Are Online Social Networks, Leading to a 'Better World in the Omani Public Sector? A Qualitative Study

Jyoti Choudrie[1], Efpraxia Zamani[2], Ali Al-Bulushi[3]

[1,3]University of Hertfordshire, Hertfordshire Business School, UK
[2]Faculty of Technology, De Montfort University, UK
[1]j.choudrie@herts.ac.uk✉, [2]efpraxia.zamani@dmu.ac.uk, [3]ali.albulushi@yahoo.com

Abstract. Information and Communications Technologies (ICT) penetration is growing at exponential rates and affecting societies, countries and organizations, which has led to a need for understanding whether they contribute to development. To ascertain whether ICT are contributing to development, the example of a current ICT, Twitter is used, along with the aim of this research: *To understand and explain how public sector organizations are adopting and using online social networks; namely twitter, for the delivery of e-government services that will provide a better world to live in the Omani public sector.* By considering this aim, we attempt to explain whether Twitter, contributes towards the creation of a 'better world' to live in, or leads to diverse outcomes in a developing country, Oman. To achieve the aim, we used two public sector organizations workforces' experiences and applied the Choice Framework (CF) developed by Kleine [1]. For the research approach, we employed a qualitative approach and the data collection techniques, reference to archival documents, interviews, photographic evidence and observations. The analysis was completed using the lens of interpretivism, socio-materiality along with grounded theory concepts. The study reveals that ICT4D is providing a better world for most of the citizens, but for the providers of the improved e-government services, it implies aligning local practices to the technology, which affects their home/work life balance. The contributions of this research lie in emphasising largely how the use of Twitter in Oman will lead to development. The Choice Framework selected for our understanding was adapted and led to diverse results to those mentioned in previous ICT4D studies; therefore, our research makes a contribution of understanding ICT4D in an e-government context, which was amiss in the previous frameworks. For businesses, our findings inform practitioners on the ICT Technologies areas that need attention while implementing them within an environment similar to Oman's public sector. For policymakers, this research informs of the areas that require policymakers' attention when placing their efforts where they are best served.

Keywords: Twitter, Online Social Networks, Public sector, Oman, The Choice Framework

1   Introduction

A recent phenomenon causing changes in public and private sector organizations and society alike, are Online Social Networks (OSN) which is witnessing major growth

especially in developing countries. Within the Middle East region, including the Gulf countries, the use of OSN has grown by 47% in the last 12 months with mobile social media up by 40%, with Qatar and United Arab Emirates ranked no 1 and 2 respectively worldwide in social media penetration, while Saudi Arabia ranked no 1 in social media growth worldwide [2].

Twitter, an OSN tool is particularly growing in popularity especially in the middle east and there is a need to understand whether it can contribute to development, or, in the words of Walsham [3], whether "they are creating a better world in which we live?" Magro [4] provided a timeline of e-government research and OSN where recommendations were made for research in the areas of objectives and strategy, categorization of e-government applications, and policy-making. Twitter's growing use as online platforms and applications warrant further research into its adoption and use. Besides being a communication channel and voice for citizens that emphasises their political views and opinions. Twitter also aligns with the need for future research in e-government and OSN as recommended by Magro [4]. By considering this issue, we attempt to explain whether Twitter does contribute towards the creation of a 'better world' to live in, or otherwise. For readers, the concept of a 'better world is drawn from "IS scholars where practitioners should be concerned with how to use ICTs to help make a better world, and everybody has the opportunity and capability to use technologies to make better lives for themselves, their communities and the world in general" [3].

2   Theoretical Background

ICT4D: A Review. ICT4D is a contentious issue in research as the notion of development in ICT4D is one that has multiple facets. For instance, when considering ICT4D Sen [5] established that development is fundamentally about freedom. This makes participation and empowerment two essential components of contemporary theory and research about human development. Practically, ICT4D is essentially seen to be a framework for the application of tools and techniques to the practice of development. It is a multidisciplinary field within the practice of development that has benefited tremendously from the research, application and immense support from academia, the private sector and major development agencies [6]. It can be summarised as the use of ICT to reach development objectives with their potential impact lying in the uniqueness of these new tools, such as mobile phones and World Wide Web (3W), which have revolutionised the ease with which people are able to exchange and share information across vast distances. Their potential for accumulation of searchable knowledge and information are responsible for what many are now calling the advent of the Information Age [7]. Contrary to the physical objectives of ICT, which are fundamental to overcome limitations of existing techniques of information storing and sharing, ICT4D has a "profoundly moral agenda" that aims to empower people and communities by answering the difficult questions of not only "what should be done" in the practice of development but also "how we should do it" [6].

