
ROLE OF DIGITAL LITERACY IN ENHANCING SUSTAINABILITY PRACTICES IN SMALL BUSINESSES IN GOMBE STATE

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Abstract

Sustainability practices, comprising economic, social, and environmental dimensions, are crucial for the long-term viability and success of small businesses. However, small businesses often face challenges in adopting these practices due to limited resources, inadequate knowledge, and lack of expertise. This study examines the relationship between digital literacy and sustainability practices in small businesses. This study proposes and tests a conceptual model that integrates digital skills, online information search, and digital communication as key dimensions of digital literacy. This study adopted a quantitative survey research design and Yamane's (1967) sample size determination formula was used to arrive at 264. Data were collected using questionnaire and data gathered from the field were analyzed using multiple regression via SPSS version 23.0. Findings from the study revealed that digital skills, online information search, and digital communication have a positive and significant relationship with small business sustainability in Gombe State. The study concludes that digital literacy promotes sustainability in small businesses and therefore recommends that small businesses prioritize digital literacy among their staff to ensure sustainable practices. Future research should conduct a similar study outside the scope of this study to explore cross-cultural variations and develop targeted interventions to enhance digital literacy in small businesses.

Keywords: Digital Literacy, Sustainability Practices, Small Businesses, Conceptual Model, Technology Acceptance Model (TAM), Resource-Based View (RBV)

1. Introduction

Sustainability practices have become a cornerstone for businesses of all sizes, from micro to large enterprises, and the usefulness of businesses in both developed and developing nations cannot be overestimated. Therefore, it is very important to know what sustainability practices is all about. Sustainability practices involve the adoption of eco-friendly and socially responsible practices that reduce environmental harm, promote long-term economic growth and development, and conserve resources. The concept of sustainability was introduced in 1972, and it majorly focused on meeting immediate needs, especially the needs of vulnerable and poor, while safeguarding the environment to meet future needs (Borim-de-Souza, 2015).

According to Permana *et al.* (2024), sustainability practices involve three interrelated dimensions namely: the economic, social, and environmental. These dimensions are interconnected, that is, a change in one can impact the others. Different studies have expressed different opinions on sustainability. Some argue that sustainability reduces environmental damage, while some suggest that it enhances social wealth and health (Assoratgoon & Kantabutra, 2023; Raihan, 2024). Sustainable development practices can serve as a proactive strategy for organizations to achieve their long-term goals by balancing economic, social, and environmental success. Additionally, sustainability practices can contribute to community well-being and serve as a form of corporate social responsibility (Thiele, 2024). These practices aim to balance and maintain the well-being of both current and future generations.

Small businesses play a significant role in promoting sustainability due to their substantial contributions to the economy of both developed and developing nations. They have the potential to bring about positive changes (Ibrahim & Aduah, 2025). However, small businesses often face challenges in implementing sustainability practices. Permana *et al.* (2024) identify limited resources, inadequate knowledge, lack of expertise, and limited access to useful information as key obstacles. Digital literacy has the potential to address some of these challenges. Digital literacy is defined as the ability to effectively use digital technologies to access, evaluate, and create useful information. Wardana *et al.* (2023) argue that digital literacy can help small businesses improve operations, connect with stakeholders and customers, and access valuable business information and resources.

Similarly, Ojobo *et al.* (2023) describe digital literacy as the process of evaluating, creating, and locating content via information technology and communication. They emphasize that digital literacy is an essential skill for navigating today's information technology network. Digital literacy is a versatile skill that is applicable across all business functions and departments. For instance, sales managers use customer relationship management (CRM) systems to build customer relationships, while production managers use interconnected communication software to monitor production efficiency and share information. Digital literacy in business refers to the ability of employees to efficiently and comfortably use technological tools in their work. Suryani *et al.* (2022) highlight that digital literacy enhances internet access for timely decision-making and information availability.

