

ORIGINAL ARTICLE

# A Netnographic Assessment of a Laboratory Scientists' WhatsApp Group

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*Adopting a qualitative methodology (netnography), this study explores the WhatsApp group experience of scientists in the Laboratory Service Department of Natic Hospital in Abuja, Nigeria. Based on interviews with ten scientists and the analysis of the archived comments of the WhatsApp group for four months (October 2019 – January 2020), the study found that the scientists of the department experience WhatsApp from diverse perspectives, including "cyberspace classroom," "formal learning," "affordability," and "convenience." The study found that a significant disadvantage arising from the use of WhatsApp is posting unwanted content. Nevertheless, this does not restrain its use as a considerable number of scientists admit to its potency in their work. Besides, this study revealed that there are two levels of determinants to using and joining the WhatsApp group: individualistic and organizational determinants. This study concludes that WhatsApp is effective in engendering health communication among scientists of the Laboratory Services Department of Natic Hospital.*

**Keywords:** Netnography, WhatsApp, Social Media, Health, Communication

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## Introduction

Robust communication is essential to reliable and improved healthcare. In some health centers, communication problems may include huge interdisciplinary teams with complicated hierarchies guiding patient care, the multiplicity of health-related information that is always time-essential, and the demands of staff throttling within hospitals and health departments (Khanna, Sambandam, Gul, & Mounasamy, 2015). Traditional communication gadgets like the telephone may be untrustworthy, and two-way communication is challenging. Communicating through mobile applications has been regarded to be reliable and convenient (Patel, Johnston, Cookson, King, Arora, & Darzi, 2016).

The rise in information and communication technologies has revolutionized our daily endeavors. Besides, Boulos et al. (2014) state that the emergence of communication gadgets is a critical development in the health sector, mainly social media platforms that facilitate knowledge enhancement and collaborations to busy health practitioners and professional supports and conscious health awareness to the general public. Today, health workers and their patients communicate through the efficient utilization of smart communication gadgets. Currently, social networking sites and apps, like Instagram and WhatsApp (Boulos & Wheeler, 2016), are used as a veritable platform for disseminating and discussing medical and health-related information. Due to the increased usage of social media applications for diverse endeavors, a significant number of health workers have decided to include for instance, WhatsApp in their day-to-day routine (De Benedictis et al., 2019).

Scholars (Boulos, Giustini, & Wheeler, 2016; Petruzzi & De Benedictis, 2016; Wani, Rabah, Alfadi, Dewanjee, & Najmi, 2013;) have mentioned some of the merits of adopting WhatsApp in the health sector, including improved communication no requirement of a computer, convenient and time-saving, the possibility of instant response, improved surgical performances, lessens consulting time, smoothing of ranks and encouraging junior health practitioners to seek help and enhance the team discernment of effectiveness. From the preceding statement, it is evident that health practitioners are always looking for ways to incorporate

WhatsApp usage into health delivery; however, there is still minimal evidence regarding the use of WhatsApp among health practitioners in Nigeria.

The current study explores the experiences of laboratory scientists in a dedicated WhatsApp group. Specifically, the study investigates the following sub-objectives:

- To assess the perceived benefits in the use of the WhatsApp platform.
- To investigate the perceived challenges concerning the use of the WhatsApp platform.
- To find out the determining factor(s) – either individual and/or organizational – in the use of the WhatsApp platform.

### **Conceptual Clarifications: Social Networking Sites (SNS), WhatsApp, and Online Community**

The trend among young people these days is social media and social networking sites. Social networking sites have continued to attract the attention of academics and industry scholars because of its affordance and reach (Boyd & Ellison, 2007). Danah Boyd and Nicole Ellison (2007) explained social networking sites as a web-based platform that permits individuals to initiate public or semi-public profiles within a confined system and also articulate a list of other individuals whom they share a common connection, and also view the profiles of friends and those made by other individuals within the system.

Today's e-community is being rapidly advanced by social networking sites (SNS); it provides platforms for people worldwide to interact, collaborate, and exchange messages irrespective of geographic proximity (Sawyer, 2011). Individuals engage in online discussions without being face-to-face with other participants (Yin, 2016). WhatsApp possesses these intriguing features of breaking geographic barriers; it also facilitates collaboration due to its group chat features.

WhatsApp is a multimedia communication platform that allows users to send content like pictures, audio, videos, documents, and make voice calls. Another feature of WhatsApp is its group chat feature. The group chat feature allows you to

communicate with up to 256 people at once (WhatsApp, 2017). The group chat platform on WhatsApp affords a diverse form of online communities to emerge; individuals that share similar interests from different backgrounds like the academic, religious, entertainment, management, media, and professional bodies have come to see the importance of the WhatsApp group.

