudon & Laudon 2022) identified several technology variables such as the availability of external expertise and services, quality of software available in the market, vendor support, type of IS/IT solutions available to the firm, IS/IT objectives and assumptions, and evaluation of IS/IT benefits. In Turner and Endres (2017) study of global digital trends, one of the most frequently identified barriers to adoption of EEIT was that technology and tools were inadequate, unavailable, or unreliable. Moreover, Costa and Castro (2021) examined the presence of and access to information networks as barriers that affect the adoption of EEIT. Some of the variations in factors and findings may be attributed to whether researchers focused exclusively on electronic commerce or used a somewhat broader definition of information technology. These factors may include cost to set up and maintain (Cost); technology for selling products or services online (EC Technology); access to network services or infrastructure to support Web and Internet Technologies (Infrastructure); reliability of Web and Internet technologies (Reliability); security issues (Security); and availability or adequacy of existing technology (Technology Availability).

2.4.4 Environmental Factors

The external environment affects the adoption of e-commerce by SMEs. Environmental factors describe the realm of business engagement of the firm (Koe & Sakir, 2020). Koe and Sakir (2020) examined several marketplace forces including competitive conditions, transactions with trading partners, competitive threats, and demands of marketplace participants as some environmental factors which affect the adoption of e-commerce among SMEs. Again, Al-Tit et al. (2019) identified some environmental factors to include competition, external support (from technology vendors), and supplier/buyer pressure. Koe and Sakir (2020) on the other hand, identified limited knowledge of customers and competitive pressures among factors affecting adoption decisions (Sin & Sin, 2020).

Aside from these factors, Tavengerwei (2018) and Oliveira et al. (2019) examined the transactions with trading partners or vendors as environmental factors that influence the adoption of e-commerce. However, Koe and Sakir (2020) did not find that pressure from suppliers and allied firms was a statistically significant factor for the adoption of intranets or extranets in their sample. Also, Sin and Sin (2020) examined the impact of government policy on the adoption of e-commerce. Some factors identified included government role; business partner affiliation and preferences; nature and characteristics of the value chain; logistics and telecommunications infrastructure; economic and political instability; human-rights issues; and business culture.

3. Research methodology

The study adopted a quantitative research methodology using a descriptive survey design approach to systematically collect data from respondents. The data was analysed to help discuss the factors that influence the adoption of e-commerce among SMEs in Ghana. This research design has the advantage of ensuring that the phenomenon under investigation can be analysed in its most natural and unchanged state (Fatmawati & Fauzan, 2021).



3.1 Population

The focus of this study was on small and medium enterprises in Ghana engaged in e-commerce business activities. Thus, the targeted population for this study was twenty (20) registered e-commerce small and medium enterprises (SMEs) in Ghana. The population for this study consists of SME business owners based in Ghana who has successfully adopted e-commerce to market their products. The sampled enterprises were selected from three major sectors of the economy namely: manufacturing, service, and agricultural sectors.

3.2 Sampling Procedures

A non-probability convenient sampling method was used for this study. A convenience sample is the one that is drawn from a source that is conveniently accessible to the researcher (Lavrakas, (2019). The researchers adopted this sampling method because it was impossible to collect the data of the entire population given the time and financial constraints. As a result, a total sample of twenty (20) respondents from three (3) SMEs who have adopted e-commerce and their customers were used for the study.

3.3 Data Collection Instrument

Data was collected primarily through the use of a survey questionnaire instrument. The instrument used for this study was a five-point Likert-scale designed to collect data quantitatively based on primary data from the field in answer to the research questions. The questionnaires contained some closed-ended questions as well as a few open-ended questions.

3.4 Data Analysis

Data collected was analysed using Microsoft Excel, this enabled the researchers to statistically answer the research questions. Tables were used to illustrate the analysis to ensure that the data is quickly and easily understood. In addition, the discussion of the findings was linked to relevant and related literature throughout the paper.

4. Data analysis and discussion of findings

Table 1: E-Commerce sites for business

Response	Frequency	Percentage (%)
Tonaton	7	35
Jumia	13	65
Zongo-Mart	-	-
Total	20	100.0

Source: Field Data, 2022

In finding out the e-commerce sites used by SMEs to transact their business, majority of the respondents (65%) indicated the use of Jumia while 35% of the respondents used Tonaton to market their products (Table 1). These e-commerce platforms are part of the leading e-commerce platforms in Ghana, therefore, making their experience of these sites suitable for the study.

4.1 Drivers of electronic commerce adoption by SMEs in Ghana

Research objective one sought to find out the drivers or enablers of electronic commerce adoption among SMEs in Ghana. The results are presented in Table 2.

Table 2: Drivers of electronic commerce adoption by SMEs in Ghana

Statements	SA	A	N	D	SD	TOTAL
Electronic commerce enables me to market my products.	11 (55%)	7 (35%)	2 (10%)	-	-	20 (100%)
I think that using electronic commerce enables me to reach a larger market.	11 (55%)	8 (40%)	-	1 (5%)	-	20 (100%)
I think that using electronic commerce increases my productivity and sales.	14 (70%)	4 (20%)	2 (10%)	-	-	20 (100%)
My interaction with electronic commerce is clear and understandable.	10 (50%)	7 (35%)	2 (10%)	1 (5%)	-	20 (100%)
I find electronic commerce easy to use.	7 (35%)	13 (65%)	-	-	-	20 (100%)
I think that learning to operate electronic commerce is easy for me.	11 (55%)	7 (35%)	2 (10%)	-	-	20 (100%)
Small and medium scale enterprises who use electronic commerce services have more prestige than those who do not.	7 (35%)	1 (5%)	7 (35%)	3 (15%)	2 (10%)	20 (100%)
Small and medium scale enterprises who use electronic commerce services have a high profile.	7 (35%)	7 (35%)	5 (25%)	1 (5%)	-	20 (100%)
I have the resources necessary to use electronic commerce.	8 (40%)	10 (50%)	2 (10%)	-	-	20 (100%)
I have the knowledge necessary to use electronic commerce.	10 (50%)	8 (40%)	2 (10%)	-	-	20 (100%)
Electronic commerce is compatible with other systems I use.	8 (40%)	8 (40%)	2 (10%)	1 (5%)	1 (5%)	20 (100%)
Help is available when I get problem using electronic commerce.	9 (45%)	5 (25%)	4 (20%)	2 (10%)	-	20 (100%)

SD = strongly disagree | D = Disagree | N = Neutral | A = Agree | SA = Strongly Agree

Source: Field Data (2022)

The results in Table 2 depict that 11 (55%) of the respondents strongly agreed that electronic commerce enables them to market their products while 7 (35%) agreed that e-commerce helps in marketing their products. On the other hand, 2 of the respondents representing 10% neither agreed nor disagreed, thus, taking a neutral position.

Secondly, in ascertaining whether e-commerce allowed SMEs to reach a larger market, 11 of the respondents representing 55% strongly agreed that e-commerce helped them to reach a larger market while 8 respondents representing 40% fairly agreed. The results also showed that 1 (5%) of the respondents disagreed with the statement.

Moreover, 14 of the respondents representing 70% strongly agreed that the use of e-commerce increased their productivity and sales while 4 (20%) agreed to this statement. However, 2 representing 10% remained neutral. Again, to find out how user-friendly these e-commerce sites are, respondents were asked to indicate how clear and understandable these platforms were. 10 (50%) of the respondents strongly agreed, with 7 (35%) agreeing that the e-commerce sites were user-friendly, thus, clear, and understandable. Meanwhile 2 (10%) were neutral while 1 (5%) disagreed with the user-friendliness of the e-commerce sites.

Table 2 also indicates that 7 (35%) of the respondents strongly agreed to the ease of use of e-commerce, while 13 (65%) agreed.

Furthermore, 11 (55%) of the respondents strongly agreed that learning to operate e-commerce is easy while 7 (35%) agreed. However, 2 (10%) of the respondents were neutral.

In addition, 7 (35%) of the respondent strongly agreed that the use of e-commerce made them more prestigious than other SMEs who did not use these platforms. Meanwhile, 1 (5%) agreed whereas 7 (35%) disagreed with this point. Again, 2 (10%) of the respondents strongly disagreed that the use of e-commerce made SMEs more prestigious. Meanwhile 3 (15%) of the respondent disagreed.

The Table 2 above also indicates that 7 (35%) the respondents strongly agreed that SMEs who use electronic commerce services have a high profile. Similarly, 7 (35%) of the respondents also agreed with the statement. The results also revealed that 5 (25%) of the respondents were neutral while 1 (5%) of the respondents disagreed with the proposed statement. Regarding the statement on whether the respondents have the necessary resources to use electronic commerce, 8 (40%) of the respondents strongly agreed while 10 (50%) agreed. Again, 2 (10%) were neutral.

The results also indicate that 10 (50%) of the respondents strongly agreed to having the necessary knowledge to use electronic commerce whereas 8 (40%) of the respondents agreed. However, 2 of the respondents were neutral.

Moreover, 8 (40%) of the respondents strongly agreed that electronic commerce is compatible with other systems used in their operations. Similarly, 8 (40%) agreed to the statement whereas 2 (10%) expressed neutrality Meanwhile 1 (5%) of the respondents disagreed with the statement, and 1(5%) of the respondents strongly disagreed with the statement.

Finally, when asked on the availability of help when problems are encountered with the e-commerce platforms, 9 (45%) of the respondents strongly agreed to getting help whereas 5 (25%) also agreed. However, 4 (20%) were neutral while 2 (10%) of the respondents disagreed.

4.2 Benefits SMEs derive from adopting e-commerce

Research objective two sought to find out the benefits SMEs derive from using electronic commerce. The results are in the Table 3.

The results in Table 3 depict that 9 (45%) of the respondents strongly agreed that e-commerce platforms are easily accessible. Also, 7 (35%) of the respondents agreed to the accessibility of the platforms whereas 4 (20%) were neutral.

The second statement proposed that the electronic commerce is the cheapest and most efficient way of marketing products to a larger population. 10 (50%) of the respondents strongly supported the statement while 7 (35%) fairly agreed. The results also showed that 2 (10%) of the respondents were neutral while 1 (5%) of them disagreed.

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Factors influencing the adoption of Electronic Commerce among Small and Medium Scale Enterprises in Ghana

Table 3: Benefits SMEs derive from adopting electronic commerce as a platform to market their products in Ghana.