Specific aspects of digital literacy can directly contribute to sustainability practices. For example, digital skills, which involve using digital tools and software to manage business operations, can help small businesses reduce waste and increase operational efficiency, leading to sustainability (Ojobo *et al.*, 2023). Online information search, which involves searching,

evaluating, and using online data for decision-making, is another way digital literacy can support sustainability practices. Additionally, digital communication, which involves using digital technology to interact with customers, prospects, suppliers, and other stakeholders, is crucial for sustainability practices. Drew (2022) notes that digital communication facilitates knowledge sharing, collaboration, and stakeholder engagement, all of which support sustainability practices. Given the potential relationship between digital literacy and sustainability practices, this study aims to examine this connection. The findings are expected to provide valuable understanding into the role of digital literacy in promoting sustainability in small businesses and offer strategies to help small businesses adopt sustainable practices.

1.1. Statement of the Problem

Small businesses play important role in economic development and growth, they contribute to creation of job opportunities, innovation, and community well-being. However, their ability to adopt and implement sustainability practices is usually disturbed by many challenges. These challenges include inadequate resources, lack of business know-how, lack of expertise, and limited access to useful business information (Permana *et al.*, 2024; Ukko *et al.*, 2022; Ibrahim & Ibrahim, 2022). Sustainability practices, which consist of eco-friendly and socially responsible actions, are essential for long-term economic success, social well-being, and environmental conservation (Borim-de-Souza, 2015; Permana *et al.*, 2024). Previous studies highlighted the importance of sustainability practices in small businesses (Ukko *et al.*, 2022; Ibrahim & Ibrahim, 2022) and the role of digital literacy in increasing business operations (Ojobo *et al.*, 2023; Irfan *et al.*, 2022; Cetindamar-Kozanoglu & Abedin, 2021).

Digital literacy is the ability to effectively use digital technologies to access, evaluate, and create useful information. Over time, digital literacy has proved to be efficient in improving operational efficiency, facilitating stakeholder engagement, and enhancing decision-making (Wardana *et al.*, 2023; Suryani *et al.*, 2022). Despite these efforts, the specific relationship between digital literacy and sustainability practices in small businesses remains poorly understood. This knowledge gap limits the development of targeted strategies to help small businesses overcome their challenges and embrace sustainable practices. Therefore, understanding this relationship is vital for developing effective interventions that can increase the sustainability practices of small businesses.

Digital literacy consists of many key dimensions that can directly impact small business towards sustainability practices. Firstly, digital skills, which involve the ability to use digital tools and software to manage business operations, can be used to reduce waste and increase operational efficiency (Ojobo *et al.*, 2023). Secondly, online information search, the ability to search, evaluate, and use online data for decision-making, can provide access to valuable resources and knowledge (Drew, 2022). Finally, digital communication, the ability to use digital technology to communicate to customers, prospects, suppliers, and other stakeholders, can also be used to facilitate stakeholder engagement and collaboration (Drew, 2022). Given the potential of these dimensions in providing solutions to the problems facing small businesses while implementing sustainability practices, this study examines how digital literacy enhances sustainability practices in small businesses in Gombe State, Northeast Nigeria. Specifically, this study investigates how digital skills influences sustainability practices; analyze how online information search provide small businesses with the necessary knowledge and resources for

sustainable practices; and examine how digital communication facilitate stakeholder engagements and collaborations among small businesses in Gombe State.

1.2. Objectives of the Study

The general objective of this study is to examine the role of digital literacy in enhancing sustainability practices in small businesses. While its specific objectives are to:

- i. Examine the effect of digital skills on small business sustainability in Gombe State
- ii. Examine the effect of online information search on small business sustainability in Gombe State.
- iii. Investigate the effect of digital communication on small business sustainability in Gombe State

1.3. Research Questions

In order to achieve the objectives of this study, the following questions were investigated:

- i. Does digital skills has effect on small business sustainability in Gombe State?
- ii. Does online information search has effect on small business sustainability in Gombe State?
- iii. Does digital communication has effect on small business sustainability in Gombe State?