The Choice Framework. To evaluate development, a Choice framework (CF) was suggested (Fig. 1) that is based on Sen's capability approach, where 'development' is defined as 'a process of expanding the real freedoms that people enjoy' [5, 8]; Alsop and Heinsohn [9] empowerment framework where 'individual agency' (measured by an individual's asset endowment including, 'psychological, informational, organizational, material, social, financial or human assets). Alsop and Heinsohn [9] is connected with an opportunity structure' (shaped by the presence and operation of formal and informal institutions) that results in 'degrees of empowerment' (these are the existence of choice, use of choice, and achievement of choice), Alsop and Heinsohn [9] and the Sustainable Livelihood Framework used by the UK Department for International Development [10] drawing on its concepts of the capital portfolio and elements of its visual representation.

We recognize and apply the CF, a tool that has been identified as suitable for ICT4D understanding. A further reason for using it is that Kleine [1] identified a limitation of the framework being applicable to the micro-level of the individual, but a recommendation made is that consideration of its use should be made at the groups of individuals, communities or nations front.
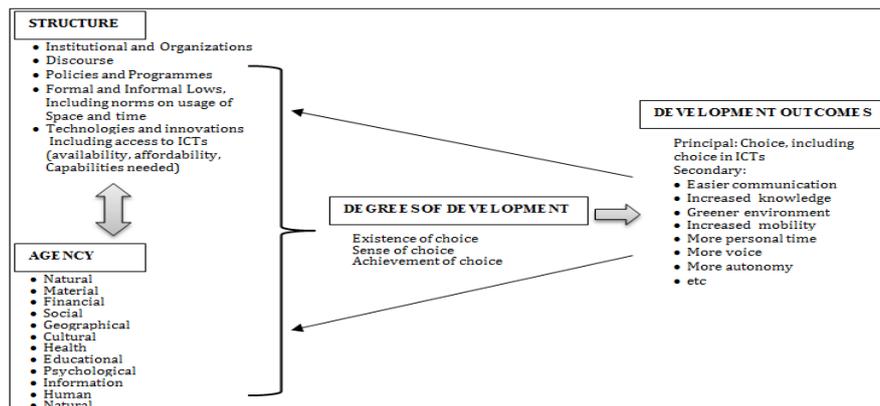

Figure 1: The Choice Framework. Source: Kleine [1].

2.1 ICT4D and E-Government Research

ICT are viewed to have tremendous administrative 'potential' for governments and generally for the public sector [11]. This 'potential' is considered to be a natural extension of the technological revolution that has accompanied the knowledge society, which is known as electronic (e-) government. E-government has many diverse definitions, with the majority agreeing that e-government is the government's use of different ICT to provide citizens and businesses the opportunity to interact with the government. This research considers a combination of Government 2 Government and Government 2 Citizen research where the provision of ICT and placing the citizen in a central position, whether as a participant or consumer.

In the context of e-government and Oman[1] research, Abanumy, Al-Badi and Mayhew [12] found that the government of Oman needs to develop a set of policies and regulations to enhance the development of accessible sites and encourage the use of ICT that facilitate citizens needs in the context of e-government. Ashrafi and Murtaza [13] then used a survey instrument to find that the use and impact of ICT on Small and Medium Sized Enterprises (SMEs) in Oman was still low compared to the expectations of the government. Albusaidy and Weerakkody [14] findings of Oman's e-government implementation efforts revealed that e-government is still in its initial stages, with the country facing a number of challenges such as, a lack of strategy, leadership, legal and regulatory frameworks and infrastructure related issues. These studies also support the earlier view that the application of an institutional perspective is provided, but they do not reveal how an ethical consideration to the provision of government products and services to the citizen is proffered. This is better informed by considering the outcomes of government products and services to citizens, which the next section explains.

