Investigating accounting software adoption and process efficiency: Accounting professionals' perception as a mediator

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Abstract

This study used the Technology Acceptance Model (TAM) to explore the mediating role of accounting professionals' perceptions in the relationship between adopting accounting software and accounting process efficiency. Through a judgmental sampling technique, 275 professional accountants from 57 SHS in the Central Region of Ghana were selected for analysis. Confirmatory factor analysis, path analysis, and bootstrapping methods were employed to analyze the collected data. The findings revealed a positive and significant impact of adopting accounting software on both accounting process efficiency and accountants' perceptions regarding its usage. Importantly, it was discovered that the perception of accounting professionals significantly partially mediates the relationship between the adoption of accounting software and accounting process efficiency. To enhance the effectiveness of accounting software adoption and improve overall organizational performance, it is recommended that accountants actively engage in the software adoption process to address their concerns and foster positive attitudes.

1. Introduction

The utilization of accounting software has witnessed a steady rise across various industries in recent years, offering firms advantages such as streamlined processes, heightened accuracy, and enhanced efficiency in financial management [1]. This adoption of accounting software holds particular promise for educational institutions like senior high schools (SHS), where effective financial administration is crucial for ensuring transparency, accountability, and optimal resource allocation [2].

Efficient financial management plays a pivotal role in the effective functioning of SHS, ensuring fiscal accountability, resource maximization, and ultimately facilitating high-quality education [3]. Given the frequent constraints on financial resources and the pressing need for accountability, SHS must establish robust financial management strategies to achieve its educational objectives while ensuring financial sustainability [4].

SHS bears the responsibility of managing public funds allocated for educational purposes, necessitating efficient and transparent utilization of these resources to support educational endeavours [4]. By implementing effective financial management practices, SHS can uphold compliance with legal and regulatory obligations, including financial reporting standards and government mandates, fostering accountability and integrity in their financial operations [5].

Transparent financial management practices foster trust and confidence among stakeholders, including students, parents, faculty, and the community, as SHS demonstrate accountability and openness in financial decision-making through accurate and readily accessible financial records [6]. Accounting procedures such as financial reporting and internal controls enable SHS to monitor and record financial transactions, identify inconsistencies or irregularities, and take corrective measures to prevent fraud or mismanagement of funds [7].

Traditionally, educational institutions in Ghana relied on manual ledger systems to document financial transactions, involving paper-based ledgers for manual tracking of income, expenses, and other financial activities [8]. However, these manual systems are labor-intensive and prone to human errors, necessitating meticulous record-keeping and manual calculations. While spreadsheets like Microsoft Excel are commonly used for financial management in educational institutions, they pose challenges such as susceptibility to errors during data entry and limited integration with other systems [9].

Educational institutions often rely on traditional, paper-based methods for tasks like invoice processing, purchase orders, and reimbursement claims, leading to inefficiencies and delays [10]. Additionally, conventional budgeting and forecasting practices involve the manual assembly of budget proposals and lengthy approval processes, resulting in inflexible budgets that lack adaptability to changing conditions.

In recent years, educational institutions have increasingly embraced digital transformation, including the adoption of specialized accounting software tailored to the unique needs of the education sector [11]. These accounting software platforms offer features such as automated data input, instant financial reporting, budget monitoring, and integration with other administrative systems. The accessibility, scalability, and cost-effectiveness of cloud-based accounting software solutions have further fuelled their adoption, enabling educational institutions to securely access financial data from any location with an internet connection, thus eliminating the need for on-site infrastructure [12]. By streamlining repetitive financial processes such as invoice generation, expense monitoring, and account reconciliation, accounting software minimizes the time and labour required for manual operations, optimizing efficiency and reducing errors [13].

Contemporary accounting software has evolved to offer sophisticated reporting and analytical features, empowering educational institutions to gain insights into their financial performance, identify patterns, and make data-driven decisions to optimize resource allocation [12]. The significance of accounting software in educational institutions cannot be overstated, as it serves as a cornerstone in enhancing efficiency, accuracy, and transparency in financial management processes. Accounting software acts as a powerful tool, aiding institutions in navigating the complexities of financial reporting requirements, budget constraints, and the need for informed decision-making, ultimately optimizing financial operations and facilitating informed choices [14].

By providing stakeholders such as administrators, board members, and regulatory authorities with immediate access to financial information and reports, accounting software fosters transparency and accountability [15]. Robust examination records, usage restrictions, and security measures ensure data accuracy and privacy, thereby bolstering trust and confidence in financial reporting processes [16]. Interactive dashboards, customizable reports, and data exploration capabilities empower stakeholders to gain comprehensive insights into financial performance, monitor key metrics closely, and track progress towards organizational objectives, facilitating informed decision-making and strategic planning [17].

Despite the growing importance of accounting software in educational institutions, the mediating role of accounting professionals' perceptions in the relationship between accounting software adoption and accounting process efficiency remains underexplored, particularly in the context of the introduction of free SHS education in Ghana. To ensure accountability within Ghana's free SHS system, all accountants underwent training to use new accounting software supporting the intervention [18]. However, studies have yet to examine how the adoption of accounting software in support of the free SHS intervention impacts process efficiency and accountants' perceptions of its usage. While existing research has explored various aspects of technology adoption and accounting practices [19-21], none have specifically focused on the impact of accounting software adoption due to the free SHS intervention on process efficiency, highlighting a significant gap in the literature.

Against this backdrop, understanding the impact of accounting software adoption on accounting process efficiency following the implementation of free SHS in Ghana is imperative. Leveraging the Technology Acceptance Model (TAM), which posits that perceived ease of use and usefulness are critical determinants of users' attitudes and intentions towards technology adoption [22], this study seeks to investigate the nuanced dynamics underlying the adoption of accounting

software and its influence on accounting process efficiency, with a specific focus on the mediating role played by accounting professionals' perceptions.

This study contributes to the literature by utilizing the TAM framework to examine the impact of accounting software adoption on process efficiency within Ghanaian SHS. Additionally, it explores the impact of accounting software adoption on the perceptions of accounting professionals in these institutions, shedding light on how these perceptions influence accounting process efficiency. Furthermore, by investigating the mediating role of accounting professionals' perceptions in the relationship between accounting software adoption and process efficiency, this study offers valuable insights into the interplay between technology adoption and organizational processes within educational institutions.

SHS stands to benefit significantly from enhanced efficiency, accuracy, and transparency in financial management processes facilitated by accounting software adoption. By leveraging accounting software, these institutions can optimize resource allocation, effectively monitor expenses, and ensure compliance with regulatory obligations, thereby advancing their educational objectives. Moreover, proficiency in accounting software equips accounting professionals with valuable skills and competencies in digital financial management solutions, enhancing their employability and value to employers while keeping them abreast of industry developments. Additionally, the data-driven insights generated by accounting software aid policymakers in making informed decisions regarding school funding, resource allocation, and regulatory oversight, ultimately leading to more effective and responsive educational policies aligned with the needs and preferences of SHS and their stakeholders.

