

CHAPTER TWO

THE ROLE OF SOCIAL MEDIA RESEARCH IN THE DIGITAL AGE OF RESEARCH AND INNOVATION

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CHAPTER OBJECTIVES

- The role of social media research (SMR) in the digital age of research and innovation.
- The innovation brought by social media research.

ABSTRACT

Traditionally, the distribution of academic studies, research and innovations is mostly done through other forms of media such as television, radio and print media (magazines, newspapers, bulletins, books and textbooks). The advent of social media has revolutionised and influenced how academic knowledge, research, ideas and innovations are conducted and distributed globally. Academic research in the digital age keeps gaining popularity in the academic world and beyond as a result of wider usage and influence of social media and its applications. Its innovations are widely distributed within and outside the academic community. At this point, the role and influence of social media research on the academic world in the digital age cannot be underrated toward providing innovative solutions and findings to human challenges. Social media research (SMR) can be regarded as research derived from social media data and sources using an analytical process in understanding how events unfold on social media platforms. This chapter provides an analysis of the role of social media research in the digital age of research and innovation. Furthermore, the chapter determines the innovation brought by social media research.

Keywords: Academic research, Academic studies, Digital age, Innovation, Research and innovation, Social media research

INTRODUCTION

Academic research keeps delivering ideas and innovations that transform human social, economic and political (SEP) environments. The wide usage and acceptance of academic research work and innovations in the digital age are rooted in the role and influence of social media usage. Traditional media channels such as radio, television and print media have been used for many years in distributing information and communication and influencing how individuals think, perceive, speak and behave (Douai, Auter, Wedlock & Rudyk, 2013). These traditional media channels for years have helped in contributing to the distribution of academic research. The digital age has witnessed the advent of social media. Social media and its applications such as Facebook, WhatsApp, Twitter, Instagram, WeChat, and many

others have changed the information sharing and communication landscape of academic innovations, ideas and findings. In recent years, social media and its applications have grown exceedingly and changed how communication and sharing of information take place (Douai et al., 2013). The growth of social media is fuelling an increase in different kinds of research conducted within the platforms by academics, organisations, and many others that address different topics such as user behaviour, addictions and many more.

Social media research (SMR) aimed to produce knowledge, ideas and innovations that can transform individuals, companies and society at large. The research also determines the social, economic and political (SEP) influences. Social media research analyses every event that occurs within the social media environment and the daily application by users and organisations. Social media research is conducted in the same manner that other forms of academic research are done. The process and procedures may slightly differ. Social media nowadays positions itself as the right channel to conduct research, collect data and disseminate academic research in this digital age. Social media enables like-minded individual researchers to build research networks and collaborations nationally and internationally. The rate of dependence on social media platforms by individuals, public, private and even non-profit organisations makes it a repository for a huge data source that can be collected and analysed for a range of academic and market research topics. Based on the rich data available on the social media platforms, which brings meaningful contribution (innovation and invention) to the scientific community and other sectors of society. However, little or none is known on the role of social media research in contributing meaningfully to digital age research and innovation.

Social media drives communication and information sharing among different audiences. Increasingly, academics are conducting academic and non-academic research around social media, its applications and its usage by the users. The roles of social media and its applications are felt across different sectors. The increasing interest in social media by academics and non-academics opens a door for social media research that analyses an understanding of different events within and outside the platform. Social media is the place for researchers in this digital age to research events and build connectivity and network. This chapter presents the role of social media research in the digital age of research and innovation with a focus on determining the innovation brought by social media research. The entire chapter is structured into four main categories: literature review, the implication of the chapter, conclusion and references.

LITERATURE REVIEW

Social media can be seen as an application that enables users to interact and communicate with one another (Boateng & Amankwaa, 2016). Academically, it provides collective access to data for research. Social media provides the platform for instant texting (messaging), information sharing, content editing and many others. The use of social media in collecting research data and disseminating research findings in this digital age is inevitable.

