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Sharing Disaster Information in the Social Networks: Lessons Learned from the Higher Learning Students Pursuing Disaster Management Program

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Abstract: This research was undertaken to assess the extent social networks have been used to share disaster information by the students pursued Bachelor Degree of Arts in Environmental Disaster Management. To achieve the study objectives, data were collected from 120 students through questionnaire surveys, 5 key informants through direct interviews, 18 participants via focus group discussions, and field observations. Results have indicated that, the main types of social networks used by the students were WhatsApp, Twitter, Instagram, and Facebook. Findings have also revealed that, these social networks were also used to share disaster information. Results have further stipulated that, 62.5% of the respondents revealed that, disaster information was moderately shared through social networks to students, parents/guardians and relatives. The study suggested that, there is a need for students who pursue disaster management program to use more social networks to share disaster information, improve internet networks which has been low, and raise awareness to students about the importance of social networks in sharing disaster information.

Keywords: Disaster; Hazard; Information; Social Networks.

1. Introduction

In the recent years, the world has been facing natural disasters such as hurricane, earthquakes, tsunami, and extremely cold winters (Zlateva, 2012). According to a report presented at the 28th General Assembly of the International Council for Science (ICSU) in 2005, the risks posed by disasters are rapidly increasing worldwide. Due to them, there has been also an increased communication, as people seek to contact family and friends hit by disasters, so as to assist them food, shelter and transport.

A study by Clayton (2015) disclosed that, social networks such as Facebook, YouTube, Myspace, Flickr, and Twitter were most popular when disasters stricken. In practice, during and after disasters, there have been individuals and groups in the social networks take time to discuss for the situation awareness, emergency needs, and sharing knowledge. For example, when an earthquake struck Japan on Friday March 2011, millions of the social network users were allowed to connect links and resources on social network sites such as global voices and an international community of bloggers in multiple languages.

It is clear that the introduction of new information and communication technologies enhance communities to share information and self-organize in response to disasters. Social networks furthermore, play roles in disaster management including information generation and dissemination. Also, they provide important insights for evacuations, shelters, and rescue (Sutton *et al.*, 2014). Velez & Zlateva (2015) added that, social networks provide valuable information to those in a disaster area (via internet if available, or messages updates), and they drive awareness to those outside the affected areas, generating volunteers and/or donors and connect displaced family and friends.

In the context of Tanzania, the usage of social networks have been increasing. This is supported by the presence of a significant number of institutions using Twitter, Facebook, You-tube and other social networks to share news, entertainments, and multimedia contents (IJOIT, 2014). Fishman *et al.*, (2005) additionally indicated that, College/University students produce tremendous volumes of writings which they share them in blogs, emails etc. Social networks facilitate students not only to obtain learning contents conveniently, but also interacting with others anytime and anywhere (JITBM & ARF, 2015).

It is further clear that, disasters are real and happening, therefore, experts are needed. As far as this call need milestones, the University of Dodoma had responded it by offering a Bachelor Degree Program of Arts in Environmental Disaster Management. Students who pursuing it as other people, have been using social networks to share different information. However, despite of the widespread diffusion and usage of social networks among them, their extent of sharing disaster information through the lens of social networks remains unstudied. Therefore, it is high time to map it.

2. Materials and Methods

2.1. Study Area

This study took place at the University of Dodoma (UDOM) located in Dodoma City (6.2142° S and 35.8248° E). One College (College of Humanities and Social Sciences) was involved by involving one Undergraduate Bachelor Program i.e. Environmental Disaster Management (EDM) having first, second, and third years students. UDOM was selected because it had EDM program and its students were also purposively involved due to lack of recent information on how they used social networks to share disaster information. They were further selected because they were key stakeholders in disaster management studies and practices.

2.2. Methods of Data Collection

2.2.1. Observations

The study employed multiple methods of data collection so as to bring together diverse qualitative and quantitative data, meanwhile offsetting the weakness of using a single method as signified by Kothari, (2004). An observation involves systematic selecting, watching and recording behavior, characteristics, availability and status of an object or phenomena (Kothari, 2004). Researchers observed devices used to access application of social networks by the EDM respondents. Direct observation was also done to validate the information obtained from other methods as could eliminate bias that could happen.

