

The mediating effect of digital skills and literacy in the nexus between institutional policies and utilization of social media platforms for research: A PLS-SEM

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ABSTRACT

Social media has become an integral technology for both teachers and students, serving various purposes such as learning, communication, and entertainment. However, its potential for research purposes remains underexplored. This study addresses this gap by investigating how institutional policies influence students' use of social media for research (SMR), mediated by their digital literacy (DL) and digital skills (DS). A cross-sectional survey involving 4,321 final year students was conducted using a validated structured questionnaire for quantitative data collection. Structural equation modelling was employed to analyze the data, revealing that institutional policies significantly enhance students' utilization of SMR. Additionally, these policies have a notable impact on students' DL and DS, which, in turn, facilitate their effective use of SMR purposes. Furthermore, the study finds that DL and DS play a mediating role, positively influencing the relationship between institutional policies and students' utilization of SMR. The implications of these findings are discussed in detail, highlighting the importance of integrating DL initiatives within institutional frameworks to optimize students' academic use of social media.

Keywords: social media, institutional policies, research, digital literacy, digital skills, structural equation modelling

INTRODUCTION

Social media encompasses online platforms and technologies that enable users to generate, share, and engage with content and each other via digital networks. These platforms, including Facebook, Twitter, Instagram, and LinkedIn, facilitate communication, collaboration, and content sharing among users worldwide (Kaplan & Haenlein, 2010). Social media has revolutionized traditional media landscapes by enabling real-time information exchange and democratizing content creation and distribution (Kietzmann et al., 2011). It includes various forms of media, such as text, images, videos, and interactive features, making it a versatile tool for personal, professional, and academic use (Boyd & Ellison, 2007). Additionally, social media holds significant implications for marketing, public relations, and research, offering valuable insights into user behavior and trends (Mangold & Faulds, 2009).

The incorporation of social media into research methodologies signifies a transformative shift in how data is collected, analyzed, and disseminated across various academic disciplines. Social media provides researchers with unparalleled access to a vast array of real-time data and the ability to engage with diverse populations globally. This

accessibility facilitates innovative research approaches that were previously unimaginable, enabling the exploration of social behaviors, public opinions, and network dynamics with unprecedented detail and scope (Sloan & Quan-Haase, 2017). One of the key advantages of utilizing social media in research is the ability to efficiently collect large volumes of data. Social media platforms are rich sources of user-generated content, providing insights into trends, sentiments, and interactions that reflect real-world behaviors and attitudes (Kosinski et al., 2015). This data can be leveraged for various types of research, including qualitative and quantitative studies, longitudinal analyses, and network mapping. Moreover, the dynamic nature of social media allows researchers to conduct real-time analyses, capturing the immediacy of social phenomena as they occur (Bruns & Stieglitz, 2013).

A substantial body of literature has examined students' use of social media in the context of writing (Owan et al., 2023), peer revision (Ofem et al., 2023), and data collection (Petters et al., 2024). According to Putri and Aminatun (2021), students use social media platforms to practice writing research. Gruzdz et al. (2016) explored methodological approaches for analyzing social media through content and social network analysis, finding that social media usage for research can uncover valuable insights such as patterns of interaction and information diffusion within online communities. Other

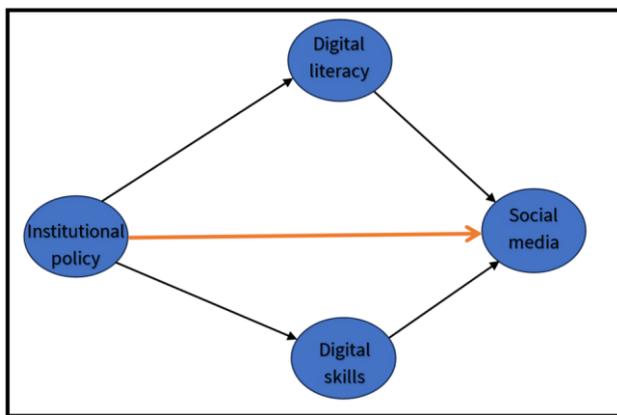


Figure 1. Conceptual framework of the linkage between IP and SMR in the presence of DL and DS (Source: Author's own elaboration)

researchers have found that social media usage in higher education impacts teaching (Sloan & Quan-Haase, 2017), collaborative research, and knowledge sharing. Veletsianos and Kimmons (2013) discovered that social media platforms like Twitter and LinkedIn are potent for professional development and research collaboration. Other studies have indicated that social media is not only useful for teaching and learning but also enhances the capacity to conduct rigorous and responsible research, disseminate information, and track sentiment trends across platforms, contributing to evidence-based research practices (Bruns & Stieglitz, 2013; Ng, 2012). However, the utilization of social media for research (SMR) activities among students remains underexplored in the literature, particularly in the context of this study.

To address this gap, several studies have investigated the feasibility of using social media in research (Arifani & Khaja, 2021). Nwangwa et al. (2014) focused on students' use of SMR. However, this study merely explored the purposes for which social media could be utilized without considering the factors that facilitate this process. It is essential to recognize that while social media can be highly effective for sourcing materials, data collection, and disseminating research findings, the context and influencing factors are crucial. For instance, it remains unclear whether studies have examined the impact of institutional policies on students' use of SMR.

