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Community of Practice Theory Approach to Understanding Factors Influencing Informal M-Health Use among Janitors in an IT-Rich Context

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Abstract

The study uses the lens of the community of practice theory to examine the factors influencing the use of informal M-Health among janitors in Information technology (IT) rich context. Janitors have peculiar job responsibilities and adjoining healthcare needs. However, they are often not allowed formal access to healthcare facilities provided by organizations where they work. Consequently, it is assumed that they are likely, everything being equal, to use informal M-Health without much conviction. This study's preliminary observation indicates that janitors do not use informal M-Health as assumed. The non-use of informal M-Health persisted even though they work in an organizational context, which one may term as an IT-rich organization. So, it became clear that this is a pressing need to understand the factors behind the non-use of informal M-Health among janitors through an empirical study. We adopted the community of practice theory as the theoretical lens to inform the empirical study. We adopted the interpretive case study method and collected the research data through interviews and participatory observation for about six months. We used the thematic data analysis technique to analyze the research data and developed a model showing the dynamics of the use of informal M-Health among janitors. The study findings show that android phone ownership, access to the internet, access to formal healthcare services, and social relationship with other categories of personnel were the dynamics of informal M-Health use among the janitors we studied. The study also shows how community-of-practice-induced social relationships influenced the factors that constitute the dynamics of the informal M-Health use among janitors played out in the research context. We concluded that janitors could harness more benefits in the context of the study if they understand how the community of practice social relationships works. The study is useful to those working to promote the use of informal M-Health and other IT firms that support healthcare access among people with peculiar needs.

Keywords: Informal M-Health, Janitors, Community of Practice, Organization, IT-Rich-context

1.0 Introduction

Advances in information technology (IT) have changed the ways medical institutions deliver healthcare services and the ways people receive and access healthcare services information (Mariwah et al., 2021). In the recent past, IT has helped to reinvent access to healthcare information in ways that dramatically increased the level of good health and well-being among individuals (Lattie et al., 2016; Yip et al., 2019). The new possibilities have been promoted by the evolution of electronic health (E-Health) and, in the recent past, mobile health (M-Health). M-Health is one of the many possibilities IT has promoted in developed and developing countries. And it has to do with using mobile devices to access healthcare services and information without meeting with medical practitioners face-to-face (Weiner, 2012). Consequently, Hampshire et al. (2021) argue that mobile devices help overcome infrastructural barriers to development and apply to growth in healthcare service and information delivery. Wood et al. (2019), therefore, defined M-Health as "...the application of mobile devices, their components and related technologies to healthcare" (p.1). According to World Health Organization (2011), M-Health is " medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices" (p. 6). M-Health promises to solve challenges connected to access and use of healthcare services in low-income contexts and among low-income earners (David et al., 2021; Mustapha & Utulu, 2021).

However, numerous challenges have been underscored in the extant literature as those hamper the use of M-Health. The challenges include limited generality of M-Health equipment and infrastructures, high learning curves, high cost, limited reuse, and overload of information (Broens et al., 2007; Thangada et al., 2018). Given that numerous factors hamper the use of M-Health, people have started to use mobile devices to access health information informally. The scenario has resulted in what scholars refer to as informal M-Health. Accordingly, Hampshire et al. (2021) argue that informal M-Health is "the spontaneous or bottom-up use of phones by...patients for healthcare purposes" (p. 2). Informal M-Health occurs when individuals access medical information to improve their knowledge about an illness or access information about medication prescriptions without involving any trained medical practitioner. Given this, it is believed that informal M-Health can eradicate the gap in access to health information in a poor context where access to formal M-Health and the trained medical practitioner may have been hampered by contextual challenges (Baker, 1996). Consequently, it is assumed that informal M-Health enables people in poor contexts who cannot use formal M-Health and healthcare services provided in hospitals to access valuable healthcare information (Hampshire et al., 2015).

Consequent to assumptions on the benefits of informal M-Health, one would expect that it should be used by most people living in poor contexts. Surprisingly, the number of people living in poor contexts who use informal M-Health is still very low. The low number may be good news to medical practitioners and agencies that may not support the ideas behind the use of

informal M-Health (Bloom et al., 2011). However, the low number of informal M-Health users may be problematic, given evidence in the extant literature. The evidence shows that informal M-Health offers life-saving opportunities to people without access to formal healthcare services and information sources (Hampshire et al., 2017; Klingberg et al., 2020). Therefore, the low number of people in poor contexts that use informal M-Health indicates that there are challenges to using informal M-Health among people living in poor contexts. Some of these challenges have been underscored in the literature. They include challenges connected to information infrastructure, ownership of mobile devices, cost of internet access, and accessibility factors like language and relevance of contents, among others (Mariwah et al., 2021). It follows that most insights available on the challenges to the use of informal M-Health were derived from studies done to study people living within societies and not those working in organizations. The scenario leaves a gap in the literature on the factors that come to bear in using informal M-Health among people working in organizations. Assumedly, people who work in organizations and earn monthly salaries are likely to own mobile phones and access organizational internet resources. The indication is that the challenges to using informal M-Health, as underscored by Mariwah et al. (2021), are likely not applicable to them.

The scenario indicates a lack of scientific knowledge on the factors that come to bear in using informal M-Health in organizations, including in organizations that have deployed sophisticated IT resources. Our observation of an organization that has deployed sophisticated IT shows that personnel expected to use informal M-Health given their status and job responsibilities do not use it. Our observation of the organization indicates that it is populated by educated and uneducated personnel and high-earning and low-earning personnel. We observed that the organization's disparity also influenced how each category of personnel was given access to internet resources and the healthcare benefits they enjoyed. We observed that janitors, a peculiar group of low-earning personnel, were not given access to the internet and did not enjoy healthcare benefits. The scenario made by Mariwah et al. (2021) postulation that the use of informal M-Health is hampered by challenges connected to information infrastructure and the cost of access to the internet applicable to the janitors. The scenario also justifies the pressing need to study factors that come to bear in using informal M-Health among people within organizations. This study focuses on janitors in an organization in Adamawa State, Northeast Nigeria. The organization has a functional healthcare service unit and can be regarded as an IT-rich organization. However, janitors who work for the organization do not benefit from its healthcare services and are not given internet access. It is, therefore, assumed that the janitors will readily use informal M-Health. So, it was surprising when our observation showed that the number of janitors that use informal M-Health was low. The scenarios informed the study, which was driven by the following research question: how do janitors' everyday life experiences and practices impact their willingness to use informal M-Health?