2. Literature Review

2.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) suggests that an individual's inclination to utilize technology is affected by their perception of its usefulness (the degree to which technology improves job performance) and simplicity of use (the level of effort necessary to use the technology). TAM, or Technology Acceptance Model, helps elucidate how the beliefs of accounting professionals regarding the usefulness and simplicity of use of accounting software influence the relationship between software adoption and process efficiency. The TAM offers valuable insights into the various elements that influence the adoption of technology and how it subsequently affects the operations within a business.

2.2. Accounting Software

Accounting software, a specialized category of software, serves as a vital tool for businesses in documenting, managing, and presenting financial transactions and information [23]. Leveraging automation, it performs a myriad of accounting tasks including bookkeeping, invoicing, payroll processing, financial reporting, and tax compliance, thereby streamlining financial management operations and enhancing efficiency, accuracy, and transparency [24]. Typical features of accounting software encompass general ledger administration, management of accounts payable and receivable, budgeting, and forecasting capabilities. Moreover, it offers expertise in financial reporting and analysis, inventory management, payroll processing, tax management, bank reconciliation, audit trail, and compliance tracking.

Accounting software can be deployed as either on-premises software installed on local servers or desktop computers, or as cloud-based software hosted on remote servers accessed via the Internet. Cloud-based solutions offer advantages such as easy adaptability to changing needs, remote accessibility, and automated upgrades, while on-premises software provides greater data control and customization options [25].

SHS, particularly those with adequate financial resources, are increasingly investing in accounting software to modernize their financial management practices and enhance operational efficiency. The feasibility of utilizing cloud-based accounting software solutions in these institutions is influenced by factors such as reliable internet connectivity and IT infrastructure [26]. Adequate training and support for accounting personnel are essential for the effective implementation and utilization of accounting software, prompting schools to consider allocating resources to training programs aimed at enhancing staff proficiency.

The adoption of accounting software in SHS is often driven by the imperative to comply with government regulations and reporting requirements, ensuring accurate and timely financial reporting and tax compliance. Perceived benefits such as improved efficiency, accuracy, transparency, and decision-making further motivate adoption [27]. By streamlining repetitive accounting tasks and minimizing the need for manual labor, accounting software optimizes time utilization for accounting personnel [28]. Automation and integrated validation checks reduce the occurrence of errors and inconsistencies in financial data, enhancing the reliability of financial reporting while ensuring compliance with accounting standards and regulations [29].

Facilitating immediate access to financial data and reports, accounting software promotes transparency and accountability in financial management [30]. Administrators, board members, and regulatory agencies can access accurate and timely financial information, fostering trust and confidence in the school's financial management practices. Armed with precise and timely financial information, senior high school administrators can make well-informed decisions regarding resource allocation, budgeting, and strategic planning [4]. The data-driven insights generated by accounting software enable evidence-based decision-making, ultimately enhancing financial performance and outcomes.

While there may be initial expenses associated with the adoption of accounting software, SHS stands to achieve significant cost savings in the long run through reduced personnel costs, enhanced efficiency, and improved financial management practices [31].

2.3. Accounting Process Efficiency

Accounting process efficiency refers to an organization's ability to achieve its objectives using minimal time, resources, and effort while maximizing output or value [32]. Organizational effectiveness, on the other hand, gauges how efficiently an organization utilizes its resources to attain desired outcomes and deliver value to its stakeholders. Efficient processes are characterized by seamless workflows, minimal inefficiencies, optimal resource allocation, and timely task completion.

Accounting software plays a pivotal role in enhancing process efficiency by streamlining repetitive and labor-intensive tasks such as data input, transaction processing, and report generation [28]. Through automation, accounting software reduces manual labor, minimizes errors, and accelerates the completion of routine accounting processes. Moreover, accounting software provides tools for establishing and managing workflows, facilitating the smooth flow of information and activities across different stages of the accounting process. By standardizing and streamlining procedures, accounting software enhances process execution effectiveness, ensuring consistency and reducing bottlenecks [33].

Immediate access to financial data and reports is another key benefit of accounting software, eliminating the need for manual data collection and consolidation [34]. This empowers stakeholders to make well-informed decisions rapidly, respond promptly to changing circumstances, and implement necessary corrective actions, thereby enhancing overall operational efficiency. Furthermore, many accounting software solutions offer integration functionalities with other organizational systems such as enterprise resource planning (ERP), customer relationship management (CRM), and procurement systems. This integration facilitates seamless data transfer between different systems, reducing the need for redundant data entry, improving data accuracy, and enhancing process efficiency across the organization [35].

In addition to facilitating data access and integration, accounting software offers advanced reporting and financial analysis capabilities [36]. Users can leverage pre-designed reporting templates, customizable dashboards, and analytical tools to analyze financial performance, identify trends, and make informed decisions to optimize operational efficiency. Moreover, accounting software supports compliance with regulatory requirements, accounting standards, and internal controls by enforcing established procedures, maintaining audit trails, and providing documentation for financial transactions. By promoting adherence to compliance standards, accounting software enhances process efficiency and mitigates the risk of non-compliance penalties or audit findings [37].

2.4. Perception of Accounting Professionals on Accounting Software

The perspectives and perceptions of accounting professionals regarding software adoption in accounting processes can vary due to factors such as individual traits, organizational context, and the specific attributes and capabilities of the software itself. Accountants often weigh the potential benefits of software utilization, such as improved efficiency, accuracy, and productivity in accounting tasks [38]. According to Boina et al. [39] individuals may view software as a tool to streamline processes, automate repetitive tasks, and access real-time financial information, leading to better decision-making and enhanced organizational performance.

The perceived ease of use of accounting software significantly influences professionals' attitudes toward adoption. When evaluating software usability, accounting professionals consider factors such as user interface design, navigation, and intuitiveness [40]. Software that is perceived as intuitive and easy to learn is more likely to be embraced by accounting professionals. Adequate training and support play a crucial role in shaping professionals' perceptions of software deployment. Comprehensive training and ongoing assistance from IT professionals or software vendors can enhance professionals' confidence and proficiency in software usage [41]. Conversely, a lack of training and support may hinder acceptance and lead to resistance.

Accounting experts also assess software's interoperability and integration capabilities with existing accounting systems and processes. Software that seamlessly integrates with other systems, such as ERP or CRM, is considered more valuable and likely to be adopted [42]. Integration facilitates smooth data transfer, reduces duplication, and enhances process efficiency. Accounting professionals may have concerns about software adoption, including risks related to data security, system downtime, and challenges during the transition period [43]. Concerns about data accuracy, privacy protection, and compliance with regulations may also contribute to doubts or opposition to implementing new software solutions.

The influence of organizational culture and leadership support on accounting professionals' attitudes toward software adoption is significant [44]. A culture that promotes innovation, embraces change, and fosters continuous improvement cultivates a positive attitude toward adopting new technology. Obtaining approval and support from leadership is crucial for the success of software initiatives, as it helps secure acceptance and overcome resistance. Accounting professionals' attitudes toward software adoption may also be shaped by their past experiences with software implementation projects and feedback from colleagues or peers [45]. Positive experiences or success stories from other departments or organizations may encourage professionals to embrace software implementation, while negative anecdotes or feedback may provoke skepticism or opposition.

