Towards Pragmatic Community Centered Disaster Management Methodologies: Mainstreaming Disaster education through Open and Distance Learning Platforms

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Abstract

Over the past century there has been an increase in the rise of disaster incidents in the world. The emergence of climate change has increased the propensity for disasters. This development has increased the probability of disasters occurring across the globe. The interaction between climatic and human induced disasters across the globe has challenged all sectors to transform and question older dominant methodologies of service provision and make a paradigm shift towards risk management and research to suite the new challenge. Education has also responded to the challenge. Thus the rise of the ODL ushered a unique dispensation in the education topography to meet the increasing risk of disaster challenges. The ability of the Open and Distance Learning (ODL) to reach greater populations across the globe, its cost effectiveness, high level of interaction between what is learnt and the reality on the ground as well as its ability to create a permissible platform where people can learn in their environment and work at the same time ,creates a just milieu for direct application of disaster education in their lives as well as at work, thus mainstreaming Disaster management knowledge into people's lives to reduce levels of community vulnerability to hazards and disasters. This study examines the potential for mainstreaming disaster risk management into education to reduce the levels of vulnerability to disasters using Open and Distance learning platform. Data was obtained from 30 purposively selected key informants as respondents. Data were collected through in depth interviews and questionnaires. Key informants were selected from disaster management practitioners as well as key educationists. Data was analyzed using thematic analysis and the results were presented using tables, and narratives. Results found were configured into six themes which dovetail the wider dissemination of need - based knowledge of disaster education, the financial viability of ODL in disaster education, the flexibility of learning, ability to reach large populations as well as its unique utilization of multi-media platforms. Its utility was found to offer both formal and informal disaster education.

Key words: Disaster, disaster education, ODL, mainstreaming

1.   Introduction

A massive transformation is taking place in emergency management practice. Priority is fast focusing on pro-active measures of reducing vulnerability among communities. Thus the field of disaster management has become a sine qua non for sustainable development. The field is also being positively and negatively affected by recent technological and climatic developments. In addition, training and educational practices are being challenged to *metamorphosise* in order provide more a knowledgeable cadre of professionals and a versatile disaster management community capable of meeting the contemporary and future challenges that will inevitably result from the ever increasing exposure to a hodgepodge of risks and hazards exacerbated by the advent of climate change, terrorism, urbanization and modern technological advancement. The demands placed on emergency technocrats and managers have risen, but there are also other stakeholders like education practitioners that can play a key role and contribute to disaster management. While recognizing that emergency and disaster management still retains vestiges of the past of lessons, it is, nonetheless, becoming dramatically different than it was in prior years which demands new approaches. These changes call for corresponding changes in emergency and disaster management research and scholarship to capture and fully understand the dynamics and a plethora of variables that contribute to their occurrence. The kaleidoscopic nature of vulnerability and disaster dynamics demand new revolutionary paradigms to be integrated with the perspectives of the past to meet the present and future emergency and disaster management challenges. The new methodologies will help to capture the emerging knowledge base in emergency and disaster management which is expanding at a dramatic pace. This paper assesses the potential of Open and Distance Learning platform in fostering pragmatic community centered disaster management practices .It looks at the rationale for mainstreaming emergency and disaster education in the ever-changing practical and academic environments through ODL. It discusses the utility of ODL in increasing effectiveness of disseminating emergency and disaster education across communities irrespective of geographical space and time. The paper finally present challenges to effective utilization of ODL platform to meet the disaster education goals through ODL

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2.   Research problem

Research is saturated with evidence of increasing emergency and disaster situations globally. As such, this is coupled with increasing risk and vulnerability of communities leading to high disaster mortality and heavy destruction of property. There is thus a need to increase the awareness and alertness of the communities. In Zimbabwe, anecdotal evidence point to the fact that currently disaster awareness is limited to a few communities and classes of people. This is because the recent communication and or information dissemination methods used have not been effective and accessible enough to many communities who would otherwise be at risk such that they are caught unaware when disaster comes, resulting in these communities failing to manage the disaster. Thus there has been a call for new methodologies that reach out to many people at cost effective rates and these can be found on the Open and distance learning platform. The Chitungwiza blast of 2013, the second Sunningdale blast of 2014, the 2008 cholera outbreak, the Sunningdale tanker blast, the High-glen tanker blast of 2012 in Harare, the foods in Muzarabani and Tokwe Mukosi in floods in Masvingo (Zimbabwe), oil blasts in Uganda and Nigeria, these cases all point to the need for developing an effective   mass/community disaster education..