Theoretical perspective

Academic research is grounded in theoretical perception. There are two forms of theoretical concepts: a theoretical perspective and a conceptual framework. The theoretical perspective assists researchers in understanding the research methodological viewpoint of the study in establishing the research objectives and questions, while the conceptual framework shows the researcher's framework guiding the study (Chukwuere & Chukwuere, 2020). Theoretical perception or theory provides the base upon which the research concept is built. There is a number of theories used on SMR. According to Kapoor, Tamilmani, Rana, Patil, Dwivedi and Nerur (2018: 551), the following are the top ten social media research theories: Social exchange theory, network theory, organisational theory, learning theory, use and gratifications theory, elaboration likelihood model theory, rational choice theory, attribution theory, dual-process theory, and social capital theory and much more. Furthermore, Douai et al. (2013:110) suggest that attributed agenda-setting theory, cognitive dissonance theory, cognitive-affective personality theory, a 3M model of motivation and personality theory, diffusion of innovation theory, and many other theories are used to understand social media impact. Furthermore, the 'push-pull-mooring' (PPM) theory can be used (Balakrishnan, Teoh, Pourshafie & Liew, 2017), Revised Technology Acceptance Model (RTAM) (All these theories seek to underpin SMR across different topics and disciplines.

The role of social media in academic research

In today's social world, social media is changing every aspect of communication and information-sharing space (Boateng & Amankwaa, 2016). Social media can be regarded as an instant sharing platform that allows the exchange of information between individuals and groups of people (Douai et al., 2013). Social media provides communication channels for users (Al-Rahmi, Othman & Yusuf, 2015). Importantly, social media today changes the academic research world and allows researchers to build internal and external relationships and network with fellow researchers and maintain connectivity (Douai et al., 2013). The platform uses the Internet or data via computer, mobile technologies, and other forms of computer devices to share instant information and other content and to develop social interactions. The growing penetration of social media usage in society attracts a lot of challenges and research gaps, calling for solutions for academics. The solutions come in the form of innovations and ideas through its data to change and improve the social, economic, political and market environment, and many others.

Social media research provides innovations and solutions that determine users' interaction with each other, users' perception of a product in the market, political climate, education situations, health issues such as the COVID-19 pandemic outbreak, and many more. The findings inform users and the general public to take action, alert, understand a certain situation, and many more. The role of social media in influencing digital age society and research can only grow in the near future.

According to Al-Rahmi et al. (2015), social media promotes collaborations among academic researchers. The role ensures that researchers get connected and establish relationships that strengthen their partnership. The researcher's partnership is geared towards identifying and solving human, social, economic, political and educational challenges confronting humans daily. Furthermore, the platform fosters engagement between researchers and the audience. Researchers use the platform to distribute their research work, while the audience gets notified of the new research findings and outputs. Academic research is now accessible by audiences across different social media platforms, which promotes readability and usability. According to this chapter, social media provides the hub for research data and data collection. It supports the sharing of academic research innovation and ideas, and strengthens social and academic collaboration and partnerships within national borders and globally.

Forms of social media applications/sites/networks

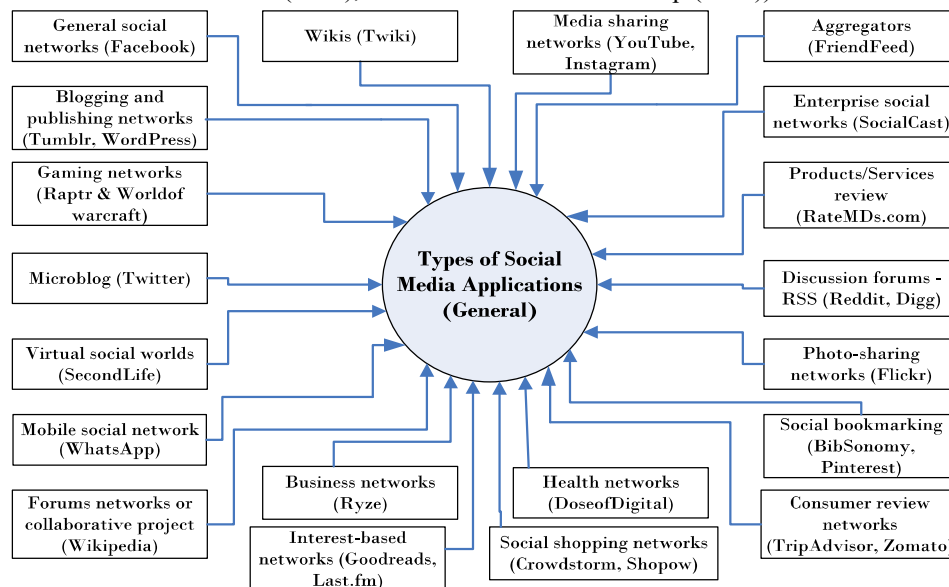
Since the advent of social media, different applications have been invented and changes continuously take place. According to Chukwuere and Ramawela (2019), there are more than 120 various forms of social media sites or applications. Individuals use the applications, public, private, government, non-government agencies and even academics for different purposes. According to this chapter, forms of social media applications (SMA) are grouped into two main types: general types of social media applications (it covers social media applications used by everyone (users) for various purposes) and academic, social media applications or sites (these are platform explicitly used for academic or educational purposes). Irrespective of the form of SMAs, they provide individuals and organisations the opportunities to connect, communicate, and share information with others (Jordan, 2019). They provide the avenue to generate innovative ideas that solve common human or users (individuals) and organisational challenges in the community.