2.2.2. Key informant Interviews

An interview entail conversations between a researcher and respondents which attempt to obtain reliable and valid information from one or more respondents (Kothari, 2004). The method was employed to reveal informants' understandings, expectations, and perspectives pertinent to sharing of disaster information in the social networks.

An in-depth personal interviews were held with Head of Department of Geography and Environmental Studies and 4 academic staffs from the same department who lectures disaster management courses. Their choice was based on the need of the sample of different levels of education, experiences, and status.

All interviews were guided by checklists having various issues (types of social networks, types of information shared in social networks, and the scope of sharing disaster information in the social networks by EDM students).

2.2.3. Focus group discussions

Focus group discussions (FGD) were formal and structured. The method was crucial because, diverse views on how disaster information has been shared in the social networks were obtained. The discussions involved 6 participants from each year of study (i.e. 6 first years, 6 second years, and 6 third years).

Participants in each group were given a chance to provide views on the types of social networks they have been using, types of information shared in social networks, and the extent disaster information has been shared in the social networks. The duration of discussions was ranged 30 to 40 minutes to avoid tiresome of the participants. Their views were collected through note taking by researchers.

2.2.4. Students' questionnaire surveys

Researchers passed in the hostels and classes to pick EDM students to fill the questionnaires face by face. Questionnaires were preferred since they were cost effective, covered large segment of the population at the minimal time, and gave respondents freedom to give out answers. Key issues asked to them were about their social characteristics, awareness about social networks, types of information shared in the social networks, and the scope of sharing disaster information in the social networks

2.3. Data Analysis and Presentations

The collected data were cleaned, coded, and summarized. Quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) 20.0 computer programs for windows and Microsoft excel. Descriptive statistics (percentages) were derived. With regards to qualitative data, they were analyzed using content analysis technique which mainly involved transcription of recorded note books and then clustering information into sub-themes. The analyzed data were presented in tables and figures, as well as through quotes for discussions.

3. Results and Discussion

3.1. Social Characteristics

Respondents' sex and ages were examined. According to table 1 below, many of them (59.2%, n=120) were males and 40.8% females. This scenario could have happened by chance. However, it could be also due to uneven sex distribution during their registration, as there were few female students registered to pursue EDM when compared to males. For example, a class of third years EDM students had 9 females when compared to 35 males.

Table 1: Social characteristics (%)

Years of study	Sex n=120		Ages n=120		
	M	F	18-25	26-33	34-41
First years	50	50	100	0	0
Second years	50	50	97.5	2.5	0
Third years	77.5	22.5	82.5	15	2.5
Total	178	123	280	17.5	2.5
Average	59.2	40.8	93.3	5.8	0.8

As for ages, majority (93.3%) were aged 19-25 years. This could be because, most of the students aged between 19 and 25 years in Tanzania are normally pursuing Bachelor Degrees Programs when compared to Masters and PhD's who ages >25 years. In the context of this study, the majority of the respondents were found matured enough to provide information about the topic of the study. Similar to that case, a report by Ekş *et al.*, (2014) found more young participants during the field who had an experience regarding the state of social media and disasters when compared to elder participants.

3.2. Types of Social Networks Used by EDM Students

Respondents were further probed to identify the types of social networks which they have been using. Results in table 2 below revealed that, the most responses were for the Facebook. Others involved WhatsApp, Instagram and twitter.

In terms of Facebook, it was stated as a cheaper social network in terms of costs and accessibility when compared to others. This was signified by one of the first year's FGD participant that;

"I do not have a smart phone, but I have a Facebook application in my normal mobile phone". (See figure 1 below).

In the meantime, WhatsApp was also used by EDM students (Table 2 below). Discussions with a third year students' class representative (CR) revealed that, WhatsApp was so easy to use. Other students furthermore, had cemented that, they were using it because it was working with low internet speed.



Figure 1: Non-smart phone having facebook application.

Table 2: Types of social networks (%)

Types of social networks	First years (n=40)	Second years (n=40)	Third years (n=40)	Average (n=120)**
Email	10	2.5	32.5	15
Blog	5	7.5	2.5	5
Instagram	82.5	82.5	62.5	75.8
Facebook	90	82.5	85	85.8
Twitter	87.5	70	55	70.8
WhatsApp	82.5	70	87	79.8
You tube	7.5	2.5	0	3.3
Snapchat	25	27.5	12.5	21.7

**-multiple responses

Instagram furthermore, was used by EDM students to share pictures, status and videos. Others reported that, it was also used to communicate with the public regarding disasters as similarly revealed by Chih-Hui Lai (2015).