2. Literature Review

2.1. Theoretical Framework

This study is underpinned by two theories: the Technology Acceptance Model (TAM) and the Resource-Based View (RBV) Theory. These theories provide a framework for understanding how digital literacy facilitate the adoption and implementation of sustainability practices in small businesses.

2.1.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that there are two key factors influencing technology adoption: the perceived usefulness and perceived ease of use. According to Davis (1989), perceived usefulness refers to the degree to which an individual believes that using a particular technology will enhance their job performance, while perceived ease of use refers to the degree to which an individual believes that using a particular technology will be free of effort and easy to use. These two factors are vital in determining the intention to use and the specific (actual) use of technology. While TAM has been widely adopted and validated in various studies, it has also been criticized for being limited in scope and for lack of consideration for external factors that may influence technology adoption (Legris *et al.*, 2003). Despite these criticisms, TAM remains an effective and influential model in the field of technology adoption, because it provides understanding on the factors that motivate technology acceptance. In this study, TAM lens helps in understanding how small businesses in Gombe State believes using digital tools will enhance their business performance and the degree to which they believe using digital tools will easy.

2.1.2. Resource-Based View (RBV)

The Resource-Based View (RBV), developed by Barney (1991), suggests that businesses that possess valuable, rare, non-substitutable, and inimitable resources can achieve sustainable competitive advantage. According to Barney (1991), these resources can be tangible like physical assets or intangible like knowledge, skills, and capabilities. This theory explains the importance of internal resources and capabilities in increasing organizational performance and sustainability. However, RBV has been criticized for its focus on internal capacity and resources and for overlooking external factors and environmental influences (Peteraf & Barney, 2003). Despite these identified limitations, RBV provides a valuable framework for understanding how organizations leverage their resources to achieve strategic objectives. In this study, RBV theory helps in understanding how small business uses their intangible assets like skills, knowledge and capability through digital literacy to ensure sustainable practices.

2.1.3. Combination of TAM and RBV

The integration of TAM and RBV provides a conceptual framework for this study. TAM helps explain how small business perceive and adopt digital technologies, while RBV highlights the role of digital literacy as a valuable intangible resource that enhance business capabilities and support sustainable practices. By combining these two theories, this study was able to examine how small business adopt and implement sustainable practices effectively through digital literacy. The dimensions of digital literacy such as: digital skills, online information search, and digital communication, can enhance perceived usefulness and ease of use of digital technologies, thereby facilitating their adoption. Furthermore, digital literacy can also serve as a valuable, rare, non-substitutable, and inimitable resource, that align with the principles of RBV. The dual perspective from TAM and RBV gives more understanding on how digital literacy can enhance sustainability practices in small businesses.

2.2. Conceptual Review

2.2.1. Concept of Digital Literacy

Digital literacy consists of the skills and competencies required to effectively use digital technologies for various purposes. These skills and competencies include communication skills, problem-solving skills, and information management skills. Despite the recognized importance of digital literacy, there is no global accepted definition of the concept. Because scholars and institutions often develop their definitions to suit specific their specific purpose (Soyoof *et al.*, 2024). For instance, Soyoof *et al.* (2024) define digital literacy as the confident and critical use of digital technologies for communication, problem-solving, and information management, the authors suggest the need for both technical proficiency and critical thinking. Similarly, Alowais *et al.* (2024) describe digital literacy as the knowledge and skills required to use information and communication technologies for evaluating, finding, communicating, and creating information. From this definition, the authors highlight the need for both technical and cognitive abilities to perform efficiently. In this regard, there is need to know the key components required to needed for digital literacy.

According to Soyoof *et al.* (2024), the major components for digital literacy include device access, information acquisition, information evaluation, information interaction, content production and digital risk. Soyoof *et al.* (2024) defined each of the components as follows: device access refers to the ability to use smartphones and interconnect devices, as well as troubleshoot faults in digital devices. Information acquisition is the browsing, searching, and storing digital information via mobile phones or personal computers. Information evaluation is the ability to judge the authenticity and reliability of online information. Information interaction is the ability to engage in online chatting, social interaction, and forwarding information via mobile phones or personal computers. Content production is the capability to independently create and modify text, images, and videos. Lastly, digital risk involves awareness of online risks and measures to protect personal information (Soyoof *et al.*, 2024).