Besides, WhatsApp's broadcast lists enable the simultaneous dissemination of messages to a wider audience. The broadcast feature permits a user to create a broadcast list of 256 contacts and repeatedly send messages to the contacts without having to select the recipients individually anytime the need arises. The app is for android, iOS, and Windows phone platforms (WhatsApp, 2017). The WhatsApp app is connected to the user's mobile number, but it can also be accessed through any web browser on a personal computer once an account has been created through the app on the user's phone. The service has end-to-end encryption to protect users' privacy (WhatsApp, 2017), making it suitable for health-related endeavors. WhatsApp was established in 2009 by two former employees of Yahoo!, Brian Acton and Jan Koum.

An online community is a congregation of people who share a common interest for something they do and further learn ways to improve and further their interests as they interact regularly (UNICEF, 2015). Besides, an online community may be a cyber-conglomeration of persons who may or may not meet each other face to face, and who transmit ideas through the mediation of computers. Referring to the theory of connectivism, the use of an application like WhatsApp engenders a sense of online community (Rovai, 2002). Furthermore, Rovai (2002) states that an online community is a product of interaction and consideration by people with the same goals and interests. UNICEF (2015) elaborates on the features of the online community: coequal-to-coequal collaborative systems; indulged in asking and answering questions, exchanging knowledge, developing expertise, and solving problems; the obligatory participation of group members drives it; concentrated on learning and creating "actionable knowledge" for the achievement of development objectives; cooperative across geographical boundaries; synergetic in their use of tools and technologies; both formal and informal, and members can interact online or in person. Ling (2016) believes that the main reason behind the creation of WhatsApp groups is to

communicate and share information deemed to be of interest to the members of the group, and that is the reason why there are different WhatsApp cyber communities in existence.

## Literature Review

### WhatsApp in Health Care

A study by Khatoon and Hill (2015) on the use of WhatsApp in dental education found that the app was the most used instant messaging platform among dental students of a university in the United Kingdom because of its accessible attributes like being able to check if recipients have read and received messages and group work. WhatsApp was predominantly used to undertake group work and share files for their dental studies. Similarly, in Hong Kong, Cheung et al. (2015) researched whether group discussion and reminders through WhatsApp or Facebook were impactful in preventing smoking relapse for persons who had quit smoking. Through a random controlled trial, the author discovered that WhatsApp assisted in minimizing relapse; this is attributed to the improved discussion and social support features of WhatsApp. According to the scholars, the passive conversation on Facebook might have contributed to its less effectiveness. Still on dental research, due to insufficient hours in covering substantial English for Dental Purposes (EDP) teaching modules in Iran, Asgari (2017) studied the adoption of a WhatsApp based approach that the dental students believed improved their learning of English for Dental Purposes. Asgari's study showed that mobile learning of language on WhatsApp had significant advantages for the university students.

In respect of night time consultations on maxillofacial traumas, Pandian, Srinivasan, and Mohan (2014) found in Turkey that emergency services have reported using Smartphones with high definition cameras, and WhatsApp as images and videos transfer program to send Computerized Tomography (CT) sequences. Views of CT images from computer screens were sent as images, and serial images were recorded as videos and sent through WhatsApp. Besides, Kelahmetoglu and Firinciogullari (2018) found that WhatsApp can also be used by

surgically active dentists in structurally weak areas to seek guidance from experienced maxillofacial surgeons or emergency doctors to treat potentially life-threatening conditions, utilizing the real-time video communication characteristics of WhatsApp.

Dorwal et al. (2016) explored the use of WhatsApp in laboratory management by setting up different laboratory groups. 35 persons communicated on the platform for a period of three months and responses were taken to ascertain their experience in the group. According to the authors, there were significant improvements in information sharing in the form of photographic evidence in the groups. However, the study recorded an increase in unwarranted information to the platform, which disturbed workflow. Nonetheless, the scholars reiterated that the advantages outweighed the disturbances that were experienced in the WhatsApp group. In 2005, Khanna et al. investigated the impact of WhatsApp as an intradepartmental communication medium in a teaching hospital, and they discovered that predominant usage, affordability, availability, and password protection made the group discussion attributes of WhatsApp commendable for intradepartmental patient-related communication. The findings revealed that WhatsApp fostered improvement in patient-related awareness, communication, and handovers among orthopedic doctors. In the UK, Johnston et al. (2015) investigated WhatsApp as a communication medium among members of an emergency surgical group, and the study uncovered that the use of WhatsApp broke hierarchical barriers amongst students, doctors, and consultants, allowing everyone to contribute and share their experiences without restraints.

In Australia, Nilkolic et al. (2018) assessed the prevalence and use of communication applications by medical staff. The study found that WhatsApp is regarded to be ideal for disseminating and sharing health information. Besides, the respondents preferred WhatsApp compared to other apps because it is inexpensive, easy to use, enables the setting up of "groups", permits the exchange of multimedia files, and has an end-to-end encryption privacy protection. Raiman, Antbring and Mahmood (2017) created and investigated 6 WhatsApp groups for medical students on a medical internship in Princess Alexandra Hospital in the United

Kingdom for eight weeks. The groups were utilized to strengthen communication within the Problem-Based Learning (PBL) model. Through thematic analysis the authors asserted that WhatsApp fosters learning, it is easy to use, and its users' capability to access archived conversation are findings that make the app exceptional. The discoveries of the study show the propensity for WhatsApp groups to be accepted in order to augment teaching for medical students.