2.5. Hypothesis Development

The conceptual framework of this study is depicted in Figure 1, showing all the relationship and their hypotheses.
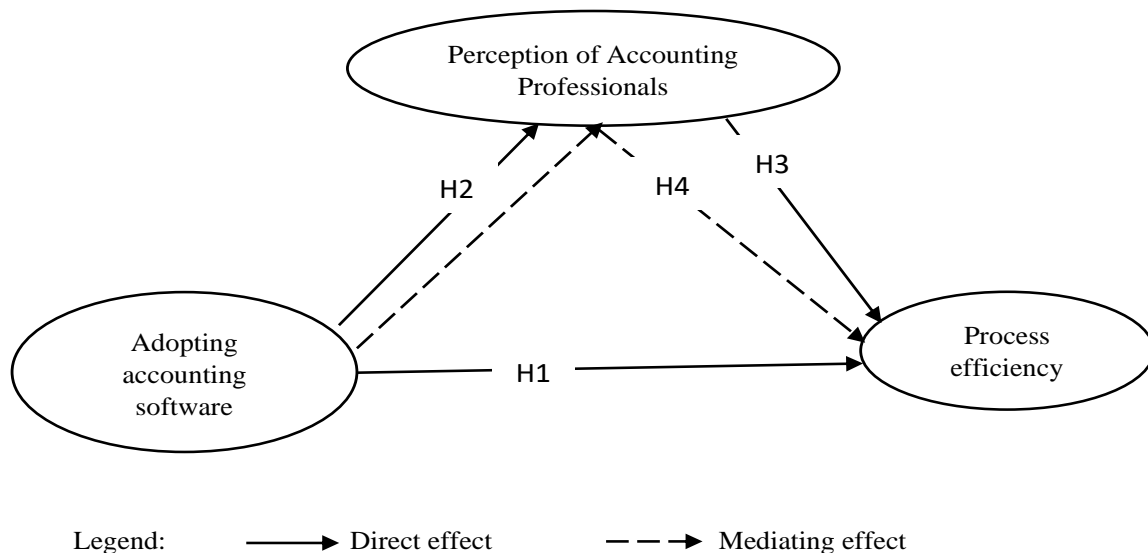
Figure 1.
Research model.

2.5.1. Enhancing Accounting Process Efficiency through Software Adoption

Implementing accounting software simplifies processes, facilitates immediate data retrieval, enhances precision, fosters effective communication and collaboration, and optimizes resource allocation, all contributing to heightened operational efficiency within firms [30]. By automating repetitive tasks such as data entry, transaction processing, and report generation, accounting software streamlines workflows and reduces the time and effort required to perform these functions. Standardizing procedures and eliminating manual tasks further enhances overall process efficiency, ensuring consistency and effectiveness in executing accounting functions [46].

Accounting software enables accounting professionals to access current financial information promptly and generate real-time reports [47]. Immediate access to up-to-date financial data empowers decision-makers to make informed choices swiftly, adapt to changing circumstances promptly, and proactively address issues, resulting in enhanced operational effectiveness. Utilizing automated processes, accounting software mitigates the risk of errors and inaccuracies by minimizing manual data entry and human intervention [48]. Built-in validation checks and error detection methods ensure the precision and reliability of data, effectively preventing conflicts or inconsistencies in financial reporting and analysis, thereby improving overall process efficiency [49].

Facilitating communication and collaboration among accounting professionals, accounting software provides a centralized platform for exchanging financial data, documents, and reports. Collaborative features such as shared access, commenting, and version control facilitate efficient teamwork within accounting teams, allowing seamless information exchange and task coordination, thus enhancing process efficiency and promoting effective collaboration. Additionally, accounting software offers valuable insights into financial facts, trends, and performance metrics, enabling informed decision-making and strategic resource allocation [50]. Analyzing key performance indicators and financial data enables businesses to identify areas for improvement, allocate resources efficiently, and prioritize activities aligned with organizational objectives, optimizing resource allocation and improving process efficiency.

In a study by Nguyen et al. [21], the impact of accounting regulatory changes on the utilization of the accounting information system (AIS) and its effect on the performance of the accounting process was examined. Through a questionnaire survey involving 250 accountants from 36 nations adopting IFRS as their accounting standards, the study found that perceived system restrictiveness, IT professional support, and accountants' self-efficacy significantly impact faithfulness of appropriation (FOA). However, the perceived effectiveness of constraints on IT use does not significantly impact FOA. Similarly, in research conducted by Fadzilah [51], the influence of accounting software on the operational effectiveness of Malaysian companies was explored. Involving 78 participants, including accountants and employees utilizing accounting software in their professional roles, the study concluded that both efficiency and user-friendliness significantly impact business performance. Based on these discussions, the study proposes that:

H₁: Adopting accounting software significantly influences process efficiency.

2.5.2. Impact of Adopting Accounting Software on the Perception of Accounting Professionals

The impact of implementing accounting software on the perception of accounting professionals can yield both favorable and unfavorable consequences, contingent upon factors such as the software's features and functionalities, the organizational setting, and individuals' experiences and attitudes towards adopting technology. Accounting software has the potential to enhance efficiency by automating repetitive tasks, optimizing workflows, and reducing manual labor, which accounting professionals are likely to view positively if they observe time savings, improved productivity, and enhanced ease of work completion [52].

Furthermore, accounting software enhances the precision and reliability of financial data by minimizing inaccuracies, reducing the need for human data input, and offering integrated validation checks. Professionals are likely to perceive software adoption favorably if they witness reduced errors, discrepancies, or inconsistencies in financial reporting and data analysis [53]. Additionally, accounting software provides immediate access to up-to-date financial information and reports, empowering professionals to make prompt and well-informed decisions. They are likely to view software adoption positively if they value having access to current financial data, insights, and analytics to enhance decision-making and strategic planning [54].

Moreover, accounting software promotes collaboration and communication among accounting professionals and stakeholders by enabling them to view financial data together, utilize collaborative reporting tools, and access integrated communication capabilities. Professionals are likely to perceive software adoption positively if they observe enhanced teamwork, communication, and coordination in accounting operations [55]. Furthermore, implementing accounting software can allow accounting professionals to advance their professional growth and boost their skills through participation in training programs, obtaining certifications, and gaining hands-on experience with the software, thereby increasing their job prospects and expanding their technical knowledge.

However, despite these potential advantages, implementing accounting software can also present challenges and encounter opposition from accounting professionals. Resistance may arise due to concerns about the complexity of the program, potential risks to job stability, or resistance to deviating from conventional accounting methods [56]. Accounting professionals may develop a negative perception of software adoption if they face difficulties in acquiring necessary skills, adjusting to new software, or perceive disruptions to established workflows or procedures [57]. The level of support from the organization and endorsement from leadership can significantly shape the attitudes of accounting professionals towards software adoption. Effective training, support, and communication from management can mitigate resistance and promote a favourable perception of software adoption among professionals [58].