3.   Rationale of the study

The study brings to the fore new methodologies to challenge the old paradigms in emergence and disaster risk management. By so doing it attempts to create a platform for testing ideas that may provide a panacea to new challenges in disaster and emergency management and research. By targeting to communities at lowest levels through the use of ODL platforms it targets mass education and the primary recipient and not technocrats. Thus it is able to disseminate basic education to vast numbers of people, the education which is useful and practical in their day today management with the vagaries of risk and vulnerability. It provides what one can call emergency and disaster education for survival as it takes away the monopoly of disaster education and knowledge from technocrats to the people. In this context disaster education becomes common knowledge for communities making it more accessible and usable to benefit the communities.

4.   Conceptual framework

To capture these ideas disaster specialists have developed a range of definitions of 'disaster', though none is universally accepted. In this paper, a disaster is conceived as: *"a severe disruption to the survival and livelihood systems of a society or community, resulting from their vulnerability to the impact of one or a combination of hazards and involving loss of life and/or property on a scale which overwhelms the capacity of those affected to cope unaided"*(DFIF,2004,ISDR204).

The International Federation of Red Cross and Red Crescent Societies (IFRC) define "disaster" as: *"a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources."*[1]

Distance learning is the training that takes place largely synchronously. The material is delivered to all recipients at the same time even though recipients are separated by geographical distance. According to the US Distance Learning Association, ''the delivery of education or training through electronically mediated instruction including satellite, video, audio, audio-graphic computer, multimedia technology and learning at a distance'' (Leonard, 1996). Types of distance learning technologies include: one-way and two-way interactions using audio (e.g., audiotape, voice mail, audio conferencing), data (e.g., computer-based training, internet), video (e.g., videotapes, video messaging, two-way videos), and combinations of audio, video and data (e.g., multimedia programming, multimedia messaging) (Chute et al., 1999).

There is an intimate relationship between information access and disaster management. In this study, disaster management is conceptualised as, a systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters .This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards (ISDR, 2000).In this context the management includes the utilisation of the ODL platform to enhance the coping capacities of communities at risk .Thus mitigation in the study refers to the lessening or limitation of the adverse impacts of hazards and related disasters through the adaptive utilization of various tools offered by the ODL leaning platform. The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions.

5.   Review of related literature

 Distance learning, although viewed as a ''current'' phenomenon, actually has a long history. Rumble (1999). Scholars like James and Gardner (1995) have described four generations of distance learning. Although

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[1]http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster)

their models are slightly different, both show the iterative fashion in which technology has allowed trainers and educators to increase the effectiveness of distance learning techniques and effective information dissemination. The advent of information edge and the third generation technology has further improved the effectiveness of information dissemination enhancement has have become more extensive and integrated, Systems-based distance learning includes multi-media such as print, audio, and video coupled with interaction by phone and face-to-face; this is the third generation of distance learning has further broadened the opportunities for people to learn. While this generation does not include any strikingly ''new'' learning modalities, it is the systems perspective, the interactive feature, and the combination of many transmission methods that warrants its label as a separate generation. It is very popular today, and may take many forms. For instance, GTE Learning Systems uses a combination of instructors, self-paced learning on the web or via CD-ROM, knowledge management systems, and mentors to meet its organizations training objectives (Sabia & Cassarino, 1999).

6. During disaster process

The fourth evolution of distance learning relies upon two-way communication via desktop computers and cutting edge technologies such as virtual reality. In this generation of distance learning, trainees are linked with other trainees with audio technology, or by virtual chat rooms. Moreover, trainees may interact with instructors via these methods, or in some cases, may view the instructor through streaming video. The line between the third and fourth generation technologies is blurred when one considers that the fourth generation technological breakthroughs may become part of a more integrated learning system as described in the third generation. The above feature is key in mainstreaming disaster education in communities. Configuring the ODL systems to meet the community disaster education need may result in improved disaster management knowledge dissemination and practices thereby increasing the community adaptive capacities and resilience in disasters.