Ellanti et al. (2017) explored the use of WhatsApp and Pager within an orthopedic surgery team. After analyzing a collection of 20 communications through the hospital pager system and the telephone system, the scholars found that in comparison to the pager, WhatsApp stands out because it is easy to use, affordable, and dependable and it helped improve communication within the participants of the study.

Based on this review, the author argues that WhatsApp is an important app for the healthcare sector. However, there is a dearth of studies on WhatsApp and health-related communication in Nigeria; hence the current study fills this significant gap. Besides, to contribute towards the methodological angle of WhatsApp and health care studies, the current study adopted netnography, a novel qualitative method for exploring social media research.

### **Theoretical Framework: Technology Acceptance Model (TAM)**

Marangunic and Granic (2015) argue that the rapid development in technologies, markedly, ICT related innovation has put society on the choices of whether to accept or reject new technologies. Based on this, different models and theories evolved in order to explain the effective use of technologies, and from these theories and models, the Technology Acceptance Model (TAM) investigates the challenges affecting users' acceptance and/or rejection of novel technologies. Technological Acceptance Model or popularly called TAM is a technology theory of new age that explains how users come to acquire and utilize new technology. Fred Davis proposed TAM in 1989. The scholar exemplified that the attitude of a user toward a technology is a dominant factor in deciding whether the user will adopt or

reject the technology. Davis et al. (1989) write that the approach of the user is determined by two significant assumptions: perceived usefulness and perceived ease of use. Perceived ease of use has a direct impact on perceived usefulness. "Perceived usefulness" (PU) is a strong factor that determines user appropriation, adoption, and eventual conversion of the technology (Mathieson, 1991). PU is described as the degree to which a person believes that using a particular technology system would enhance his or her endeavors (Davis, Bagozzi, & Warshaw, 1989). The closer the affinity someone develops toward technology, the better he or she uses it in their endeavors. Today, people have started using WhatsApp because of the capability of the app to be useful to almost all human endeavors, which is in accordance with Davis et al.'s theory. Recently, we have experienced the domestication of WhatsApp for different purposes, and the tide is not stopping anytime soon. People are continually looking for ways to use the app in solving their challenges.

"Perceived ease-of-use" (PEOU) is an essential element in TAM. It refers to the degree to which a person believes that using technology will be easy and free from effort (Davis, Bagozzi, & Warshaw, 1989). According to Zhu, Lin and Hsu (2012), perceived ease of use means that using a particular system or technology will be easy and free of complications. According to Davis et al. (1989), "perceived ease-of-use" may guarantee the early appropriation of technology, and it is a sine qua non adopting the technology. Bagozzi (2007) argues that in accordance with TAM, attitudes may have a positive effect on the disposition of the user and may spur human efforts towards the adoption and conversion of a technology. WhatsApp has considerable attributes of perceived ease of use, as postulated by the TAM. A common feature of WhatsApp is its affordability and ease of use. The cost of downloading and using the app is less than a dollar in a year. Besides, its installation procedure is straightforward. WhatsApp does not require the traditional login and log out procedures that found in other platforms. These characteristics have made WhatsApp the preferred app among users. Persons have attested that its use in their endeavors has made their work easy, especially for communication.

The Technology Acceptance Model (TAM) is a relevant theory that attempts to



examine the elements that impact the appropriation and adoption of new technologies. Teo (2013) identifies factors that engender the acceptance and use of technology. Teo listed belief system and individual differences, social/situational influences, and attitudes as some of the factors that bolster the choice to use new technology and also promote the possibility of accepting or rejecting it. Durodolu (2016) explains that despite the rapid development in the use of information and communication technologies, evidence has shown that there is a considerable gap between the elderly, illiterate, lower-income earners than the younger, well-educated and high-income earners. Polizzi (2011) argues that users' perceptions will impact on their attitudes, and these attitudes will then influence their choice to use new technology. The Technology Acceptance Model (TAM) underpins this study, and it explores laboratory scientists' WhatsApp experiences and their reasons for adopting WhatsApp in their health practices.

## Methodology

The study adopts a qualitative approach to analyze the experience of laboratory scientists in a WhatsApp group. Precisely, netnography was employed in this regard due to the nature of the study. Robert Kozinets (2002, p.21) defines netnography as "ethnography adapted to the study of online communities." Netnographic studies should maintain a precise set of standards and guidelines (Kozinets, 2010). According to Kozinets, online observation is an essential ingredient in netnography. Kozinets (2010) reiterates that not including the observatory role of traditional ethnography in netnography excludes the researcher from gaining and observing the natural experience of cultural understanding. Both netnography and ethnography use qualitative data collection methods, which is premised on an inductive perspective (Atkinson & Hammersley, 1994; Kozinets, 2015). The research orientation of the current study is interpretative; that is why Klein and Myers (1999) state that studies of this kind entail unraveling and comprehending the intricacies of human meaning.