2.2   E-Government and OSN/Social Media (SM) Research

In e-government e-services research, OSN have gained importance due to their enhancing of online citizens' participation and economic revitalization in austerity times due to the OSN revolutionary business innovations and business models [15]. Despite their penetration, OSN are still an enigma, which has led to varying existing definitions of the technologies with researchers utilising definitions according to the research scope. For this research, OSN are defined as "web-based services that allow individuals to (1) Construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" [16]. A term synonymous with OSN is Social Media (SM) that is defined as "a group of internet-based applications that build up on the ideological and technological foundation of Web 2.0, which allows the creation and exchange of user-generated content" [17]. Researchers interchangeably apply terms such as, SM, Web 2.0, Social Networks, Social Information Systems, Social Networking, Social Networking Sites when considering OSN, but upon closer examination they refer to OSN, which is the view that this research study follows [18].

With OSN/SM, the citizen's role has changed to that of a provider where citizen participation has become a key issue of consideration. In this instance, participation appears to be the key concept that explains the difference between 'old' and 'new' web technologies in the form of OSN/SM, although basic tools for interaction such as, chat and forum were also available in the early days of the 3W. What is also amiss in such studies is how the government agencies are transforming to cater to the citizens' needs, which our paper is revealing.

In e-government and OSN/SM research, an understanding of the 'global citizen' and whether this role can exist where a digital divide exists, examines citizen partici-

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[1] Oman was mentioned and emphasized as it is the case study context used for this study.

pation at a global level as OSN reach is global. The view is held that the 'global citizen's' role can be enhanced by reducing the digital divide using OSN/SM [19]. By participating in government focused debates, ICT in general have been viewed as applications that can be used as an effective means of reducing corruption, but social attitudes can decrease the effectiveness of ICTs as an anti-corruption tool [20], which subscribes to the ethical considerations and reveals a better world. Researchers have also attempted to understand whether citizen participation using OSN can be used to understand the transparency and corruption emerging due to e-government [21].

3   Research Methodology

For this research, the framing of our research question: 'How is Oman's public sector using Twitter for development and why?" suggests a qualitative case study method is most suitable for this purpose. We also employed the interpretive research approach that involves embracing [36]'s view that "our theories concerning reality are making sense of the world and shared meanings are a form of inter-subjectivity rather than objectivity" [22]. Finally, it should be noted that the understanding for this study was approached following Orlikowski [23] conceptualisation of the IT artefact.

Case Selection. For this research, two public sector organizations of Oman were used to compare the role of Twitter in Oman's e-government initiatives. One of the organizations is a high user of Twitter and the other, a medium-user. Further, one of the organizations is one that has more interaction with the citizens, which is Muscat Municipality (MM) and the other is the Public Authority for Investment Promotion and Export Development (Ithraa) of Oman that has less interaction with citizens. Both organizations were selected for theoretical reasons as both organizations use OSN; namely Twitter, interact with citizens and provide an opportunity to determine whether OSN do provide a 'better' world, but in diverse contexts. MM Services include, building permits, naming of roads, maintenance of roads and lighting, organizing local, community and religious events, or providing public sector employees with personal details such as, salary payments. Comparatively, Ithraa is a central government organization that deals more with the business and entrepreneurial aspects affecting citizens. Their services include, informing organizations interested in investing in Oman with vital information such as, required licenses for trading in Oman, or registering organizations seeking entrepreneurship in Oman. Ithraa, therefore, will provide a comparative basis for understanding ICT4D as the two cases will allow a comparison of a local and central government department's application of an OSN.

Data Collection. Participants were selected with a view that individuals employed in key organizational positions are best suited to answer the research questions [24], would ensure diversity and provide adequate experience of the e-government project of OSN (either presently, or in the past). Specifically, snowball sampling was used that led to participants being invited informally rather than to be obtained using an organizational hierarchical system (i.e., a 'senior member of staff' command). In the latter case, there is a risk for bias; because it is typical for respondents to obey their seniors' command and provide answers aligned with the researchers' aims. The re-

search team sought to ensure that no one was forced to participate and that individuals from all the organizational levels participated. We also ensured that there was theoretical saturation of the empirical material; i.e., that any additional interviews would be conducted only if they provided supplementary and substantial findings and perspectives; thus adding value to the study. Overall, this study used 19 participants of which 11 were female and 8 males. The numbers of participants was also essential to ensure that triangulation, which allowed verification and validation of the findings could be obtained. To acquire the data, semi-structured interviews that consisted of open ended questions were held.