2.0 Literature Review

Informal M-Health is one of the IT-enabled healthcare delivery services used to provide access to medical information. Informal M-Health is often referred to as informal learning (Santos & Ali, 2012). The reason is that informal M-Health enhances unofficial delivery and access to medical information. Informal M-Health is opposed to the M-Health initiative that establishes a formal relationship between patients and doctors through official means that are paid for. Informal M-Health refers to the creative and strategic use of mobile phones to search for medical solutions to illnesses, mainly by people living in a poor context and people who may not want to consult medical practitioners for personal reasons (Hampshire et al., 2021). Thus, informal M-Health provides reliable healthcare services and information to people who may not have access to standard medical healthcare delivery. It offers ample opportunities to increase the ratio of people who adopt reliable medical information for personal healthcare purposes (Klingberg et al., 2020). Hence, informal M-Health is another initiative that can enhance healthcare access and delivery among the poor. Despite this potential, informal M-Health is one area that has not received much attention from scholars. This is likely because informal M-Health is mostly relevant in developing countries where there is an obvious paucity of resources for carrying out scientific research studies. The limited number of scientific research notwithstanding, most studies reported in the extant literature on informal M-Health are conducted in developing country contexts (Hampshire et al., 2015; Klingberg et al., 2020; Sam, 2021). This is because of the many inconsistencies that made it difficult for the formal M-Health initiative to bridge the widening gap between those that have access to healthcare services and information and those that do not (Hampshire et al., 2021; Sam, 2021).

Some studies have been conducted and reported in the extant literature to understand how informal M-Health is relevant in different scenarios and to different classes of people. Santos & Ali (2012) studied how mobile phones can be used as a tool to drive informal learning about health among undergraduate students. According to the authors, informal learning has a strong connection with mobile technologies; hence, mobile technologies can provide relevant and reliable points for informal access to health information. The study was an exploratory case study aimed at understanding informal access to medical information from the context of undergraduate students. The study's findings show how students interact with their classmates to solve complex health-related issues and how instructors can encourage informal healthcare-seeking behavior among the students. The authors did not state the theory(s) and the philosophy(s) that informed the study. It was evident that the authors adopted a mixed methodology in the study. However, they seem not to justify why they adopted the approach explicitly. A study on informal M-Health by Hampshire et al. (2021) reveals how healthcare workers in a poor context in Ghana use informal M-Health. It follows that the healthcare workers informally use their mobile phones to enhance access to healthcare among poor patients seeking healthcare services in the hospitals where they work in Ghana. The study revealed how informal M-Health enabled community healthcare workers to perform their healthcare service delivery

duties in a context with a poor economy. The study proved that using informal M-Health can be rewarding when adopting formal M-Health faces daunting challenges. Hampshire et al. (2021) adopted the qualitative approach to understanding the motivations for nurses to use their mobile phones informally to enhance healthcare delivery. It shows that informal M-Health can be integrated into how nurses use mobile phones to enhance their professional performances.

Before research studies, including Hampshire et al. (2021), were carried out, existing research mostly focused on integrating informal cell phone use into official biomedical procedures to mediate and address gaps in primary healthcare in Africa (Sam, 2021). There is, therefore, limited evidence on how patients and caregivers use mobile phones informally to supplement primary healthcare from various traditional ways that enhance the performance of formal healthcare systems (Hampshire & Owusu, 2013; Sam, 2021; Scott et al., 2014). Sam (2021) is one of the few efforts to consider how marginalized and vulnerable groups use informal M-Health under unofficial circumstances. Sam, (2021) concluded that access to healthcare services can be enhanced in low-income contexts and among vulnerable groups by introducing mobile phone-driven informal M-Health. Another study that reported the ways informal M-Health can be used to enhance access to healthcare information is by Hampshire et al. (2015). The study was motivated by the ways young people within the age bracket of 8-25 years use mobile phones to enact different innovations that are beyond mobile phone manufacturers' original intention. Consequently, Hampshire et al. (2015) reported how young people were introduced to informal M-Health is a powerful tool to enhance access to healthcare information. The study is important because, in the developing context, more than half of the teeming number of young people do not have access to quality healthcare services due to cost and related factors (Newman et al., 2021; Tirado et al., 2020). Consequently, informal M-Health provides the 'half bread is better than none' scenario for young people who can afford formal access to healthcare services. It follows that the studies reviewed so far are based on using informal M-Health in societal contexts. The implication is that scholars seem unaware of the importance of studying the use of informal M-Health among people within organizations. Thus, our research study was carried out to fill this gap, given that we studied janitors within an organizational context.

Janitors' works involve contact with waste and many other responsibilities that can make them vulnerable to sicknesses. There is the assumption that most organizations do not pay as much attention to janitor's well-being as they should (Erickson et al., 2002; Howley, 1990; Savage, 2006). Therefore, the use of informal M-Health among janitors may be very crucial. Our study confirms that there is a need to study people, such as janitors, who may not, for many reasons, be able to use healthcare institutions or have access to formal M-Health. From the literature, informal M-Health has proven to be an invaluable asset to the people in poor contexts. It is evident in the literature that there is a shortage of studies devoted to assessing factors that determine the use of informal M-Health among janitors. Therefore, our study intends to cover this gap.