	SA	A	N	D	SD	TOTAL
I can access the service anytime and anywhere I go.	9 (45%)	7 (35%)	4 (20%)	-	-	20 (100%)
Electronic commerce is the cheapest and most efficient way of marketing products to a larger population.	10 (50%)	7 (35%)	2 (10%)	1 (5%)	-	20 (100%)
Electronic commerce is convenient and the easiest to use.	7 (35%)	11 (55%)	2 (10%)	-	-	20 (100%)
Electronic commerce service is more reliable	9 (45%)	8 (40%)	1 (5%)	2 (10%)	-	20 (100%)
Electronic commerce service is safe and secure.	10 (50%)	4 (20%)	4 (20%)	2 (10%)	-	20 (100%)

SD = strongly disagree | D = Disagree | N = Neutral | A = Agree | SA = Strongly Agree

Source: Field Data (2022)

In addition, the Table 3 above also indicates that 7 (35%) respondents strongly agreed that electronic commerce is convenient and the easiest platform to use, whereas 11 (55%) agreed with 2 (10%) of the respondents remaining neutral. Regarding the statement on whether the electronic commerce service is more reliable, 9 (45%) of the respondents strongly agreed that the service is reliable while 8 (40%) agreed. Again, 1 (5%) expressed neutrality while the remaining 2 (10%) of the respondents disagreed with the statement.

Lastly, regarding the assertion that the use of electronic commerce service is safe and secure. 10 (50%) of the respondents strongly agreed, 4 (20%) of the respondents agreed. Similarly, 4 (20%) were neutral. Meanwhile, 2 (10%) of the respondents disagreed with the statement that electronic commerce service is safe and secure.

4.3 Discussion of Findings

4.3.1 Drivers of electronic commerce adoption by SMEs in Ghana

Following the assessment of the drivers of e-commerce adoption among SMEs in Ghana, this study further sought to identify the various determinants or factors that influence SMEs' e-commerce adoption decisions in Ghana. The findings provided almost an overall support for the TAM model.

The analysis of the study proved that performance expectancy (usefulness of the service), effort expectancy (ease of use of the Service), and social factors influenced the SMEs' behavioural intention to adopt electronic commerce platforms in Ghana. This means that SMEs' intention to use electronic commerce is highly dependent on perceived usefulness. For instance, the result of the analysis depicts that more than half of the respondents strongly agreed that electronic commerce enables them to market their products. The study further discovered that an overwhelming majority of the respondents strongly supported the statement that using electronic commerce enables them to reach a larger market. The result is in line with the assertion by previous studies that, with highly educated respondents, perceived ease of use has a higher influence on electronic commerce adoption (Hu et al., 2019). In essence, given that the respondents used for the study were highly



educated and actual users of electronic commerce technology, it was observed that the perceived usefulness influenced their decision to adopt e-commerce.

The study also discovered that the respondents prefer to use an electronic commerce platform that is comfortable to operate and easy to use. The user-friendly features of the system, familiarity with tasks, and clear and easy-to-follow instructions were important factors that encourage SMEs to use electronic commerce. For instance, regarding the statement on whether SMEs' interaction with electronic commerce is clear and understandable, most of the respondents strongly agreed. Further, regarding the statement on whether the respondents think that learning to operate electronic commerce is easy for them, some of the respondents strongly agreed. These findings support an earlier study by Meena and Parimalarani (2020) who found that users prefer electronic services due to their reliability, convenience, speed, safety and security, cost-effectiveness, user-friendliness, and error-free system. As a result, perceived ease of use influences the intention to adopt the use of e-commerce systems in Ghana.

The study also found that social factors influenced SMEs' adoption of electronic commerce. This implies that SMEs do not only look at the economic benefits but also focus on social and strategic factors. For instance, the results indicated that some of the respondents strongly agreed with the statement that SMEs who use electronic commerce services have more prestige than those who do not. Again, on the proposed statement that SMEs who use electronic commerce services have a high profile, interestingly, the results indicated that some of the sampled respondents strongly agreed. These findings support the assertion by Lehrer et al. (2021) that users might not be obliged to use an information system until motivated by social factors that influence their attitudes and behaviour. Considering this, the current study reported that social influence positively contributes to explaining the adoption behavioural intention of SMEs in Ghana. Hence, the effect of social influence on behavioural intention is a clear indication that the respondents' adoption and use of electronic commerce are driven by social factors such as the opinion of others.

4.3.2 Benefits SMEs derive from adopting electronic commerce.

The respondents were asked to express the extent to which they agree or disagree with statements relating to relative benefits, which included time, cost, convenience, safety and security, and reliability among others. For instance, the results depict that some of the respondents strongly agreed to the accessibility of e-commerce platforms. Again, half of the respondents strongly supported the statement that electronic commerce is the cheapest and most efficient way of marketing products to a larger population. Regarding the statement on whether the electronic commerce service is more reliable, some of the respondents strongly agreed that the service is reliable. It is observed from the results that cost influences e-commerce adoption by SMEs in Ghana. This is supported by the fact that most electronic commerce platforms in Ghana are cheap, and some are even free to use. The finding of this study is consistent with the finding of Boateng et al. (2021) who found that perceived cost is one of the factors that influence SMEs' adoption of e-commerce in developing countries.

Moreover, the majority of the respondents strongly agreed that the use of electronic commerce services is safe and secure. Regarding the security factor, the results of the study showed that security is an essential factor in adopting e-commerce among SMEs. Particularly, the study found that users can access the service remotely, irrespective of their location and time. The study also found that service cost has ultimately been reduced which makes SMEs to adopt these systems in their operations.

5. Conclusion and Recommendations

The findings of this study regarding the drivers of e-commerce adoption among SMEs in Ghana indicate that SMEs' behavioural intention to the adoption of electronic commerce is largely influenced by perceived usefulness, perceived ease of use, and social factors.

Additionally, e-commerce practices in Ghana among SME companies ensure enormous benefits to companies and customers. These benefits include reaching a larger target market, increased profits, cost effectiveness, accessibility, and secure and safe platforms. Consequently, e-commerce platform providers should focus on creating more awareness on the benefits of using their platforms to encourage other SMEs to adopt these services in their business operations.

Table 5: Summary of recommendations

Recommendations	Application Areas
Performance expectancy and Security issues	Majority of SMEs believe that performance expectancy (usefulness of the service), and effort expectancy (ease of use of the Service), of innovation, drives them to adopt and use the innovation, amidst privacy and security concerns. Management of e-commerce SMEs should address the privacy and security concerns.
User-friendly Platforms	SMEs prefer to use electronic commerce platforms that is comfortable and have user-friendly features. Familiarity with tasks, clear and easy-to-follow instructions were important aspects, which encourage most SMEs to adopt and use electronic commerce services. E-commerce SMEs websites should be user- friendly.
Social factors and prestige	Social factors and prestige influenced SMEs’ adoption of electronic commerce. E-commerce SMEs should capitalize on these factors to promote their products/service(s) brands on the global market.
Positive Contributions	Most SMEs perceived electronic commerce to be making positive contributions to their businesses in terms of time saving, cost savings, convenience, safety and security, and reliability among others. Management of E-commerce SMEs should harness this positiveness.
Legacy Systems	The compatibility of e-commerce with existing systems of a firm or organisation such as infrastructure, culture, and values are influential factors in e-commerce adoption and implementation among SMEs in Ghana. Management of e-commerce firms should not discard legacy systems, but rather infuse such systems into e-commerce systems for maximum usage.
Investment in IT infrastructure	Management of e-commerce platforms should invest massively in IT, to build infrastructure and human capacities to support e-commerce adoption.
Value Provision	E-commerce platform providers should focus on promoting the benefits that accompany the adoption of e-commerce to encourage other SMEs to adopt them.
Government	The Government of Ghana should employ legislative tools to design a robust regulatory framework to back e-commerce adoption and protect businesses and customers against hacking and fraud.

5.1 Conclusion

In conclusion, most of the respondents were motivated to adopt electronic commerce by factors such as perceived usefulness, perceive ease of use, and other social factors such as reputation associated with the use of the service. Electronic commerce platforms have positively affected the service delivery to customers and



increased the adoption of e-commerce among SMEs in Ghana. Theoretically, this study offers a broader understanding of e-commerce adoption and usage among SMEs regarding factors influencing e-commerce adoption decisions, benefits, challenges, and strategies for successful adoption. In practice this study has provided insight into e-commerce adoption practices in Ghana and recommendation for future implementation by practitioners and SMEs.

6. Conflict of Interest Statement

The authors declare no conflicting interest in the conduct of the study.

7. Acknowledgments

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The impacts of Massive Open Online Courses (MOOCs) on teaching and learning in the Digital World. A case of Wisconsin International University College, Ghana

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Abstract:

In response to the significant advancements in digital learning, especially accelerated by the COVID-19 pandemic, this paper presents a focused investigation into the implications of Massive Open Online Courses (MOOCs) on teaching and learning practices. A thorough literature review on e-learning, drawing from various researchers and educational institutions, sets the stage for this exploration. The study emphasizes the use of MOOCs as a pivotal component in supporting educational endeavours within academic settings. Adopting a quantitative research methodology, the paper analyzes data from 500 participants, including 450 students and 50 lecturers, primarily from Wisconsin International University College, Ghana. This analysis sheds light on the nature of course content, time allocation, preferred MOOC platforms, and pedagogical styles, as well as comparisons between popular free and paid platforms. The findings reveal a distinct preference among students for YouTube, an unstructured MOOC platform, while lecturers show a preference for Coursera, known for its hybrid approach. This dichotomy in platform preferences offers insights into the diverse ways MOOCs are being utilized in academic contexts.

Keywords:

Massive Open Online Courses (MOOCs); Digital Learning; E-Learning; Pedagogical Styles.

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1. Introduction

The education landscape has undergone a significant transformation in recent years, largely propelled by advancements in technology, especially in the realm of digital learning. The traditional education model, characterized by its reliance on physical classrooms and face-to-face instruction, has increasingly shown limitations in meeting the evolving needs of learners in a rapidly changing world. The onset of the COVID-19 pandemic brought these limitations into sharp focus, as educational institutions worldwide were compelled to pivot towards remote learning methods. This shift, necessitated by unprecedented global disruption, highlighted the urgency of adopting more flexible and accessible instructional approaches capable of transcending physical space limitations (Hodges et al., 2020). In response to these evolving educational demands, Massive Open Online Courses (MOOCs) have emerged as a promising and innovative solution. MOOCs offer learners the opportunity to engage in self-paced, online learning experiences from various locations, including the comfort of their own homes. This modality of learning has been recognized for its potential to democratize access to education and foster lifelong learning, as noted in research by Liyanagunawardena et al. (2013). Moreover, Margaryan et al. (2015) explored the motivations and learning experiences of MOOC participants, underscoring the flexibility and scalability of MOOCs in catering to a diverse array of learner needs.