In a study by Al Wael et al. [59] determinants of artificial intelligence adoption in Kuwait's public accounting sector, specifically focusing on the accounting profession, were examined. Data from a sample of 393 proficient accounting professionals revealed that organizational culture, regulatory support, perceived utility, and ease of use directly contribute to the positive adoption of AI. Additionally, perceived usefulness and ease of use indirectly contribute to adoption through accounting profit and behavioral intention. Furthermore, Damerji and Salimi [19] investigated the impact of perceived simplicity of use and perceived utility on the connection between accounting students' level of technology readiness and their desire to use artificial intelligence (AI), showing that the level of preparedness for technology significantly impacts the acceptance and implementation of technology. Based on these discussions, the study proposes that:

H_2: *Adopting accounting software significantly influences the perception of accounting professionals.*

2.5.3. Impact of Accounting Professionals' Perception on Accounting Process Efficiency

The impact of how accounting professionals are seen on the effectiveness of the accounting process is vital for adequately overseeing accounting operations in firms. The attitude of accounting professionals towards using new technology, such as accounting software, can substantially influence the efficiency of processes [60]. Favorable dispositions towards technology adoption might increase acceptance and utilization of software products that simplify accounting operations, improving productivity.

The impression of accounting professionals regarding the usability of accounting software and other technological tools can influence their inclination to integrate these tools into their work process [61]. Software viewed as easy to use and instinctive may be more readily accepted, resulting in enhanced operational effectiveness. The attitude of accounting professionals regarding the significance of automation in accounting procedures directly affects their inclination to use technology solutions [62]. Individuals who view automation as advantageous for decreasing physical labour, lowering mistakes, and boosting precision are more inclined to endorse endeavours focused on augmenting operational effectiveness through technology.

The proficiency and confidence of accounting professionals in using accounting software might be influenced by their opinion of the sufficiency of training and support provided [19]. Professionals can enhance their ability to utilize software efficiently and improve process efficiency with sufficient training and continuous assistance. Accounting specialists' assessment of the precision and dependability of data produced by accounting software is vital for guaranteeing operational effectiveness [46]. Confidence in the precision of financial data empowers professionals to make well-informed decisions rapidly, enhancing workflow management efficiency.

The view of accounting professionals on aligning accounting software with company goals and objectives significantly impacts their dedication to using these tools to accomplish desired results. Professionals who view software adoption as a factor contributing to a business's success are more inclined to actively participate in optimizing process efficiency [63]. The impression of changes resulting from using new technology in the accounting field can be influenced by implementing effective change management methods and communication practices. Transparent communication regarding the justification for software adoption, its advantages, and the anticipated enhancement in process efficiency helps mitigate apprehensions and cultivate favorable perceptions among experts. Based on these discussions, the study proposes that:

H_3: *The perception of accounting professionals significantly influences accounting process efficiency.*

2.5.4. Mediating role of Accounting Professionals' Perception in the Relationship between Accounting Software Adoption and Process Efficiency

Implementing accounting software represents a significant organizational decision aimed at streamlining accounting procedures and maximizing overall efficiency [64]. This software has the potential to revolutionize traditional accounting methods and boost firm productivity by automating tedious tasks, optimizing workflows, and facilitating real-time access to financial data [65]. Central to this dynamic is the perception of accounting professionals, which plays a pivotal role in mediating the relationship between software adoption and process efficiency. Their attitudes, beliefs, and interpretations significantly influence the effectiveness of software implementation and utilization, shaping the extent to which software adoption translates into tangible efficiency improvements.

Positive perceptions among accountants towards technology adoption markedly impact their willingness to embrace new software tools [66]. Accounting professionals who view software adoption as beneficial are more likely to actively engage with the technology and explore its functionalities to enhance accounting operations. Building trust and reliance on the system necessitates a high degree of confidence in the accuracy and reliability of data produced by accounting software. The perception of data accuracy among accounting professionals profoundly influences their inclination to rely on software-generated information for decision-making, thereby enhancing process efficiency [67].

The alignment of accounting software with organizational objectives and professionals' motivation to leverage its capabilities for efficiency improvements is crucially linked [68]. Accounting professionals are more motivated to invest time and effort in optimizing the potential of software to enhance accounting procedures when they perceive its adoption as instrumental in achieving organizational performance and strategic goals. Consequently, the efficiency of the accounting process is shaped by both the adoption of software and the perception of professionals. Professionals' perceptions serve as a mediating factor between software adoption and process efficiency, with their attitudes, beliefs, and interpretations playing a pivotal role in determining the extent to which software implementation enhances efficiency in the accounting function [69].

H_4: *The perception of accounting professionals significantly mediates the relationship between adopting accounting software and accounting process efficiency.*

3. Methodology

3.1. Research Design

The study employed a cross-sectional analytical research design, which involves collecting and analyzing data from a population or a representative subset at a single point in time [61]. This design is well-suited for identifying associations and patterns between variables without manipulating the study environment. In this study, a cross-sectional analytical approach allows for assessing relationships among the study variables as they exist contemporaneously [70, 71]. It also enables the researcher to draw meaningful insights from a snapshot of current practices and attitudes, supporting informed conclusions relevant to the observed timeframe.

3.2. Target Population and Sample

The population under study comprised accountants from SHS in the central region of Ghana. The introduction of free SHS education by the Ghanaian government represents a significant policy intervention aimed at expanding access to education and enhancing educational outcomes for Ghanaian students [72]. Ensuring the effective implementation and management of this policy, including the proper utilization of accounting software to support financial management processes within SHS institutions, is crucial. As part of the implementation of the free SHS policy, all SHS accountants were trained to use accounting software, highlighting the government's commitment to equipping accounting professionals with the necessary skills and tools for effective financial resource management and accountability.

The Central Region of Ghana hosts numerous SHSs, including those in urban and peri-urban areas, making it a representative sample for capturing the diversity of experiences and challenges in implementing the free SHS policy across different regional settings. Focusing on SHS accountants in the Central Region enables the study to generate insights and recommendations that can inform policy decisions, improve financial management practices, and enhance the overall effectiveness of the free SHS program, contributing to ongoing efforts to strengthen educational governance and accountability in Ghana.

3.3. Sample Technique

Data collection involved selecting accountants trained in accounting software usage from various Senior High Schools (SHS) in the Central Region of Ghana using a judgmental sampling technique. Questionnaires were distributed through online platforms such as WhatsApp groups, personal WhatsApp lines, and email addresses. A high response rate of 96.49% was achieved, with 275 out of 285 accountants completing the questionnaires.

3.4. Measurement and Scale

Questionnaires on accounting software adoption were adapted from Adhikari et al. [73] and Ivancevich et al. [74], focusing on factors such as the rate of software implementation, integration of software features, user proficiency, and software utilization in different accounting tasks. Questions on process efficiency and the perception of accounting software were sourced from Warren et al. [75] and Mauricette et al. [76], respectively. A Likert scale with five-point rating scales ranging from strongly agreed (5) to strongly disagreed (1) was used for respondents to rate each question and was adopted from Obeng et al. [77].