2.1 Theoretical Assumptions of the Study

The community of practice theory is one of the formal theories in the knowledge management discipline and is inclined towards the situated approach to knowledge management. The theory is a social theory. It emphasizes that learning, the process of creating knowledge, is evolutionary. The theory proposes that the drive learns among people leads them to create communities of practice. People within each community of practice share uniform ideas, passions, meanings, identities, competencies, and concerns, among others, given that they jointly share similar everyday life experiences (Graven & Lerman, 2003; Wenger, 1999). Engaging in uniform practices enables people to share everyday life experiences in societal or organizational settings (Farnsworth et al., 2016). Sharing everyday life experiences happen among workers and makes them knowingly or unknowingly become a community of practice. The community of practice enables them to create support networks and opportunities for learning and development, engage in experiential learning, collaborate on common issues to create better practices, and decentralizes assurance (Li et al., 2009). Five crucial concepts must be visible for a community of practice to exist (Wenger, 1999). The concepts include *competence*, which is the key concept that enables the evolution of communities of practice. Competence influences the other four concepts and has to do with how members of communities of practice define who they are and why they are members of the community. This entails that every member of a community of practice must demonstrate a taken-for-granted knowledge of their identity as a community of practice and the primary reason(s) why the community of practice was established. No one can become a member of a community of practice without competence (Wenger, 1999). In other words, competency is a dynamic term that evolves in response to membership negotiations among people who create communities of practice (Farnsworth et al., 2016).

The second concept is *an identity* that has to do with what communities of practice are evolving into, namely, "*what we're becoming*." Members of communities of practice build distinct identities negotiated based on their understanding of the communities' competence (Kanes & Lerman, 2008). Members struggle to acquire the identity that distinguishes the community of practice they are working to be a part of. Identity enables members of communities of practice to benefit from opportunities the communities offer in terms of learning and acquisition of knowledge (Graven & Lerman, 2003; Wenger, 1999). *Practice* is another concept of the theory that defines the practice that is unique to members of communities of practice. Each community of practice has its unique practice that is socially constructed to suit the needs of every member (Farnsworth et al., 2016) and is usually expressed as '*what are we doing?*' Because members of a community of practice have the competence and identity that qualifies them to be members, practice reinforces their competence and identity. Although our explanation seems to indicate a form of dichotomy among competence, identity, and practice, the embeddedness of social relationships that lead to the formation of a community of practice provides the avenue for the three concepts to play out sequentially (Wenger, 1999).

Consequently, the uniformity and situated nature of competence, identity, and practice within communities of practice result in the emergence of the fourth concept, *meaning*. The situated nature of practice provides an avenue for experiential learning among members of communities of practice and results in the development and acquisition of shared meaning (Graven & Lerman, 2003; Wenger, 1999). Meaning is referred to as "shared meaning" because it is taken for granted in such a way that its substance is only visible to and understood by members of communities of practice. Insights in the extant literature indicate that meaning is crucial to the existence and sustenance of communities of practice and that a community of practice is likely to lose its identity if it cannot produce meaning (Graven & Lerman, 2003; Seibert, 2015). The last concept, *community*, indicates the cooperation within communities of practice to create avenues for learning and knowledge sharing. The fluid, unstructured, and difficult to assess embedded social structures within communities of practice enable members to be educated given the communities' shared traits, experiences, and identity (Kanes & Lerman, 2008). The community of practice theory provides the grounds for accessing how competence, identity, practice, meaning, and community may influence janitors in the research context to develop social relationships that influence how and why they may choose to use or not use informal M-Health. Although the janitors' official practice is cleaning, there is the likelihood that they have formed a community of practice that could also influence how they choose to use their mobile phones, including for informal M-Health purposes.

3.0 Methodological Assumptions

We adopted the qualitative research design for the study. Qualitative research design allows researchers to collect data in terms of verbal and non-verbal narratives or descriptions and convert them into variables (Elliott & Timulak, 2005). We used the deductive research approach, which permits researchers to use insights from formal theories or theoretical perspectives to drive their research studies (Al-Suqri et al., 2017). We adopted the interpretivism philosophy. Interpretivist philosophy proposes that the multiple realities in social contexts are socially constructed and subject to the different subjective interpretations that people ascribe to them (Al-Suqri et al., 2017; Hassan et al., 2018). We used the paradigm to understand the underlying factors inherent in janitors' everyday life experiences and practices and how these shape their use of informal mHealth (Utulu & Ngwenyama, 2017). This implies that we view the underlying factors that determine janitors' use of informal M-Health as being socially constructed and driven by janitors' everyday life experiences and practices. We also used the interpretive case study method. The interpretive case study allows a researcher to understand a phenomenon from the interpretations of the participants directly involved in the study (Walsham, 1995). We adopted the semi-structured in-depth interview technique and participant observation to elicit the participants' views concerning the factors determining their use of informal M-Health. In-depth interviews are suitable for generating in-depth information and interpretations of participants' views about subjects dealt with in research studies (Cavaye, 1996).

Researchers move back and forth to understand the interpretations the participants ascribe to the phenomenon in question. Participant observation allows a researcher to carefully observe the actions of the participants before and after interviews and helps the researcher get further insights into the questions central to research studies (Spradley, 2016). We adopted the convenient sampling technique to select the organization. The convenience sampling technique refers to choosing participants based on their availability and minimizes resources (Edgar & Manz, 2017; Taherdoost, 2016). The convenient sampling technique minimizes resources required for research studies and helps researchers access the research location and participants easily. We used the sampling technique because it enabled us to select a research context close to our location. We also used the convenient sampling technique because it allows us to choose the research context based on the ease with which we were able to get official approval to carry out the research study. We adopted the purposive sampling technique, which is the "deliberate choice of a participant due to the qualities the participant possesses" (Etikan, 2016, P. 2). We used the technique to target a specific group in the study context. We chose the sampled janitors using the purposive sampling technique because we needed participants who are directly involved as janitors in the research context. We adopted the thematic analysis technique in analyzing the data collected. Thematic analysis, according to Braun & Clarke (2014), is an analysis technique that is "...used to identify patterns within and across data concerning participants' lived experience, views and perspectives, and behavior and practices; during 'experiential' research which seeks to understand what participants' think, feel, and do" (p. 3).