Further studies have delved into the various advantages of MOOCs, such as enhancing learner engagement, improving knowledge retention, and facilitating collaboration among learners (Yousef et al., 2014; Yuan et al., 2013). However, these studies have also brought to light certain challenges associated with MOOCs, including high attrition rates and the necessity for effective pedagogical strategies to promote active learning and interaction among learners (Jordan, 2015; Koller et al., 2013). Given the growing prominence and potential impact of MOOCs on both teaching and learning, it becomes increasingly crucial to conduct a comprehensive examination of their implications within the context of a digital world. This research article aims to contribute to the existing body of knowledge by critically evaluating the role of MOOCs in transcending the boundaries of traditional education. It focuses specifically on exploring the implications and impacts of MOOCs within the digital educational landscape, drawing insights from various studies and practical implementations.

Specifically, the following were the objectives of the study:

- 1) To assess the adoption and usage of MOOCs platforms in teaching and learning.
- 2) To investigate preferences for MOOCs pedagogy styles amongst lecturers and students.
- 3) To identify preferences for MOOCs payment types amongst lecturers and students.
- 4) To explore the impact of MOOCs on achieving teaching and learning goals.

This study holds significant importance within the academic realm, as it contributes to the existing body of knowledge surrounding e-learning and Massive Open Online Courses (MOOCs). By examining research data and engaging in policy development, this study aims to shed light on the practice of integrating MOOCs in teaching and learning contexts. The findings obtained through this study have the potential to yield valuable insights for various stakeholders, including educational institutions, students, and lecturers. Specifically, the study may emphasize the importance of incorporating MOOCs as a pedagogical tool and highlight the benefits they offer in enhancing the teaching and learning experience. Additionally, policymakers within the education sector can benefit from the study's findings, as they can inform decision-making processes regarding the application of learning Information Systems, thereby guiding the development of effective policies and strategies in this domain. By exploring the significance of integrating MOOCs in teaching and learning, this study contributes to the advancement of scholarly understanding and practical implementation in the field of e-learning and MOOCs.



2. Review of related literature

2.1 Evolution of digital learning

The emergence of e-learning has revolutionized education, transformed traditional instructional methods, and provided new opportunities for learners. Early forms of e-learning, such as computer-based training (CBT) and web-based training (WBT), laid the foundation for digital learning experiences (Alessi & Trollip, 2001; Cooper, 2002). However, the development of Learning Management Systems (LMS) played a crucial role in the growth of e-learning, offering centralized platforms for managing and delivering online courses (Ally, 2004). LMS platforms like Moodle, Blackboard, and Canvas facilitated content organization, learner tracking, and communication, driving the adoption of e-learning in educational institutions. Theoretical frameworks, such as the Community of Inquiry (CoI) model (Garrison et al., 2000) and the Technology Acceptance Model (TAM) (Davis, 1989), have shaped the design and implementation of e-learning. Technological advancements, including high-speed internet, multimedia authoring tools, and mobile devices, have further enhanced the accessibility and interactivity of online learning experiences (Johnson et al., 2016). The integration of emerging technologies like virtual reality, augmented reality, and artificial intelligence holds promise for future innovations in e-learning. The adoption of e-learning in higher education has been significant, with universities incorporating online courses, blended learning models, and fully online degree programs (Allen & Seaman, 2017).

2.1.1 Conceptual frameworks in understanding MOOCs: from community of inquiry to TPACK

In the rapidly evolving domain of digital education, Massive Open Online Courses (MOOCs) stand out as pivotal in democratizing access to learning worldwide. Characterized by their scalability, open access, and interactive formats, MOOCs offer diverse and flexible learning opportunities (Veletsianos & Shepherdson, 2016). Central to the conceptual understanding of MOOCs is George Siemens' theory of connectivism, which posits that learning in the digital age is networked and distributed (Siemens, 2014). This theory has profoundly influenced MOOCs' design, particularly connectivist MOOCs (cMOOCs), emphasizing collaborative and network-driven learning experiences (Tschofen & Mackness, 2016). Siemens' insights into digital learning environments provide an essential framework for understanding the impact of MOOCs in educational settings, underscoring the shift towards more autonomous, collaborative, and technology-mediated learning modalities (Downes, 2016). Consequently, MOOCs, aligned with connectivist principles, represent a significant paradigm shift in education, facilitating broad access to knowledge and collaborative learning opportunities (Joksimović et al., 2016). Massive Open Online Courses (MOOCs), a significant innovation in digital education, are defined by scholars in various ways, reflecting their multifaceted nature. George Siemens (2013), a pioneer in the field, describes MOOCs as online courses characterized by free and open registration, a publicly shared curriculum, and open-ended outcomes, highlighting their accessibility and scalability. Stephen Downes (2012), who co-developed the first MOOC with Siemens, focuses on their connectivist aspects, emphasizing learning through networks and the expansive capacity of the internet. Mackness, Waite, Roberts, & Lovegrove (2013) view MOOCs as internet-based courses designed for large-scale participation, extending educational opportunities beyond traditional settings. Yuan & Powell (2013) highlight MOOCs' role in offering unlimited participation and open access, making education more affordable and flexible. Finally, Conole (2013) sees MOOCs as a new model for delivering learning content online, accommodating an unlimited number of participants and supporting diverse learning styles and environments. Collectively, these definitions encapsulate the essence of MOOCs as platforms that democratize education, emphasizing open access, scalability, and the utilization of digital networks for learning.



The conceptual framework of Massive Open Online Courses (MOOCs) provides a theoretical lens for understanding the design, delivery, and impact of these online learning experiences. MOOCs have gained significant attention in the field of education due to their scalability, open access, and potential to reach a global audience. One prominent conceptual framework for studying MOOCs is the Community of Inquiry (CoI) model, proposed by Garrison, Anderson, and Archer (2000). This framework emphasizes the interplay between cognitive presence, social presence, and teaching presence in online learning environments. Cognitive presence refers to the extent to which learners can construct meaning through critical thinking and reflection. Social presence focuses on the sense of connectedness and interaction among learners and instructors, fostering a collaborative learning community. Teaching presence involves the design and facilitation of learning activities by instructors to support meaningful learning experiences. Other conceptual frameworks, such as the Self-Determination Theory (Deci & Ryan, 1985) and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), have also been used to examine various aspects of MOOCs, including learner motivation and the integration of technology and pedagogy. These conceptual frameworks provide a theoretical foundation for researchers and practitioners to explore the unique characteristics and outcomes of MOOCs.

2.2 The evolutionary journey of MOOCs

The emergence of e-learning has marked a revolutionary shift in the education sector, fundamentally transforming traditional instructional methods and offering unprecedented opportunities for learners worldwide. The early stages of e-learning were characterized by formats such as computer-based training (CBT) and web-based training (WBT), which set the initial groundwork for what would evolve into more sophisticated digital learning experiences (Alessi & Trollip, 2001; Cooper, 2002). The advent of Learning Management Systems (LMS) like Moodle, Blackboard, and Canvas, represented a significant milestone in e-learning's evolution, providing centralized platforms that streamlined the management and delivery of online courses (Ally, 2004; Watson & Watson, 2007). These platforms have been instrumental in facilitating content organization, learner tracking, and communication, thereby bolstering e-learning's adoption across various educational institutions. Theoretical frameworks have played a pivotal role in shaping e-learning's development. Notably, the Community of Inquiry (CoI) model (Garrison et al., 2000) and the Technology Acceptance Model (TAM) (Davis, 1989) have informed the design and implementation strategies of e-learning environments, emphasizing the importance of social presence, cognitive presence, and teaching presence in creating effective online learning communities.

Technological advancements have continually enhanced the scope and quality of e-learning. The advent of high-speed internet, sophisticated multimedia authoring tools, and the ubiquity of mobile devices have significantly increased the accessibility and interactivity of online learning experiences (Johnson et al., 2016). The integration of cutting-edge technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) is poised to further revolutionize the field, offering immersive and personalized learning experiences (Fowler, 2015; Lee & Hung, 2015). The global adoption of e-learning, especially in higher education, has been profound. Universities around the world have increasingly embraced online courses, blended learning models, and fully online degree programs to cater to a diverse student population (Allen & Seaman, 2017). This trend has been further accelerated by global events such as the COVID-19 pandemic, which necessitated a rapid shift to online modes of learning and underscored the need for resilient and adaptable educational models (Marinoni et al., 2020).

Looking towards the future, e-learning is expected to continue evolving, integrating more adaptive learning technologies and data analytics to offer more personalized and effective learning experiences. This evolution



promises not only to enhance the quality of education but also to make it more inclusive and accessible to learners across different geographical, social, and economic backgrounds (Zawacki-Richter et al., 2019).

The history of MOOCs illustrates a significant shift in the way education is accessed and delivered. Originating from correspondence courses to becoming sophisticated online platforms, MOOCs have continually adapted to the changing demands of learners worldwide. They stand as a symbol of the democratization of education, reflecting the ongoing transformation towards more inclusive and adaptable learning models.

In exploring the adoption, usage, and impact of MOOCs in the context of Wisconsin International University College, Ghana, the study integrates contemporary insights from the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Recent advancements in these theoretical models provide a nuanced understanding of technological acceptance in educational settings. TAM, initially proposed by Davis (1989), has been further developed in recent years. Studies by Venkatesh et al. (2016) have extended TAM to include factors like user experience and service quality, offering a deeper understanding of user engagement with technologies like MOOCs. Additionally, the work of Cheung and Vogel (2013) on TAM in e-learning contexts provides valuable insights into the specifics of online learning technology acceptance. Moreover, UTAUT, as expanded upon by Williams et al. (2015), incorporates elements such as habit and hedonic motivation, which are particularly relevant in the context of MOOCs. This expanded model helps in understanding the comprehensive set of factors that influence learners' and educators' engagement with MOOC platforms. By applying these updated theoretical perspectives, the study aims to uncover the multifaceted factors influencing the adoption and effective use of MOOCs, thereby contributing to the broader discourse on digital learning technologies in higher education.