7. The utility of ODL in the context of disaster management

Literature is awash with the advantages of distance learning. These advantages can be viewed under the disaster management spectacle to identify where ODL may maximize disaster management practice. Disaster management practice has undergone serious changes in the past. After the major disasters in India since 1999, the focus on disaster management has been on *'ideographic'* to *'nomothetic'* that is, from individualistic to universal, and from *'normative'* to *'empirical'*. Such paradigmatic shift in disaster management has led to more emphasis on pro-active approach for disaster management to substantially mitigate the losses, if not completely eliminate the chances of destruction. In keeping with the conception that disaster management must be holistic, and not as a piecemeal strategy, there is need for a large number of stakeholders to be educated and imparted requisite skills for effective management of emergencies and disasters. It is rather difficult and financially unviable to cater to such a vast number of people and institutions through face-to-face learning. Open Distance Learning system is gaining currency to cater for variety of needs of different segments of the society. It has been recognized as one of the most effective tools of reaching to a large number of clientele. Open and Distance Learning does not bind learners with the constraints of time and place. ODL also offers flexible opportunities to learners. Thus, ODL system can be used for paving the way for educating the communities and imparting required knowledge and skills to manage emergency and disaster s.

8. Methodology

8.1 Research philosophy

The philosophical perspective underpinning this study is mainly from interpretive paradigm which is hermeneutic in nature. However the study has also acquired some footprints of post positivism, that is a modified objective stance and critical postmodernism as it supports different worldviews. Interpretive approaches give the study greater scope to address issues of influence and impact and to ask questions such as "how and why" particular learning trajectories are created, (Deetz, 1996).According to Walsham (1993), the rationale of the interpretive approach in information science is to produce an understanding of the context and the process whereby information science influences and is influenced by the context. This assertion justifies the choice of hermeneutic as the philosophical rationale for this study. Thus, the study adopted an inter-subjective or interactional stance towards the reality behind the utility of ODL in disaster risk management civic education and/ or community education being investigated.

8.2 Interpretivism

Interpretivism used in this study posits that reality consists of people's subjective experiences of the external world. As results the people may adopt an inter-subjective epistemology and the ontological belief that reality is socially constructed. According to Willis (1995) interpretivists are anti-foundationalists, who believe there is no single correct route or particular method to knowledge. In keeping with Interpretivism, the ODLs methodologies potential of harnessing this vast reserve of heterogeneous knowledge of disaster risk management act as a suitable learning platform for mass disaster risk management education for communities.

8.3 Research design

By its nature qualitative research is naturalistic. It attempts to study the everyday life of different groups of people and communities in their natural setting as such it is particularly useful to study educational settings and

processes. According to Denzin and Lincoln, (2003),qualitative research involves an interpretive, naturalistic approach to its subject matter. It attempts to make sense of, or to interpret, phenomena in terms of the meaning people bring to them. Domegan and Fleming (2007) add that, "Qualitative research aims to explore and to discover issues about the problem on hand, because very little is known about the problem. There is usually uncertainty about dimensions and characteristics of problem. It uses 'soft' data and gets 'rich' data'". (p. 24). According to Myers (2009), qualitative research is designed to help researchers understand people, and the social and cultural contexts within which they live. Such studies allow the complexities and differences of worlds-under-study to be explored and represented (Philip, 1998).The above definitions of qualitative research point to the need to engage communities in their natural settings and explore the meanings they give to their vulnerability in order to effect a kind of education which can be directly married to their circumstances, a kind of applied and problem solving type of education which ODL offers.

8.4 Rationale for a Qualitative Study

There is unequivocal consensus among many scholars that that human learning is best researched by using qualitative data, (Domegan,and Fleming, 2000, Denzin and Lincoln, 2003).It is thus paramount to select a paradigm whose assumptions are best met by phenomenon being investigated, Guba (1981). This study is about human learning and the effective use of emerging learning platforms and methodologies in facilitating it. The use of quantitative research could make obscure some of those insights and experiences of participants that the researchers needed to understand in order to address the complexities of learning processes and the contextual factors required for the learning environment.

8.5 Participants and Purposive sampling

The study made use of purposeful sampling to select the respondents .The research chose it because it is the most effective sampling strategy in qualitative research when one seeks cases rich in information which can be studied in great deal about issues of central importance to the purpose of the study. The benefit of purposeful sampling is that, as Patton (2002) puts it, "Any common patterns that emerge from great variation are of particular interest and value in capturing the core experience and central, shared dimensions of a setting or phenomenon". Thus the study purposefully selected educational practitioners (10), disaster management practitioners (8) ICT practitioners (5) educationists and 7 ODL managers as data sources.