We started the study with a preliminary observation of the everyday life activities of the janitors. However, a part of the janitors' everyday life has been infused into mobile phones. In other words, there are everyday life activities that janitors use mobile phones to complete. Consequently, we observed how they used mobile phones to solve complex life problems. Some of the complex life problems were connected to their works as janitors and while others were not connected to their works. The preliminary observations became the basis for relating the interview questions we asked that were not driven by the community of practice theory with interview questions that were driven by the community of practice theory. Preliminary observations allowed us to identify and appreciate the janitors' communities of practice within the research context and how they influence their willingness to use informal M-Health. The study covers six months. The authors of this study were conversant with the culture of the study context, given that the three of the authors have been related to it for a while. For instance, the second author had been related to the study context for about a decade, while the first and third authors had been related to the study context for about five years. The third author has related to the study context for over a year. It follows that the authors have had some level of relationship with the research context and understand to a considerable extent the existing informal and formal social structures within it. We had to get involved in the janitors' activities to win their trust and observe the non-discursive cognitive realities about the janitors' use of mobile phones. The implication is that we were able to understand the factors that come to bear in the

willingness of janitors to use mobile phones for informal M-Health. We conducted a total of 28 interviews with eighteen janitors. Twenty-two interviews were captured in writing, given that the janitors indicated they did not want recorded interview sections. Six interviews were recorded using a mobile phone-based recording device. We used field notes to record the outcomes of the preliminary observations and the observations done during the study.

Before initiating the investigation, we acquired the consent of the organization under inquiry and the janitors' consent. We provided the organization and the janitors with comprehensive information about the research study requirements and clarified that participation was voluntary. Before every interview, we secured the participants' consent to record or write down participants' responses to the interview questions. We gave the participants consent papers to sign and made it clear that they withdraw any time they felt like doing so. Data collected were analyzed using the thematic data analysis technique. We used ATLAS Ti software in the analysis of data. The six recorded interviews were transcribed. Twenty-eight interviews were typeset using Microsoft Word and uploaded to the ATLAS Ti software. We read the typeset data multiple times to familiarize ourselves with the data and quickly generate patterns and themes. Since we had a field note from the participatory observation, we also typed it. We went through it repeatedly to generate patterns in tandem with the interview data. We checked for similarity in the themes and grouped categories according to their proximity in meaning.

4.0 Presentation of Research Findings

This study aims to understand how janitors' everyday life practices in an IT-rich organization affect their willingness to use informal M-Health. Janitors are a group of people who have shared experiences and practices established within the communities of practice they form in the organization we adopted as the research context. Given that janitors' official responsibilities of cleaning are group-based, we assume that it is likely that janitors in the research context may have formed a community of practice that could influence their willingness to use or not use informal M-Health. Our assumption is derived from the community of practice theory notion that learning is socially-driven rather than individually driven. As such, the study used the community of practice to interrogate the use and non-use of informal M-Health by janitors in the research context. Below are the study's findings.

4.1 Android Mobile Phones Ownership, Access to the Organization's Wi-Fi, and Use of Informal M-Health

To effectively use informal M-Health, it is expected that janitors must own android mobile phones and have access to the internet. All the janitors in the research contexts owned mobile phones. However, only a few of them owned android mobile phones, which could provide them with effective means for using informal M-Health. We observed that the cost of buying android mobile phones was the major factor determining the ownership of android mobile phones among the janitors. Given our observation that owning android mobile phones among janitors was

influenced by the cost of android mobile phones, we tried to determine how the janitors that owned android mobile phones got them. Most of the janitors that own android mobile phones indicated that their android mobile phones were given to them as gifts from friends and relatives. For instance, Participant 3 said, *"Yes, I have a smartphone... It was my brother who bought it for me"*. Participant 1 said: *"When I was 18 years old, my mum bought it for me"*. Also, participant 6 stated that: *"I started using a smartphone before coming to [the case organization]; my best friend bought it for me"*. Participant 17 explained, *"My husband bought the phone for me, and later on, I bought one for myself"*.

However, the case organization, where the janitors work, can be categorized as an IT-rich organization. This is given the level of the IT infrastructure deployed by the organization and the fact that it provides members with 24/7 free access to high-quality internet. The IT infrastructure in the research context gives the impression that janitors may have access to organizational Wi-Fi and, in effect, develop the willingness to use informal M-Health. Unfortunately, the janitors do not have official Wi-Fi access to the case organization. The janitors indicated that they use the subscription-based internet services provided by mobile phone network service providers. However, all the janitors indicated that subscribing to subscription-based internet services provided by mobile phone providers is expensive. They indicated that they usually use free internet data they got as promotional access when they buy airtime for making voice calls. In this regard, participant 12 revealed: *"No, I don't have access to [the case organization's] internet; I am using my mobile data (sic)"*. Participant 19 explained, *"No, I have occasional access to the internet, and sometimes it is a challenge for me because I use my money to buy data"*. Also, participant 2 states that: *"Data is a challenge for me because sometimes I use my money to buy"*. The study reveals that the cost of purchasing android mobile phones and a cost of access to subscription-based internet services are factors that influence the willingness to use informal M-Health among janitors.

Although janitors had limited access to the internet, given that they were not allowed access to organizational Wi-Fi and the cost of subscribing to internet services, they revealed that it gave them informal access to organizational Wi-Fi. By informal access, they meant that they used the user names and passwords of some of the staff with official access to organizational Wi-Fi. It followed that the staff were willing to share their user names and passwords with the janitors, given the social relationship they have developed over time. One participant revealed, *"I have informal access to the [case organization's] network"*. Participant 17 also made a similar claim, *"I have access informally to the internet"*. In this regard, participant 10 said, *"No, I get informal access"*. Similar participant 11 stated that: *"No, I get access informally to the [case organization's] internet"*. Participant 16 indicated that she has *"informal access"* and revealed that within the case organization, there is a hall where the Wi-Fi connection is open for free use. Consequently, Participant 16 revealed that. *"The Wi-Fi in the [hall] is free, so I mostly connect to it if I am assigned to work there."* The challenge with the open Wi-Fi, as indicated by Participant

16, is that janitors have to wait until they are on a break before they can move to the hall and have free access to the Wi-Fi. Janitors working in locations far from the hall may find it difficult to move to and from the hall given distance and work commitments.