2.3 Impact of MOOCs on teaching and learning

The impact of Massive Open Online Courses (MOOCs) on teaching and learning has been a topic of significant research and discussion. MOOCs have introduced new possibilities for education by offering open access to high-quality courses from renowned institutions to learners worldwide. One of the key impacts of MOOCs is their potential to democratize education, breaking down traditional barriers of access and allowing learners from diverse backgrounds to engage in learning opportunities (Kop, 2011). MOOCs have also facilitated self-directed learning, enabling learners to pursue their interests and acquire knowledge at their own pace (Liyanagunawardena et al., 2013).

Moreover, MOOCs have encouraged the adoption of innovative instructional approaches, such as blended learning models and flipped classrooms, where educators can leverage MOOC content as a resource to enhance in-class interactions and engage students (Rodriguez, 2012). However, it is important to note that the impact of MOOCs on teaching and learning is not without challenges, including issues related to learner motivation, course completion rates, and the need for effective pedagogical design to ensure meaningful learning experiences (Daniel, 2012). Overall, the impact of MOOCs on teaching and learning is a dynamic area of research, highlighting both the opportunities and complexities associated with this transformative form of online education. MOOCs have also influenced pedagogical practices by encouraging instructors to explore new instructional strategies and engage in online teaching and facilitation (Bonk & Khoo, 2014). The collaborative nature of MOOCs, often facilitated through discussion forums and peer assessment, promotes active learning and knowledge sharing among participants (Veletsianos & Shepherdson, 2016). Additionally, MOOCs have allowed educators to reach a wider audience and extend their expertise beyond the traditional classroom setting, fostering professional development and knowledge dissemination (Liyanagunawardena et al., 2014). The flexibility and adaptability of MOOCs have also led to the emergence of lifelong learning opportunities, allowing individuals to engage in continuous education and skill development throughout their lives (Yousef et al., 2014). However, it is important to address concerns regarding the quality assurance and

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accreditation of MOOCs, as well as the need for ongoing support and training for educators to effectively design and deliver MOOCs (Hew & Cheung, 2014). These considerations will contribute to maximizing the positive impact of MOOCs on teaching and learning.

2.4 Statistical overview of various MOOCs platforms.

There are different pedagogy styles when it comes to the design of various MOOCs platforms. This study groups them into three pedagogy styles namely, structured, hybrid (semi-structured) and unstructured styles.

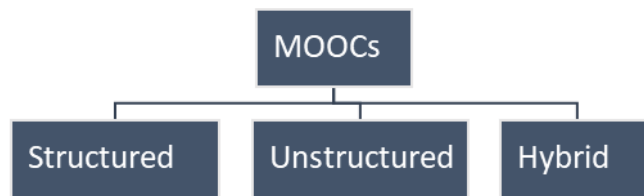


Fig. 1. MOOCs Pedagogy styles.

Table 1. List of popular MOOCs and their Pedagogy styles.

MOOC	Pedagogy Style
Alison	Structured
Canvas Network	Hybrid
Coursera	Hybrid
edX	Hybrid
FutureLearn	Hybrid
The Great Courses	Structured
iversity	Hybrid
Kadenze	Hybrid
Khan Academy	Hybrid
Linkedin Learning	Hybrid
MIT OCW	Hybrid
OpenClassrooms	Hybrid
openHPI	Hybrid
OpenLearning	Hybrid
OpenSAP	Hybrid
Open Universities Australia	Structured
Shaw Academy	Hybrid
Stanford Online	Hybrid
SWAYAM	Hybrid
Udacity	Hybrid
Udemy	Hybrid
Youtube	Unstructured

Source: Authors' construct (2023)



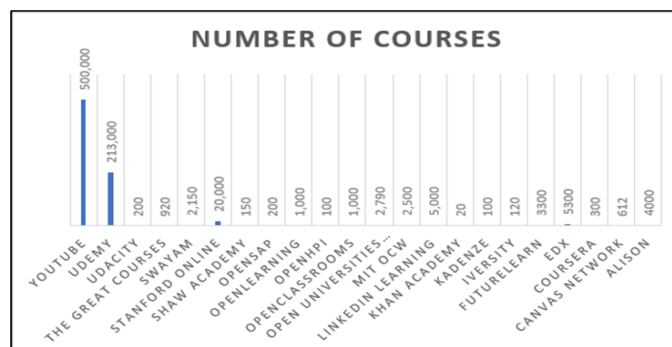
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Table 2. List of popular MOOCs and their corresponding number of users.

MOOC	Number of Users (Millions)
Alison	25
Canvas Network	5
Coursera	92
edX	40
FutureLearn	17
The Great Courses	8
iversity	1
Kadenze	-
Khan Academy	70
Linkedin Learning	27
MIT OCW	170
Open Classrooms	2.5
openHPI	40,000 (thousand)
Open Learning	2.17
Open SAP	5
Open Universities Australia	5,000 (thousand)
Shaw Academy	12
Stanford Online	-
SWAYAM	13
Udacity	1.6
Udemy	57
YouTube	Over 100

Source: Authors' construct (2023)



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Fig. 2. Number of courses (Source: Authors' construct (2023))

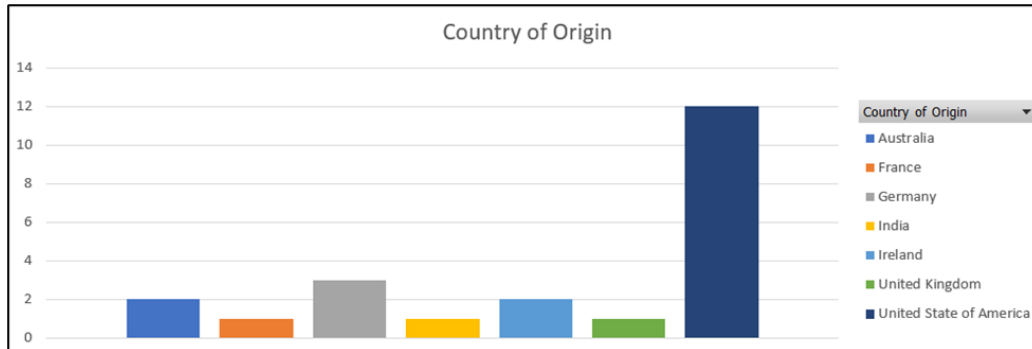


Fig. 3. MOOCs country of origin
Source: Authors' construct (2023)

3. Data collection and methods

The research design of this study centered on assessing the impact of Massive Open Online Courses (MOOCs) on teaching and learning, employing a quantitative approach. This method was chosen to analyze numerical data to understand MOOC utilization's various aspects and implications comprehensively. Participants in the study included 450 undergraduate and graduate students and 50 lecturers from Wisconsin International University College, Ghana. Selected through convenience sampling, this group provided a practical and relevant sample given the constraints of the study period. Data were collected via online surveys tailored to extract quantifiable information. The surveys comprised close-ended questions, focusing on variables such as the nature of the content delivered through MOOCs, the duration of engagement with these platforms, the preferred MOOC platforms, pedagogical styles, and preferences for free or paid platforms. The analysis of the quantitative data was conducted using descriptive statistical techniques. This approach allowed for identifying clear patterns and trends, offering a quantified view of MOOCs' usage and perception among the participants. Survey responses were meticulously cleaned and processed using Microsoft Excel, which ensured the accuracy and integrity of the study's findings. In examining the impact of Massive Open Online Courses (MOOCs) on teaching and learning practices at Wisconsin International University College, Ghana, the selection of specific MOOC platforms was driven by their relevance to our educational context and the patterns of digital learning adoption observed among our target participants. Platforms such as Coursera, edX, Khan Academy, and YouTube were chosen based on their widespread popularity and diverse pedagogical offerings, which are reflective of the global MOOC landscape. Coursera and edX, renowned for their structured courses and affiliations with prestigious universities, offered insights into formalized online education, aligning with the academic pursuits of our students and faculty. Khan Academy's focus on a broad range of subjects and its flexibility catered well to self-paced and informal learning preferences. Additionally, YouTube, serving as an unstructured MOOC platform, was included due to its extensive use for educational purposes, especially in a context where informal and non-traditional learning methods are gaining traction. This selection provided a comprehensive understanding of the varied ways in which MOOCs are utilized and perceived in our academic setting, ensuring that the study encompassed a broad spectrum of MOOC usage scenarios, from formal course enrolment to informal self-directed learning.



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Throughout the research, ethical considerations were rigorously adhered to. Participants were informed about the study's purpose and assured of their responses' confidentiality and anonymity, upholding the study's ethical integrity.

4. Results and discussions

4.1 Profile of Research Participants.

Out of the 450 total research participants, 50 were teachers and 400 were students who participated in the study. Table 3 and 4 present the profiles of the research participants.

Table 3. Profile of Students Participants

Demographics	Variable	Frequency	Percentage
Gender	Male	288	64%
	Female	162	36%
Age	15 – 25	279	62%
	26 – 35	158	35%
	36 – 45	13	3%
	Above 45	-	-
Student Category	Undergraduate	338	75%
	Masters	112	25%
Mode of Study	Regular (Day)	342	75.9%
	Evening	75	16.7%
	Weekend	33	7.4%
Department	Business	117	25.9%
	Computer Science / IT	233	51.9%
	Nursing/Medicine/ Pharmacy	16	3.7%
	Engineering	9	1.9%
	Creative Arts	-	-
	Economics	59	13%
	Social Science	16	3.7%
	Total	450	100%

Source: Field data (2023)



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Table 4. Profile of Lecturers Participants.

Demographics	Variable	Frequency	Percentage
Gender	Male	39	78%
	Female	11	22%
Age	25 – 30	8	16%
	31 - 40	30	60%
	41 – 50	10	20%
	51 – 60	2	4%
	Above 45	-	-
Lecturer Category	Lecturer	38	76%
	Senior Lecturer	10	20%
	Assistant Professor	2	4%
	Professor	-	-
Department	Business	15	30%
	Computer Science / IT	20	40%
	Nursing/Medicine/ Pharmacy	3	6%
	Engineering	2	4%
	Creative Arts	-	-
	Economics	8	16%
	Social Sciences	2	4%
Total		50	100%

Source: Field data (2023)

4.2 Adoption and usage of MOOCs platforms in teaching and learning.

The findings derived from the online survey yielded valuable insights into the adoption of Massive Open Online Course (MOOC) platforms in facilitating educational endeavors. The survey encompassed both educators and students, who were questioned regarding their firsthand encounters with MOOC platforms and their respective integration of these platforms within their teaching and learning practices. The data analysis as shown in figure 4 and figure 5 revealed that a significant majority of the participants, specifically 347 students, equivalent to 77% of the sample, reported adopting MOOC platforms to support their learning activities. In contrast, a minority of the respondents, consisting of 77 students (17%), indicated that they refrained from adopting any MOOC platform. Notably, a smaller cohort of 26 students (6%) expressed occasional adoption of MOOC platforms to complement their learning activities. As for the educators, the findings elucidated that out of the total 50 lecturers surveyed, 45 of them (63%) confirmed their reliance on MOOCs to support their teaching practices. Moreover, an additional 13 lecturers (26%) acknowledged the occasional adoption of MOOC platforms, while merely 1% disclosed non-utilization of such platforms.