Moreover, Twitter was used to share information about the state of political, social and economic arena. Comparatively, it was less used when compared to other applications (i.e. WhatsApp, Facebook, and Instagram). This could be tentatively that, twitter is not so much about connecting with friends, rather, it is about broadcasting information.

3.3. Devices Used to Access Application of Social Networks

EDM students were further probed to determine devices which they have been using to access application of social networks. Results showed that, majority of them were using mobile phones in view of the fact that, are simple to use without intensive training and are flexible in that they can be used even when one is walking or charting.

Furthermore, an interview with a second years EDM student disclosed that, the application of social networks through mobile phones was ease and broad insofar as many people have mobile phones when compared to other devises as also supported by Blackman & Tiwoge (2011). Additionally, laptop, tablet and iPad were similarly used to access applications social networks.

3.4. Types of Information Shared in the Social Networks

The study meanwhile, intended to determine types of information which were shared in the social networks by EDM students. Results have clearly indicated that, on average, 35.8% (Table 3 below) of them were using social networks to share academic issues (lecture materials, disaster events etc.).

Table 3: Information shared in social networks (%)

Responses	First years (n=40)	Second years (n=40)	Third years (n=40)	Total (n=40)	Average (n=40)%
Types of information	Responses **				
Love relations	22.5	27.5	30	80	26.7
Politics	32.5	30	37.5	100	33.3
Academic	42.5	37.5	27.5	107.5	35.8
Social	27.5	37.5	20	85	28.3
Sports	25	37.5	10	72.5	24.2
Environmental	7.5	15	7.5	30	10
Business and jobs	25	25	42.5	92.5	30.8

**-multiple responses

Similarly, 33.3% of them were using social networks for sharing political information such as elections worldwide, parliament sessions etc. as quoted from respondent that;

“I have not been watching Television, but I have used to get matters arising in the parliament sessions from the social networks (i.e WhatsApp, Facebook, Instagram e.tc.), and I also used to share them to the different social groups”.

Furthermore, 30.8% of the sampled population were using social networks to search information about business and jobs. This lines Schreider’s (2010) assertion that, approximately 85% of the undergraduate students were Facebook users, particularly finalists. This was because, they were about to finish their studies, hence ready to struggle for jobs. Discussions with a third years EDM student similarly noted that;

“I am a finalist, I have been using Facebook, Instagram and WhatsApp to broadcast myself and to look for jobs posted so as to prepare myself to compete for them soon after completing my studies”.

3.5. Most Information Shared in the Social Networks

Results in table 4 below hold a set of diverse views posed by the respondents regarding information they have been sharing in the social networks. On average, 30.8% of them were sharing issues encompassing disaster lecture materials, early warnings, and hazards/disaster occurred globally. Similarly, they have used them to inform other people apart from the students about the causes, impacts and measures to be taken to reduce disasters risks. Discussions with one third years' EDM student explains;

“During field visits in 2017 in my second year for the earthquake occurred 2016 in Bukoba (Kagera Region), I have shared all field steps during data collection in WhatsApp and Facebook to my family and friends to know what has happened and what I have been doing in the field”.

They further shared academic information (reading materials, class timetables, training e.tc) in the social networks away from disaster matters. In practice, spending time in social networks for academic matters contribute to better performance. Choney (2010) found that, there is a relationship between student times spend on Facebook for academic and its effect on performance.

In addition, results revealed that, EDM students were sharing various social information and sports in the social networks. For instance, they were sharing match/league schedules, results, and the winners of betting. This situation influence more fans and friends in different parts of the world. Others were sharing various competitions, music adverts, religious affairs etc.

Table 4: The most shared information in the social networks (%)

	First years (n=40)	Second years (n=40)	Third years (n=40)	Total (n=40)	Average (n=40)% **
Most information shared					
Business and jobs	7.5	30	25	62.5	20.8
Love relations	17.5	17.5	10	45	15
Politics	30	10	15	55	18.3
Academic	30	32.5	25	87.5	29
Sports	20	37.5	22.5	80	26.7
Environmental	10	12.5	7.5	30	10
Disaster	15	20	57.5	92.5	30.8

**-multiple responses

The current study went far to explore the factors pushed EDM students to share those most shared information in the social networks. It was found clearly that, they had an intention to educate

and raise awareness to their fellow students, relatives and parents who were unaware and uneducated about disasters which occurred at national, regional and global levels.