4.2 Access to and Use of Healthcare Institutions and Use of Informal M-Health

One of the reasons why we assumed before the start of the study that janitors are likely to use informal M-Health without much conviction is their lack of access to formal healthcare institutions. We have observed that janitors do not enjoy the privilege of being part of the healthcare insurance scheme that enables them to use the formal healthcare institutions in the case organization. Consequently, we felt that the scenario where janitors do not have access to and cannot use the healthcare institution in the case organization would promote the use of informal M-Health among them. We confirmed in the study that janitors do not have access to and use the healthcare institution in the case organization where they worked. Participant 15 stated, *"My Company [the company the case organization outsourced janitor works] doesn't support or cover my health needs. I take care of myself when I'm ill"*. This means that janitors are responsible for their healthcare services and the adjoining cost. Participant 16 stated, *"No, my company doesn't cover the cost of my healthcare, any time I get sick. I use my funds to treat myself"*. Also, participant 19 stated that: *"No, my company does not support me in any way"*. Participant 11 made the same claim that the company she is working with is not supporting her in any way regarding the cost of healthcare: *"the company doesn't cover my health; I take care of myself when I'm ill"*. A similar statement was made by participant 13: *"my company doesn't cover my health care services for me. I go to Federal Medical Center whenever I fall sick. Except in rare cases I use the nearest pharmacy in my area"*. The question arising from the abovementioned condition explained how do janitors get enough resources to support their healthcare needs, given that they are low earners? The scenario, however, impacted their willingness to use informal M-Health. Some janitors noted that on some occasions when they are sick and cannot afford to go for treatment in hospitals, they seek information on how to treat their ailment from the internet. Participant 9 indicated that; *"sometimes I look for information about headaches, malaria, back pain, etc. on the internet. This is when I become helpless... maybe I have used drugs, and they are not working."* Participant 13 indicated that *"the internet is good. It provides information about local remedies, fruits, leaves, and other things one can use to cure some common sicknesses."* It follows that lack of access to and use of healthcare institutions promoted the willingness to use informal M-Health among janitors.

4.3 Competence, Identity, Practice, and Use of Informal M-Health

Competence is the bedrock for negotiating identity, practice, meaning, and supporting networks within communities of practice. Based on the study's findings, it became evident that janitors had developed the competence they identify themselves with. Competence for janitors revolves around their social identities, including not being educated, being poor, being socially excluded, and within the organizational context. We found that competence is how janitors shared new

developments, ideas, and practices that enabled them to be identified as part of the community. In other words, they develop assumptions about how to carry out their cleaning duties, coordinate routines, share roles, and how the roles are completed.

Identity results when competence is established among a particular community of practice. Members begin to create an identity for the community members. As members are negotiating competence for the community, at the same time, they are becoming something else. The something else is their new context-based identity as janitors. So, this identity plays a role in the shared practices they developed and vice-versa. For example, we gathered through participatory observation how the janitors see themselves as constituting an inferior community within the larger communities of practice in the organization. The 'inferiority' state has become their identity and put them in a state where they feel that they are the 'needy' in the case organization. Being the 'needy' means they are not entitled to anything but can only get things through the benevolence acts of others within the case organization. Consequently, revelations derived from interviews granted by Participant 1, Participant 3, Participant 6, and Participant 17 about how the competence they used to negotiate their identity impacted their identity. Participant 3 said, "*Yes, I have a smartphone... It was my brother who bought it for me*". Participant 1 said: "*When I was 18 years old, my mum bought it for me*". Also, participant 6 stated that: "*I started using a smartphone before coming to [the case organization]; my best friend bought it for me*". Participant 17 explained, "*My husband bought the phone for me, and later on, I bought one for myself*".

Nevertheless, the identity janitors created for themselves within the community of practice influences how they sought healthcare services and information. Most janitors resort to using their mobile phones to search for healthcare information, given that they are 'needy' and cannot afford healthcare services and information from formal health institutions. We identified much evidence for this claim in our interviews with the janitors. For example, participant 16 said, "*Yes, I use my phone to check my health, and sometimes I use the information I get on any platform if it's reasonable and use it (sic). For example, when I had a cold, I used the remedy I watch on YouTube, and I got better*". There is also evidence of the use of informal M-Health in the revelation derived from the interview data got from Participants 2, 5, 9, and 11. If the revelations are critically observed, it will become evident that competence, identity, and practice come to bear in the willingness of janitors to use informal M-Health. Competence, identity, and practice enabled the janitors to share information and concerns within the community of practice, and one of the information they share is about the use of informal M-Health.

Practice is one of the characteristics of a community of practice that determines the frame of reference, ideas, tools, information, styles, language, and stories the members share. The study showed the impact of practice in the social construction of the willingness to use informal M-Health among the janitors. During our field observation, we observed that janitors spend most of

their time in the organization. As such, they developed some practices that every member adopted to maintain membership in the janitors' community of practice. These practice strings helped them define who they were and what they were becoming. It also helps determine what they do as members of a community of practice. Janitors have developed uniform practices such as getting informal access to the organization's network and accessing healthcare information from alternative sources such as the informal M-Health, among other practices. For example, Participant 18 stated, *"Yes, I have access to healthcare, but recently my only sickness is stomach ache, so I always check Google for some remedies. I learned to be drinking lots of water, so it's helping me. I rarely go to the hospital"*. Also, participant 19 said that *"Sometimes I watch my phone with my previous knowledge on sickness or medication. I researched on it and gained more knowledge, and it helped me when I had typhoid, and I got better without seeing the doctor"*. It follows that the alternative ways of getting access to healthcare information were shared practices within the janitors' community of practice. They became shared practices because janitors inform others about how to get things through alternative means, including the use of informal M-Health. Earlier above, we reported how janitors accessed the case organization's Wi-Fi by getting staff that had official access to release their user names and passwords. The practice became popular among janitors because janitors shared information about the possibility within the community of practice.