8.6 Data Collection

The main data collection techniques used in this research study were in depth-interviews and questionnaires.

The study used unstructured type of interviews which allowed the interviewer to pose some open-ended questions and the interviewee to express his/her own opinion freely. This created a conducive milieu for information sharing because it appeared less interrogative conversation style. Its advantage was that the research was able to vary the level of questioning to suit the context and that the interviewer was able to quiz the interviewee more deeply on specific issues as they arose.

Structured interviews were on key formants to target specific information. The interviewer used a set of predetermined questions which were short and clearly worded requiring precise answers in the form of a set of options read out or presented on paper.

9.   Results and data analysis

Data analysis was done using thematic analysis and seven themes were established .The study established that ODL had a cutting edge in its contribution to disaster risk education on the communities in several ways. It was noted that the Open and Distance Learning's superiority hinges on its wider dissemination of need based knowledge, financial viability, flexible mode of learning, optimum utilization of information and communication technologies, vast reach and accessibility, capacity building in new and multi-disciplinary areas like disaster management and use of multi-media approach..

Wider dissemination of need based knowledge: Disaster is pronounced when the community is affected to the extent that it disrupts its livelihood and normal way of life. What is key in this disaster conceptualization is the focus on community (and not an individual) which entails many people. The respondents indicated that in order to improve pre and post disaster management, there is a need for wider dissemination of disaster education to vast numbers so as to improve the disaster preparedness.
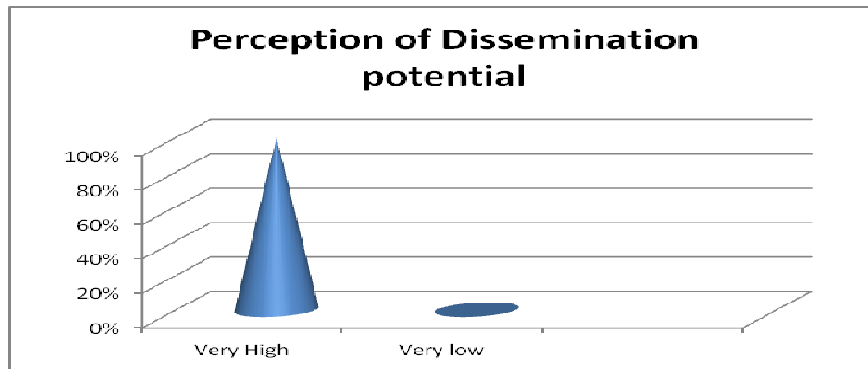
Figure 1: perception of Participants on ODL information dissemination potential

When asked to rate to rate the potential for ODL on dissemination of disaster education amongst communities, Hundred percent (N=30) of the respondents rated the ODL platform "very high" on wider dissemination of disaster education information and non rated 'Very Low'. Because of the ODL ability to effect wider dissemination of need based knowledge to communities, it choice in disaster risk management is not disputable. The respondents had consensus in locating ODL as a *sine qua non* for effective disaster education across communities.

Financial viability

Table 1   Rating the financial viability of ODL   N=30

Respondents category	Mean
Disaster management practitioners	1.3
Educationist	1.2
ITC	1.1
ODL practitioners	1.3
Scale 1-Very High 2-High 3-Avarage 4-Low 5-Very Low	

All disaster practitioners (N=10) respondents (N=20) agreed on the financial viability of the ODL methodology in disseminating disaster education. Their responses rated the ODL as Very High (means 1.3, 1.2, 1.3 and 1.1).The respondents cited the need for vast financial investment and resources for effecting wider communication to the communities as the greatest stumbling black in disaster education programs. The disaster management practitioners(N=10) were quick to note that governments are often financially hard pressed to fund disaster education programs and asserted that this may explain why most of disaster management projects and programs are taken over by NGOs. The respondents indicated that due to the financial viability of the ODL system, its cost reduction effect has the capability of necessitating emergency and disaster education program sustainability and continuity as it uses less resources that when measured against other modes of educating communities on disaster management.

Flexible mode of learning: The study also established that another unique ODL characteristic which makes it an effective way of disseminating disaster education is its flexibility. In this case flexibility was taken to mean that one can learn at his or her convenience. Other respondents indicated that flexibility amounts to continuous learning as one can go back to the information sources at convenience and on a need to know basis. Thus the study established that all the respondents were agreed on that the ODL mode presents flexibility of learning on a need to know basis which has a potential of improving the community disaster coping capabilities as compared to other learning modes.