General types of social media applications

There are different forms of social media used by individuals or groups of people and organisations in general. Social media differs, including micro-blog, social networking applications, and sites, and many with the ability to connect stakeholders by sharing pictures, and videos, playing online games, sharing information or chats, and many others (Douai et al., 2013). The definition of social media remains challenging because the platforms are classified according to their functions. For example, Facebook (general social networks), Twitter (microblog) and WhatsApp (mobile social network) are all social media applications; however, these are categorised differently as a result of their functions (Chukwuere & Ramawela, 2019), and the definitions differ (Douai et al., 2013). Figure 2.1 highlights the different forms or classifications of social media used by the general public in performing various functions. These platforms contained big data that are collected, analysed, and reported for decision-making purposes. For instance, researchers collect social media data on users' behaviours and their influence on their lives, market, health, education and many more. These data are analysed using different statistical analytical tools and interpreted and reported for making decisions. According to Li, Wei, Xiong, Feng, Ye and Jiang (2017), there are six

leading social media types, such as wikis, forums, blogs, microblogging, and podcasts. However, the platforms can be used by academics to connect and communicate with other colleagues and fellow researchers in sharing academic resources and findings that shape the human, social, economic and political environment.

Figure 2.1: Types of social media applications (general) (adapted from Chukwuere and Ramawela (2019); Kakkar (2018); Social Media Research Group (2016))



As earlier noted, social media applications have given individuals and organisations unlimited opportunities to network with friends, peers and others within and outside the local boundary in search of new knowledge and information and able to distribute resources (Palmer & Strickland, 2017). Figure 2.1 has the classes or types of social media applications used by the general public in sharing information and other purposes. Each of them has one thing in common, such as the ability to connect and build a network of users. However, researchers have no common definition of social media applications. Increasingly, researchers are discussing the platforms in discovering a new range of topics concerning individuals and organisations (Chukwuere & Ramawela, 2019; Al-Badi, 2014; Shrivastava, Paperwala & Dave, 2011; Safko, 2010).

Types of academic social media applications (ASMAs)

ASMAs provide academics with ‘low-cost’ platforms to build personal and professional profiles (Palmer & Strickland, 2017). It also allows academics to share their research findings, information, network and finding research findings on a daily basis. Social media has positioned itself as a gateway to the academic research process and publication. There are a number of dedicated social media platforms for academics, such as Academia (academia.edu), Epernicus (epernicus.com), Google Scholar, Researchgate (researchgate.org), ResearchID (researcherid.com), ScienceStage (sciencestage.com), Methodspace (methodspace.com), Mendeley (mendeley.com), Zotero (zotero.org) and many more. Each of these holds a number of innovative findings that address human and

organisational needs. According to Asmi and Madhusudhan (2015), academic social media applications enable researchers to communicate, distribute and gather information, while Chukwuere and Ramawela (2019) regard ASMA as ‘research and collaboration networks’ for researchers.