2.2.2. Concept of Online Information Search

Online information search is a vital component of digital literacy, involving the ability to locate, evaluate, and utilize information available on the internet. This skill is essential in the digital age, where vast amounts of information are accessible but vary in quality and relevance (Gupta & Mukherjee, 2025). Effective online information search skills enable individuals or business to navigate the many digital information landscape, by ensuring that they find and use reliable and relevant information for their various purposes (Paramesha *et al.*, 2024). The major measurement components for online information search are searching skills, evaluation skills, and usage skills. Search skills refer to the ability to use search engines effectively and employ advanced search techniques, such as Boolean operators and filters (Aslett *et al.*, 2024). Evaluation skills involve the ability to assess the credibility and reliability of online sources, as well as identify biases and potential misinformation (Aslett *et al.*, 2024). Usage skills are the abilities to apply found information to solve problems or make decisions, and organize and store information for future use.

2.2.3. Concept of Digital Communication

Digital communication refers to the use of digital technologies to interact with others, share information, and collaborate. These interactions, information sharing and collaborations happen across different platforms ranging from email and social media to more advanced collaborative software (Nasidi *et al.*, 2024). Effective digital communication skills are essential for engaging with stakeholders, building relationships, and fostering collaboration in both personal and professional contexts (Brockhaus *et al.*, 2023). The major measuring components of digital communication include technical proficiency, interpersonal skills, and ethical considerations (Brockhaus *et al.*, 2023; Bozhko, 2025). Technical proficiency is the ability to use various digital communication tools like email, social media, and video conferencing, as well as manage digital communication platforms (Ajiva *et al.*, 2024). Interpersonal skills involve the ability to convey messages clearly and effectively, engaging in active listening, and participating in meaningful interactions (Junaedi *et al.*, 2024). Ethical considerations include understanding and adhering to ethical guidelines in digital communication, such as privacy and security, and maintaining professional and respectful interactions online (Marima, 2025).

2.2.4. Concept of Sustainability Practices

Sustainability practices refer to actions and strategies that promote long-term economic success, social well-being, and environmental conservation. According to Zaman *et al.* (2025), these practices are essential for businesses to thrive in the modern economy, where consumers and stakeholders increasingly demand responsible and sustainable operations. Sustainability practices according to Ciuciuc *et al.* (2025) can be categorized into three interrelated dimensions namely, economic, social, and environmental. In Islam's (2025) opinion, the key measuring variables for sustainability practices include economic sustainability, social sustainability, and environmental sustainability.

Economic sustainability involves practices that ensure long-term financial stability and growth, and they are often measured using cost-effectiveness, resource optimization, and innovation (Islam, 2025). Social sustainability includes practices that promote social equity, employee well-being, and community engagement, including measures of employee satisfaction, community impact, and social responsibility (Islam, 2025; Ciuciuc *et al.*, 2025). While the environmental sustainability involves practices that minimize environmental impact and promote resource conservation. Environmental sustainability measures things like energy efficiency, waste reduction, and environmental stewardship (Jindal, 2025).

Recent studies have provided significant insights into the impact of sustainability practices on business performance and societal well-being. For instance, a study by Garcia (2025) examined the impact of sustainability practices on employee well-being and organizational success, finding that companies that adopt sustainability practices experience improved financial performance, enhanced brand reputation, and increased customer loyalty. Another study by Nogueira (2025) introduced the concept of the triple bottom line, emphasizing the importance of balancing economic, social, and environmental factors in business operations. These studies show the importance of sustainability practices in achieving long-term success and fostering positive societal impact.