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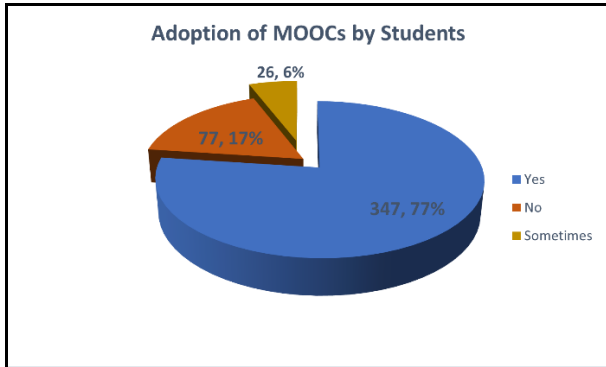


Figure 4. Adoption of MOOCs by students

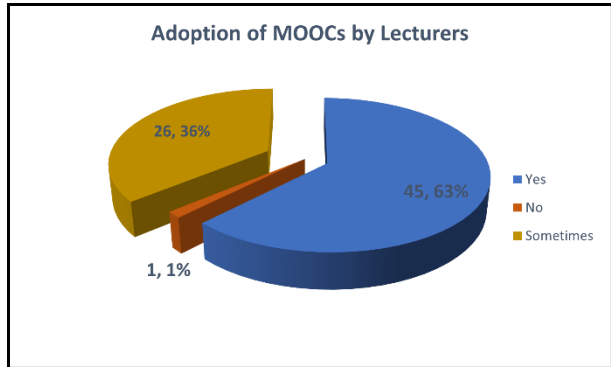


Figure 5. Adoption of MOOCs by lecturers

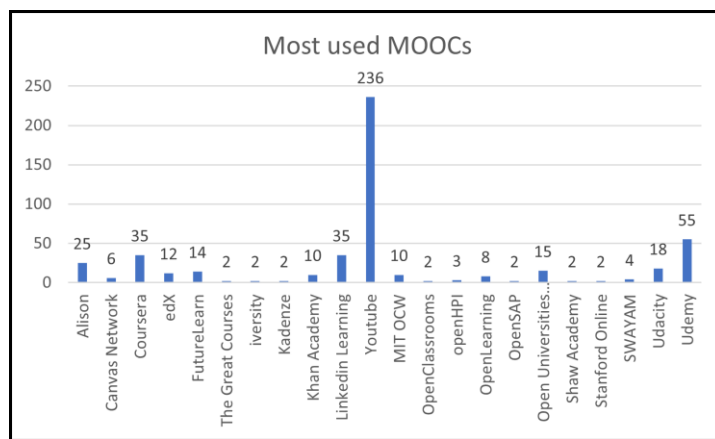


Figure 6. Most used MOOCs by students.

4.3 The preferred MOOCs pedagogy styles amongst lecturers and students.

Utilizing a MOOCs platform to enhance learning activities can pose challenges when it comes to selecting an appropriate pedagogy style. Analysis of the collected data indicates that 23% of students prefer a structured pedagogy style when utilizing a MOOCs platform for their studies as shown on Table 3. In contrast, 57% of students opt for a hybrid pedagogy style, while 20% favour an unstructured approach. These findings highlight the varying pedagogical preferences among students when engaging with MOOCs platforms. Similarly, most lecturers demonstrate a preference for leveraging the structured features offered by MOOCs platforms to support their teaching activities. Among the surveyed lecturers, 60% expressed a preference for a structured pedagogy style, while 24% favoured a hybrid approach. In addition, 16% of lecturers indicated a preference for utilizing unstructured MOOCs platforms in their teaching endeavours. These results underscore the divergent pedagogical approaches employed by lecturers when integrating MOOCs platforms into their teaching methodologies.

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Table 3. Preferred pedagogy styles by students and lecturers.

Pedagogy Style	Students		Lecturers	
	Frequency	Percentage	Frequency	Percentage
Structured	105	23%	30	60%
Hybrid	255	57%	12	24%
Unstructured	90	20%	8	16%
Total	450	100%	50	100%

Source: Field data (2023)

4.4 Identifying the preferences for MOOCs payment types amongst lecturers and students.

Recent financial difficulties have hindered students who are interested in utilizing MOOCs platforms to supplement their studies, as they face challenges in affording certain platforms. Analysis of the collected data reveals that 54% of students prefer utilizing free MOOCs platforms, which do not require any payment for access. Additionally, 39% of students prefer platforms that only charge for certificates upon completion, while a smaller proportion of 7% prefer using paid MOOCs platforms.

In contrast, among the surveyed lecturers, 76% express a preference for paid MOOCs platforms, suggesting their willingness to invest in platforms that require payment. Conversely, 24% of lecturers prefer making payments solely for certificates. These findings indicate divergent preferences among students and lecturers regarding the payment structure of MOOCs platforms.

Interestingly, most students perceive MOOCs platforms to be relatively less expensive compared to traditional methods of teaching and learning. However, lecturers hold a more neutral stance on this matter. They believe that the cost effectiveness of MOOCs platforms depends on the specific platform and the courses offered. This indicates that lecturers consider various factors in assessing the value and affordability of MOOCs platforms.

4.5 Exploring the impact of MOOCs on achieving teaching and learning goals.

The graphical representation of student responses, as depicted in the chart, indicates an equal split, with 50% affirming consistent achievement of their educational goals through MOOCs, while the remaining 50% only sometimes reach their desired outcomes. This suggests a variation in the effectiveness of MOOCs in meeting students' expectations, which may be influenced by individual learner needs, course design, and the extent of support and resources available. In contrast, data from lecturers reveals a more favorable view of MOOCs, with 70% reporting that they can achieve their teaching and professional development goals through MOOC platforms. This higher rate of goal attainment among lecturers could reflect the alignment of MOOCs with their pedagogical aims, such as expanding their reach, supplementing traditional teaching methods, and engaging in continuous professional development. However, the 30% of lecturers who did not achieve their goals with MOOCs highlight potential challenges, including possibly the platforms' limitations in offering personalized interactions, depth of content, or other institutional and pedagogical constraints. The juxtaposition of these findings illustrates a complex picture of MOOC effectiveness, suggesting that while MOOCs can be a powerful

tool for educators, their impact on learners is more variable. This disparity invites a more in-depth exploration into how MOOCs can be tailored to better serve both students and educators. For instance, understanding the specific challenges faced by the 50% of students and the 30% of lecturers who did not fully achieve their goals could provide insights into necessary improvements in MOOC design and implementation.

Achieve goals with MOOCS

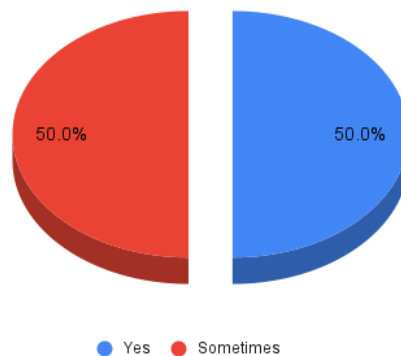


Figure 7. Achieving learning goals.

5. Discussion of findings

5.1 Adoption and Usage of MOOC Platforms

This study primarily aimed to ascertain the extent of MOOC platform adoption by students and lecturers in the realms of teaching and learning. The findings indicated that a substantial majority (77%) of student respondents have adopted MOOC platforms for their educational pursuits. This significant adoption rate among students underscores an increasing acceptance and reliance on digital learning tools, likely attributable to the convenience, accessibility, and diverse course offerings of MOOCs, which align closely with students' educational needs. Furthermore, the data revealed that 63% of lecturers rely on MOOCs for instructional practices, with an additional 26% acknowledging sporadic adoption. These findings align with Hayes (2015), who posited that MOOCs are increasingly integral in teaching methodologies, perhaps due to their capacity to offer varied resources and expand instructional content.

5.2 Pedagogical Preferences

The study's secondary objective was to discern the most favored pedagogical styles for MOOCs among lecturers and students. Data analysis revealed that 57% of students prefer a hybrid pedagogical approach, 23% a structured methodology, and 20% an unstructured style. This diversity in preference echoes the findings of Liyanagunawardena et al. (2014), suggesting the need for MOOC platforms to accommodate various pedagogical approaches to cater to differing learning styles. The study also indicated a preference among most lecturers (60%) for structured pedagogical styles, followed by 24% favoring a hybrid approach, possibly reflecting a preference for more organized and systematic instructional methods influenced by their professional training and experience.



5.3 Preferences for MOOCs Payment Types

The third aim of the study was to identify preferred payment models for MOOC platforms. The findings showed that most students (54%) favor free MOOC platforms, reflecting financial constraints or a preference for cost-effective educational options. This trend supports Aldowah et al's (2020) findings that cost significantly influences students' engagement with MOOCs. Conversely, a substantial portion of lecturers (76%) displayed a preference for paid MOOC platforms, likely recognizing the value these platforms offer in terms of quality content and resources, indicating a willingness to invest in professional development.

5.4 Impact on Achieving Educational Goals

The final objective was to assess the impact of MOOCs on achieving educational goals as perceived by lecturers and students. The results revealed a split among students concerning the effectiveness of MOOCs in meeting educational objectives. This variation, as argued by Felder et al. (2005), might stem from individual differences in learning styles, course selection, or engagement levels. However, a higher proportion of lecturers (70%) reported that MOOCs effectively facilitated their teaching and professional development goals, suggesting a strong alignment between MOOCs and their pedagogical objectives and professional growth requirements.