As stated earlier, there are set standards and guidelines that direct any

netnographic study. Udenze (2019a; 2019b) mentions that any netnographic research should follow the listed steps: a. planning an entrée; b. data collection; c. data analysis; and d. reporting of findings. Entering the field (planning an entrée), the researcher must introduce himself/herself to the online community under study; this is significant to the participant observation aspect of netnography. Kozinets (2015) elaborated on the concept of "virtual verisimilitude;" this concept guides the netnographer to be sincere as he or she interacts and collects data from the online platform. In maintaining ethical standards, the researcher was open and truthful to the research population about the reason for the study. At first, a meeting was held between the researcher and the head of the Laboratory Department. Afterward, the author held another meeting with the staff of the department. The research participants were briefed about the nature of the study. The Head of the Department eventually gave the author his consent to commence the investigation.

The methods for data collection in most netnographic studies include online observation, and it is often supplemented by other qualitative data collection methods like interviews and focus group discussions. The study adopts netnography due to its affordance and the flexibility in exploring the WhatsApp group because the needed data for the study is automatically archived online (on the WhatsApp platform). The methodology could be described as a multiplicity of qualitative methods (Udenze, 2019a); hence, the study adopts the necessary online non-participant observation and interviewing method, which are conglomerates of netnography.

This study explores WhatsApp, its uses and understanding in everyday settings for laboratory scientists in a private hospital, a netnographic study of the platform appears to be an ideal methodological lens. A netnographic perspective encompassing qualitative methods of interviews and online observations, along with the study of archived comments for four months (October 2019 – January 2020) helped generate data that were analyzed through the methods of coding, narrative analysis, and interpretation. The comments were analyzed using cross-case and within-case qualitative textual analysis, also known as thematic analysis.

Besides, due to the fast-paced nature of the work of the research population, it

was difficult to conduct face to face interviews with all thirty-five members of the WhatsApp group. The researcher was able to conduct ten face to face interviews, and each interview lasted an average of one hour and two minutes. It took four weeks to conduct the interviews.

For ethical reasons, the study used pseudonyms in order to protect the identity of the members of the WhatsApp group and any other names that were mentioned. Besides, the author got the permission of the group before quoting their comments. This is fundamental in order to assure the research participants that the extracted comments are only for research purposes and nothing more. The population of the study is laboratory scientists on a WhatsApp group. The number of persons on the WhatsApp platform is 35. The study purposively adopted this figure as the sample size for the netnographic study of the group. The justification for adopting the preceding figure as the sample size is because the number forms a census of a small population.

## Results

### Findings

Based on the overall objective of the study, the author analyzed the findings from the online non-participant observation of the WhatsApp platform and the interviews. The author was immersed in the discussion on the group during the period of the study. Though he did not participate in the discussions, he monitored the trends of conversation on the platform. The study shows comments that captured the live experiences of the laboratory scientists. For the convenience of analysis and originality, the researcher copied the automatically archived comments from the WhatsApp platform, and the author themed these analyses "Another Space" because of the cyber-centric attributes of the findings. For ethical reasons, the author did not include pictures that were posted on the platform.

[4:45 PM, 10/10/2019] Jerome: I need to run dis urinalysis tests ASAP and it seems

most of us r not around oo

[4:45 PM, 10/10/2019] Jerome: Is anyone within d vicinity of the lab. Please! Come and relieve a broda ooo ...

[4:47 PM, 10/10/2019] D Scientist: how many tests do u want to run??

[4:50 PM, 10/10/2019] D Scientist: But it is almost closing time. Is is dat urgent? May be you do the one you can...

[4:51 PM, 10/10/2019] Jerome: it is soooooo urgent. An emergency!

[4:52 PM, 10/10/2019] D Scientist: Ok. Dat being the case you will see me now now

[4:54 PM, 10/10/2019] Jerome: Thanks bro

The conversation shows that one of the scientists needs to run some tests in the lab, and it is almost time for the office to close. Since it is an emergency situation, he had to call the attention of his fellow laboratory scientists on the platform to ascertain if anyone could come and assist him. The conversation above paints a scenario of confidence and extended community. Jerome is confident that he is likely to get responses from other scientists if he calls out. There are other comments after the last comment the researcher copied. Other colleagues responded by offering different pieces of advice and the atmosphere of the conversation reveals that the emergency tests will be carried out. The discussions in respect of the above-copied comments also exemplify the feature of extended community, which is not constrained by time and distance. A critical study of the comments that emanated on the platform reveals that a significant number of persons that responded to Jerome's comment were not within the premises of the laboratory; many were not in the hospital at that moment. The use of the WhatsApp group has revealed that laboratory scientists can proffer professional counsels despite the distance or time.

The excerpts below paint a vivid picture of the learning process that occurs in the platform. From the observation of the group, the author can say that members of the WhatsApp group are in a constant exchange of knowledge, a form of informal learning in cyberspace. The conversation below is one of the many examples of rich conversations that occur among the scientist. This finding proves that WhatsApp can nurture learning among members of the Laboratory Service Department.