2.3. Empirical Review

2.3.1. Digital Skills and Sustainability Practices

Studies have shown the importance of digital skills on sustainability practices. For example, a study conducted by Holm (2025) highlighted the importance of digital skills in educational settings, the study found that students with higher levels of digital skills were more effective in locating and using relevant information. Another study conducted by Ibrahim and Aduah (2025) which examined the role of digital literacy in enhancing stakeholder engagement and collaboration in small businesses, found that businesses with higher digital skills had both better customer relationships and more effective teamwork.

Similarly, Tumpa and Naeni (2025) conducted a study and found that digital skills improve stakeholder engagement via integrated and collaborative platforms. According to these studies, digital skills improve transparency and cooperation, lower chances of green-washing and modern slavery, and streamline communication processes. These findings show the vital role of digital skills in both educational and businesses, which highlights its importance for effective digital engagement and information management. Given, this study hypothesized that: H_{01} : *Digital Skill has no significant role on Small Business Sustainability in Gombe State.*

2.3.2. Online Information Search and Sustainability Practices

Empirical studies have provided understanding into the importance of online information search skills. For instance, a study conducted by Haider and Habib (2025) highlighted the importance of search skills in educational settings, the study found that students with higher search skills were more effective in locating and using relevant information. Another study by Ribeiro-Navarrete *et al.* (2021) reveals the role of evaluation skills in ensuring the quality of information used in decision-making processes, the study suggest that evaluation skills are vital for navigating digital information landscape.

Similarly, Orrensalo *et al.* (2022) revealed that digitalization and entrepreneurs' ICT adoption, entrepreneurs and critical literacies, and entrepreneurs' information-seeking behavior do contribute to the development of personal and business sustainability. These studies show the importance of online information search skills in both educational and business growth, which also highlights their role in enhancing information literacy and decision-making capabilities. Given, this study hypothesized that: H_{02} : *Online Information Search has no significant role on Small Business Sustainability in Gombe State.*

2.3.3. Digital Communication and Sustainability Practices

Studies have shown the roles of digital communication skills in many fields. For example, a study conducted by Dorhetso (2025) examined the role of digital communication skills in enhancing stakeholder engagement and collaboration in small businesses. The study found that business with higher digital communication skills had better customer relationships and more effective teamwork. Another study by Jara *et al.* (2015) examined the importance of ethical considerations in digital communication and suggested that business that adhere to ethical guidelines in digital communication are likely to build trust and maintain a positive reputation. These findings show the role of digital communication skills in fostering effective interactions and building strong relationships in both personal and professional environments. Given, this study hypothesized that: H_{03} : *Digital Communication has no significant role on Small Business Sustainability in Gombe State.*

2.4. Conceptual Model/Framework

In this study, digital literacy is the independent variable measured using three dimensions namely: digital skills, online information search, and digital communication. While the dependent variable is sustainability practice. Figure 1 presents the conceptual model/framework of the study.

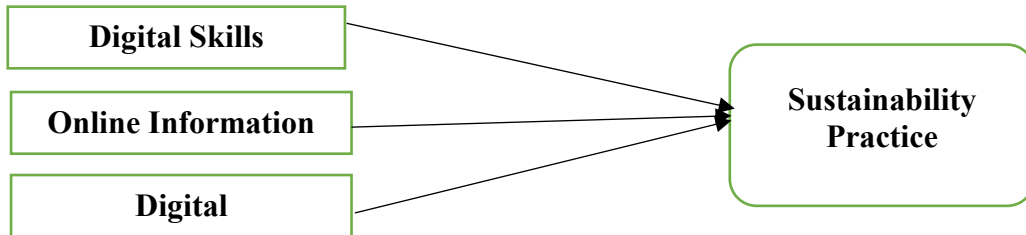


Figure 1: *Conceptual Model*

Source: Developed by the Researcher (2025).