4.4 Meaning, Community, and Use of Informal M-Health

Meaning is another key component of the community of practice. This component explains experiences shared by members within the community of practice and how they are using the experiences to influence the community or the community influencing them. Meaning is a product of shared experiences among members of the community of practice. Sharing enables interactions, whereas interactions allow the sustainability of the competence of that community of practice. The ideal for its existence is lost when members do not share experiences that will better their community of practice. Meanwhile, janitors have vast experiences elsewhere; as such, it has helped them keep their community active by sharing information and new ideas with members. This is evident in the following statements by our participants. For example, participant 4 stated, *"My brother enlightened me on how to check my health on Google"*. This is an experience. When you observe our practice discussion, you will notice that most janitors use informal M-Health to search for medical information and medical care related to their health issues. It only points to one thing: members share experiences they have earned elsewhere, especially regarding saving costs given their social status. Evidence of experience sharing is evident in the statement made by participant 8: *"Yes, we share informal M-Health information among ourselves, always. We check YouTube when we are free to learn more about health information"*. Most of the information is not got outside the realm of the community of janitors. And it has been instituted as a practice within the janitors' community of practice. Field note has also shown that janitors have shared experiences. Given their social status and allowances, they hardly afford the kinds of smartphones they use. However, because they share experiences

among themselves, most of the janitors have now possessed smartphones. This is evidence of meaning creation among the janitors. Although this meaning is a product of a situated environment that makes the janitors feel a community, the larger community of practice has provided an enabling environment for sharing information and ideas and producing new meanings out of members' individual experiences.

A community of practice is not a community of agreements bounded by rules of engagement. Members of communities of practice freely (what most people will term naturally) share knowledge and ideas. Community as a concept in the community of practice theory indicates that members establish support networks that members free access. It follows that a community of practice cannot exist without the concept of community, which indicates the support in the form of knowledge members acquire by belonging to the community of practice. Without community, communities of practice will experience total disruption and destruction. Revelations derived from our interviews with janitors revealed how janitors felt so free to share knowledge and experience among themselves, given their membership in a community of practice. The inclination to share knowledge and idea with the community promoted the knowledge sharing about informal M-Health. Participant 8 said, "*Yes, we share informal M-Health information among ourselves, always. We check YouTube when we are free to learn more about health information*". Participant 1 revealed that: "*I have... friends that we discuss, and sometimes we talk if we hear about any sickness and even go on YouTube to learn more about it.*" These examples show the manifestation of the concept of community among the janitors. Community members always work as a group to find a remedy to individual concerns and, in some cases, larger concerns of the community. Janitors have developed these practices within the community of practice. And the practices have helped them deal with health-related issues, including using informal M-Health. Being members of a community of practice where knowledge about health issues and the use of informal M-Health is shared enabled them to bridge the healthcare gap that they suffered, given that the organization they worked for did not provide any form of healthcare benefit for them. Apart from healthcare issues, janitors also enjoy other benefits from the community of practice. For example, Participant 7 stated, "*we engage in saving some money. We normally gather some money every week and give it to one person. This is how it goes until the last person*". Janitors engaged in daily contributions to help one another solve economy-related issues.

5.0 Theoretical Elaboration of Study Findings

Scholars have relied on the community of practice theory to assess situated learning and knowledge sharing (Abma, 2007; Nicolini et al., 2016; Patriotta, 2003). The theory has proven to be integral to understanding the everyday life of social actors embedded in communities of practice. In this study, the community of practice theory was adopted to interpret everyday life experiences and actions of janitors working in an organization we termed an IT-rich organization. The main reason why we used the community of practice to assess everyday life

experiences and actions of janitors was to see how belonging to a community of practice can promote the use of informal M-Health among janitors. We considered the community of practice theory relevant to the study because the concept, competence as conceptualized in the theory, leads to the creation of the identity, practices, meaning, and community that characterizes communities of practice (Farnsworth et al., 2016; Graven & Lerman, 2003; Wenger, 1999). Interestingly, our study established the experiences of janitors within the community of practice they established to cope with the everyday life challenges and issues they face while struggling to practice their statutory responsibility as cleaners. Specifically, our study provides a community of practice theory-based interpretation of the factors determining the use of informal M-Health among janitors. We provided a theoretical elaboration of our findings below.

5.1 Android Mobile Phones Ownership, Access to the Organization's Wi-Fi, and Use of Informal M-Health

Almost all the janitors own mobile phones, which they use to connect to the organization's Wi-Fi and other everyday life practices. It enables them to do a lot of stuff, which includes: checking medications for illness (informal M-Health), watching entertaining videos, businesses, social media, and educative videos relevant to their work for experience, among other things. According to Hampshire et al. (2015) revealed that "young people are using mobile phones creatively and strategically in an attempt to secure effective healthcare" (p. 1). Also, "the majority of individuals are using their mobile phones to create an informal M-health ecosystem in an attempt to bridge primary healthcare access gaps" (Sam, 2021, p. 1). Our study used community of practice theory to uncover the use of informal M-Health among janitors. Hampshire et al. (2015) were able to identify how mobile phones are becoming an essential component of young people's health-seeking repertoires in Ghana, Malawi, and South Africa. These young people aren't waiting for M-Health to come to them; they're already doing it informally, creatively, and strategically using mobile phones to acquire treatment. Young people effectively claimed a digitally mediated type of therapeutic citizenship through their behaviors (Sam, 2021) and did generate that. The capacity of the unserved population to explore, bargain, and seek the care of their choice appears to be much enhanced by mobile phone access to a diverse set of healthcare providers. Also, the multi-faceted, complicated, and culturally loaded health-seeking behaviors in Sierra Leone's multiple health systems are multi-faceted, complex, and culturally laden. However, the studies have not stated what theory helped them generate their concepts, even though they applied a quantitative approach. In the context of our study, the competence of the janitors, as a community of practice, has helped us understand patterns of behavior among them. This led to uncovering how they enact practices, create meaning, and act as a community. Among the practices enacted are the ownership of android phones and informal use of the organization's Wi-Fi, among others.