Institutional policies refer to the formal guidelines, rules, and regulations established by educational or research institutions to govern various aspects of their operations, including research activities. These policies are designed to ensure ethical conduct, compliance with legal standards, and the promotion of best practices within the institution (Seaman & Tinti-Kane, 2013). Regarding social media usage for research, institutional policies play a vital role in shaping how these platforms are utilized by providing a framework that supports and regulates their use. Institutional policies ensure that students conduct research with social media while adhering to ethical guidelines (Zimmer & Kinder-Kurlanda, 2017), provide digital literacy (DL) and digital skills (DS) training (Ng, 2012), and offer the technical and logistical support needed to overcome challenges encountered by student researchers using SMR (Gruzd et al., 2016).

The availability of empirical evidence to support these concepts about the role of institutional policies in facilitating the effective use of SMR is unclear. Likewise, to the researchers' knowledge, studies that incorporate DL and DS as mediating

variables in the relationship between institutional policies and social media use for research are rare. Therefore, this study aimed to examine the direct effect of institutional policy (IP) on SMR, the effect of IP on DL, the effect of IP on DS, and the mediating effect of DL in the relationship between IP and SMR, as well as the mediating effect of DS in the relationship between IP and SMR. The conceptual framework of the linkages of these variables is shown in **Figure 1**.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Studies on Social Media Utilization for Research

The use of social media in research presents substantial opportunities for advancing academic inquiry and broadening the reach of scholarly work (van Deursen & van Dijk, 2014). Social media has been utilized for various purposes, some educational and others non-educational. It is used for entertainment, chatting, online communication, sourcing information, and other activities (Owan & Robert, 2019). However, some studies have suggested that most higher education students and staff are not inclined to use social media for educational purposes (Manca & Ranieri, 2016; Owan et al., 2023). Documentary evidence indicates that the primary reasons for using social media among students are sharing pictures, chatting, social contact, and resource sharing (Sharma et al., 2016).

In the academic context, the paradigm shift is that digital tools such as social media are not only used for instruction but also for other academic purposes like assessment, lecturing, and research (Ofem et al., 2024a). Alternatively, others have argued that social media platforms can be effective for disseminating research findings to a large audience (Mason, 2020). However, a significant portion of the literature focuses primarily on social media usage for learning (Manca & Ranieri, 2013; Smutny & Schreiberova, 2020). The non-utilization of social media platforms for research is attributed to several reasons identified by scholars. It is widely noted that concerns about data privacy (Zimmer & Kinder-Kurlanda, 2017), perceived lack of academic credibility (Sloan & Quan-Haase, 2017), insufficient institutional support (Selwyn, 2012), technical concerns (Gruzd et al., 2016), validity and reliability issues (Kaplan & Haenlein, 2010), time constraints (Veletsianos & Kimmons, 2013), and a preference for traditional methods of research (Bryman, 2016) are among these reasons.

Firstly, platforms like Twitter and Facebook provide access to real-time data and insights from diverse perspectives (Kaplan & Haenlein, 2010). This immediacy allows students to stay current with trends and developments in their fields, enhancing the relevance and timeliness of their research. Researchers have extensively explored the use of social media platforms for research purposes across various disciplines. Kaplan and Haenlein (2010) highlight social media's ability to facilitate real-time data collection and its role in enhancing communication and collaboration among researchers.

Boyd and Ellison (2007) provide a foundational definition of social networking sites, outlining their evolution and scholarly significance, and highlighting the unique characteristics of different platforms when used for research, emphasizing the need for methodological rigor. Others have addressed the ethical issues in using social media platforms for research,

individual characteristics as factors in the use of SMR, and the potential of big data techniques, such as data mining and machine learning, to extract valuable insights from large-scale social media datasets, supporting advanced research endeavors across disciplines (runs & Stieglitz, 2013; Gandomi & Haider, 2015; van Deursen & van Dijk, 2014; Williams, 2017). Similarly, other studies found that social media facilitates collaboration and knowledge sharing among students and peers globally, increases the visibility of research studies, attracts potential collaborators, and garners recognition for contributions to their fields (Gruzd et al., 2016; Veletsianos & Kimmons, 2013). However, the context of these studies matters. It is inappropriate to generalize these findings given the diversity in cultural, technological, and infrastructural differences. Such attempts would not provide the proper support that students in the context of this study require. This necessity led to the development of this study and the first hypothesis.

Hypothesis 1. There is significantly low extent of SMR.

Studies on Institutional Policies

Institutional policies refer to the formal guidelines, rules, and regulations established by educational or research institutions to govern various aspects of their operations, including research activities. These policies are designed to ensure ethical conduct, compliance with legal standards, and the promotion of best practices within the institution (Seaman & Tinti-Kane, 2013). Regarding social media usage for research, institutional policies play a crucial role in shaping how these platforms are utilized by providing a framework that supports and regulates their use. The ethical issues surrounding the use of SMR have sparked debate among scholars (Moreno et al., 2013; Zimmer & Kinder-Kurlanda, 2017). However, institutional policies are deemed to promote ethical practices through clear guidelines, digital training opportunities, providing technical and logistical support, encouraging innovative research, and addressing digital divides (Gruzd et al., 2016; Selwyn, 2012; van Deursen & van Dijk, 2014). These policies ensure that researchers can navigate the complexities of social media platforms responsibly and effectively, ultimately contributing to the advancement of scholarly research in the digital age.