However, others were sharing disaster information and experiences in social networks to advertise themselves as future disaster managers. They target to be known by both governmental and non-governmental sectors/organizations. One second years' FDG participant aired out that;

“In Tanzania, disaster management program has been offered by the two Universities i.e. Ardhi University and the University of Dodoma. Therefore, posting disaster information is an opportunity for the future”.

Such views coincide the arguments posed by Ringo, (2018) that the demand of disaster experts in Tanzania is high and the institutions in place to train them are few to meet the country's demand.

In addition, some of them used social networks, especially WhatsApp and Facebook for an intention to share early warnings on diseases like Cholera, HIV/AIDs, UTI and others. They were similarly posting causes, effects and measures to be taken to avoid their risks. An interviews with one lecturer concurs to this as he asserted;

“Students are often given and share warnings on various hazards and disasters likely to occur or those have occurred like the invasion of wild animals, Cholera, Dengue, and Ebola in order to take pre-measures to void or reduce risks.

3.6. Extent of Sharing Disaster Information in Social Networks

The extent that disasters information has been shared by EDM students in the social networks was furtherly assessed. Results have clearly indicated that, they were shared at moderate level (Table 5 below). This was because, most of the times students have many academic duties to do such as group and individual assignments, as well as tests. For this, they used to share disaster information orally when compared to social networks.

Table 5: The extent of sharing disaster information in social networks (%)

Years of study	High (n=40)	Moderate (n=40)	Lower (n=40)
First years	15	60	25
Second years	17.5	62.5	20
Third years	17.5	65	17.5
Total	50	187.5	62.5
Average	16.7	62.5	20.8

However, some of them claimed that, lack of internet bundles and networks failures had exacerbated them to share disaster information at moderate level in the social networks as remarked from one respondent that;

“Sometimes, I want to share disaster reading materials in social networks, but I used to fail due to low internet”. The same had stated by one lecturer during key informants interview that, “... Most of the times, an internet has been low, hence make difficulty in sending lecture and other reading materials to students, particularly via email”.

However, few of them confirmed that, they were sharing disaster information in the social networks at the lower level. Their arguments hold that, inadequate money to buy internet bundles was among of the reasons to do so. For instance, one EDM student who was a beneficiary of higher learning students’ loans posited that;

“I have been sharing disaster and other information in the social networks during boom period (disbursement of students’ loans) when compared to other times.

This implied that, during the disbursement of the students’ loans, majority of the EDM students who are the loan beneficiary could share more information in the social networks because, they have money for internet bundles. Others have similarly aired out that, they shared at lower level because they do not have modern cellular phones (smart phones), computers and tablet which facilitate the application of social networks. Meanwhile, others viewed that the use of social networks was just a wastage of time.

Result in table 5 above indicate that, some of the respondents (16.7%) have highly shared disaster information in the social networks. The depicted reasons involve the accessibility of internet bundles and having modern devices (smart phones, computers and tablet) which helped to get first and faster information. Similarly, focus group discussions confirmed that, closeness to the sources of information (Television (TV), Radios, Newspapers, seminars, and trainings e.tc.), high speed and accessibility of the internet networks influenced higher level of disaster sharing information in social networks amongst students.

4. Conclusions

This study acknowledge the radical innovations in science and technology, particularly in public communication through social networks. It further concede that, the usage of social networks to share disaster information is growing worldwide due to presence of modern devices (such as laptops, smart phones and tablets).

In fact, social networks connects people all across the world with information via the same platforms of communication where users are able to send and receive information in a short time. For instance, when other modes of communication fail during disaster, social networks can play crucial role in connecting people. This is because, information is crucial in response to disasters, and increasingly information is understood as an aid in itself.

Students, particularly at the Colleges and Universities are expected to use more social networks to share academic issues in their professionals as they are disaster vigilant to others. However, it was noted that, they do so at moderate level. This gives a clue that, efforts are needed to influence them to use social networks to share academic matters and to promote their areas of studies to the public. The study further concludes that, information is power and information technology and disasters are becoming inextricably interwoven as also social media expand our universe and enhance us to connect and collect information faster and easier than ever.

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