6. Summary, conclusion, and recommendations.

6.1 Summary of key findings.

The study conducted at Wisconsin International University College, Ghana, reveals insightful perspectives on the adoption and impact of Massive Open Online Courses (MOOCs) in both teaching and learning contexts. A notable majority of students and a significant proportion of lecturers reported adopting MOOC platforms, highlighting their growing importance in the educational realm. This trend underscores the increasing reliance on digital learning tools, driven by the convenience, accessibility, and diverse offerings of MOOCs. In terms of pedagogical preferences, the study found a preference for hybrid learning styles among students, while lecturers leaned towards structured approaches, indicating a need for MOOCs to cater to a variety of teaching and learning styles. Furthermore, the study uncovered a divide in payment preferences, with most students favoring free MOOC platforms due to financial constraints, and most lecturers preferring paid platforms, recognizing their value in quality content and professional development. The findings also indicated a split among students regarding the effectiveness of MOOCs in achieving educational goals, whereas a higher percentage of lecturers reported success in meeting their teaching and professional development objectives through MOOCs. These insights provide a comprehensive understanding of the current role of MOOCs in the academic environment and their potential for enhancing educational practices.

6.2 Conclusion

The research findings underscore the significant role MOOCs play in the educational landscape, particularly in terms of their widespread use and the value they provide to both students and educators. However, it is evident that to maximize their potential, MOOC platforms must be thoughtfully tailored to meet the diverse needs of their users. This entails a deeper understanding of the specific challenges encountered by students who do not fully realize their educational goals through MOOCs. Addressing these challenges can pave the way for enhancements in course design and content delivery, ultimately leading to a more engaging and effective learning experience. For instance, incorporating adaptive learning technologies and personalized content can help in catering to individual learning paces and preferences. Similarly, an understanding of lecturers' preferences and challenges is crucial. As educators increasingly rely on MOOCs for both teaching and



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professional development, there is a growing need for these platforms to align more closely with their instructional needs. This could involve the development of more collaborative tools, resources for curriculum development, and support systems that facilitate the integration of MOOC content into traditional teaching methodologies.

Moreover, these insights have profound implications for educational policy. They highlight the need for a strategic approach to the integration of MOOCs into educational systems, one that emphasizes flexibility, inclusiveness, and financial accessibility. Policies should encourage the development of MOOC platforms that are not only academically rigorous but also accessible to a broader demographic, including those from underprivileged backgrounds or remote areas. Such an approach would contribute significantly to democratizing education, ensuring that quality learning resources are available to all, irrespective of geographical or economic barriers. Additionally, there's a need for continuous evaluation and feedback mechanisms within MOOC systems. Regular assessment of user experience, success rates, and engagement levels can provide valuable insights for ongoing improvements. Policies supporting such evaluations can lead to more dynamic and responsive MOOC platforms, which evolve in tandem with the changing demands of the digital learning environment. In conclusion, the study's findings serve as a catalyst for reimagining the future of MOOCs. By focusing on user-centric design, comprehensive support structures, and informed policymaking, MOOCs can be transformed into more impactful and equitable tools for global education. This will not only enhance the learning experience for students and educators alike but also foster a more inclusive and accessible.

6.3 Recommendations and future works.

For MOOCs to truly fulfill their potential as dynamic educational tools, it is crucial for providers to embrace a multifaceted approach towards pedagogy. This means integrating a diverse array of teaching methods and learning styles within MOOC platforms to cater effectively to the varied preferences of both students and lecturers. Such an approach would not only enhance learner engagement but also ensure that the educational content is accessible and comprehensible to a wider audience.

In addition, considering the financial aspects, MOOC platforms should strive to balance cost-effectiveness with quality. Implementing flexible payment models would allow students to access essential learning resources without financial strain, while also ensuring that lecturers have access to high-quality content that aids in their professional development. This balance is key to maintaining the inclusivity and accessibility of MOOCs, making them a viable option for learners from all socioeconomic backgrounds.

Moreover, the design and structure of MOOCs should be thoughtfully aligned with the diverse learning needs of the user base. This entails customizing courses to suit different learning speeds, engagement levels, and preferences in course material. By doing so, MOOCs can become more effective in meeting specific educational objectives, thereby enhancing the overall learning experience. Such customization would also help in reducing the learning curve for new users, making MOOCs more approachable and beneficial.

There is also a pressing need for MOOC platforms to offer comprehensive support and resources. This would particularly aid those students and lecturers who may find online learning environments challenging. Enhanced support could include more interactive features, personalized learning paths, and responsive feedback mechanisms, which would collectively improve user engagement and learning outcomes.

Finally, continuous research and evaluation are vital to ensure the ongoing development and relevance of MOOCs. By focusing on the specific challenges and experiences of users, researchers and providers can gain valuable insights into how MOOCs can be refined and adapted. This ongoing process of assessment and innovation will be instrumental in ensuring that MOOCs remain at the forefront of digital education, effectively



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responding to the ever-evolving needs of the global learning community. This proactive approach will solidify the role of MOOCs as a cornerstone in the landscape of modern education.

Conflict of interest

The authors declare no conflicting interest in the conduct of the study.

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Biographical notes



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He is an information technology consultant and a senior lecturer. He is an expert in the application of ICT for development. He has worked as a consultant on World Bank and UN projects for the Ministry of Communications, with over 15 years of experience as a lecturer. He has been involved in developing several ICT oriented policies for the Ministry of Communications, Ministry of Food and Agriculture, Ministry of Education and Ministry of Gender, Children and Social Protection. Currently, he is the ICT Advisor for the Canadian High Commission under Global Affairs Canada assigned to the Ministry of Food and Agriculture to facilitate the digitalisation of E-Agriculture under the Modernising Agriculture in Ghana (MAG) programme. Nana Kofi Annan had his education in Ghana, Denmark and India.



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Customers' perception of e-commerce usage during the Covid-19 pandemic: Evidence from selected online firms in Ghana

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Abstract:

During the COVID-19 pandemic, an increasing number of people turned to e-commerce to purchase what they needed. Arguably, only a handful of studies have explored the effects of the pandemic on Ghana and Africa as a whole. The primary focus of the study is to investigate consumers' perceptions of e-commerce enterprises in Ghana during the COVID-19 pandemic. The study utilized a quantitative design and adopted a positivism philosophy. Randomly, 200 staff and consumers of e-commerce firms in the Ga East Municipal District in the Greater Accra Region were surveyed for the study. The results were analyzed using multiple regression. The findings indicate that benefits, self-efficacy, and ease of use have a positive and statistically significant relationship with customer perception, whereas trust and security show no statistically significant relationship with customer perception. Furthermore, the study reveals that the COVID-19 pandemic had a positive effect on the operations of e-commerce firms. The recommendation is for firms to develop and establish a pandemic or emergency response strategy and policy to guide their response in terms of communication and business strategy. This proactive approach can help protect their firm and consumers, ultimately boosting growth and sustainability. Additionally, the government is encouraged to invest in ICT infrastructure and provide support to players in the ICT space through favourable tax and regulatory conditions. Such measures would incentivize investments in the sector and contribute to its growth.

Keywords:

E-commerce; Customer perception; Logistics operations; COVID-19.

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1. Introduction

E-commerce has become increasingly popular, especially during the COVID-19 pandemic, as people practiced social distancing (Knott, 2021). Consumers utilize the internet to make purchases, such as food and other essential items, apparel, and entertainment, that they would typically make in stores. In 2022, retail e-commerce sales were estimated to exceed 5.7 trillion U.S. dollars worldwide, and this figure is expected to reach new heights in the coming years (van Gelder, 2023). Businesses in West Africa are also experiencing an increase in internet sales. According to an online survey conducted in 2020 and 2021, 81 percent of Nigerian consumers have increased their online shopping since the outbreak, while Ghana saw a 79 percent increase in online purchases (Agyapong, 2022).

A survey conducted by the Ghana e-commerce Association indicated that e-commerce has seen a significant increase in demand due to the COVID-19 pandemic (Asinor, 2021). Ghana, which previously had low online shopping patronage, has seen a significant increase in sales as consumers avoid retail stores and problems associated with panic buying, such as long queues, panic buying, and conditional sales, among others. Elselund Ewudzie-Sampson, the founder of Big Sampson Market in Ghana, has noticed a significant surge in demand since the outbreak. Her company specializes in market shopping and delivery (Knott, 2021).

Even though the COVID-19 pandemic has led to a lot of growth in e-commerce in Ghana, it has also brought to light problems for businesses that are trying to bridge the digital divide to keep up with the growth. The first is inefficient logistics that affect activities like managing and delivering orders. Secondly, limited technological infrastructure and a lack of basic ICT knowledge to support their operations and facilitate business processes prevented small businesses, especially from profiting from the e-commerce surge (Ansong & Turkson, 2022). Thirdly, unfamiliarity or lack of knowledge about e-commerce prevented many Ghanaian businesses from taking advantage of the e-commerce surge, especially in remote areas. Finally, security issues and cybercrime threats prevented many Ghanaians from fully embracing e-commerce because of online fraud prevalent in Africa (Naab & Bans-Akutey, 2021).

Arguably, only a handful of studies sought to explore the effects of the COVID-19 pandemic on e-commerce in Ghana and Africa as a whole. The majority of the studies reviewed have arguably focused on developed western countries. For example, to gain government support, the US government commissioned a research study on how businesses survived and operated under the COVID-19 pandemic (Sarkis et al., 2020). The handful of e-commerce studies on Ghana (e.g., Aduhene & Osei-Assibey, 2021; Naab & Bans-Akutey, 2021; Amofah & Chai, 2022; Kankam, 2022), on the other hand, were silent on the challenges the e-commerce firms faced during the pandemic. For instance, Aduhene and Osei-Assibey (2021) investigated the influence of COVID-19 pandemic on the food supply chain in Ghana, whereas Kankam (2022) investigated how digital marketing platforms impacted purchase decisions among students during the COVID-19 era. The economic effects of the COVID-19 pandemic restrictions on enterprises and livelihoods were also studied in these studies.

Given the outlined research gaps, it becomes imperative to conduct a study that examines the effect of the COVID-19 pandemic on e-commerce firms in Ghana, focusing on buying and selling online and logistics management of businesses in Ghana during the pandemic. Specifically, this study sought to examine customers' perception of e-commerce usage during the COVID-19 pandemic.

2. Background and related literature

Qin et al. (2014) define e-commerce as "the process whereby traditional trade is carried out by electronic methods. The electronic methods refer to electronic technologies, tools, equipment, and systems, including telephone, telegram, television, facsimile, e-mail, electronic data interchange, computer, the communication network, credit card, electronic money, and the Internet, etc." (p.3). E-commerce, at its most basic level, is the



procurement of goods and services and the transmission of payments or data through an electronic network, most commonly the internet.