Documentary evidence indicates that while institutions are integrating technology into their practices, attention to what students use social media for is not a primary concern (Ng, 2012). In fact, most social media platforms encouraged by institutions are primarily for communication and entertainment, a trend also observed among students. Institutional policies can be very effective in research as they provide rules, resources, and technical assistance that are beneficial to students. Institutional policies are also crucial in promoting DL and DS among students. Programs provided by institutions through seminars, workshops, and additional training for teachers and students expose them to the skills and knowledge required to explore the digital world and utilize the same social media platforms for maximum research productivity (Ng, 2012; Seaman & Tinti-Kane, 2013). Surveys examining institutional policies in the context of social media usage for research are scarce. This scarcity is partly because both students and management do not perceive social media tools as vital platforms for research. This may also account for the limited discussion providing empirical evidence for policy purposes.

It is imperative to conduct this study because institutional policies can help navigate the current research landscapes to integrate all available technologies for students, keeping them abreast of current methodologies and approaches to research. Furthermore, institutional support can provide avenues for students to engage with a wider spectrum of participants, thereby acquiring real-time data and valuable skills relevant to their career paths. Based on this, it is essential to examine the effect of institutional policies from an empirical perspective on social media usage for research among students. Thus, the following hypotheses were developed.

Hypothesis 2. Institutional policies do not directly affect students use of SMR.

Hypothesis 3. Institutional policies do not directly affect students' DL.

Hypothesis 4. Institutional policies do not directly affect students' DS.

Studies on Digital Literacy

DL refers to the ability to effectively navigate, evaluate, and utilize information and communication technologies (ICTs) for various purposes. This encompasses not only technical skills but also critical thinking, ethical considerations, and the capacity to engage meaningfully with digital content (Ng, 2012). It involves both the technical proficiency to use social media tools and an understanding of the ethical considerations and methodological challenges associated with online research (Ng, 2012). Institutional policies are essential in fostering these competencies, providing necessary training and resources to ensure that researchers can responsibly and effectively navigate the complexities of social media data (Seaman & Tinti-Kane, 2013). The effective use of social media in research requires a high level of DL and DS among students and researchers alike.

The significance of DL in the use of SMR cannot be overstated. Firstly, researchers need technical proficiency to navigate the complex interfaces of social media platforms and employ advanced search functionalities to collect relevant data (Bruns & Stieglitz, 2013). Without these skills, accessing and extracting data from social media can be challenging. Secondly, DL is crucial for critically evaluating the quality and credibility of information obtained from social media sources. Social media platforms host vast amounts of user-generated content that varies widely in accuracy and reliability (Kaplan & Haenlein, 2010). Researchers with strong DL and DS are better equipped to assess the validity of data and differentiate between credible information and misinformation or biased content. Furthermore, researchers must understand and adhere to ethical guidelines regarding privacy, consent, and data protection when collecting and using data from social media platforms (Zimmer & Kinder-Kurlanda, 2017). DL enables researchers to navigate these ethical complexities and ensure that their research practices uphold ethical standards and respect user rights. Additionally, DL enhances researchers' capabilities to leverage social media platforms for innovative research methodologies. It enables researchers to apply advanced analytical techniques, such as sentiment analysis, network analysis, and content analysis, to derive meaningful insights from social media data (Gruzd et al., 2016).

Various studies highlight the impact of DL on how students engage with online platforms. Fraillon et al. (2019) found that DL shapes how students interact with these platforms. Martin

and Grudziecki (2006) noted that students' effectiveness in using SMR is influenced by their ability to navigate the digital world. As students develop these competencies, they are better equipped to handle the complexities of online environments and harness social media's potential as a valuable research tool (Nguyen & Alexander, 2020). Consequently, students proficient in DL are adept at discerning credible sources from misinformation or biased content available on social media platforms (Bawden & Robinson, 2016).

While these studies provide useful insights into the relationship between DL and social media usage, they are insufficient to offer a comprehensive empirical basis for decisions that could transform the research landscape. It is imperative to examine the direct and indirect effects of these variables for a better nuanced understanding of the complexities associated with this nexus. Therefore, the following hypotheses were proposed.

Hypothesis 5. DL has no significant direct effect on social media usage for research.

Hypothesis 6. DL do not mediate the nexus between institutional policies and social media usage for research.

Studies on Digital Skills

DS encompass the specific competencies and capabilities that individuals possess to use digital technologies effectively and efficiently. These abilities range from basic tasks such as navigating software interfaces to more advanced capabilities such as programming and data analysis (Eurostat, 2020). DS significantly influence researchers' ability to leverage social media platforms for research purposes. Firstly, proficiency in DS enables researchers to harness the full potential of social media tools and functionalities for data collection and analysis (Gruzd et al., 2016). Researchers with strong DS can utilize advanced search techniques, automated data scraping tools, and analytical software to extract, process, and interpret large volumes of data from social media platforms. Similarly, researchers proficient in DS can apply complex analytical techniques, such as sentiment analysis, network analysis, and machine learning algorithms, to derive meaningful insights from social media data (Bruns & Stieglitz, 2013).