Optimum utilization of Information and Communication Technologies: The advent of ITC has ushered unique dispensation in global information dissemination. As such the ODL has maximally embraced the full utilization of the ITC in improving access to education of large number of masses across the globe. Configuring this development to disaster education, the respondents did not hesitate to note that, the ICT and ODL present a conducive and effective springboard for *disastereducationopangaea[1]*.This is because of the ODL's exceptional exploitation of ICT devises which are well distributed through phones, internet, ipads gadgets which are well represented in communities. The ease at which disaster education can be disseminated to common communities

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[1] *Disastereducationopangaea-*. A term coined from the word "Pangaea" by the researcher to mean provision of disaster education to the world.

is demonstrated by the current use by Ministry of health(in Zimbabwe) as they are reaching out communities in large numbers using the cell phone messages to disseminate public health massages on cancer as well as warning people on road accidents and safe driving .In line with is reasoning , the respondents indicated that vast if not millions of subscribers are reached .

Vast reach and accessibility: The ODL strategy is designed to enhance a vast reach out to greater populations given its utilization of ICT.As a results it becomes effective in disseminating disaster education which intern improves the disaster management efforts in communities. When disaster education and information reaches out vast numbers, the implication is that vast numbers will be prepared for disaster risk management resulting in minimizing the negative impacts of disasters. There was consensus among respondents on the utility of ODL and ICT in reaching vast numbers of comminutes targeted for disaster education, however, in terms of accessibility there were differences in perceptions owing to the levels availability of electricity, internet network and ICT accessories availability in some of the most remote areas or those areas where relevant infrastructure is not yet developed. However the utility of the ODL in increasing population reach and accessibility as not disputed.

Capacity building in new and multi-disciplinary areas like disaster management: The respondents also identified that the use of ODL enhances capacity building in new multi disciplinary areas important to disaster management .It was noted that the ODL has a capability to link practitioners in ICT, education, communication, climate change well as environmental studies , all in a bid to enhance disaster risk management. The respondents noted that such synergies are key to sustainable disaster risk and emergency management.ODL has the potential for creating both academic and professional alliances, harnessing different disciplines and converging them to disaster education, management and research. The overall perceptions of the respondents hinged on the position that, given that disaster management is a multi-stakeholder activity, ODL places itself on a on a unique position to facilitating capacity building in disaster education and management.

Use of multi-media and social approach embrace: The respondents indicated no doubt that ODL has the potential to embrace the multimedia approach in disaster education. The ODL practitioners were quick to elaborate on the superiority of ODL in using multimedia in disseminating disaster education. Among the identified issues were the extensive uses of whatsapp twitter, email, facebook, MySpace, SMS in communicating with communities before, during and after disaster events. Disaster practitioners noted that flood levels can be monitored and the information passed to and from the communities and the technocrats, extreme changing weather patterns can be disseminated to all people at national level via these ICT platforms. Similarly, early warning signs can be communicated via ICT enhanced media, evacuation procedures can also be sent to individuals from the cell phones, iPods, emails, radios etc. In this way communities can be educated on life saving skills which increases their capacity to manage disasters. Thus there was consensus on the usefulness of ODL in enhancing disaster education to increase the community resilience and capacity to manage disasters.

10. Conclusion and recommendations

The study noted that there is need to explore the vast potential of ODL in disaster risk management .The superiority of the ODL platform presents a unique platform for improving the disaster education which leads to behavior change important for confronting community disaster management problems facing communities today. In line with the study it was recommended that:

- There is need to explore the potential of viewing disaster education through ODL lances to that we improve the disaster management coverage.
- Disaster education policy should prioritize mainstreaming ODL in disaster practice. Mainstreaming ODL in disaster education helps to capture both those in formal education and those in communities as it may be possible to provide survival based education.
- There should be maximum utilization of ICT facilities in enhancing dissemination of disaster education across communities. Disaster practitioners should learn from the Ministry of Health (in Zimbabwe) who are using the SMS wider dissemination platform to propagate Cancer and Sanitation health education across communities. The rate of network coverage penetration in developing countries is encouraging. Likewise, the rate at which ICT is penetrating communities, both urban and rural provides the *motus anima* for mainstreaming ODL in disaster education and research.

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