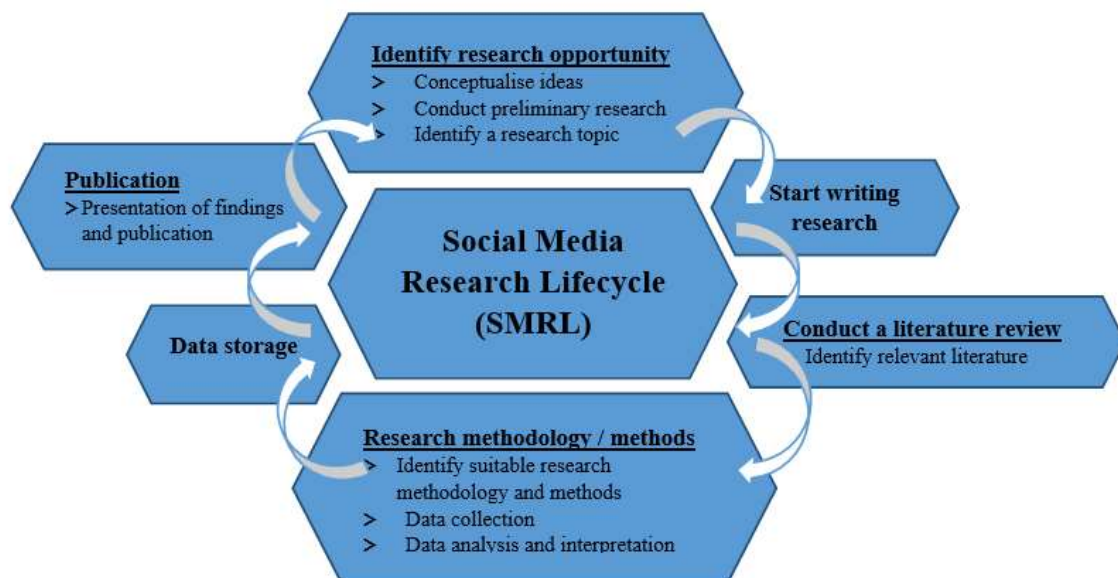
Social media research (SMR)

The term social media research (SMR) is still less popular and varies in the definition. Social Media Research Group (2016) defines SMR as research derived from social media data, contents and sources. Research can be conducted using data from social media platforms. SMR can be categorised into two parts (types): “using social media as a research” instrument or tools (conducting survey or questionnaire on social media applications or platforms) and research on events, incidents and activities of social media (researching social media content itself) (Social Media Research Group, 2016). Detailed information on both categories can be found in the section “The innovation brought by social media research”, below.

Social media research lifecycle (SMRL)

Figure 2.2 highlights the social media research lifecycle (SMRL). SMRL provides the processes or changes that a researcher must undergo in researching on social media. These processes allow the use of social media platforms as a research instrument for data collection or researching social media events. Figure 2.2 shows the changes and stages that cover processes that can achieve social media research in the digital age. Every cycle (Figure 2.2) tells the researcher what must be done towards achieving SMR.

Figure 2.2: Social media research lifecycle



a. Identify research opportunities

The identification of research opportunity(ies) is regarded as the first step in carrying out SMR. The research opportunity is a motive that drives the researcher to conduct research, which is to benefit students, the research community, policymakers, society, and many other

stakeholders. The first step in research opportunity(ies) identification is to **conduct preliminary research** – this initial step assists a researcher in determining whether the research opportunity(ies) identified is(are) doable or the opportunities identified can contribute to the academic world and society at large. As soon as the opportunity(ies) is(are) doable and expected to contribute, then the idea conceptualisation starts. The second step will be to **conceptualise ideas** – through the preliminary research process; an idea/s can be conceptualised or formulated, which gives more insights into the possibility of the research being investigated. According to Chukwuere and Chukwuere (2020), the ability to write research lies in the conceptualisation and imagination of ideas that define the purpose of the study. The last step will be to **identify a research topic** – conceptualised idea/s assist(s) in coming up with or formulating research topics, which guides the research on the area of concentration.