3. Methodology

This study adopted descriptive survey design to investigate the role of digital literacy on small business in Gombe State, Nigeria using primary data source. This study population comprised 779 registered businesses in Gombe State and a sample size of 264 was arrived at via Yamane (1967) sample size determination formula. However, this study added 15% ($264/0.85=311$) of the sample size to the sample to account for non-respond that is often associated to study of this nature. As such, the total questionnaires administrated to the respondents were 311. The study used structured five-points Likert scale questionnaire ("Strongly Disagree" (1) to "Strongly Agree" (5)). Items on digital skills was adapted from Chukwurah *et al.* (2023), items on online information search were adapted from Handaru and Safariningsih (2025), while items on digital communication were adapted from Shahriar and Habibul (2024). The Scales development was variable based and each construct was based on its variable measurements. digital skill has 6 items, online information search has 6 items, and digital communication has 6 items.

Furthermore, the dependent variable, business sustainability practices, was measured using 8 items adapted from Handaru and Safariningsih (2025). Face validity and content validity tests were performed to confirmed the validity of the data collection instrument while its reliability was achieved using Cronbach's Alpha coefficient benchmarked at 0.70 and above via SPSS version 23. Data gathered from the study were Analyzed using multiple regression analysis Below is the study model:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon$$

Where: Y = Small Business Sustainability Practices;

β_0 = Constant Term;

$\beta_1, \beta_2, \beta_3$ and β_4 = Beta coefficients

X1= Digital Skill;

X2= Online Information Search;

X3= Digital Communication;

ε = Error term.

4. Presentation, Analysis of Data and Discussion of Findings

This study used structured questionnaire to gather data from managers or owners who served as respondent. The study administered 311 questionnaires to the respondents, but only 298 (96%) were returned. A quality control process was implemented to verify the accuracy and reliability of the collected data. This process included checks for missing values, outliers, and reliability, as well as assessments of internal consistency using Cronbach's alpha. Additionally, normality tests and multi-collinearity checks were performed to examine the data's distribution normality and variable relationships. A check of the study dataset revealed there is no missing values in the dataset. However, the Mahalanobi's distance test (D2) used for checking potential outliers in this dataset revealed that only 291 cases were within the acceptable range ($p < 0.001$). This indicate there were 7 outliers in the dataset, and they were deleted to ensure the data is complete, reliable, and suitable for further analysis. These overall preliminary checks confirmed the data's integrity, completeness, and fitness for further statistical analysis.

The Cronbach's Alpha test results revealed acceptable thresholds for survey instruments, with the coefficients ranging from 0.643 for digital communication to 0.892 for small business sustainability as presented in Table 1 below. This shows that items in each variable related very well with one another, thereby showing consistency and measure of the same underlying construct. In addition to this, normality testing was performed to confirm whether the study sample was normally distributed. Skewness, kurtosis, and histogram analysis were used to assess the sample normality. The results, presented in Table 2, shows absolute skewness values ≤ 2 and absolute kurtosis values ≤ 4 , this indicates considerable normality.

Table 1:

Cronbach's Alpha Test Results

Variables	No of Items	Cronbach's Alpha
Digital Skills	6	0.734
Online Information Search	6	0.843
Digital Communication	7	0.643
Business Sustainability Practices	8	0.892

Source: Filed Survey (2025).

Table 2:

Skewness and Kurtosis of the Variables

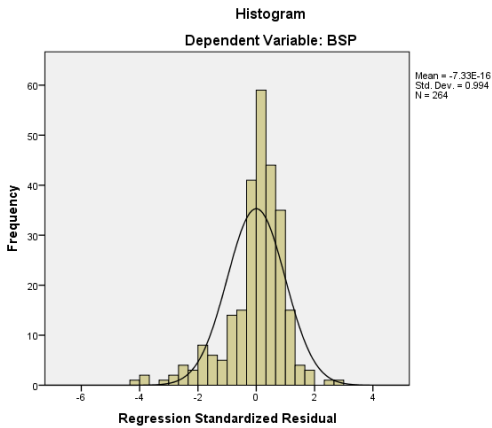
Variable	Skewness	Std. Error	Kurtosis	Std. Error
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Digital Skills	-0.805	.150	.094	.299
Online Information Search	-0.460	.150	.154	.299
Digital Communication	-0.601	.150	.068	.299
Business Sustainability Practices	-0.446	.150	.074	.299

Source: Filed Survey (2025).