2.1 E-commerce success measurement

E-commerce, like any other digital technology or consumer-based purchasing sector, has evolved. Mobile commerce has grown in popularity as mobile devices have become more common. Thanks to sites like Facebook and Pinterest, social media has become a key driver of e-commerce (Herzallah et al., 2022). Businesses may take advantage of the shifting market to improve their relevance and expand their market in the internet world.

E-commerce platforms are utilized by firms for online marketing, sales, and logistics, promoting economic growth in developing countries and introducing new transaction methods. Boateng et al. (2008) highlight the potential of e-commerce in boosting GDP development and job creation by facilitating trade, boosting exports, and providing local firms with cost savings and exposure to global markets, ultimately boosting foreign exchange profits. E-commerce empowers women and expands educational opportunities, particularly in developing countries. It encourages entrepreneurship and contributes to family income.

2.2 Factors impacting e-commerce success

Due to the containment of the virus, millions of people stayed home in early 2020, making digital channels the preferred shopping choice. Due to the scarcity of items and services at various outlets and stores, the lockdowns in the nations influenced customers' purchasing behavior. For this reason, consumers relied on the e-commerce platform to provide for their basic needs (Amofah & Chai, 2022). In June 2020, everyday things like food, apparel, and retail tech items saw extremely high demand, reaching a record 22 billion monthly visits. Retailers rose to the occasion, not only by increasing online sales but also by adopting new technologies that enhanced consumer relationships and convenience (Asinor, 2021). United Nations (UN) economists discovered that despite broad travel limitations, some pre-pandemic big hitters have seen their fortunes reverse in the previous year.

2.3 Conceptual framework

A conceptual framework illustrates the connection between the key variables of a study. It demonstrates the relationship between the independent variables (customer perception and the COVID-19 pandemic) and the dependent variable (e-commerce). Customer perception was evaluated using benefits, trust, self-efficacy, ease of use, and security. In other words, it assessed the effect of benefits, trust, self-efficacy, ease of use, and security on the usage of e-commerce services. The relationship between the variables is summarized in Figure 1. TAM and UTAUT guided the study and the conceptual framework.

TAM was selected over other models such as the Theory of Planned Behavior (TPB) and Theory of Reasoned Action (TRA) because it could be adjusted and extended to include trust and risk (Ha & Nguyen, 2019). In other words, TAM suggests that consumers' willingness to use and accept a technology depends on the technology's ability to enhance their performance and the ease with which the technology can be utilized. When clients perceive e-commerce services to be useful (PU) and easy to use (PEOU), the likelihood of using the service increases (Gefen & Straub, 2000). TAM was used to incorporate perceived usefulness (benefits), trust, perceived self-efficacy, perceived ease of use, and perceived security to investigate customer perceptions of e-commerce organizations, as well as the implications of the COVID-19 pandemic on the logistic operations of e-commerce firms.



Figure 1: Conceptual Framework

Benefit is a person's tendency to use a tool or technology where the technology can help them do activities better. The benefits that consumers feel when shopping online is convenience, which is arguably not available in traditional shopping media. Online purchases can also minimize the uncertainty caused by online shopping (Syahdan, 2021). Extant studies (e.g., Teoh et al., 2013; Pratiwi & Dewi, 2018; Pratama & Suputra, 2019; Syahdan, 2021) consider benefits as a determinant of consumer perception. Hence, it is hypothesized in this study that:

H1: *Benefits positively influence consumers' perception of e-commerce enterprises during the COVID-19 pandemic.*

Trust is the level of risk involved in a relationship to get the expected results (Koller, 1988). In the context of online shopping, consumers are constantly faced with the risk of uncertainty, such as payment risk, products, information, time, and psychology, thus providing a sense of discomfort when deciding on an online purchase (Syahdan, 2021). Studies by Teoh et al. (2013) and Syahdan (2021) consider trust as a determinant of consumer perception. This study hypothesizes that:

H2: *Trust positively influences consumers' perception of e-commerce enterprises during the COVID-19 pandemic.*

Self-efficacy is a person's perception of doing something. If one can perform a behavior, then it is easy to request the results of such behavior (Bandura, 1977). The results of previous studies showed that self-efficacy affects attitudes and behaviors in different situations (Teoh et al., 2013; Syahdan, 2021). Self-efficacy leads to competency assessments about completing specific tasks and increases confidence to move cognitive resources to successfully perform specific tasks (Syahdan, 2021). Extant studies (e.g., Teoh et al., 2013; Kim et al., 2010; Pratiwi & Dewi, 2018; Syahdan, 2021) consider self-efficacy as a determinant of usage. This study, therefore, hypothesizes that:

H3: *Self-efficacy positively influences consumers' perception of e-commerce enterprises during the COVID-19 pandemic.*

Ease of use in the context of technology usage refers to how easily and intuitively users can navigate, interact, and complete transactions on the system (Davis, 1989). It encompasses various aspects of the user interface, design, and functionality that contribute to a seamless and user-friendly experience. When customers find an e-commerce platform easy to use, it positively influences their perception and overall satisfaction. Extant studies (e.g., Teoh et al., 2013; Alyabes & Alsalloum, 2018; Pratiwi & Dewi, 2018; Syahdan, 2021) consider ease of use as a determinant of consumer usage. It is, therefore, hypothesized that:

H4: *Ease of use positively influences consumers' perception of e-commerce enterprises during the COVID-19 pandemic.*

Security becomes a set of consumer risk reduction related to individual data privacy and online transactions (Marriott et al., 2017). Teoh et al. (2013) and Syahdan (2021) indicated that security is a guarantee of the



convenience of transactions, the accuracy of transactions, and the ease of using applications that cannot be hacked. Online shopping can guarantee increased security of online shopping sites. There is also a high-risk guarantee and communication system that guarantees confidentiality during the use of such online shopping (Syahdan, 2021). Extant studies (e.g., Teoh et al., 2013; Kim et al., 2010; Syahdan, 2021) consider security as a determinant of consumer usage.

H5: Security positively influences consumers' perception of e-commerce enterprises during the COVID-19 pandemic.

3. Research Methodology

The study adopted a quantitative research design. A quantitative research design operates on inductive logic rather than deductive reasoning, and for that matter, is highly influenced by the quest for generalization, replicability, and numbers (Creswell & Creswell, 2005). Hence, it is suitable to be used in answering the objective of this study.

3.1 Study population and area

The population of this study consists of customers of selected e-commerce firms within the Ga East Municipal Assembly (GEMA). The target population includes over 100 e-commerce firms, 500 e-commerce staff, and over 10,000 e-commerce consumers in the GEMA.

The study was conducted within the Ga East Municipal Assembly (GEMA). This municipal assembly is estimated to have a total population of 186,230 (GEMA, 2023). GEMA is one of the highly urbanized municipalities in Ghana, with about 90% of the population living in urban areas. This high level of urbanization is a reason why the municipality was selected as the study area. Knowing that highly urbanized areas tend to have denser populations, then hypothetically, the need for on-the-go services such as e-commerce is likely to be high.

3.2 Sampling

The study utilized a probability sampling technique to ensure an equal chance of participant selection, a crucial aspect of research, as it was a quantitative method, thereby enhancing the efficiency of the research process (Creswell & Creswell, 2005). The accessible population consisted of over 50 e-commerce firms with over 1,000 consumers within GEMA. GEMA was selected because of its urbanized nature, population, and e-commerce market growth. The area was also chosen due to the proximity, accessibility, and availability of respondents. Two hundred consumers were selected using the convenience sampling technique.

Table 1 provides the breakdown of the category or industry of e-commerce firms selected for the study.

Table 1: Categories of e-commerce Firms sampled for the study

Category	Frequency	Percentage (%)
Fashion and accessories	21	41
Electronics	9	18
Essentials (food, healthcare etc.)	7	14
Financial services	6	12
Education and online courses	5	11
Others	2	5
Total	50	100



3.3 Data collection instrument

Questionnaires were used for data collection, employing two sets. The first set was directed at consumers of e-commerce services, and the second set was directed at staff of e-commerce firms. The two sets of questionnaires were utilized because the researcher aimed to elicit responses from the perspective of both consumers and staff of the e-commerce firms regarding the study objectives. The questionnaires mainly consisted of closed-ended questions, with only a few open-ended questions. Respondents were required to choose the best response from various alternatives for the closed-ended questions, while they were allowed to provide their opinions on the open-ended questions.

The consumer questionnaire was structured in two parts (Sections A and B). Section A introduced the researcher and the purpose of the study, also soliciting socio-demographic characteristics of the participants. Section B focused on achieving the objective of the study, which sought to examine consumers' perceptions about e-commerce enterprises during the wake of the pandemic. It posed questions aimed at addressing this objective, with the statements adapted from Teoh et al. (2013).

The questionnaire employed closed-ended and 5-point Likert scale statements. The closed-ended questions provided options from which respondents were to choose. The Likert scale responses ranged from strongly disagree (1) to strongly agree (5) and from reduced greatly (1) to increased greatly (5), with respondents indicating their level of agreement to the provided statements.

3.4 Data Processing and Analysis

The collected data were entered, coded, and analysed using the Statistical Package for Social Sciences (SPSS). Initially, the data were vetted and cleaned to check for non-response and incomplete responses. Following that, descriptive and inferential analyses were conducted to arrive at the results. Multiple regression was employed to analyze the factors influencing customers' perception in the usage of e-commerce. The independent variable is customer perception, while the independent variables are benefits (B), trust (T), self-efficacy (SE), ease of use (EU), and security (S).

3.5 Model Specification

Ordinary Least Squares (OLS) was used to analyse the models and regressions of the study. The model for the study is illustrated as:

$$CP = \beta_0 + \beta_1B + \beta_2T + \beta_3SE + \beta_4EU + \beta_5S + e$$

Where CP = Consumers' Perception

B = Benefits

T = Trust

SE = Self-efficacy

EU = Ease of use

S = Security

e = Error term

β_0 = Constant

β_1-5 = Coefficients of variables

4. Analysis of results

The demographic profile of the study’s respondents is presented in Table 2. It shows the gender, age, education, years of e-commerce use, and annual income.