b. Start writing research

This cycle involves the actual writing of the research in translating ideas into reality. The writing involves the formulation of a research proposal or manuscript that comprises an introduction, problem statement, research objective(s)/question(s), the significance of the study, and many others. However, research writing is done by reading the existing literature for empirical backing and argumentation.

c. Conduct a literature review

SMR literature review is centred on the analysis of existing studies covering the identified research topic being investigated. The process of conducting a literature review lies in identifying **relevant literature** – relevant literature covering the identified research topic must be researched through online search engines and database sources in looking into keywords that cover the topic under investigation. Furthermore, digital and offline libraries could be used in the identification of relevant literature. However, SMR literature is the same as non-SMR literature.

d. Research methodology and methods

This cycle provides an overview of the research methods and methodology to be used in conducting the study. Research methodology and methods can be used interchangeably. The cycle involves *identifying suitable research methodology and methods, data collection, and data analysis and interpretation.*

- **Identify suitable research methodology and methods:** There are different forms of social media research methodology and methods (see Chapter 6); these methodologies and methods enable researchers to determine the techniques and processes of data collection and analysis.
- **Research methodology:** It proves the systematic techniques to conduct research that can be through qualitative, quantitative, mixed methodology and literature review. Irrespective of the category or the type of SMR to be conducted, the methodology and method are necessary to be identified.

- **Research methods:** It involves steps, techniques and processes used in data collection and analysis in order to discover meaningful findings from the study. The research methods can be surveys, experiments, interviews, focused groups, observation and many more.

Qualitative, quantitative, and a combination of both approaches could be used to analyse social media research. For example, the uses of graphical media, thematic and sentiment analysis while group/segmentation identification and passive/active ethnographic approaches are different forms of qualitative approaches that are suitable for SMR. While using the quantitative method, the following approaches can be used to analyse social media data such as clustering, classification/regression, geographical information systems (GIS), volume analysis, correlations, and relationship analysis (Social Media Research Group, 2016). Each of these approaches helps a researcher to analyse and understand data on social media. Furthermore, an analysis can be done in considering quantitative data on a qualitative approach (Social Media Research Group, 2016; D’Orazio, 2013). Social Media Research Group (2016) categorised social media research methodology according to the methodology (see Table 2.1).

Table 2.2: Social media research methodology (Adopted from Social Media Research Group, 2016)

Quantitative	Qualitative	
Units of volume and frequency > Number of followers/friends > Number of users > Rate of use and interaction > Searches	Visual audio content > Photo tags > Media tone and content	Mixed methodology
Biographical data > Age, name, gender > Nationality, residence > Occupation and qualifications > Lifestyle activities and interests > Culture and traditions	Tone and sentiment > Emotions and feelings > Tone and opinion	
Number of reactions > Views > Comments > Likes/endorsements > Retweets/quotes > Posts and chats	Influence and clout > Topics and discussion > Search	
Textual semantics > Group discussions > Keyword content from posts > Comments on primary posts > Hashtags		
Location > Latitude/longitude > Settlement/address		
Volumes per unit time		
Scores/other ordinal rankings		
Deletions		
Other suitable research methods		
> Network analysis > Semantic analysis > Geographical information systems > Pseudo-experiment	> Thematic codifications > Ethnographic observation > Action research	Semantic analysis and Thematic codification

- **Data collection:** According to Social Media Research Group (2016), data can be collected on social media in different ways. The data collection techniques depend on the kind or type of SMR underway. Automated data collection processes on social media provide tools to collect, sort, clean, save, retrieve, analyse and interpret large volumes of data. These technological tools can provide and analyse real-time data (Social Media Research Group, 2016). There are a number of free and subscribed technological tools that are used to analyse social media data. The technological tools are regarded as text analysis tools, which are NCapture, SentiStrength, DiscoverText, Mozdeh, while network analysis tools are Gephi, SocSciBot, and NodeXL, and many more (Social Media Research Group, 2016). At the end of data collection, data analysis and interpretation will be done.
- **Data analysis and interpretation:** Social media data are analysed and interpreted in real-time, no matter the type of SMR conducted, the analysis and interpretations are simplified. According to Edwards, Housley, Williams, Sloan and Williams (2013), data collection on social media can be real-time or time bound, while the data analysis can be intensive or extensive. Figure 2.3 highlighted the data collection and analysis as applied on social media.