Proficiency in data visualization tools and techniques allows researchers to present their findings in compelling and informative ways, enhancing the impact and clarity of their research outputs (Kaplan & Haenlein, 2010). Visualizations such as charts, graphs, and interactive maps can communicate complex patterns and trends within social media data, making research findings accessible to diverse audiences. Moreover, these skills are vital as they enable researchers to navigate technical challenges associated with social media research, fostering innovation and collaboration in the field (Veletsianos & Kimmons, 2013).

What remains unclear until recently is the relationship between DS and the use of SMR. It is one thing to have DS for sharing information and chatting online, and quite another to use these skills for sourcing literature, collecting data, and sharing findings with a broader audience through platforms like Facebook and Twitter. Despite the widespread use of social media for instruction and entertainment, documentary evidence connecting DS with SMR is scarce. Similarly, studies that integrate DL and DS as mediating variables between institutional policies and social media usage for research are

lacking. This study is imperative to provide a basis for practical and theoretical policy-making that will help researchers leverage existing technologies in their research endeavors. Thus, the following hypotheses were proposed.

Hypothesis 7. DS has no significant direct effect on social media usage for research.

Hypothesis 8. DS do not mediate the nexus between institutional policies and social media usage for research.

METHODS

The study followed a positivist research paradigm that involves a significant amount of quantitative analysis. In this study, a cross-sectional research design was employed to select a total of 4,321 final year students from a total population of 43,210 from higher institutions in the South region of Nigeria. To be eligible for participation in the study, only final year students from private and public universities who are currently assigned supervisors and are engaged in serious studies were included. This was to ensure the inclusion of diverse groups of students and a cohort currently active on social media. Additionally, the students must have used at least an Android phone for the past two years. The sample was selected using stratified sampling techniques. Each institution was classified as a stratum from which students were selected. In order to obtain a representative sample, 10% of the population was selected to allow for greater participation from schools with larger populations. The demographic attributes of the study showed that 62.21% were male ($n = 2,688$) and 37.79% were female ($n = 1,633$). For age, 17.63% were students below 20 years ($n = 762$), 57.19% were between 21-30 years ($n = 2,471$), and 25.18% were above 30 years ($n = 1,088$). In terms of institutions, 67.72% came from universities ($n = 2,926$), 11.99% of polytechnics ($n = 518$), and 20.29% from colleges of education ($n = 877$).

Measures

There are four measures involved in the study: institutional policies, DL, DS, and social media usage for research purposes. The instrument was divided into three sections. Section A was designed by the researchers to elicit demographic attributes of the respondents such as age, gender, and type of institution. These items were placed on a nominal scale and required just one response from the respondents to each item. The responses were scaled in a mutually exclusive manner. This section also included areas where respondents indicated their willingness to participate in the study, ensuring data was obtained only from those who consented. This was achieved by providing a checkbox in the Google Form created for this study. To prevent multiple responses, respondents were required to compulsorily include their emails and phone numbers before their responses could be submitted.

Section B of the scale was designed to elicit information based on the independent and mediating variables. The independent variable, IP, was measured with 8 items, with a sample item being "my school has set clear rules that govern what social media can be used for." DL was measured with six items, with a sample item being "I understand the ethical implications of using digital resources." Similarly, six items were used to measure DS, with a sample item being "I can confidently perform basic computer operations such as opening applications, saving files, and managing folders." The

items in section B were measured on a four-point Likert scale from strongly agree to strongly disagree.

Section C comprised 10 items measuring social media usage for research. The responses were on a four-point rating scale where students were to rate the frequency with which they used social media platforms for research purposes. A sample item for this section includes: "How often do you use social media to access research materials such as e-books, journals, or articles?"

Validity and Reliability Testing

Quantitative validity was assessed using the item content validity index (I-CVI) and the scale content validity index (S-CVI), as recommended by scholars (Yusuf, 2019; Zamanzadeh et al., 2015). The instrument draft was reviewed by five experts in educational technology and psychometrics to evaluate the suitability, precision, and relevance of the items using provided scoring rubrics. These experts were seasoned researchers who had achieved the rank of professor in their fields. A total of 30 items were included in the assessment. The results showed that the I-CVI for all items was above 0.70, and the S-CVI ranged from 0.93 to 0.98 for all constructs. Six items were removed based on the earlier recommendation that items scoring below 0.70 should be discarded. These items were IP4 and IP6 (policy), DL5 (literacy), DS3 (skills), and SMR2 and SMR7. Consequently, a total of 24 items were retained for the study.

Pre-Testing of the Items

Pre-testing was conducted using a group of 10 graduates who had completed their degree program in the 2023 session to evaluate the second draft of 24 items. Feedback on reaction time, clarity, relevance of the items, and scale choices was sought. The outcome revealed general satisfaction with the scale, except for two items related to uncommon features of social media use for research and one item regarding IP on social media use. These items were subsequently removed, resulting in a final draft of 21 items for the study.