3.5. Statistical Tool for Data Analysis

The statistical tool employed to analyze the data was the AMOS software 20, which focused on Covariance-Based Structural Equation Modeling (CB-SEM). The CB-SEM focused on three methods: confirmatory factor analysis (CFA) to obtain standardized loadings, average variance extracted (AVE), and maximum shared variance (MSV); path analysis to determine direct effects; and mediating analysis using bootstrapping with a sample size of 5000 and a confidence interval of 95% to determine indirect effects [78, 79]. These analyses provided realistic findings and contributed valuable insights to the literature.

Table 1.
Model fitness assessment.

Fit indices	Recommended value	Obtained value
CMIN/ df	3-5	2.434
GFI	>0.90	0.902
CFI	>0.90	0.951
TLI	>0.90	0.933
SRMR	<0.08	0.045
RMSEA	<0.08	0.033

Note: Goodness of fit index (GFI), Tucker-Lewis index (TLI), Comparative fit index (CFI), Root mean square error estimation (RMSEA), Standardized root mean square residual (SRMR).

4. Data Analysis

Table 1 presents the results of the model fitness assessment, which was conducted using six methods. The first method employed was the minimum discrepancy function divided by degrees of freedom (CMIN/df). According to Chamroonsawasdi et al. [80] and Giles et al. [81] CMIN/df values falling within the range of 3 to 5 are considered satisfactory and indicative of a well-fitting model. With a result of 2.434, the CMIN/df ratio meets this criterion, indicating good model fitness.

The second set of criteria used for assessing the model's fitness included the Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Goodness of Fit Index (GFI). As suggested by Sahoo [82] and Fang, et al. [83] values for TLI, CFI, and GFI above 0.90 are indicative of adequate model fitness. The obtained values for TLI, CFI, and GFI all exceed 0.90, further confirming the satisfactory fitness of the model.

The third assessment criteria used were the Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA). As recommended by Pavlov et al. [84], Dirzyte et al. [85] and Obeng et al. [86] SRMR and RMSEA values below 0.080 are indicative of good model fitness. The results obtained for SRMR and RMSEA are below the threshold of 0.08, providing additional evidence of the model's fitness. All six methods employed to assess the model's fitness yielded results that met the predefined thresholds, collectively indicating a satisfactory level of fitness for the model.

Table 2.
Convergent validity, normality tests and reliability.

Construct (dimension)	Item	Min	Max	Standardized loadings	Skewness	Kurtosis	CR	CA	AVE	MSV
Rate of software implementation	RSI1	1	5	0.683	-1.018	1.329	0.826	0.822	0.544	0.365
	RSI2	1	5	0.748	-1.084	1.079				
	RSI3	1	5	0.808	-0.886	1.026				
	RSI4	1	5	0.704	-1.344	1.796				
Integration of software features	ISF1	1	5	0.836	-1.156	1.808	0.865	0.864	0.618	0.365
	ISF2	1	5	0.870	-1.250	1.520				
	ISF3	1	5	0.724	-0.979	0.699				
	ISF4	1	5	0.701	-0.915	0.146				
User proficiency with the software	USP1	1	5	0.821	-0.817	0.136	0.888	0.886	0.666	0.648
	USP2	1	5	0.857	-0.611	-0.231				
	USP3	1	5	0.825	-1.238	1.744				
	USP4	1	5	0.758	-0.556	0.002				
Software utilization in different accounting tasks	SOU1	1	5	0.709	-0.674	0.462	0.886	0.879	0.660	0.648
	SOU2	1	5	0.862	-1.012	1.111				
	SOU3	1	5	0.844	-1.403	1.185				
	SOU4	1	5	0.827	-1.280	1.087				
Perception	PER1	1	5	0.824	-1.135	1.084	0.898	0.899	0.639	0.469
	PER2	1	5	0.816	-1.019	1.075				
	PER3	1	5	0.732	-0.899	-0.682				
	PER4	1	5	0.787	-0.841	-0.658				
	PER5	1	5	0.833	-0.849	-0.465				
Process efficiency	ACE1	1	5	0.668	-0.931	-0.405	0.901	0.894	0.646	0.601
	ACE2	1	5	0.796	-0.544	-1.141				
	ACE3	1	5	0.853	-0.674	-0.705				
	ACE4	1	5	0.877	-0.741	-0.609				
	ACE5	1	5	0.809	-.387	-1.260				

Table 2 presents the results of normality tests, convergent validity, and reliability assessments. Skewness and kurtosis were utilized to evaluate the normal distribution of the datasets. Skewness measures the asymmetry of a distribution, while kurtosis quantifies the tails' deviation from a normal distribution [87]. Assessing normality using these metrics enhances the rigour, precision, and reliability of statistical analysis, thereby facilitating well-informed decisions in both research and practical contexts. As per Demir [88] and Wulandari et al. [89], skewness and kurtosis results falling within the range of ± 1.96 provide strong evidence of normal distribution adherence. The obtained skewness and kurtosis results for all questionnaire items fall within this range, indicating high assurance of dataset normality and justifying parametric analysis.

Convergent validity was evaluated using standardized loadings, AVE, and MSV. Assessing convergent validity aims to determine the extent to which multiple measurements consistently provide reliable information about the construct under study. Demonstrating convergent validity enhances confidence in the research findings. When multiple measures converge to support the same result or hypothesis, researchers gain greater assurance that their findings accurately reflect the underlying phenomenon rather than merely reflecting measurement artifacts. As suggested by Safdari et al. [90], Piotrowski et al. [91] and Asare et al. [92], standardized loadings above 0.50, AVE above 0.50, and MSV lower than AVE indicate satisfactory convergent validity. The results for standardized loadings, AVE, and MSV all meet these criteria, indicating a high level of convergent validity among the constructs. The standardized loading results are presented in Figure 2 (measurement model).

