Bridging disaster risk reduction, community work, and gerontechnology: Potentials, ambivalences, challenges

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PURPOSE The Round Table brings together discussions on disaster risk reduction, community work, and gerontechnology. The participants work in diverse yet overlapping areas, with expertise in assistive and digital technologies in social and healthcare, social work as disaster relief and community work, rescue robotics, and global disaster risk reduction. Within a co-creative discussion format, the participants engage in the exchange and creation of future knowledge related to the role of communities, technologies, and robotics in disaster risk reduction with a special emphasis on the situation of elderly people. The goal is to facilitate a dialogue between previously separate discussions on social, community-based disaster relief on one hand, and gerontechnology and robotics on the other. This dialogue aims to develop practical approaches and new visions for community-centered disaster relief together with and for people in need, as well as to explore the possibilities of gerontechnology based on best practice examples and exchange of experiences. **ISSUE** According to the United Nations International Strategy for Disaster Reduction definition, a disaster is "a serious disruption of the functioning of a community or society causing widespread human, material, economic, or environmental losses which exceed the ability of the affected community or society to cope using its own resources" (UNISDR, 2004, 1). Disasters result from the combination of hazards, vulnerabilities, and insufficient capacity to reduce potential negative consequences. They can be natural (e.g., floods), human-made (e.g., terrorist attacks), or a combination of both. The international community responded to the increase in disasters by adopting the Sendai Framework for Disaster Risk Reduction (SFDRR 2015-2030) in 2015, emphasizing focused actions at local, national, regional, and global levels (De Silva et al., 2023). On the one hand, it is particularly vulnerable groups and recipients of social and health care services that are especially affected by disasters and need specific emphasis in this context (Alston, Hazeleger, Hargreaves, 2019; Dominelli, 2012). This includes the elderly, individuals in care and senior facilities, people with disabilities and individuals who depend e.g. on the continuous functioning of ventilators or other technical devices. On the other hand, the question arises as to what possibilities digital innovations, such as rescue robots, can offer for the retrieval and assistance of people before, during and after a disaster (Habib, Baudoin, 2010). The participants of the Round Table take the particular vulnerability of older individuals and addressees of social work and healthcare in the event of a disaster as the starting point. They bring together experiences and research from Austria, Germany and other countries and discuss the role of communities, of robotics and assistive technologies in disasters, considering their potential usefulness for communities in need, as well as ambivalences and challenges.

GUDING QUESTIONS How are communities and addressees of health care and social work, especially older adults, affected by disasters? How do communities and local, regional, national, and international support structures handle disasters? What role can assistive and digital technologies, robotics, and AI play in disasters? What potentials do they have, and where do ambivalences and challenges arise? How can digital tools be orchestrated and embedded in a community-centric, participative and needs driven manner within affected communities?

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Post-disaster reconstruction – the role of the elderly within a "building back better" approach

P. Hollenbach

Purpose This input is a reflection on 20 years of experience in the field of reconstruction after natural disasters in Sri Lanka, Nepal, and India with a special focus on the needs and integration of the elderly population. Countries in the Global South are increasingly confronted with the challenges of good care and opportunities for care in non-domestic settings and within their family and living structures (Speck, Müller-Böker 2021). Better living conditions and healthy nutrition lead to higher life expectancy averages and thus to the question of good care and provision (Khanal et al 2018). In this context, we would like to carefully reflect on previous experiences in post-disaster reconstruction processes brining in a social work perspective questioning: "How can specific potentials as well as needs of the elderly population taken into account and anchored in post-disaster reconstruction?". Practical experiences gained in post-tsunami reconstruction in Sri Lanka 2004 and post-earthquake reconstruction in Nepal 2015 show that the needs and long-term challenges of an ageing society are not yet respected or taken into account in post-disaster reconstruction efforts towards "building back better" for all. The elderly are still perceived as fragile and not as an active empowered group in community development, yet in post-disaster processes (Ku, Dominelli, 2018). This input focusses on thinking together about this topic based on previous experiences, visioning and imagining new ideas and innovations in technology in the context of post-disaster and reconstruction. **Methods** Observations and experiences from post-Tsunami Sri Lanka and post-Earthquake Nepal reconstruction will illustrate the current situation of post-disaster reconstruction with a special view on the need of the elderly and on long-term elderly care structures. **Results and Discussion** The outcome will be take home messages for more awareness of the complexity of post-disaster reconstruction towards a holistic building back better for all, with special focus on new realities of elderly care and new technologies in the Global South.

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How can gaps in human-technology interaction be closed to allow older people to participate in digital solutions?

K. Paldán

Perspective Age is heterogeneous and digital skills vary. Nevertheless, it is still evident that the usability of digital technologies is less pronounced among older people compared to younger people and that older people in particular are affected by the digital gap (e.g. Boot 2023, Neves, Mead 2020, McDonough 2016). Digital solutions continue to pose challenges for older people in particular. The digital gap can be closed by improving human-technology interaction. It is not only important to make technologies more user-friendly, but also to strengthen the human factor and its skills in dealing with technologies. The postulated thesis is that both are needed to promote a self-determined, safe, accepted and therefore effective use of digital technologies and to achieve a good user experience.

On the one hand, the ability to use technologies competently can help to prevent emergency situations, for example by controlling smart home technologies for shading, ventilation and drinking reminders on hot days. On the other hand, technologies can help to recognize emergency situations and initiate automated actions. However, automatically initiated actions are not sufficient for all emergency situations. Human actions and decisions are needed, which requires speed of action in dealing with digital tools in catastrophic and stressful situations.