Post-Testing of the Items

The second draft of the instrument was converted to an electronic Google Form and sent to 300 final-year students who were not part of the main study. The pilot sample had similar demographic characteristics to the main respondents in terms of age, gender, and institution. The instrument link was sent to the respondents, followed by a reminder after a month. The collected data were cleaned, and the reliability of the instrument was assessed using Cronbach's alpha. The coefficients for the four scales ranged from 0.77 to 0.82, indicating that the instrument has internal consistency and is suitable for the study.

Ethical Considerations

This study is a survey that poses no harm to participants, and according to the Federal Ministry of Health (2007), "ethical clearance can be waived." Nevertheless, in adherence to global best practices, the study protocol was submitted for approval, and ethical clearance was obtained from the Institutional Review Board at Alex Ekwueme Federal University (See IRB/FUNIA/241/0928).

Procedure For Data Collection

Data was collected electronically using a Google Form created by the researchers. A total of 43 research assistants

Table 1. Quality criteria assessment of the constructs underlying the study

Items	α	CR	AVE	EFA	VIF	R ²	F ²
IP	0.880	0.913	0.677				
IP1				0.893	3.051		
IP2				0.856	1.013		
IP3				0.800	2.662		
IP4				0.740	1.192		
IP5				0.819	1.061		
DL	0.956	0.966	0.851			0.011	0.012
DL1				0.915	1.991		
DL2				0.897	2.901		
DL3				0.977	2.132		
DL4				0.955	1.718		
DL5				0.860	2.011		
DS	0.917	0.938	0.753			0.246	0.326
DS1				0.839	2.281		
DS2				0.824	2.321		
DS3				0.827	2.432		
DS4				0.923	1.192		
DS5				0.918	1.821		
SMR	0.896	0.923	0.672			0.514	0.360
SMR1				0.888	2.732		
SMR2				0.866	1.102		
SMR3				0.822	2.766		
SMR4				0.905	2.102		
SMR5				0.867	1.632		
SMR6				0.497	2.092		

from 17 higher institutions were employed. Two research assistants from each institution acted as contacts for the research team and were financially incentivized to support the study. These contacts helped reach various class representatives, who manage their class WhatsApp groups. This outreach was facilitated through student union leaders who provided a comprehensive list of all class representatives suitable for the study. These representatives were then added to a research Telegram group created specifically for the study. All instructions and directives were communicated through this Telegram group. Research assistants were instructed not to share the instrument on any platform that was not student-oriented or with students not currently engaged in their research projects to avoid responses from those outside the study's frame. The administration and collation of responses took approximately seven months (July 2023-January 2024). A total of 4012 responses were downloaded, indicating the number of participants who completed the instrument. However, 134 responses were filtered out due to incompleteness, leaving 3878 valid samples for analysis.

RESULTS

Measurement Model and Quality Assessment Criteria

The model is evaluated to assess the quality of item loadings for each factor. According to the literature, item loadings above 0.70 are preferable (Ofem et al., 2024b). **Table 1** shows that all item loadings exceed 0.70, except for item SMR6. Experts suggest that items below 0.70 can still be retained if the overall construct demonstrates validity and reliability (Hair et al., 2019) and meets content validity criteria (Diamantopoulos et al., 2012). Empirical evidence supports that minor deviations are acceptable in exploratory research if the overall model fit is maintained (Henseler et al., 2009).

Table 2. Discriminant validity evidence through the Fornell-Larcker

Constructs	DL	DS	IP	SMR
DL	0.922			
DS	0.039	0.867		
IP	0.108	0.496	0.823	
SMR	0.261	0.53	0.646	0.820

Note. Square roots of AVE are **bolded** along the diagonal & factor correlations are below the leading diagonal

Theoretical justifications for retaining such items can help preserve conceptual integrity (Gefen et al., 2000). However, future researchers should avoid item SMR6 due to its poor loading on the overall construct.

At the scale level, Cronbach’s alpha values for all constructs are greater than 0.70, indicating internal consistency. The average variance extracted (AVE) was used to determine convergent validity, with an AVE value of 0.50 or higher providing sufficient evidence. **Table 1** shows that all variables achieved convergent validity. Discriminant validity was assessed to ensure that unrelated variables were not highly correlated. The Fornell-Larcker criterion (Fornell & Larcker, 1981) was used, where the square root of the AVE is compared with the correlation of a factor to other factors in the model (Ofem et al., 2024b, 2024c). **Table 2** demonstrates that discriminant validity was achieved for the four constructs, as the diagonal values (square root of the AVE) are greater than the correlation coefficients below them.

To determine the predictive relevance of the model, potential collinearity within the structural model was first identified. **Table 1** indicates that the outer variance inflation factors (VIFs) for all constructs did not exceed the recommended threshold of 5.00 (Hair et al., 2017), with values ranging from 1.54 to 5.00. Similarly, the VIF for the inner model did not exceed 5.00, with values ranging from 1.00 to 1.05 (see **Table 1**). This suggests that there is no significant collinearity among the predictor constructs in the structural model.