Figure 1:

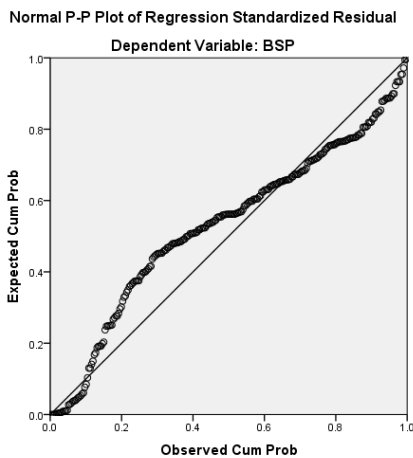
Histogram Showing Normality Test Result



Source: Filed Survey (2025).

Figure 2:

Normal P-P Plot of Regression Standardized Residual



Source: Filed Survey (2025).

4.1. Multiple Regression Tests of Hypotheses

The results of the hypothesis tests, that examine the effect of digital skills, online information search, and digital communication on small business sustainability in Gombe State, are presented in this subsection. The findings are organized into three tables, offering an overview of the study's results.

Table 3:

Model Summary

<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	.632 ^a	.400	.393	.61973

a. Predictors: (Constant), DS, OIS, DC

b. Dependent Variable: Business Sustainability Practices (BSP)

Source: Filed Survey (2025).

The regression model revealed a moderate positive relationship ($R = 0.632$) between the independent variables (DS, OIS, DC) and Business Sustainability Practices, with an R-squared value of 0.400 indicating that about 40% of the variation in Business Sustainability Practices is being explained by Digital Skills, Online Information Search, and Digital Communication. The adjusted *R-squared value of 0.393* provides a similar estimate of the model's explanatory power.

Table 4:

ANOVA Table

<i>Model</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Regression	66.517	3	22.172	57.730	.000 ^b
	Residual	99.858	260	.384		
	Total	166.375	263			

a. Dependent Variable: BSP

b. Predictors: (Constant), DC, DS, OIS

Source: Filed Survey (2025).

The ANOVA results revealed statistically significant relationship between the independent variables and business sustainability practices with $F\ value = 57.730$, and $p\ value < 0.001$. This indicates that digital communication, digital skills, and online information search have a significant impact on small business sustainability practices in Gombe State. This suggests that the regression model provides a reliable and effective explanation of the variation in small business sustainability practices.

Table 5:

Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.157	.312		.505	.614		
	DS	.397	.078	.278	5.105	.000	.780	1.283
	OIS	.385	.061	.367	6.328	.000	.685	1.461
	DC	.143	.054	.144	2.621	.009	.768	1.302

a. Dependent Variable: BSP

Source: Filed Survey (2025).

The regression analysis results indicate that Digital Skills ($\beta = 0.278$, $t = 5.105$, $p < 0.001$), Online Information Search ($\beta = 0.367$, $t = 6.328$, $p < 0.001$), and Digital Communication ($\beta = 0.144$, $t = 2.621$, $p = 0.009$) have significant positive relationships with Business Sustainability Practices. This suggests that enhancements in these digital factors are associated with improvements in business sustainability practices in Gombe State. The findings imply that small businesses in Gombe State leveraging on digital skills, online information search capabilities, and digital communication strategies contribute positively to the sustainability of their business practices.

4.2. Discussions of Findings

This study found a positive and a significant effect between digital skills and business sustainability in Gombe State. This indicates that digital skills bring about sustainable business practices. This finding is consistent with previous studies conducted by Tumpa and Naeni (2025) and Aduah (2025) who found that businesses with higher digital skills had both better customer relationships and more effective teamwork. This finding also proved the relevance of both RBV theory and TAM. TAM suggest using digital tools enhances business performance, and finding of the first hypothesis (H_{01}) aligned with this claim. In addition to that, RBV theory suggest that organization can leverage on valuable, rare, non-substitutable, and inimitable resource to boost the business in order to enjoy competitive advantage. With a positive and significant finding from the first hypothesis, digital skills serve as a valuable, rare, non-substitutable, and inimitable resource, that enhances small business sustainability in Gombe State. The dual perspective from TAM and RBV gives more understanding on how digital skills enhances sustainability practices of small businesses in Gombe State; this also show the relevance of the two theories in understanding the role of digital literacy in small business sustainability practices.