Reliability of the constructs was assessed using composite reliability and Cronbach's alpha. Evaluating reliability is crucial to ensure the accuracy and credibility of the measurement tools used in the study [93, 94]. By assessing construct reliability, we determined the extent to which the measures yield consistent and stable outcomes over time and across different samples. High reliability indicates trustworthy measures that consistently yield reliable outcomes, thereby enhancing the credibility of the research findings [95]. Reliability assessments with values exceeding 0.70 for composite reliability and Cronbach's alpha indicate high reliability, while lower values suggest lower reliability [96-98]. The obtained composite reliability and Cronbach's alpha values for the constructs exceed 0.70, indicating high reliability [99, 100].
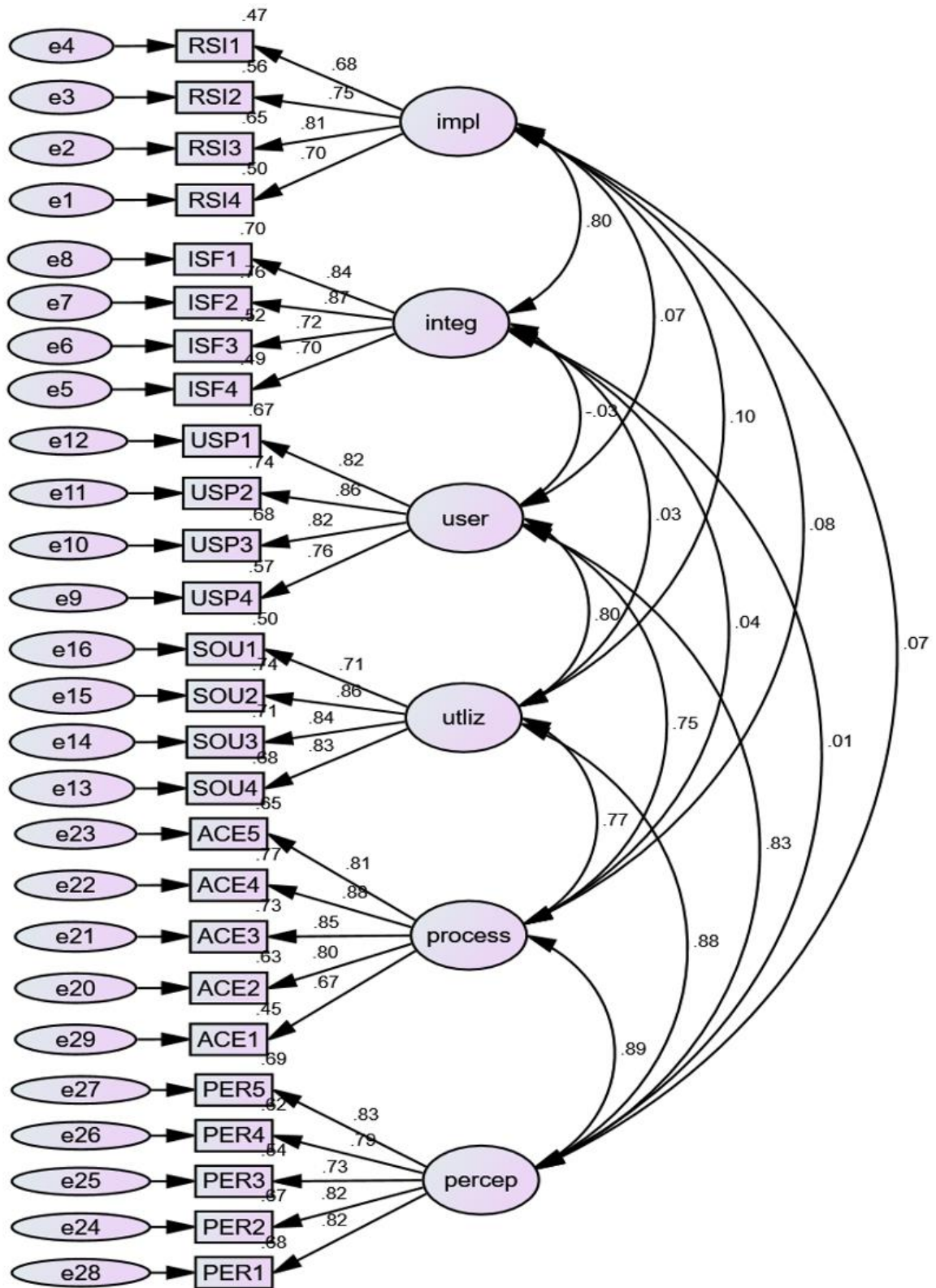
Figure 2.
Measurement model.

Table 3.
Discriminant validity.

	Integration	Utilization	User proficiency	Implementation
Integration	**0.786**			
Utilization	0.026	**0.813**		
User proficiency	0.033	0.805	**0.816**	
Implementation	0.604	0.097	0.067	**0.737**

Table 3 presents the results of discriminant validity assessed using the Fornell-Larcker criterion. This criterion compares the square root of the AVE for each construct with the correlations between constructs. According to the Fornell-Larcker criterion, the square root of the AVE for each construct should exceed the correlations between that construct and all other constructs in the model [86].

The results indicate that the AVE of each construct surpasses the correlations with other constructs. For instance, the AVE for integration of software features (0.786) exceeds the correlation values for software utilization in different accounting tasks (0.026), user proficiency with the software (0.033), and rate of software implementation (0.604). This outcome demonstrates that the constructs exhibit discriminant validity, signifying that each construct is distinct from others in the model and measures a unique aspect of the underlying phenomenon.

Table 4.
Path analysis (direct effect).

Relationships	Hypothesis	B	Std. Error	t-test	Beta	Sig.	Decision
Process <--- adoption	H1	0.150 ***	0.041	3.333	0.101	0.000	Supported
Perception <--- adoption	H2	1.411 ***	0.102	13.802	0.961	0.000	Supported
Process <--- perception	H3	0.804 ***	0.331	2.430	0.793	0.000	Supported
R-squared (perception)	0.243						
R-squared (process)	0.691						
Unstandardized Coefficients (B), Standardized Coefficients (Beta)							

Note: *** p<.01, ** p<.05, * p<.1.