Next, the proportion of variance in the response variables explained by the predictor variables was examined to assess the model’s in-sample fit and predictive accuracy. **Table 1** shows that IP explains 1.1% ($R^2 = 0.011$) of the variance in DL and 24.6% in DS ($R^2 = 0.246$). However, when the three predictor variables were combined, they explained 36.0% ($R^2 = 0.360$) of the variance in students’ use of SMR, leaving 64.0% of the variance unexplained by the exogenous variables. According to established guidelines, predictive accuracy below 10% is considered weak (Hair et al., 2013). Nonetheless, the relatively low R^2 value for the predictive effect on DL could be due to the model’s complexity involving a limited number of predictors. However, other variances explained are above the recommended threshold. The model is accepted because, in the behavioral sciences, several factors can contribute to variances in the endogenous variable.

Structural Model and Test of Hypotheses

The hypotheses of this study were tested according to the conceptual model to determine the direct and indirect effects of the variables. First, one sample t-test was used to estimate how much students use social media platform or research based on a population mean (M) value of 15.0. The population M was obtained by adding each items expected M of 2.5 across the six items measuring social media usage for research. The result revealed that students use of social media was low (M =

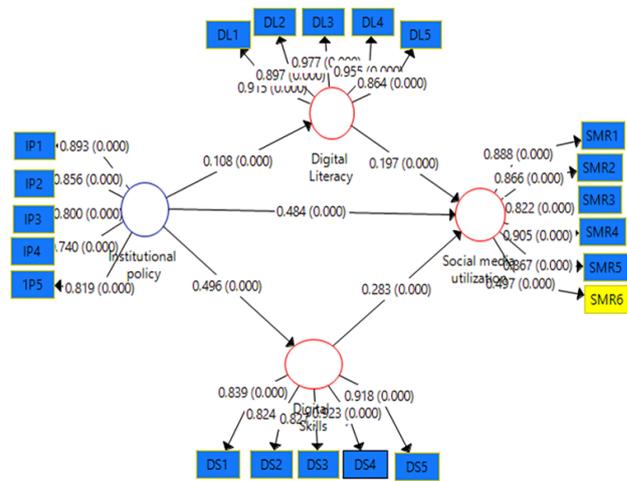


Figure 2. Structural equal modelling of the nexus between predictors and response variables (Source: Author’s own elaboration)

12.78, standard deviation = 3.32) less than the general population man of 15.0. The difference between the two Ms is 2.22 with 95% confidence interval (CI) [2.11, 2.31]. Thus, our null hypothesis is retained (**Figure 2**).

Direct Effects

The direct effects were examined for the variables stated in H2, H3, H4, H5, and H7. The result as presented in **Table 3**, indicates a significant direct effect of IP ($\beta = .484$, 95% CI [.45, .51], $t = 28.74$, $p < .001$) on student’s use of SMR. Therefore, hypothesis 2 was rejected. The result for hypothesis 3 revealed that $\beta = .10$, 95% CI [.08, .13], $t = 7.13$, $p < .001$) which implies that IP directly impacts on DL. More so , the result for hypothesis 4 which is on the nexus between IP and DS of students revealed that ($\beta = .49$, 95% CI [.46, .52], $t = 30.81$, $p < .001$). Hence, hypothesis four was rejected. For DL and use of social media usage for research($\beta = .19$, 95% CI [.17, .22], $t = 15.37$, $p < .001$). Thus, hypothesis 5 is rejected and for the relationship between DS and use of social media usage for research($\beta = .28$, 95% CI [.25, .31], $t = 16.75$, $p < .001$). Thus, hypothesis 7 was also rejected.

Indirect Effects

The result for H6 and H8 is presented in **Table 3**. The result showed that for the mediating effect pf DL in the nexus between IP and use of social media usage for research($\beta = .02$, 95% CI [.01, .02], $t = 7.59$, $p < .001$). similarly for the mediating effect pf DS in the nexus between IP and use of social media usage for research($\beta = .14$, 95% CI [.01, .15], $t = 14.47$, $p < .001$).This implies that the two mediating variable mediates positively the linkages between IP and use of social media usage for research. Hence, hypotheses 6 and 8 are rejected.

DISCUSSION

The findings that IP directly influences students’ use of SMR are consistent with existing literature, highlighting the significant role that institutional frameworks play in shaping educational practices and technology use. This relationship can be analyzed through several dimensions, including accessibility, academic guidance, and the DL support provided

Table 3. Direct and indirect effect

Linkages	β	M	2.50%	97.50%	SD	t-value	p	Remarks
DL -> SMR	0.197	0.197	0.172	0.222	0.013	15.377	0.001	Significant
DS -> SMR	0.283	0.282	0.250	0.316	0.017	16.752	0.001	Significant
IP-> DL	0.108	0.109	0.080	0.139	0.015	7.130	0.001	Significant
IP -> DS	0.496	0.496	0.462	0.524	0.016	30.809	0.001	Significant
IP -> SMR	0.484	0.484	0.454	0.518	0.017	28.742	0.001	Significant
IP -> DL -> SMR	0.021	0.021	0.016	0.027	0.003	7.599	0.001	Significant
IP -> DS -> SMR	0.140	0.140	0.121	0.159	0.010	14.477	0.001	Significant

by institutions. Accessibility to social media platforms within academic environments is often regulated by institutional policies. For example, if a university restricts access to certain social media sites due to concerns about data privacy or productivity, students may struggle to use these platforms for academic purposes. Research has shown that when institutions provide unrestricted and encouraged access to social media, students are more likely to integrate these tools into their research practices. Tess (2013) found that institutional endorsement and support significantly enhance students' engagement with social media for educational purposes.