Table 2: Demographic characteristics of respondents

Characteristics	Description	Frequency	Percentage (%)
Gender (n=200)	Male	110	55
	Female	90	45
Age (n=200)	Below 20	30	15
	21 – 30	90	45
	31 – 40	60	30
	41+	20	10
Education (n=200)	Diploma	27	14
	Bachelors	31	16
	Masters	122	61
	Others	20	10
Years of Use (n=150)	Below 1	36	24
	1 – 2	84	56
	3+	30	20
Consumer monthly income	Below 2,000	54	36
	2,000 – 4,000	37	25
	4,001 – 6,000	26	17
	6,001 – 8,000	18	12
	8,001+	15	10

Source: Field Data (2022)

4.1 Reliability analysis

According to Bhattacharjee (2012), reliability is the extent to which the study can be repeated with the same results. The reliability for the survey can be seen as receiving quality answers for the questions and how the researcher was able to get the respondents to understand the questionnaire. To achieve this, the researcher used simple questions and statements. The instruments were also reviewed and piloted to ensure reliability, validity, completeness, and understandability. In addition, a Cronbach Alpha test for reliability was conducted using the Statistical Package for Social Sciences (SPSS) to test the reliability of the study instrument. The Cronbach Alpha for benefits (B), trust (T), self-efficacy (SE), ease of use (EU), security (S), and consumers’ perception (CP) were 0.854, 0.810, 0.690, 0.841, 0.794, and 0.739, respectively. These values are higher than 0.60. This means that the constructs demonstrate reasonably high internal consistencies (Hair et al., 2012).

4.2 Regression analysis

The regression analysis was carried out to test the hypotheses developed for the study. Table 3 shows that the R-square (R²) of 0.575 suggests that 57.5% of the variation in e-commerce usage (UE) is caused by benefits (B), trust (T), self-efficacy (SE), ease of use (EU), and security (S). This also suggests that 42.5% is caused by other factors which are not the focus of this study.

Table 3: *Regression Statistics of E-commerce Usage (UE)*

Model	R	R Square	Adjusted R Square	Standard Error
1	0.596 ^a	0.575	0.504	1.924

a. Predictors: (Constant), Benefits, Trust, Self-Efficacy, Ease of Use and Security.
b. Dependent Variable: E-commerce Usage

Table 4 shows that the significance F of 0.00 is less than the significance level (0.05). This implies that the model is significant, and the null hypothesis that benefits (B), trust (T), self-efficacy (SE), ease of use (EU), and security (S) have no relationship with e-commerce usage can be rejected. Therefore, benefits (B), trust (T), self-efficacy (SE), ease of use (EU), and security (S) are found to have a relationship with e-commerce usage.

Table 4: *ANOVA of E-commerce Usage*

	df	SS	MS	F	Significance F
Regression	5			46.281	0.000^b
Residual	194				
Total	199				

a. Predictors: (Constant), Benefits, Trust, Self-Efficacy, Ease of Use and Security.
b. Dependent Variable: E-commerce Usage

As shown in Table 5, the coefficients and p-value of benefits (B), trust (T), self-efficacy (SE), ease of use (EU) and security (S) in terms of consumer perception are indicated.

Table 5: *Regression Coefficients of E-commerce Usage*

Variables	Coefficients	Standard Error	t Stat	p-value
Constant	0.166	0.237	0.720	0.495
Benefits (B)	0.556	0.059	9.568	0.000
Trust (T)	0.063	0.055	1.147	0.000
Self-efficacy (SE)	0.109	0.052	2.151	0.000
Ease of use (EU)	0.195	0.063	3.172	0.002
Security (S)	0.032	0.044	0.759	0.000

Dependent variable = E-commerce Usage (UE)

The summary of the hypotheses analysis results is presented in Table 6.

Table 6: *Summary of Study Hypotheses Results*

Hypothesis	Results
H1: Benefits positively influenced consumer’s perception of e-commerce enterprises during the COVID-19 pandemic.	Supported
H2: Trust positively influenced consumer’s perception of e-commerce enterprises during the COVID-19 pandemic.	Supported
H3: Self-efficacy positively influenced consumer’s perception of e-commerce enterprises during the COVID-19 pandemic.	Supported
H4: Ease of use positively influenced consumer’s perception of e-commerce enterprises during the COVID-19 pandemic.	Supported
H5: Security positively influenced consumer’s perception of e-commerce enterprises during the COVID-19 pandemic.	Supported

5. Discussion of findings

This section delves into the analysis presented in the preceding section, aiming to evaluate the research objective, which focused on assessing customers' perception of e-commerce usage during the Covid-19 pandemic: Evidence from selected online firms in Ghana.

The analysis delved into consumers' perspectives on e-commerce enterprises in Ghana during the COVID-19 pandemic, drawing inspiration from the Technology Acceptance Model (TAM). Given its extensive application in studying technology adoption among individuals (Surendran, 2012; Ajibade, 2018), TAM was deemed fitting for examining consumers’ perception towards e-commerce enterprises in Ghana during the COVID-19 pandemic. Table 7 showcases the results of hypothesis testing for the factors employed to assess consumers' perception of e-commerce enterprises in Ghana.

The study revealed a positive relationship between benefits (B), trust (T), self-efficacy (SE), ease of use (EU), security (S), and customers’ perception of e-commerce usage (UE). This aligns with findings in extant e-commerce studies (e.g., Pratiwi & Dewi, 2018; Teoh et al., 2013; Syahdan, 2021). Specifically, the study found that customers’ perception of gaining benefits correlates positively with e-commerce usage, consistent with Teoh et al. (2013), Pratiwi and Dewi (2018), Pratama and Suputra (2019), and Syahdan (2021).

Moreover, trust was identified to have a positive relationship with e-commerce usage, consistent with Teoh et al. (2013), Kim et al. (2010), Pratiwi and Dewi (2018), and Syahdan (2021). However, Alyabes and Alsalloum (2018) found that the perception of trust may have a negative relationship with e-commerce usage.

Customers’ perception of self-efficacy also demonstrated a positive relationship with e-commerce usage, corroborating results from Teoh et al. (2013), Alyabes and Alsalloum (2018), Pratiwi and Dewi (2018), and Syahdan (2021), who discovered that self-efficacy influences customers' perception of e-commerce system usage.

Furthermore, the study unveiled that customers’ perception of the e-commerce system being easy to use has a positive relationship with e-commerce usage, aligning with findings from Teoh et al. (2013), Alyabes and Alsalloum (2018), Pratiwi and Dewi (2018), and Syahdan (2021).

Lastly, the study uncovered that customers’ perception of the system being secure also has a positive relationship with e-commerce usage, in line with Teoh et al. (2013), Kim et al. (2010), and Syahdan (2021).



According to the findings of the e-commerce report of Europe (Lone et al., 2021), the perception of e-commerce during the COVID-19 pandemic was generally positive. Respondents reported a positive public perception of the industry, with a majority also expressing a positive political perception of the sector. The study's findings, corroborating that all the variables forming customers' perceptions, were significant and positively related to e-commerce usage during the COVID-19 pandemic.

6. Conclusion and recommendations

The study aimed to investigate the determinants of customers' perception of e-commerce usage during the COVID-19 pandemic in Ghana, utilizing descriptive statistics and hypothesis testing. The research objective was addressed through the application of the Technology Acceptance Model (TAM). A quantitative research approach was employed, involving 200 participants and a structured questionnaire. The findings, including descriptive statistics, hypothesis testing, and multiple regression results, were presented through tables.

The study revealed that customers held a positive perception of e-commerce enterprises during the COVID-19 pandemic. Additionally, it identified that benefits, trust, self-efficacy, ease of use, and security positively influenced customer perception and adoption of e-commerce businesses. Furthermore, the study observed that the COVID-19 pandemic had a positive impact on the operations of e-commerce firms.

6.1 Recommendations

Due to the profound impact of the pandemic on e-commerce and the notable successes achieved by e-commerce firms, it is imperative for these entities to develop and implement a comprehensive pandemic or emergency response strategy and policy. This strategic approach aims to ensure business continuity and enhance customer experience and perception. To achieve this, e-commerce firms should prioritize hiring competent staff, especially in the ICT department, to effectively address the challenges posed by emergencies and guarantee satisfactory customer experiences.

Investing in the development of human resources is crucial for overcoming potential scarcity during emergencies and ensuring continued positive customer experiences. Periodic adoption of the latest and state-of-the-art technology, coupled with staff training, is essential for achieving optimal outcomes and meeting organizational objectives in the rapidly evolving digital landscape.

Given the capital-intensive nature of ICT infrastructure, it is recommended that governments actively invest in this sector. Additionally, support for ICT players through favorable tax and regulatory conditions can incentivize further investment. Recognizing the broader economic impact on e-commerce firms within a country, governments should strive to maintain macroeconomic stability and foster growth to bolster e-commerce operations.

At both regional and continental levels, governments should collaborate to develop clear, harmonized, and applicable policies and programs in critical areas such as electronic transactions legislation, digital consumer protection, data privacy and security, and cybercrime legislation. E-commerce firms, in turn, should align their policies and programs with these guidelines to guide and drive their digitalization and digital transformation agenda, enabling them to capitalize on the opportunities presented by the growing digital economy.

In terms of policy suggestions to address the broader impact of pandemics, governments should take immediate action. This includes increasing digitalization and ICT adoption in national and sub-regional transportation and logistics, harmonizing regional responses to pandemics, developing a regional framework for pandemic response, expanding infrastructure, and fostering collaboration among regional health agencies and service providers. These measures will contribute to minimizing the impact of the current and future pandemics, ensuring a more resilient and interconnected global landscape.



6.2 Suggestions for future studies

Researchers and practitioners are encouraged to explore the impact of the COVID-19 pandemic on specific industries along the supply chain and e-commerce value chain using qualitative or mixed research approaches. Focus areas could include maritime, transportation (sea, air, rail, and road), finance (banking, insurance, etc.), and other relevant sectors.

A comparative study approach can be adopted to analyze two sectors, industries, or countries, shedding light on the pandemic's effects, the sustainability of gains made, and the strategies employed to address identified challenges. Potential comparisons could involve contrasting countries such as Ghana and Nigeria, sectors like the public and private sectors, and industries including road and air transportation.

Furthermore, researchers and practitioners should consider exploring the mediating and moderating effects of consumer and firm factors, such as gender, age, income, awareness, size, managerial digital knowledge, and experience. Future studies could delve into understanding how e-commerce firms across diverse markets and countries have been impacted by the COVID-19 pandemic and the strategies implemented to navigate these challenges.

Examining the aftermath of the COVID-19 pandemic in relation to businesses is crucial. Researchers can investigate the long-term effects, adaptations, and resilience strategies implemented by businesses throughout the pandemic. This holistic approach will contribute to a comprehensive understanding of the varied impacts and responses within the business landscape.

Conflict of interest

The authors declare no conflicting interest in the conduct of the study.

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