Data Analysis. The analysis was conducted using a deductive approach, based on the Grounded Theory coding methodology, proposed by Glaser [25]. Further, as this research is focused on OSN and uses on interpretivism stance, we followed the analysis technique used by Choudrie and Zamani [26]. Specifically, the coding scheme derived from Walsham [3] on what constitutes a 'better world with ICT4D' and the Choice frameworks proposed by Kleine [1]. For the working practices analysis the socio materiality examples provided by Orlikowski [23] were applied. This led to the application of grounded theory approach, which was solely for the purpose of coding our material (rather than for developing our entire research design that is based on interpretivism). This allowed newly identified concepts to emerge and to be coded in terms of the extant (present in the literature) codes. This approach also allowed for the possible identification and analysis of newly emergent codes. It also facilitated the close examination of participants' opinions, perceptions and behaviours without imposing our own preconceptions onto our coding scheme.

4 Findings and Analysis

4.1 Development Outcomes

Since the main emphasis of this study is e-government, our questions and observations were focused on determining a government's provision of online products and services to citizens.

4.2 Primary Outcomes

Sen [5] identified 'choice' as both the aim and the principal means of development, where the primary development outcome is choice itself. For this, we identified the primary development choice being the choice of ICT to include the use of various government provided internet applications and services that established interaction between citizens, the government and public sector organizations.

From our interviews, the incumbent application for the workforce was a high reliance and use of e-mail, which is still within the remit of ICT. Additionally, the government was providing an infrastructure that provided choices to the workforce between using the classic form of ICT: e-mail and novel form of ICT: the various OSN. Participants were asked: *"What are the online social networks tools used in your or-*

ganization?" Participants from both MM and Ithraa cited using the various application choices offered by the internet.

4.3 Secondary Outcomes

Secondary development outcomes depend on an individual's choice as what lives they value [1]. Examples include easier communication with personal and professional contacts, increased knowledge, more income or time saved.

Easier Communication. For the analysis, unlike the CF, which was based on an individual and largely a household effort, our research employed a macro perspective and considered the individual perspective to using Twitter, which resulted in utilising Orlikowski [23] socio-material perspective. This assisted in understanding how there was easier communication within the organization and between the organization and citizens. Due to the networks, the servers functioned for 24 hours/7 days a week. This led to the workforce working practices aligning with a feeling that they should 'be in the loop'. This led to a faster, transparent and effective communication process. However, the use of Twitter had also affected their personal lives and ultimately, the work/life balance.

Table 1. A Socio-Materiality aspect to twitter's communication processes

Level 0	Citizen raises issue/s on Twitter-content mentions a department of MM and High Position Individual (HPI) associated with the department
Level 1	Feed is viewed by call center individual and HPI. Twitter service is socio-materially configured by MM Information Technology and Networks department to continually 'push' tweets' to devices.
Level 2	Message is sent to a mobile device that has an internet connection as the push facility from servers have settings sending messages 24 hours a day/7 days a week.
Level 3	Tweet is relayed on the internet and visible to members of the public
Level 4	As message is 'open', it is relayed, and picked up by the department of HPI and HPI on mobile or desktop.
Level 5	HPI and department of HPI Individual view tweet and become aware of issue.
Level 6	Actions and measures to address the problem are undertaken. Socio-materiality occurs here as the team the HPI is responsible for has to lodge and complete the task using whatever means at whatever time.
Level 7	Citizen issue is addressed.
Level 8	New feed: Citizen thanks MM and HPI on Twitter

Cost Savings and an increase in income. Since Twitter is a web based service an organization does not have to endure complex, slow and expensive software integration and focus instead on the value of their offerings and mission critical tasks. In turn, this implies efficiency in terms of cost savings of the reusable, coupled software components and expensive integration. Effectiveness occurs in terms of savings in time as explained earlier, and work practices are being addressed by relevant individuals in a timely fashion. These savings should lead to an increase in the income of the government funds, which Kleine [1] referred to in the CF.