Furthermore, academic guidance from institutions plays a crucial role in how students use SMR. Policies that integrate social media training into the curriculum can significantly impact students' ability to use these platforms effectively. When educators include social media as a tool for academic research and provide structured guidance on its use, students are better prepared to leverage these platforms for scholarly activities. Moran et al. (2011) discovered that faculty encouragement and the inclusion of social media in academic projects lead to increased student engagement and effective usage of these tools for research. Additionally, the institutional culture towards social media influences students' attitudes and behaviors. A supportive culture that values and integrates social media into academic activities can lead to more widespread and effective use of these platforms for research purposes. For instance, institutions that adopt social media-friendly policies and actively engage with these platforms can inspire students to explore and use them for academic research. Veletsianos and Kimmons (2012) support this, emphasizing that an institutional embrace of social media creates a positive perception among students, thereby increasing their academic use of these tools.

The findings that IP influences DL are corroborated by existing research, highlighting the significant role institutional frameworks play in shaping students' digital competencies. Policies promoting DL directly affect students' ability to effectively navigate and utilize digital tools for both academic and personal development. Firstly, institutional policies that incorporate DL into the curriculum are crucial for enhancing students' DS. For instance, policies requiring DL courses or integrating digital competency modules into various subjects ensure students receive structured and consistent training in DS. According to Ng (2012), embedding DL in the curriculum helps students develop essential skills for evaluating and utilizing digital information effectively, thus preparing them for the demands of the modern digital world.

Furthermore, policies providing access to digital resources and tools significantly enhance DL. Institutions investing in digital infrastructure, such as high-speed internet, access to online databases, and software tools, create an environment conducive to developing DS. Aesaert et al. (2015) report that

access to digital resources is a critical factor in enhancing students' DL, as it allows for practical, hands-on experience with digital tools. Additionally, institutional policies focusing on teacher training in DL are essential. When educators are proficient in DS and incorporate them into their teaching, students benefit from a richer learning experience. Research by Tondeur et al. (2012) indicates that professional development in DL for teachers positively influences students' digital competence, as teachers are better equipped to effectively integrate digital tools into their instruction.

The findings that IP impacts DS are strongly supported by existing research, underscoring the crucial role of institutional frameworks in shaping students' proficiency in digital competencies. Institutional policies influence various aspects such as curriculum integration, resource availability, teacher training, and the overall digital culture of an institution. Firstly, policies that integrate DS into the curriculum are essential for enhancing students' digital competencies. By mandating courses or modules focused on DS, institutions ensure students receive systematic and comprehensive training. Ng (2012) highlights that embedding DS within the curriculum enables students to develop essential digital competencies, critical for their academic and professional success.

Institutional policies that foster a culture of DL and DS are also crucial. When institutions promote and value the use of digital tools for communication, collaboration, and research, they create a supportive environment for developing DS. Claro et al. (2012) found that a positive institutional culture towards DS significantly enhances students' engagement and proficiency in digital technologies, as students are more likely to adopt and utilize digital tools in such an environment.

The findings that DL significantly impacts students' use of SMR suggest that integrating DL into educational frameworks equips students with the critical thinking and technical skills needed to navigate social media platforms responsibly and productively. According to a study by Ng (2012), students trained in DL are better equipped to discern credible sources from unreliable ones on social media. This critical evaluation skill is crucial in an era where misinformation is rampant. By teaching students how to verify the authenticity of information and the credibility of sources, DL education reduces the likelihood of spreading false information and enhances the quality of academic research conducted through social media platforms. Moreover, DL enhances students' ability to engage in ethical and safe online practices. This includes understanding privacy settings, recognizing phishing attempts, and managing digital footprints. A study by Buckingham (2015) highlights that digitally literate students are more aware of the implications of their online actions and are better prepared to protect their personal information on social media. This awareness not only safeguards their privacy but also fosters a safer online environment where they can

participate in academic discussions and collaborations without undue risk.

The study findings that DS directly impact students' use of SMR suggest that developing DS enables students to navigate social media platforms with confidence and efficiency, thereby enhancing their educational and social experiences. One primary impact of DS on students' use of social media is the ability to harness these platforms for academic research and collaboration. According to a study by Redecker and Punie (2017), students with advanced DS are proficient in using social media tools for data collection, literature review, and academic networking. These skills enable them to access a wide range of resources, participate in academic discussions, and collaborate with peers and experts globally. Social media platforms such as LinkedIn, ResearchGate, and academic Twitter are particularly valuable for these purposes, allowing students to connect with researchers, join academic communities, and stay updated on the latest developments in their fields.

Moreover, DS facilitate the creation and dissemination of academic content on social media. Students proficient in using digital tools can produce high-quality multimedia content, such as videos, infographics, and interactive presentations, which they can share on social media to disseminate research findings and engage a wider audience. A study by Tess (2013) found that students with strong DS are more likely to use social media to share their academic work and receive feedback, thereby enhancing their learning experience and contributing to the academic community. Additionally, DS enhance students' ability to participate in digital activism and social movements through social media. Platforms like Twitter, Facebook, and Instagram serve as powerful tools for raising awareness and mobilizing support for various causes. According to Hargittai and Shaw (2015), students with advanced DS are more effective in using social media for activism, as they can create compelling content, engage with audiences, and coordinate actions efficiently. This capability not only empowers students to effect change but also enriches their civic engagement and social responsibility.