Table 4 presents the direct effect results carried out using the path analysis. Adopting accounting software had a positive and significant relationship with accounting process efficiency ($\beta = 0.150$, t = 3.333, P < 0.01), aligning with hypothesis H1, and this was confirmed. Adoption of accounting software had a positive and significant relationship with the perception of accounting professionals on the use of accounting software ($\beta = 1.411$, t = 13.802, P < 0.01), aligning with Hypothesis 2, and it was confirmed. The perception of accounting professionals on using accounting software had a positive and significant relationship with accounting process efficiency ($\beta = 0.804$, t = 2.430, P < 0.01), aligning with hypothesis 3, and it was confirmed. The results are presented in Figure 3 (structural model).
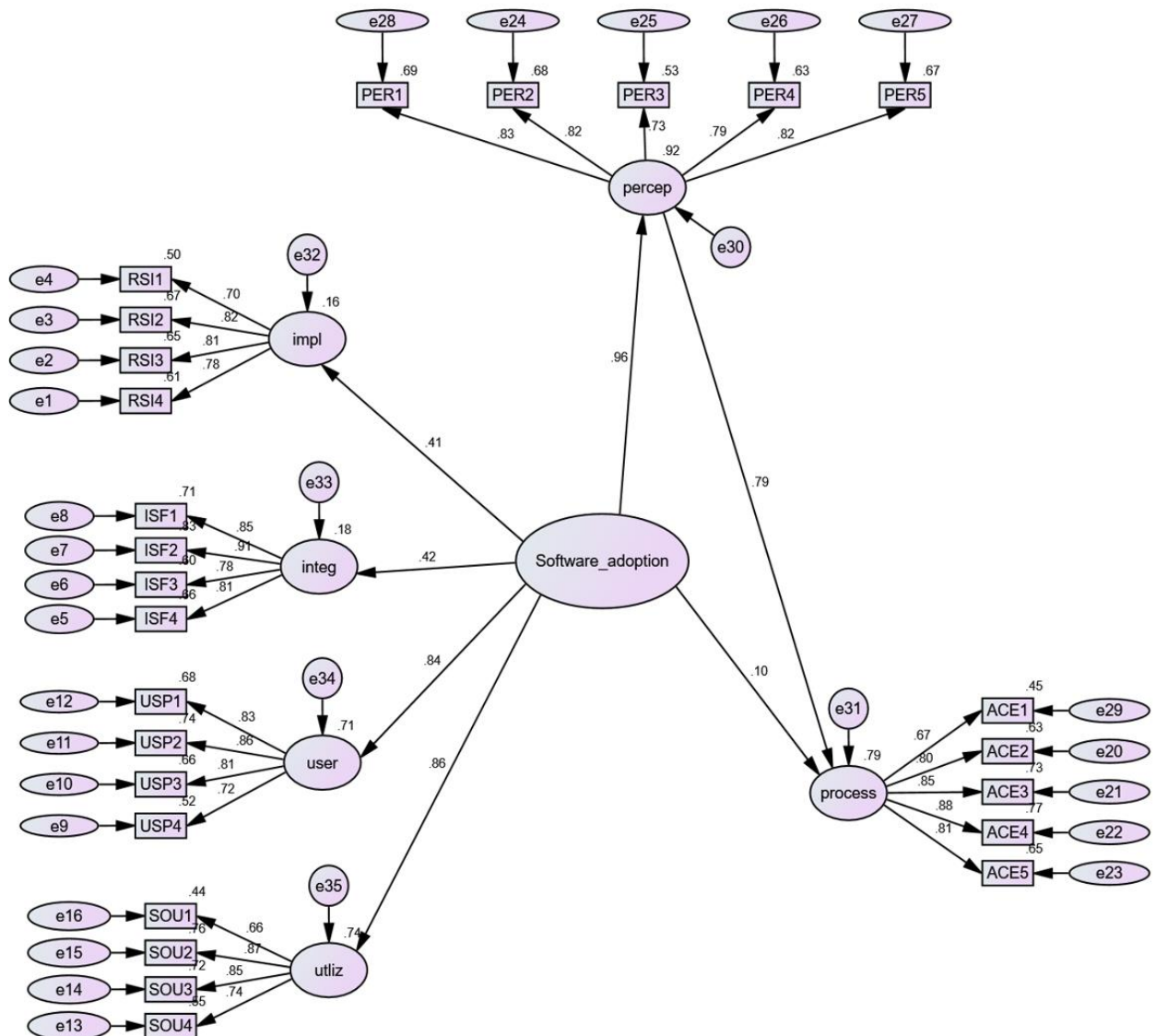
Figure 3.
Structural model.

Table 5.
Mediating analysis (Indirect effect).

Relationship	B	Std. Error	t-test	Beta	Confidence interval		Sig.	Conclusion
					Lower bounds	Upper bounds		
Adoption → perception → process	0.472 ***	0.068	6.941	0.381	0.341	0.605	0.000	Partial mediation
Unstandardized Coefficients (B), Standardized Coefficients (Beta), Confidence interval of 95% and bootstrap sample of 5000.								

Note: *** p<.01, ** p<.05, * p<.1.

Table 5 presents the results of the indirect effect analysis conducted using the bootstrapping method. The perception of accounting professionals partially mediates the relationship between the adoption of accounting software and accounting process efficiency (β = 0.472, t = 6.941, P < 0.01). These results aligned with hypothesis H4, and it was confirmed. The partial mediation resulted from the significant relationship between the adoption of accounting software and accounting process efficiency.

5. Discussion of the Findings

Firstly, it was found that adopting accounting software to support the free SHS intervention by the accountant had a positive and significant relationship with process efficiency. This finding is consistent with studies by Nguyen et al. [21], Lutfi et al. [101] and Hla and Teru [102]. Accounting software automates human operations, such as data input, reconciliation, and reporting, to make financial management duties more efficient in SHS institutions. Implementing this automated system

decreases the time and energy needed to carry out regular accounting tasks, enhancing the effectiveness of financial resource management [28].

Accounting software incorporates inherent validation checks and error detection methods, mitigating the likelihood of errors and inconsistencies in financial data. The program enhances decision-making and operational efficiency in SHS institutions by guaranteeing the precision and dependability of financial data [102]. Accounting software facilitates accountants' real-time access to financial data, enabling prompt monitoring and analysis of financial performance. Accessing real-time information enables proactive decision-making and allocation of resources, resulting in more efficient financial management procedures [103]. Accounting software ensures the standardization of accounting processes and procedures across SHS institutions, fostering consistency and uniformity in financial reporting and analysis. Standardization streamlines workflow management and facilitates communication and collaboration among accounting experts, enhancing process efficiency [104].

Secondly, the study found a positive and significant relationship between adopting accounting software and the perception of the accountant on the use of the accounting software implemented, aligning with the study by Jackson and Allen [60]. Contemporary accounting software is built explicitly with interfaces that are easy for users to understand and intuitive features, facilitating accountants in efficiently navigating and utilizing its capabilities. The software's intuitive interface improves the entire user experience, resulting in higher positive evaluations among accountants regarding its ease of use and efficacy [40].

Several accounting software systems have customization features that enable accountants to personalize the software according to their requirements and preferences. Accountants like the ability to customize the software to align with their workflow and requirements, enhancing their favorable opinion of it, Maruschak [105]. Comprehensive training and continuous support during the software implementation process are essential in influencing accountants' perspectives of the program. Thorough training programs and prompt support services assist accountants in overcoming initial difficulties and successfully adapting to the software, as stated by Romney et al. [106]. This ultimately results in more favourable opinions towards the software's adoption and utilization. Accountants are more likely to have a positive perception of the deployment of accounting software when it is in line with the strategic aims and objectives of the firm. Accountants perceive software as a helpful instrument that contributes to the success of an organization when it helps meet financial management objectives, such as enhancing accuracy, decreasing expenses, or improving compliance [107].

Thirdly, we discovered a positive and significant relationship between the perception of accounting software usage by the accountants and process efficiency. The finding aligned with the study's discoveries by Lanlan et al. [61] and Al-Hattami [108]. Accountants who positively perceive accounting software and believe in its utility are more inclined to use and fully integrate it into their everyday work. The increased usage and adoption of the software resulted in a higher understanding of its functionalities, leading to a more efficient and effective application of its features for streamlining accounting operations [109].

Accountants with a favourable view of using accounting software tend to incorporate the program more extensively into their work processes [60]. Accountants who recognize the software's value are more likely to integrate it effortlessly into their work routines, resulting in smoother and more effective execution of accounting activities. Accountants can make more informed judgments swiftly when they have favourable impressions of using accounting software [110]. By utilizing the software's precise and current financial data, accountants can enhance their information analysis, detect patterns or trends, and make strategic decisions that enhance process efficiency and organizational performance.

Accounting software improves accountability and transparency in financial management by offering a detailed record of transactions and operations [111]. Accountants' perception of software reliability and trustworthiness positively influences their adherence to established protocols and procedures, enhancing openness and accountability in financial reporting and management. Accounting software usage is commonly linked to increased efficiency in accounting operations, leading to positive opinions. Accountants who perceive the software as easy to use, instinctive, and efficient are more inclined to utilize its features to enhance the efficiency of their work processes, minimize mistakes made manually, and accelerate the completion of tasks, ultimately resulting in enhanced process efficiency [112].