[12:15 PM, 1/11/2019] Siratu: Please who can explain Alanine Transaminase Test

(ALT) for me?

[12:22 PM, 1/11/2019] John D: The alanine aminotransferase test may be taken for the following reasons: diagnose liver diseases, such as cirrhosis and hepatitis, diagnose liver damage due to other causes and so on.

[12:24 PM, 1/11/2019] John D: Before taking the test, the patient need to talk to the doctors in respect the medicines and herbal supplements that you may be taking. Some of them need to be stopped, as it interferes with the test results. Besides, one should avoid strenuous exercise before taking the test. Cardiac catheterization, some days prior to taking the test, can also interfere with the results of the test. The blood sample for the test is always collected intravenously and ordinarily it involves very little risk.

[12:31 PM, 1/11/2019] Idakwo: Alanine aminotransferase is an enzyme mostly domiciled in the liver. Also, it may be found in smaller measures in the kidneys, heart, muscles and the pancreas. Before it was referred to as serum glutamic pyruvic transaminase (SGPT).

[12:43 PM, 1/11/2019] Chima: The Alanine aminotransferas test is often carried out along with other tests like the aspartate aminotransferase (AST), alkaline phosphatase, bilirubin and lactate dehydrogenase (LDH). Both ALT and AST levels are taken into consideration as dependable tests to diagnose liver damage.

[1:15 PM, 1/11/2019] Ray: Hmmmmm. I am learning a lot here. Thank you Siratu for asking this question.

[1:19 PM, 1/11/2019] Siratu: You are welcome sir. I believe we can discuss this topic in one of our meetings at work.

[1:26 PM, 1/11/2019] John D: Very necessary @ Siratu

As stated earlier, another part of the netnographic study was the interviews. The interviews were analyzed thematically to ascertain the prominent themes in all the interviews. The author asked the research participants questions that are in tune with the research objectives of the study and were also based on the observations in the WhatsApp group. Below are the main themes found in the interviews.

Initially, the respondents were asked to describe the ways and manners

WhatsApp is used among scientists in the Laboratory Services WhatsApp group?

**Cyber Classroom:** The dominant theme from this question described the WhatsApp group as a learning platform. According to respondent A ... *The platform is like a community of its own. There is a lot communication going on in the group. We learn a lot in the platform because some time someone post relevant information. In fact, we educate one another on the group...* Respondent C asserted thus: ... *this group is a blessing. I have been able to learn a lot on this group. Sometimes we have discussions on novel topics on the group, and I am very free to ask questions.* In the words of respondent E, *I am always checking on updates on the platform. There is something to learn, people post medical laboratory articles and I take my time to read them...* Other respondents from the interviews also pointed to the fact that they have learned so much on the WhatsApp group.

**Formal communication:** Yet another theme that evolved from the initial question is what the author categorized as formal communication. In as much as communication on WhatsApp is not formal, findings from the interviews revealed the propensity to use WhatsApp for formal communication among the scientists. Respondent B reiterated that ... *of course sometimes, personally I form my colleagues through the group that I will not be in the lab if need be...* According to respondent D ... *we hold informal meetings on the platform, and people contribute. For the fact that you have data and internet connection you can participate and voice your opinion... Anytime I have challenges diagnosing a test, sometimes I post it on the WhatsApp group to seek for advice. Most times I am overwhelmed by the kind of responses I get...*, respondent I asserted. Respondent J mentioned that: *the online discussion on one of my questions have been dissected in our face to face meeting...*

Secondly, the respondents were asked to explain the main perceived benefits concerning the use of the WhatsApp group. The main theme evolving from that question was the following.

**Affordability/Convenience:** After a careful study of the responses from the ten

interviews, it was found that a considerable number of respondents argued that the WhatsApp group is cost-effective and convenient for them. According to respondent G, ... *I have been using WhatsApp for a while now and what endeared me to the app is its affordability and ease of use. Besides, the app's capability of holding many people on a group is awesome...* Respondent F says that, *with this app I can easily message my colleagues privately or in the group, I don't have to make a phone call. Even if I am to call anyone I may decide to use the WhatsApp call...*

Thirdly, the research participant were made to describe the perceived disadvantages/challenges concerning the use of the WhatsApp group. After analyzing the contents of this question, the theme below emerged:

**Unwanted Contents:** Among the ten laboratory scientists that were interviewed, nine of them mentioned that colleagues post contents that are not in tandem with the purpose for which the group was created. The response of respondent B clearly puts the responses of other research participants in perspective. According to him, *one of the main challenge of our WhatsApp group is getting other scientists to respect the reason for creating the group... some persons just forward whatever broadcast message they have got to the group. In fact the group admin have warned us severally not to post these kinds of contents to the platform, but till this moment people still send all sorts of irrelevant contents to the group.*

Fourthly, the author attempted to ascertain the determinant factors for the use of WhatsApp in the Laboratory Department using individual and organizational determinants.