Increased Knowledge, Information and More Voice. From the interviews it was induced that citizens were happier with Twitter as it offered more knowledge of the processes that were involved in completing a particular issue that they raised. Therefore, in this respect Twitter was offering citizens a better world to live in, a world where clarity and transparency was provided. Increased knowledge was due to the workforces becoming more accountable to and aware of being under the scrutiny of citizens. The reflective nature of Twitter also meant that whereas previously citizens

would e-mail the organizations, and there was no possibility of the citizens being aware of their concerns being addressed, or even attended to. With Twitter this was a possibility, which meant that citizens had become active stakeholders in the e-government initiatives, which was not there before.

Better Governance and Improved performance. Before using Twitter, senior managers would not be held responsible in front of public eye, which is the major difference identified by the use of Twitter. Due to Twitter, a senior management person holds a 'sense of responsibility' for an action. As there is an online mention, this leads to a government person being compelled to investigate and examine the issue. This leads to the senior manager identifying other people who can complete the task. These actions are all attributed to a citizen using Twitter, which in turn assures the citizen that the issue is being dealt with in an efficient, effective and transparent manner.

Twitter use led to an indirect and informal 'name and shame' policy, which is something that may be present before, or if it was present, it was in a hushed and silent manner. Now, with Twitter, everyone and everything is clearly identified, which shows a major development in improving the working practices of the public sector. A middle level, male manager of Ithraa confirmed this: *"Dealing with tweets does require a quick action and to reply back to the public...otherwise the organization image will be affected negatively if there is a delay".* At a lower level, a female staff member could further identify and evaluate the impacts of OSN: *"OSN saves time and makes the organization's work easier; particularly, with the information provided by the public, which most of the time includes pictures. So, interaction with the public has increased and more transparency is now available by both the organization and the public. There is also clarification because many services that members of the public thought were associated with one organization only is clear, and now they can understand the coordination needed and the time it takes to do something".* For the organization at a process level, the person noted: *"...work processes have become much easier and clear...but also some processes have been altered to include social media."*

Personal Time and Policies. A drawback of Twitter is the imbalance caused to the work/life balance. Several participants from the middle and lower levels of MM and Ithraa commented that they had to deal with tweets after work hours. This meant that time was being taken away from their personal lives. From a socio-material perspective, this is something that is a sign of the times.

We also found that most of the workers frequently viewed their handheld device, as they chose to 'stay in touch' or to be kept 'in the loop'. This was because workers formed expectations that others will be available via their devices, as they were which led to them replying to e- mail/s and in time this leads to collective socio-material enactments. These enactments are almost continual electronic communication within the organization. In the same way, many of the middle and lower level workforce were viewing their mobile devices continuously, which led them to form expectations that their colleagues, seniors were doing the same and felt the need to reply. This enactment was being completed at any time or day, which is leading to an enacted working practice that is delineating the work/life balance of individuals.

5 Discussion, Implications, Limitations and Future Directions

This paper provided a deeper understanding of ICT4D in Oman using findings of the use and development of Twitter in two of Oman's public sector organizations. Additionally, our paper has offered rich descriptions regarding issues of how choices are made in a country that can and will lead to development. We have also illustrated 'how' and 'why' development can and will occur in different settings, and considered the issues of gender, and ethics, which have been viewed as pertinent issues to be addressed when making choices for development utilizing ICT and if an answer is to be provided to whether a better world is being obtained in the world we live. For this, the CF proposed by Kleine [1] and shown in Figure 1 was applied and addresses the question Walsham [3] posed on whether 'ICT4D are creating a better world in which we live'. The CF also assisted in identifying not only ethical, equality, management and infrastructure' issues being addressed as development occurs, but by supporting them with rich acquired data.

Discussing first the issues that require addressing when considering whether ICT4D do create a better world in which we live, our research showcases the choices that have to be made by citizens when a government provides online products and services; in this case, Twitter. From the development outcomes it was found that there is an equal and ethical perspective provided by Twitter. This was confirmed by CF and our findings. However, our study used a socio-materiality perspective provided by Orlikowski [27] to form an understanding of the ICT4D being provided by e-government, which is missing in CF. Our findings revealed that unlike the CF, that was based on an individual and largely a household effort, a macro and individual perspective to using Twitter in organizations, will result in the organizations' development that will lead to a better world to various individuals, but not all. A socio-material analysis explained that due to the networks settings, the servers functioned for 24 hours and 7 days a week. This led to the workforce in the public sector organizations working practices to change and becoming aligned with the technology patterns due to; for instance, feeling that they should 'be in the loop'. Therefore, their working practices become synonymous with the technology. In turn, this affected their personal lives and ultimately, the work/life balance.