The findings that DL mediates the relationship between institutional policies and students' use of SMR align with existing literature, highlighting the crucial role of DL in leveraging institutional support to enhance academic practices. This mediation suggests that while institutional policies provide the framework and resources, DL enables students to effectively utilize these provisions, particularly in the context of using SMR. Ng (2012) argues that when DL is embedded in educational programs, students are better equipped to evaluate and use digital information critically. This foundational skill set is essential for conducting research via social media, as it allows students to discern credible sources from unreliable ones and engage with academic content meaningfully.

The finding that DS mediate the relationship between institutional policies and students' use of SMR highlights the critical role of digital competency in bridging institutional support and practical application. This relationship suggests that institutional policies alone are insufficient without the development of DS that enable students to effectively utilize social media for academic purposes. Institutional policies prioritizing DS development are fundamental in preparing students for effective use of SMR. Policies integrating DS training into the curriculum ensure that students are

systematically equipped with the necessary technical competencies. According to Ng (2012), embedding DS in educational programs helps students acquire the ability to use digital tools proficiently, which is essential for engaging with social media platforms in a research context. Additionally, institutional policies providing access to digital resources and infrastructure are crucial for developing DS. Aesaert et al. (2015) argue that access to digital tools, such as high-speed internet, software applications, and online databases, significantly enhances students' digital competencies. These resources enable students to practice and hone their DS, facilitating their effective use of social media for academic research.

The mediating role of DS between institutional policies and students' use of SMR indicates that institutional support must be coupled with the development of digital competencies to be effective. While institutional policies provide the necessary resources and framework, it is the acquisition of DS that enables students to utilize these resources effectively. Siddiq et al. (2016) stress the importance of continuous assessment and improvement of DS programs. Institutions that regularly evaluate and enhance their DS training ensure that students remain proficient in using digital tools, including social media, for research purposes. This continuous development helps students keep pace with evolving digital trends and technologies, further enhancing their research capabilities.

Limitations /Suggestion For Further Studies

While this study offers valuable insights into the relationship between institutional policies, DL, DS, and students' use of SMR, several limitations must be acknowledged. Firstly, much of the data collected in this study may rely on self-reported measures, which can be subject to biases such as social desirability bias or inaccurate self-assessment. Students might overestimate or underestimate their DS or their use of SMR. Additionally, the study sample involved only final-year students from a few institutions, which is not representative of all educational institutions or student populations. Variations in institutional resources, student demographics, and regional educational policies can affect the generalizability of the findings to other contexts. Furthermore, institutions may have widely varying policies regarding DL and social media use, making it difficult to standardize the measurement of institutional support across different settings. The specific content and implementation of these policies can greatly influence their effectiveness.

To address these limitations, future research could focus on longitudinal studies to establish causal relationships and long-term effects and expand the sample to include diverse educational contexts. Additionally, future studies should aim to develop standardized measures for DL and DS to facilitate more consistent and comparable results.

CONCLUSION AND IMPLICATIONS

This study underscores the pivotal role of institutional policies in shaping students' use of SMR, as well as their DL and DS. The findings illustrate a clear connection between well-crafted institutional policies and improved digital competencies among students. These competencies, in turn, greatly influence the effective use of social media platforms for academic research. The study shows that institutional policies

directly affect students' DL and DS. By incorporating DS training into the curriculum and providing access to essential digital tools and resources, institutions can create an environment that nurtures these crucial skills. Consequently, students with advanced DL and DS are better equipped to utilize SMR purposes, including academic networking, data collection, and disseminating research findings.

Moreover, the study highlights that DL and DS mediate the relationship between institutional policies and students' use of SMR. This mediation effect indicates that the effectiveness of institutional policies is significantly enhanced when students have strong digital competencies. Essentially, while institutional policies lay the foundation, it is the students' DL and DS that enable them to fully leverage the opportunities provided by these policies.

The findings have significant implications for education, suggesting that institutions should prioritize the development and implementation of comprehensive DL and DS policies. These policies should include mandatory DL courses, continuous professional development for educators, and regular curriculum updates to keep pace with technological advancements. Institutions must allocate sufficient resources to build and maintain robust digital infrastructure, including high-speed internet access, up-to-date software and hardware, and access to digital libraries and databases. Educational institutions should adopt a continuous improvement approach to DL and DS training. Regular assessments and feedback mechanisms should be established to evaluate the effectiveness of digital education programs. By continuously refining and enhancing these programs, institutions can ensure they remain relevant and effective in equipping students with the necessary digital competencies. Additionally, curricula should be designed to include practical applications of DS, with a particular focus on the use of social media for academic purposes. Assignments and projects that require the use of SMR, collaboration, and information dissemination can provide students with hands-on experience, thereby reinforcing their digital competencies.

Efforts should also be made to bridge the digital divide by ensuring equitable access to digital tools and education for all students, regardless of socioeconomic background. Policies addressing disparities in access to technology and digital resources are crucial for providing all students with equal opportunities to develop their DS.

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