5.2 Use of Healthcare Institutions and Services and Use of Informal M-Health

Many people are using different healthcare platforms as everyday life practices in all parts of the world to seek for medications and other solutions to their health issues. Khoja et al. (2007) came up with four determinants of access to e-health, which are grouped into sections, and also, there were one to four items in each section. The sections were then grouped into four categories for each tool; both tools' core, societal, and policy readiness were common. The fourth category in the tool for managers was called "technological readiness," whereas the fourth category in the tool for healthcare providers was called "learning readiness" (Khoja et al., 2007). However, in their study, they did not use any theory that served as a lens to guide their research, and they considered e-Health as it is without little discussion on M-Health, informal M-Health, among others. According to Brown & Duguid (1991) and Cruess et al. (2018), medicine's community of practice has not been created intentionally but emerged as a result of the activities taking place within the community. The mere mention of the community of practice does not show how the key concepts in the community of practice play a significant role in solving the problem. Thus, our study has shown explicit use of the concepts in the community of practice to generate the determinants for using informal M-Health among janitors.

5.3 Competence and Use of Informal M-Health

Competence: is the key component of a community of practice as it is the brain and heart of the theory. The community of practice must develop certain shared concepts with which members identify themselves (Gherardi, 2009). According to the community of practice theory, competence also explains behaviors unique to the community of practice members. Although Seibert (2015) identifies three essential characteristics of a community of practice in the healthcare setting, he does not explain how competence grows and impacts meaning, identity, and communities and how they are socially constructed among community members. So, one of the major contributions of this study is how we came up with the understanding of competence as a critical factor when trying to understand the factors that come to bear in the use of informal M-Health among janitors. Seibert, (2015) mentions that the antecedents to these three critical attributes still have not captured the critical component of a community of practice. This component is competence. Without competence, there will be no community of practice lest identity, community, practice, and meaning. But, we were able to come up with this concept and have provided a deeper understanding of how it influences the decision of janitors to adopt informal M-Health within their community of practice. Also, it has become evident in the work of (Portoghese et al., 2014) that the community of practice has helped them understand how junior nurses perceive respect among senior nurses. They have used the theory to understand whether being in the community of practice has implications on how they do not respect the senior nurses. However, they failed to understand how competence is generated among the nurses. Although they have recognized the importance of establishing a relationship to enable a conducive environment for learning among the community of practices in the student-nurses,

they still have not identified how competence is at the center of any community of practice. In this regard, (Naidoo & Vernillo, 2014) came up with some of the concepts identified by Wenger, like practice, identity, and expertise as meaning. But the authors did not mention the most essential component, competence, which is critical in their research. For the authors to build a good healthcare curriculum, they need to use Wenger's five concepts of a community of practice. Thus, one significant contribution of our study is revealing how the principles in the community of practice help determine the factors that make janitors use informal M-Health. Although several studies have been conducted on informal M-health, to the best of our knowledge, this study is the only one that used community of practice in this area to understand janitors' use of informal M-Health.

5.4 Meaning and Use of Informal M-Health

Individuals use informal M-Health to gain experience and medications for their health problems and other purposes (Anstey Watkins et al., 2018; Hampshire et al., 2015). Learning in communities and workplace learning is encouraged by fostering access to and membership in the target community and practice (Billett, 2002; Wenger, 2010). Meaning is one of the key components determining how people behave as they share experiences. Unfortunately, scanty literature used community of practice appropriately in M-Health and informal M-Health. Only a study conducted by Romero-Mas et al. (2020) revealed how the community of practice affects the routine of caregivers in a situated learning environment. As a result of contact with others, they have realized a remarkable decrease in stress and enhancement of collective perception. This happens through interaction. And interaction enhances experience sharing among members, which helps establish strong connections and negotiate new competence. To support our assertion, it was established in the work of Ranmuthugala et al. (2011) that most studies that adopted community of practice in the health care sector failed to provide detailed information as to how sharing of experiences and knowledge takes place among members and specifically how the community of practice concepts helps in explaining the phenomena in question. However, most of these papers focus on caregivers and do not consider people from poor contexts like janitors. Moreover, the paper does not touch on informal M-Health. Ours is the first to examine how meaning influences the decision to use informal M-Health. Our paper has established how janitors are engaged in sharing the experience to alleviate their poor context. The meaning has significantly influenced how they make decisions and approach various problems. Thus, we could determine how meaning became an established norm that determines what the groups do and what they avoid.

5.5 Community and Use of M-health

Community creates the social fabric of learning. Even when subject to organizational structures and boundaries, it is the community and not the organization that generates the knowledge. A community's life cycle depends on its continuing value to its members. Wenger (1998) describes the community development process as fluid, with members leaving and joining, being more or

less active at different times. The feeling of togetherness is a critical component in the community of practice. Without community, the idea of establishing a community of practice is lost. We have seen the community in janitors, which leads to the enactment of practices and forming identities that have significantly impacted their intention to use technologies and artifacts and how they make complex decisions. We have established how the community of janitors determines what they do, do not do, or what they term as practice or not in their community. Thus, our study understands that community is a significant component when trying to generate determinants for using informal M-Health among janitors and broadly among people living in a poor context. Most studies in the health sector that used community of practice have failed to implicitly or explicitly show how the community helps generate their findings.