**Individualistic/Organizational drive and vice versa:** Responses from this question revealed that there are interplays between individual and organizational determinants in terms of utilizing WhatsApp among the respondents. A significant number of the interviewees mentioned that, first, they have been using WhatsApp before joining the Laboratory Services Department, and becoming a member of the department's WhatsApp group is a step further in appropriating and converting WhatsApp for the particular purpose of their current job. However, most of the

respondents submitted that the organizational factor is superior because the WhatsApp group is directly tied to their jobs. In essence, this means that there are two levels to this. For those who have WhatsApp installed on their phone, the first determining factor for using WhatsApp, which is individualistic or is personal to a considerable extent, has to be fulfilled before moving to the second level-organizational determinant. For persons who were made to purchase phones and installed WhatsApp on it because of the essential messages that are circulated on the WhatsApp group, the organizational determinant suffices as the first and dominant determinant.

## Discussion

The current study is premised on three objectives: What are the perceived benefits in the use of the WhatsApp platform? What are the perceived challenges in the use of the WhatsApp platform? What are the determinants in the use of the WhatsApp platform? Findings from the study corroborated other studies that were reviewed, albeit, there are subtle differences in the current study. Ling (2016) argues that the main reason for creating a WhatsApp group is to communicate and share messages that are interest to the members of the group. The current study found that considerable information in the group is of significant interest to members of the group, and that is one of the benefits of the WhatsApp group. In terms of learning, the current study is in line with Asgari's (2017) WhatsApp based approach that the dental students believed improved their learning. Just like the current study, Asgari's study showed that mobile learning of language on WhatsApp has significant advantages for university students.

In terms of challenges encountered in the WhatsApp group, Dorwal et al. (2016) found that there were considerable improvements in communication and in the sharing of health information, among others. The current study revealed similarities in the findings of Dorwal et al. (2016). As exemplified in the analysis of data, the current study reveals the different information that is disseminated on the platform. Also, the challenge of posting unwanted content on the platform was



raised in our study as well as in Dorwal et al.'s (2016) study.

The current study also found that hierarchies are maintained on the platform despite the seamless communication among colleagues. A netnographic investigation of the WhatsApp group revealed some level of seniority or superiority in conversation among the scientists. This negates Johnston et al.'s (2015) study, which found that the WhatsApp group broke hierarchical barriers amongst students, doctors, and consultants, allowing everyone to contribute and share their experiences without restraints. In the current study, there were instructions that restrain junior colleagues from airing their opinions. To a considerable extent, there was discipline and decorum on the platform, and senior scientists were revered.

The respondents of the current study mentioned that they use WhatsApp because it is cheap and convenient. Ellen et al. (2017) findings are similar in this regard. The scholars found that the use of WhatsApp is easy, affordable, and dependable and can help enhance the efficiency of communication within a surgical team. In Australia, Nilkolic et al. (2018) found that most participants used WhatsApp as their desired and primary app for communicating health information because it is free, easy to use, convenient, and enables the creation of groups.

The Technology Acceptance Model (TAM) has become a guide that underpins most social media or ICT related studies. In the current study, the findings revealed the extent to which the respondents have come to adopt and convert WhatsApp as a tool for enhancing their work. For instance, the findings of "ease of use/affordability, "formal classroom" and "other space" are clearly related to the two main determinants of TAM. The domestication of new technology or innovation in most cases assumes a dimension the manufacturer of the innovation may not envisage. The perceived usefulness and perceived ease of use that engendered the acceptance of WhatsApp have further made the users of the app to domesticate it into their professional lives as a group, the laboratory WhatsApp group. Explicitly, these findings confirm the perceived usefulness and perceived ease of use as postulated by the Technology Acceptance Model (TAM) as used in this study. As stated earlier, perceived ease of use has a direct effect on perceived usefulness. "Perceived usefulness" (PU) is a strong factor that determines the user

appropriation, adoption, and eventual conversion of technology like WhatsApp.

One novel discovery in the current study is the cyber-heterotopic attribute of the WhatsApp group. Foucault postulated the word heterotopia in 1986. It means "other space." In this study, the WhatsApp platform constitutes a break with the natural space (typical work environment), and it radiates experiences that may not exist in natural settings. It provides scientists with an extended space with enhanced capabilities. Besides, methodologically, the online space could be viewed in two perspectives: a research field and a research tool. Building on netnography, the author argues that the current study has extended the frontiers of knowledge in this domain by conducting the current study, adopting the WhatsApp group as a research field, and a research tool.

### **Limitation**

Despite the efforts put into conducting the study, there are some limitations to the study. First, the population of the study is one limitation; there were 35 laboratory scientists on the WhatsApp platform and ten interviews were conducted. Further studies should improve upon this by studying larger populations. Second, the timeframe (4 months) is equally a limitation. The researcher would like to see further studies that would take more extended periods investigating a similar phenomenon. Also, the current study adopts a qualitative perspective, precisely, netnography: a research method for conducting online social media research. Subsequent studies should employ other methodological approaches, such as a quantitative or a mixed-method approach. Furthermore, subsequent studies may explore another set of population, for example, nurses or medical record clerks.