Figure 2.3: Data collection vs. data analysis on social media (Adopted from Social Media Research Group, 2016).

		Data collection	
		Real-time	Timebound
Data analysis	Intensive	Ethnography	Interviews
	Extensive	Social Media Specific	Surveys and Experiments

e. Data storage

Ideally, any collected and analysed data require appropriate storage facilities to keep the data safe and secure. Due to data confidentiality, social media data should be secured, and researchers should choose a very secure platform to use. SMR data can be used stored on the cloud, local storage, memory stick, or hard disk. Respective of the storage platform used, adequate security measures must be in place in secure to safeguard the data.

f. Publication

This cycle is aimed at making SMR public through online or printed mediums.

Presentation of findings and publication: It ensures that research findings are presented to the audience through publication. Textbooks, books, magazines, journals, conference proceedings, and many others can be used to present SMR finding to the general public. However, a suitable presentation format should be used in presenting SMR findings.

The role of social media research in the digital age of research and innovation

Social interaction is fundamental for individuals and groups of people to build social cohesion and engagement. At the World Telecommunication Development Conference in

Buenos Aires on 21 March 1994, former US Vice-president Al Gore recommended that researchers make a “Global Information Infrastructure” for an “information superhighway on which all people can travel” (Douai et al., 2013: 91). “Information superhighway” aimed to facilitate and improve citizen’s participation in social discussion and democratic actions. Since the advent of the Internet, growth has been exponential, and many inventions have emerged, which have increased globalisation and made the world a global village. The interconnectivity on social media is bridging the social, economic and political divide in the world with the empowerment of citizens to actively participate in social and democratic processes.

The role of social media in social interaction is massive in creating action across different sectors of society. The roles are felt in different disciplines such as advertising, marketing, communication, politics, and many others. In understanding the role of social media in academic research in the digital age, the following questions are important to be considered: What is the role of social media research in academic research in the digital age? What are the implications of social media research? What are the ways to conduct social media research without negative consequences on the audience? What theories are used in conducting social media research? These questions drive the effective usage and applications of social media research in the digital age research, society and beyond.

Currently, social media research is gaining recognition globally among academics, and they continue to invest efforts in researching the platform. The increasing research is rooted in the use of social media in creating an opportunity for relationship building and collaboration (Al-Rahmi et al., 2015). The role of social media is no longer unnoticed in the educational environment, because students, lecturers, supervisors, and other stakeholders are actively using the platform to collaborate and share information, which directly shapes engagement and networking. Through social media, academics can conduct research in any part of the world, and the authors contribute and collaborate effectively. Furthermore, the platforms allow academics to share research findings, which redefines society in a positive direction in informing and educating practitioners (professionals), students, academics, and other stakeholders in decision-making. Furthermore, researchers perform different tasks on social media such as information sharing, instant messaging, distribution of research outputs (publications), scientific news, grant news, achievements, and many more. Academic research and innovations are delivered to the right audience using social media applications or sites, which, in turn, increases its impact and usability in the world.

Billions of people are using computing devices with social media enabled to access social media platforms, SMR and other information. A large number of people are on social media and billions are active daily (Douai et al., 2013). The daily usage of social media in our time makes the platform useful for all purposes, including showcasing academic work. Academic work is fundamentally transforming the social, economic and political climate, as well as

other sectors. The influence depends on how practical social media applications were implemented.

Social media research (SMR) is becoming a known term in the academic world; the concept is aimed to engineer a form of analysis into users' events happening on social media platforms. According to Gaál, Szabó, Obermayer-Kovács and Csepregi (2015), social media has become a lifeline and cannot be undermined. Social media affects every aspect of human engagement and communication. The usage and influence must be monitored, analysed and evaluated using different types of research methods (qualitative, quantitative, mixed or literature review). This chapter will lead to a better analysis and understanding of every incident that happens around social media, the influence on different stakeholders, and many more. The application of social media in conventional research also applies to social media research. Social media research involves many authors and audiences who get included and benefit from its study. Social media must be utilised in a situation where it will help all stakeholders as well as be suitable for social media research.