Input – Lessons learned from a field test with the personal robot platform lio

Lio is a personal robot platform, developed by F&P Robotics AG in Switzerland, that is designed to autonomously carry out personal care assistant tasks in the home and in health care facilities (Mišeikis et al. 2020). The PUR project (Paldán, Arnold, 2022; Paldán, Arnold, Ritter, 2022) evaluated the use of Lio as a personal assistance robot for inpatient care in two nursing homes, one in Konstanz, Germany, and one in Schaffhausen, Switzerland. During this field test, over a twenty-two-month period from March 2020 to December 2021, Lio was expected to autonomously perform a variety of tasks and functions, defined by the staff and management of the nursing homes, that included: (1) entertainment through music, games and stories, (2) activation through mobility exercises, (3) information provision, (4) disinfection with UV-light, (5) distribution of drinks, (6) facial recognition and personal address and (7) connection to the home emergency call system. The evaluation results based on the interviews, surveys and log analyses show a need for technical optimization, which can be summarized in the following three lessons learned: (1) Less (variety of functions) is more, (2) Involvement of the staff of the care facility in the development, (3) Understanding linguistic diversity. In addition to the technical optimization, the human-roboter interaction and collaboration should also be improved which is summarized in seven lessons learned: (1) The integration and acceptance of a robot in the care context is not only a technical, but also a social process, (2) broader participation, (3) ensure competence transfer within care teams, (4) realistic effort estimation. (5) The main potential for improvement for a better user experience due to AttrakDiff™ (Hassenzahl, Burmester, Koller (2003) is on the Pragmatic Quality (PQ), followed by Hedonic Quality in the facet Identity (HQ-I) and the overall attractiveness. One of Lio's strengths is that he is perceived as sympathic and rather stimulating

Conclusion The evaluation of the care assistance robot Lio has shown that, in addition to necessary technical optimization, the routine integration of Lio into daily care and support also requires optimization of the human-roboter collaboration and suitable approaches to participation and knowledge enhancement in the usage of robots.

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Intersectional approaches to disaster relief, the role of community and (digital) support structures: The example of the flood disaster in the Ahr Valley in Germany

C. Schmitt

Persepctive While the climate crisis, associated natural disasters, and extreme weather events threaten the survival of all people worldwide, not all individuals are equally affected by the consequences. An intersectional perspective supports the analysis of interwoven dimensions that can make a difference in and beyond the event of a disaster - such as age, gender, origin, racialization, income, disability, or place of residence (e.g., Hetherington, Boddy, 2013; Cağlar et al., 2012; Pittaway et al., 2007). An intersectional approach to disaster risk reduction (DRR) entails the need for social work to position itself, from its human rights mandate, as an inclusive social work disaster relief. **Case study** This impulse at the Roundtable will address the flood disaster in the Ahr Valley in Germany, which occurred from July 14 to July 15 in 2021, from an intersectional perspective. The number of deaths reached triple digits. Among the deceased were twelve individuals who lived in a facility for people with disabilities and could not escape the floods. Even more than three years later, further reconstruction efforts and social support are necessary, and recommendations are being made for transformative rebuilding in the sense of a build back better approach (Climate Adaptation Flood Resilience 2023). The focus of the impulse is on initial results of an exploratory qualitative-empirical study, which the author has been conducting in the Ahr Valley together with Andrea Schmelz since September 2022. This study will be deepened over the course of the year as part of the research project "Transformation Knowledge for Disaster Relief" funded by the Volkswagen Foundation. The focus is on the social and civil society support structures established, interconnected, and reactivated in the Ahr Valley with a focus on social work engagement (Schmelz & Schmitt, 2023). So far, we have conducted qualitative interviews and informal talks with social workers, informal helpers, and affected population groups, as well as ethnographic explorations in the district town of Bad Neuenahr-Ahrweiler and in the localities of Altenahr, Kreuzberg, and Sinzig. We also undertook a neighborhood walk with a woman affected to see the Ahr Valley from her perspective. The collected material is being analyzed using Grounded Theory Methodology (Strauss, Corbin 1996). **Results and Discussion** Our preliminary findings call for an intersectional reading of the collected material. They demonstrate different impacts of the disaster depending, for example, on people's age, socioeconomic status, and place of residence. In addition, the preliminary results highlight the central importance of community spaces in the coping process of the disaster. The impulse will show how people shape community in times of disaster and develop new support structures, including digital ones. In a community café organized by volunteers, people have the opportunity to talk about what happened and find meaning in their lives again. An atmosphere of community is created, and everyday practices - such as sharing meals and chatting - are fostered in a comforting environment. At the same time, it presents how a social movement was designing a new digital and low-threshold support structure, especially to address older and poorer people. These engagements can be understood, in the words of Böhnisch (2023), as collective coping cultures that expand agency and can reveal new paths of life. The stabilizing mechanisms of community and support spaces are to be appreciated for their significance; however, they should not be overestimated and should not lead to a lack of provision of professional psychosocial support (Schmelz & Schmitt, 2023). At the Roundtable, the unequal impacts of the disaster with regard to people's age (especially the elderly) and their coping abilities, using the examples of different support initiatives, will be highlighted. At the same time, questions will be raised about how digital media and technical tools can support disaster coping, but also where their limitations lie.

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