Similarly, this study revealed a positive and a significant effect between online information search and small business sustainability in Gombe State. This suggests that online information search positively affects small business sustainability in Gombe State. This result aligns with the studies conducted by Ribeiro-Navarrete *et al.* (2021), Orrensalo *et al.* (2022), and Haider and Habib (2025), which reported a positive and significant effect between online information search and business sustainability. Finding from this study also aligns with the views of both RBV theory and TAM. The dual perspectives gotten from the application of both RBV theory and TAM gives more explanation on how organization uses their knowledge, rare, and valuable resources (online information search) to enhances sustainability practices of small businesses in Gombe State. This also show the relevance of the two theories in understanding the role of digital literacy in small business sustainability practices.

This study revealed also a positive and a significant effect between digital communication and business sustainability in Gombe State. This indicates that digital communication enhances small business sustainability in Gombe. These findings are consistent with previous studies of Jara *et al.* (2015) and Dorhetso (2025) which found positive and significant effects between digital communication and business sustainability. The positive and a significant finding from the third hypothesis (H_{03}) also show the relevance of RBV theory and TAM in explaining the relationship between digital literacy and small business sustainability practices in Gombe State. The dual perspectives gotten from the application of both RBV theory and TAM gives more explanation on how organization uses their knowledge, rare, and valuable resources (digital communication) to enhances sustainability practices of small businesses in Gombe State.

5. Conclusion, Recommendations and Suggestions for Future Studies

5.1. Conclusion

This study conducted empirical study on the role of digital literacy on small business sustainability in Gombe State. This study findings show that digital skills, online information search, and digital communication have positive and significant effect on business sustainability in Gombe State. These findings aligned with the existing literature and highlight the needs for businesses stakeholders to prioritize digital literacy in all levels of their operations. This will enable them sustain their business economically, perform their social responsibilities, and safe guide their business environment.

5.2. Recommendations

- i To enhance business sustainability practices, small businesses in Gombe State should prioritize developing digital capabilities. This can be achieved through training programs that boost digital skills, encourages online information search, and foster digital Communication channels. Doing this, business can leverage digital factors to improve sustainability practices.
- ii Small business should focus on strengthening their digital presence and leveraging digital tools to support sustainable business practices. This includes adopting digital platforms for stakeholder engagement, enhancing online visibility, and using digital analysis to suggest sustainability decisions.
- iii To capitalize on the positive influence of digital factors, businesses are encouraged to integrate digital strategies into their sustainability plans. This includes investing in digital infrastructure, promoting digital literacy among employees, and using digital channels for sustainability reporting and communication.

5.3. Limitations

This study like other studies have some limitations, firstly, the study scope was only limited to Gombe State businesses, therefore other organizations outside Gombe State were excluded. Secondly, the study only used quantitative research design, which may not be enough to gather comprehensive data on the role of digital literacy on business sustainability. Finally, the study combined all the businesses in Gombe State without separating them to their individual sectors like Agricultural sector, Manufacturing, Services, Restaurants etc. which might provide more understanding on digital literacy and business sustainability.

5.4. Suggestions for Future Studies

- i Future research could expand the geographical scope beyond Gombe State to include other States or regions in Nigeria. this will give room for comparative analyses of the role of digital literacy on small business sustainability in a wider scope.
- ii Future studies could incorporate qualitative approaches (e.g., in-depth interviews, case studies) to gain a deeper understanding on the role of digital literacy on small business sustainability.

- iii. Future study may investigate the relationship between digital literacy and business sustainability within specific industries such as finance, agriculture, or technology, this may provide more understanding on the role of digital literacy on small business sustainability in different sectors.

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