Lastly, the study found that the perception of accounting professionals significantly partially mediates the relationship between adopting accounting software and accounting process efficiency. The viewpoints of accounting professionals regarding accounting software significantly impact their attitudes and actions towards its adoption and utilization [113]. Favorable attitudes, such as perceiving the software as easy to use, efficient, and advantageous, might enhance the level of involvement and acceptance among accounting professionals. Consequently, they are more inclined to use the program, enhancing operational efficiency.

Accounting professionals who positively perceive accounting software are more motivated and committed to using its capabilities to improve process efficiency [114]. Their optimistic dispositions towards the program motivate them to dedicate time and effort to acquire proficiency in its usage and seamlessly incorporate it into their everyday work processes. The strong drive and dedication result in measurable enhancements in operational effectiveness. The attitudes of accounting professionals regarding accounting software significantly impact their overall user experience and satisfaction with the product. The pleasure of professionals is enhanced by positive perceptions of the program, which is perceived as user-friendly, dependable, and advantageous [115]. This sense of contentment promotes ongoing utilization and involvement with the software, enhancing operational effectiveness.

How accounting professionals perceive accounting software can affect organizational communication and collaboration. Favourable perceptions facilitate transparent communication and the dissemination of knowledge among experts as they discuss exemplary methodologies, advice, and understandings about software utilization [116]. The collaborative

environment fosters collective problem-solving and innovation, improving the organization's process efficiency. The adoption of organizational change related to the implementation of accounting software is influenced by the perceptions of accounting professionals towards it, Jackson and Allen [60]. A positive outlook helps professionals adapt more smoothly and decreases their resistance to change as they acknowledge the program's advantages and understand its potential to enhance process efficiency. Implementing change management strategies targeting professionals' views can result in successful software adoption and enhanced process efficiency [117].

6. Conclusion

This study aimed to assess the mediating role of accounting professionals' perceptions in the relationship between the adoption of accounting software and accounting process efficiency. The study focused on accountants working at SHS in the central region of Ghana. With the implementation of free SHS by the Ghanaian government, accountants were trained on accounting software to support the intervention, which they utilized in their daily tasks. A total of 275 accountants from 57 SHS in the central region were selected for the study using a judgmental sampling technique. Data were collected via a Google form.

The findings revealed a positive impact of adopting accounting software on both process efficiency and accountants' perceptions of its usage. Specifically, there was a significant positive relationship between accountants' perceptions of accounting software usage and process efficiency. Additionally, the study identified that the perception of accounting professionals played a significant partial mediating role in the relationship between adopting accounting software and accounting process efficiency.

7. Managerial Implications

The correlation between the use of accounting software and improvements in process efficiency, as well as accountant perception, underscores the practical benefits of investing in such software for SHS institutions. Decision-makers must prioritize allocating resources towards acquiring, implementing, and training staff on accounting software to support the Free SHS initiative in Ghana. Given that accountants' perceptions partially mediate the relationship between adopting accounting software and accounting process efficiency, providing comprehensive training and ongoing support is crucial.

Training efforts should not only focus on the technical aspects of software usage but also emphasize the software's advantages and value proposition to enhance accountants' understanding and promote efficient utilization. SHS institutions should foster a culture of user involvement by actively seeking input from accountants regarding the software's usability, functionality, and effectiveness.

Establishing feedback systems and consistent communication channels can help identify areas for improvement and address concerns highlighted by accountants, thereby enhancing their perception and overall satisfaction with the software. Managers should implement mechanisms for ongoing monitoring and assessment of software utilization and operational procedures in SHS institutions. Periodic evaluations can facilitate progress monitoring, identify areas of success, and pinpoint areas needing improvement, enabling managers to optimize resource allocation and maximize outcomes. Encouraging collaboration and information exchange among accounting specialists can leverage the positive link between the perception of software use and process effectiveness.

Promoting the sharing of best practices and collaborating on software-related activities fosters a culture of continuous improvement and innovation within the organization. SHS institutions should ensure that accounting software adoption aligns with the organization's overall goals and objectives, particularly those related to the Free SHS intervention. Managers must clearly define software implementation goals, highlighting their alignment with the organization's mission, values, and strategic priorities. Aligning software utilization with business objectives enhances its perceived value among accounting professionals, resulting in increased engagement and efficiency.

To optimize the efficiency of the accounting process, managers should employ effective change management strategies, considering the partial mediation effect of accountant perception on the relationship between software adoption and process efficiency. This may involve open communication, educational initiatives, and addressing objections to changes. Proactive management of the change process minimizes obstacles and maximizes the benefits of software installation for enhancing process efficiency.

8. Theoretical Implications

The study's findings provide empirical support for the TAM, which posits that users' perceptions significantly influence their decision to adopt and use technology. The correlation between the implementation of accounting software and improvements in process efficiency, along with accountants' perceptions, aligns with TAM's assertion that perceived usefulness and ease of use are critical determinants of technology acceptance. This study contributes to the mediation literature by demonstrating that the perspective of accounting professionals partially mediates the relationship between the adoption of accounting software and the efficiency of accounting processes. This suggests that the impact of implementing accounting software on process efficiency is not solely direct but also influenced by accounting professionals' beliefs regarding the software's usability, effectiveness, and benefits.

Furthermore, the study's results can be interpreted through the lens of Organizational Learning Theory, emphasizing the importance of knowledge generation, dissemination, and application in enhancing organizational efficiency and performance. This study underscores the role of organizational learning processes in shaping technology adoption outcomes, particularly regarding accounting software. It highlights the significance of accountant perception as a mediator in the link between adopting accounting software and improving process efficiency.

According to the social exchange hypothesis, individuals engage in relationships and behaviors based on their perceived costs and benefits. In the context of this study, accountants' favorable perception of accounting software usage may reflect their assessment of the benefits derived from using the software, such as increased efficiency and effectiveness in performing accounting tasks, relative to the costs associated with acquiring and mastering the technology.

9. Limitations and the Direction for Future Studies

This study was conducted exclusively in the SHS located in the central region of Ghana, which represents one of the country's 16 regions. This narrow focus resulted in a limitation due to the smaller sample size. To address this limitation, future research should consider including SHS from the remaining 15 regions of Ghana, which would lead to a more diverse and representative sample size.

Additionally, another limitation arose from the incomplete retrieval of administered questionnaires via Google Forms, resulting in a reduction in the sample size from 285 to 275. To mitigate this limitation, future studies should implement strategies to ensure the full retrieval of administered questionnaires, thereby preserving the integrity and robustness of the data.

Furthermore, future research endeavors could expand beyond the education sector and include accounting professionals from various industries such as manufacturing, tourism, hospitality, and services. By exploring the same study across different industry sectors, researchers can gain a more comprehensive understanding of the impact of accounting software adoption on process efficiency and accountant perception across diverse organizational contexts. This approach would enrich the generalizability and applicability of the study's findings to a broader range of professional settings.

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