At this point, social media research (SMR) presents the following opportunities in the digital age of research and innovation:

- ✓ In-depth analysis of social media events.
- ✓ A better understanding of how different events happen on and off social media applications.
- ✓ Better prepare to predict future incidence in society.
- ✓ A better understanding of the social, economic, educational and political influence of social media applications on the users.
- ✓ A better understanding of the past, present and future of social media and its impacts.
- ✓ Engage in data mining.

Social media research is a new phenomenon, and it presents opportunities for academics to research mining in different areas and events around the platforms. There is little and unknown research on the role of social media research in digital age research and innovation. Research and innovation are continuous and inevitable in the academic field; the advent of social media is making it easy for knowledge and information dissemination.

The innovation brought by social media research (SMR)

The importance of social media across different sectors has increased its attention from academic researchers in various disciplines (Kapoor et al., 2018). Social media builds a relationship between individuals and organisations, and individual and individuals. The level of attention given to social media has derived from social media research (SMR), which looks into two main categories of the research area of social media (see *social media research (SMR)* section above). SMR delivers innovations in the academic world and society at large. Social media presents researchers with the opportunity to obtain big data across different topics such as users' attitudes towards education, climate change, consumer

behaviour, and many more (Townsend & Wallace, 2016). Researchers keep exploring ways to make their research outputs very relevant and acceptable both to the academic and non-academic world. Achieving this means conducting empirical studies that are of interest to the audience and other stakeholders on social media.

Li et al.'s (2017: 4) research findings show that research on social media cut across different disciplines and topics and is published in various journals; the top of them being on *computers in human behaviour*. Furthermore, research on social media is growing exponentially, covering interdisciplinary topics. These researches provide innovative findings in showcasing knowledge about users' perceptions, behaviours, acceptance and attitudes on a range of issues. Consumer perception and behaviour are discovered, and users' social, economic and political influence and behaviour are found. At the same time, educational and health impacts are measured, and findings are drawn on social media.

In line with the two main categories of social media research (SMR): social media as a tool for research and research on events, incidents and activities of social media, both deliver innovation and new knowledge. *Using social media as a research instrument or tool* can be done in using social media as a tool to examine a particular issue(s), for example using social media to understand customers' perceptions of a brand, users' perceptions, and many more. The findings from such research can be regarded as 'social media research, which can assist a company in understanding as what and how customers perceive their products and brand at large.

While *research on social media itself* focuses on researching to understand how users use social media, the impact, and many more, the research could be done to determine the effects of social on users' social behaviour and so on. The findings from social media itself can be used to predict, measure and understand the positive and negative perceptions and impact of social media on a population. Both categories of social media research are increasing in the academic world and in practitioners' research in showcasing the impact and usability of SMR in our society.

THE IMPLICATION OF THE CHAPTER

Social media research is increasingly under-used, and it will define future research. Its research is solving real-life challenges and providing a better understanding of our world, both for individuals and corporate organisations. This chapter provides comprehensive benefits to students, researchers, consultants, and others in understanding the role of social media and social media research in our today's world and the years ahead.

Students are to benefit from understanding different categories of SMR, how to identify research conducted on any of the categories, and how to conduct social media research both for academic and non-academic purposes. Academic researchers will benefit from determining and understanding the steps involved in carrying out SMR, identifying different

categories of SMR, different types of general social media and academic social media applications/sites, or platforms. Academics will benefit from understanding the role of SMR in the digital age of academic research and publication. Finally, consultants and other audiences will gain enough knowledge through this chapter on how SMR can be conducted, and the innovations brought by SMR.

CONCLUSION

Social media research (SMR) presents a new view on conducting empirical (primary) and non-empirical (secondary) studies in the digital age. The chapter managed to cover the role of social media in the digital age academic research and different forms of social media (general and academic). The chapter also presented the role of SMR in digital age research and innovation. The chapter also provided innovations brought by SMR, and the implication of the chapter to students, researchers and consultants around the world. The chapter contributes to the overall textbook in seeking a better understanding of the steps in conducting social media research with the right methods, methodologies and processes.

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