### **Conclusion**

The adoption of social media in the health sector is undoubtedly a necessary strategy that has come to be appreciated by many, and its instantaneous feature has made it popular for health professionals. The use of WhatsApp by the Laboratory

Services Department of Natic Hospital is pervasive. WhatsApp plays a critical role in strengthening communication among the scientists to deliver better health services to patients and to also further improve upon the knowledge of the scientists. The major disadvantage arising from the use of WhatsApp is the posting of unwanted content on the group. Besides, this study revealed that there are two levels of determinants to using and joining the WhatsApp group: individualistic and organizational determinants. Nevertheless, this does not inhibit its use as a considerable number of scientists admit to its potency in their work. The implication of the current study is that it draws the attention of the health care sector to the importance of WhatsApp. In as much as WhatsApp is adjudged to engender robust communication among the laboratory scientists, it is pertinent to investigate other social media platforms like Facebook group or Telegram, among others. This study concludes that WhatsApp is effective in improving communication among scientists in the Laboratory Services Department of Natic Hospital.

## References

- Asgari, A. J. (2017). An innovative media platform-supported blended methodology in English for dental purposes program. *International Journal Emerging Technology*, 12(3), 98–109.
- Atkinson, P., & Hammersley, M. (1994). Ethnography and participant observation. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 248–261). Thousand Oaks, CA: Sage.
- Bagozzi, R. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8(4), 244–254. doi: 10.17705/1jais.00122
- Boulos, M. N. K., Giustini, D. M., & Wheeler, S. (2016). Instagram and WhatsApp in health and healthcare: An overview. *Future Internet*, 8(37), Online. doi:10.3390/fi8030037
- Boyd, D.M., & Ellison, N.B. (2007). Social network sites: Definition, history and scholarship. *Journal of Computer-Mediated Communication*, 22(6), 303–379. doi: 10.1111/j.1083-6101.2007.00393.x
- Cheung, Y. T. D., Chan, C. H. H., Lai, C. K. J., Chan, W. F. V., Wang, M. P., & Li, H. C. W. (2015). Using Whatsapp and Facebook online social groups for smoking relapse prevention for recent quitters: A pilot pragmatic cluster randomized controlled trial. *Journal of Medical Internet Research*, 17(10), e238. doi: 10.2196/jmir.4829
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Journal of Management Science*, 35(8), 982–1003.
- De Benedictis, A, Lettieri, E., Masella, C., Gastaldi, L., Macchini, G., & Santu, C. (2019). WhatsApp in hospital? An empirical investigation of individual and organizational determinants to use. *PLoS ONE*, 14(1), e0209873. doi: 10.1371/journal.pone.0209873
- Dorwal, P., Sachdev, R., Gautam, D., Jain, D., Sharma, P., Tiwari, A. K., & Raina, V. (2016). Role of Whatsapp messenger in the laboratory management system: A boon to communication. *Journal Medical Systems*, 40(14), Online. doi: 10.1007/s10916-015-0384-2
- Durodolu, O. O. (2016). Technology acceptance model as a predictor of using information system to acquire information literacy. *Library Philosophy and Practice (e-journal)*, 1450 Retrieved from:

<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=4029&context=libphilpr>  
ac

- Ellanti, P., Moriarty, A., & Coughlan, F. (2017). The use of Whatsapp smartphone messaging improves communication efficiency within an orthopaedic surgery team. *Cureus*, 9(2), e1040. doi: 10.7759/cureus.1040
- Foucault, M., & Miskowiec, J. (1986). Of other spaces. *Diacritics*, 16(1), 22–27.
- Johnston, M. J., King, D., Arora, S., Behar, N., Athanasiou, T., Sevdalis, N., & Darzi, A. (2015). Smartphones let surgeons know WhatsApp: An analysis of communication in emergency surgical teams. *American Journal of Surgery*, 209(1), 45–51. doi: 10.1016/j.amjsurg.2014.08.030
- Kelahmetoglu, O., & Firinciogullari, R. (2018). Efficient utility of Whatsapp: From computer screen to the surgeon's hand to determine maxillofacial traumas. *Journal of Craniofacial Surgery*, 26(4), 1437. doi: 10.1097/SCS.0000000000001627
- Khanna, V., Sambandam, S. N., Gul, A., & Mounasamy, V. (2015). "WhatsApp" ening in orthopedic care: A concise report from a 300-bedded tertiary care teaching center. *European Journal of Orthopaedic Surgery & Traumatology*, 25(5), 821–826. doi: 10.1007/s00590-015-1600-y
- Khattoon, B., & Hill K.B. (2015). Instant messaging in dental education. *Journal Dental Education*, 79(12), 1471–1478.
- Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67–93.
- Kozinets, R. V. (2010). *Netnography: Doing ethnographic research online*. London, UK: Sage.
- Kozinets, R. V. (2015). *Netnography redefined*. London, UK: Sage.
- Kozinets, R. V. (2002). The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research*, 39(1), 61–72. doi: 10.1509/jmkr.39.1.61.18935
- Ling, H. Y. (2016). Investigating the perception of secondary school students in Kuching, Sarawak in using Whatsapp for communication and learning purposes. (Unpublished master thesis). School Of Education, Languages & Communication, Wawasan Open University, Malaysia. Retrieved from: [http://woulibrary.wou.edu.my/theses-project/MED2016\\_YLHSU.pdf](http://woulibrary.wou.edu.my/theses-project/MED2016_YLHSU.pdf)
- Marangunic, N. & Granic, A. (2015). Technology acceptance model: A literature review from 1986 to 2013. *University Access Information Society*, 14, 81–95. doi:

10.1007/s10209-014-0348-1

- Nikolic, A., Wickramasinghe, N., Claydon-Platt, D., Balakrishnan, V., & Smart, P. (2018). The use of communication apps by medical staff in the Australian health care system: Survey study on prevalence and use. *JMIR Medical Informatics*, 6(1), e9. doi: 10.2196/medinform.9526
- Pandian, S. S., Srinivasan P., & Mohan S. (2014). The maxillofacial surgeon's march towards a smarter future-smartphones. *Journal of Maxillofacial Oral Surgery*, 13, 4, 355–358. Doi: 10.1007/s12663-013-0497-4
- Patel, B., Johnston, M., Cookson, N., King, D., Arora, S., & Darzi, A. (2016). Interprofessional communication of clinicians using a mobile phone app: A randomized crossover trial using simulated patients. *Journal of Medical Internet Research*, 18(4), e79. doi:10.2196/jmir.4854
- Petruzzi, M., & De Benedittis, M. (2016). WhatsApp: A telemedicine platform for facilitating remote oral medicine consultation and improving clinical examinations. *Journal of Oral Radiology*, 121(3), 248–254. doi: 10.1016/j.o000.2015.11.005
- Pollizi, G. (2011). Measuring school principals' support for ICT integration in Palermo, Italy. *Journal of Media Literacy Education*, 3(2), 113–122.
- Raiman, L., Antbring, R., Mahmood, A. (2017). WhatsApp messenger as a tool to supplement medical education for medical students on clinical attachment. *BMC Medical Education*. 17(1), 7. doi: 10.1186/s12909-017-0855-x
- Rovai, A. P. (2002). Building sense of community at a distance. *The International Review of Research in Open and Distributed Learning*, 3(1). doi: 10.19173/irrodl.v3i1.79
- Sajithra, K., & Patil, R. (2013). Social media – history and components. *IOSR Journal of Business and Management*, 7(1), 69–74.
- Santos, G. N. M., Leite, A. F., Tadeu, P., Figueiredo, S., & Santos N. (2017). Teaching and learning oral radiology via the social medium WhatsApp. *Revista da Abeno*, 17(1), 16–25.
- Teo, T. (2013). A comparison of non-nested models in explaining teachers' intention to use technology. *British Journal of Educational Technology*, 44(3), 81–84.
- Udenze, S. (2019a). A netnographic study of personal branding on Instagram. *International Journal of Economics & Business*, 3(2), 211–217.
- Udenze, S. & Ugoala, B. (2019b). Building community and constructing identity on WhatsApp: A netnographic approach. *Journal of Russian Media and Journalism Studies*, 4, 49–69. doi: 10.30547/worldofmedia.4.2019.3

- UNICEF (2015). Online communities: Connecting online to improve a shared practice and to spark innovation. Retrieved from: [https://www.unicef.org/knowledge-exchange/files/Online\\_Communities\\_production.pdf](https://www.unicef.org/knowledge-exchange/files/Online_Communities_production.pdf)
- Wani, S. A., Rabah, S. M., Alfadil, S., Dewanjee, N., & Najmi, Y. (2013). Efficacy of communication amongst staff members at plastic and reconstructive surgery section using smartphone and mobile WhatsApp. *Indian Journal of Plastic Surgery*, 46(3), 502–505. doi: 10.4103/0970-0358.121990
- WhatsApp (2017). Whatspp FAQ: Using whatsapp group chat. Retrieved from <https://www.whatsapp.com/faq/en/general/21073373>.
- Yin, L. C. (2016). Adoption of WhatsApp instant messaging among students in Ipoh higher education institution. (Unpublished master thesis) School Of Education, Languages & Communication, Wawasan Open University, Malaysia. Retrieved from: [http://woulibrary.wou.edu.my/theses-project/MED2016\\_CYLEE.pdf](http://woulibrary.wou.edu.my/theses-project/MED2016_CYLEE.pdf)
- Zhu, D-S., Lin, T. C.-T., and Hsu, Y.-C. (2012). Using the technology acceptance model to evaluate user attitude and intention of use for online games. *Total Quality Management & Business Excellence*, 23(7-8), 965-980. doi: 10.1080/14783363.2012.704269