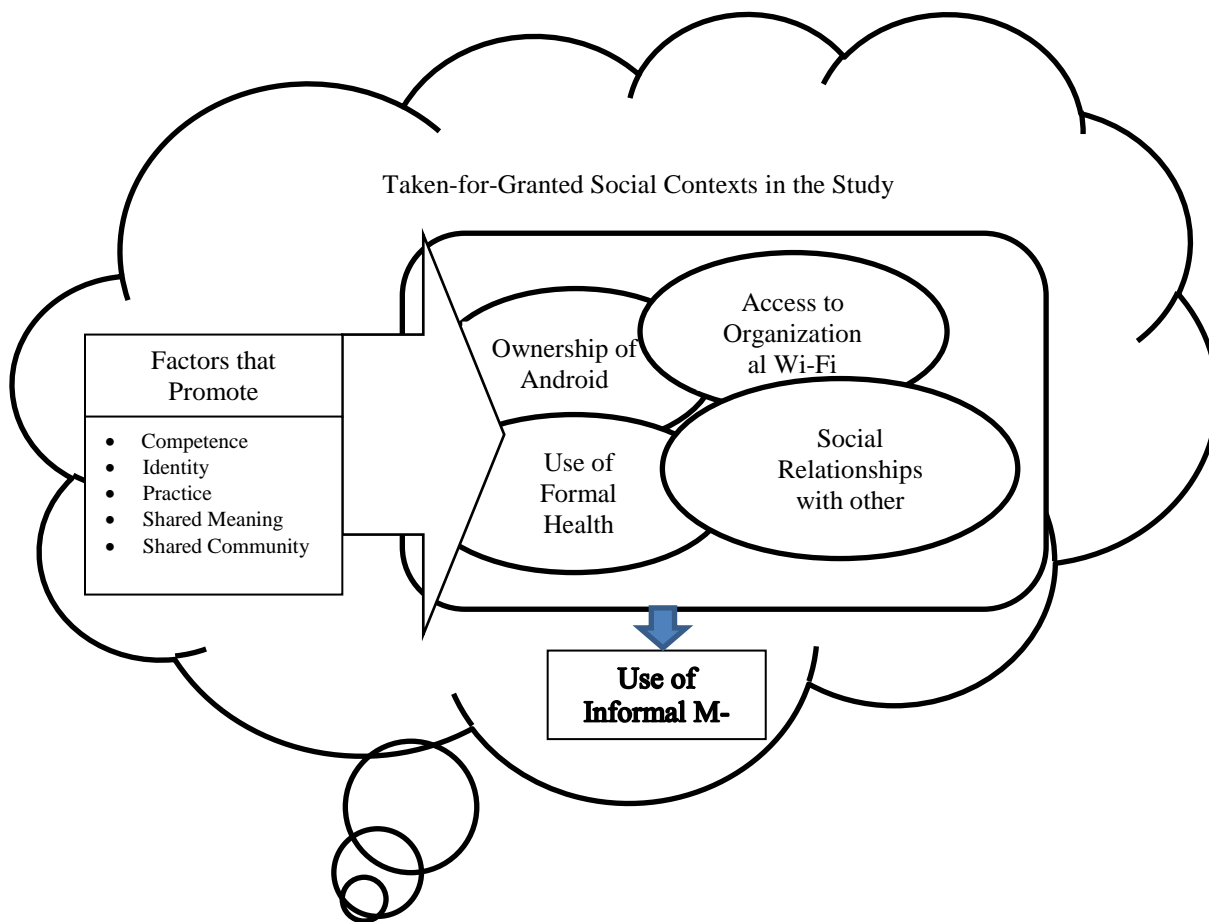


Figure 1: Dynamics of Informal M-Health Use among Janitors

6.0 Implications of the Research Model

In our research, we used community of practice theory to understand the usage of informal M-Health from the perspective of janitors through their everyday life practices and the factors that influence them. The importance of the community of practice cannot be overstated, as it impacts people who resemble janitors. Our research is the first to use community of practice theory as a lens to study informal M-Health among janitors in an organizational context. There are three levels identified in the model presented in Figure 1. They are the first factors of the community of practice that the janitors created to cope with social pressures connected to their everyday life challenges as janitors. Second, the factors that influenced the use of informal M-Health evolved due to the community of practice created by janitors. The third is the use of informal M-health among janitors.

Understanding the need for sustainability in a poor context, janitors have implicitly used community of practice to overcome their social status's challenges. This has provided a basis for understanding their everyday life practices and how they use informal M-Health. Janitors' everyday life practices were enacted through competence, community, identity, meaning, and practice. All these have come to stay in the lives of janitors and have evolved to influence critical decisions that janitors make. This was eventually to become the determinant for informal M-Health use among janitors. Janitors owned Android phones and had internet connectivity to utilize informal M-Health successfully. In the research circumstances, all of the janitors had cell phones, but only a handful of them had Android phones, allowing them to use informal M-Health effectively. The cost of purchasing android mobile phones was shown to be the most important element in janitors' decision to purchase an android phone. Most janitors who own android phones stated that they received their android phones as gifts from friends and relatives.

7.0 Conclusion and Limitations of the Study

The research figured out and elucidated the factors that influence the use of informal M-Health in the information technology (IT) rich context of organizations and the everyday life practices of janitors, as shown in figure 1 of the research model. The research reveals how janitors use mobile phones and organization internet to access informal M-Health as a means to seek medications and other social activities. This is given their poor context and in consideration of their base and destination organizations. According to our findings, janitors do not have organizational access to healthcare information like their colleagues. However, informal M-Health has proved invaluable since most have smartphones and informal access to the destination organization's Wi-Fi. We recommended community of practice theory as the best to use in this research to understand the everyday realities of janitors in an organizational context and other groups of people who can be termed as a poor context. Our research concluded that janitors could harness more benefits in the context of the study if they understand how the community of practice-induced social relationships works. The study considers only janitors from rich organizational contexts. Thus, further studies can look at janitors in a poor organizational

context. Also, the study generated a framework for using informal M-Health among janitors from an interpretive deductive approach. Other studies might look at other philosophical worldviews to generate a new understanding of the phenomenon. Subsequent studies might consider generating understanding from another poor context other than janitors. This will allow for multiple pieces of evidence about the relevance of informal M-Health in a poor context.

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