By applying an organizational context, this study explains how better governance and improved performance of public and private enterprises can occur for the secondary outcomes, which Unwin [6] recommends should be included in ICT4D studies. Due to Twitter features and functions, citizens could clarify and identify the departments that could manage and deal with their issues of concern, which was not possible before. Previously, individuals faced delays and confusion as information regarding correct departments would not be provided. This led to lags, confusion and in some instances, matters not being addressed. From the interviews, it was apparent that citizens were happier with Twitter as it offered more knowledge of the processes that were involved in completing a particular issue that the citizen raised. Therefore, in this respect Twitter was offering citizens a better world to live in.

Twitter also provides increased knowledge to the citizens about their concerns. Finally, in terms of the choices made between Twitter and other applications, mobility,

which were identified using the three forms: spatial, temporal and contextual was explained and provided further impetus for Oman, its citizens and public sector organizations to select using Twitter. Next, when considering the agency element it was found that resources were required, which included the geographical and natural resources. In Oman, there are plentiful natural and geographical resources available that can, in turn, provide a financial base for supporting and encouraging the government's aims, visions and strategies. However, finances are not solely sufficient to ensure that all the citizens will utilize Twitter. For this, there has to be a willingness, tenacity and motivation to use the technology, which our findings showed was available. Also important for an agency was the role of support, which a network, whether, friends and family, or colleagues was pertinent as they supported, encouraged and informed each other of the benefits and drawbacks of the technologies. From the secondary data it was learnt that the Omani government has been providing measures and resources that offer one of the best health care systems in the region, which implies that healthy citizens can also utilize and improve their lives using Twitter. An important outcome that explains how ICT4D is leading to a better world is the outcome of social capital. In Kleine [1] study, social capital was high. However, from our findings, due to the transparency of Twitter, there was a reduction in personal network connections making an impact. This was also confirmed by our findings of the secondary data obtained from TLO.

In the CF, for an agency to be realized there has to be interaction with a structure, which is possible due to formal and informal laws, programmes and innovations. Our study explained how programmes are being implemented to diverse individuals, irrespective of age and gender. Women were offered education in higher education institutions and the devices to use Twitter were also being provided to various individuals, which again emphasizes equality in the emerging development occurring in Oman. Training and educational programmes and software due to agreements signed by the Omani government and large ASPs such as, Microsoft were also viewed pertinent for the structure of the CF. A final note that was made for the structure of the CF was the provision of policies that prevented the misuse of the internet and facilities proffering internet related products and services. Finally, the degrees of empowerment explained, how due to Twitter, there was an increase in available choices for the citizens when utilizing e-government and the citizens were also aware of the uses or non-uses of the choices, which revealed a sense and use of choice. Thereafter, the achievement of using the choices aligned with the earlier outcomes, showed how a better world was being provided in some instances, but not in others.

There are several emerging implications of our study. Overall, we explained and showed how ICT4D in Oman's e-government initiatives is leading to a better world, which is not about poverty and development, but has more of a moral agenda that ICT4D scholars have been seeking in ICT4D studies [6]. When addressing the moral aspect, ethical and equality issues became apparent, which were better understood using Kleine [1] CF. The CF framework can provide pillars and issues to consider, but the results of the original CF cannot apply in an e-government context as shown by our findings. There can be contradictory emerging results as our study showed. For instance, we revealed how social capital can be reduced due to the provision of an

OSN, Twitter. We also utilized socio-materiality to understand how governance could, or not occur as well as address technology related issues. Heeks [28] suggested that ICT4D studies when emphasizing the ICT4D element in their studies have more of an emphasis on the social sciences where the technology artefact than disappears. We have attempted to address this issue by utilizing socio-materiality in ICT4D studies and shown that the context, process and technology can be explained and addressed. What was also shown, is that unlike in developed countries where Twitter is used more by celebrities and world leaders to emphasize their achievements, or personal pledges. Twitter in Oman is being used at a grassroots level. This shows that culturally, the OSN has been amended to local ways; thereby supporting the views of culture researchers such as, Walsham [29], [30], Robertson [31] and Appadurai [32].

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