**Improving Human Reliability**

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*Abstract*

*Various studies show that the German civil population is quite ill prepared for crises and catastrophes. This lack of appropriate strategies of action has got a negative impact on one of the existential human needs: the individual sense of security.*

*Measures of emergency communication for security (ECfS) may help to rebuild this sense. They aim to improve civil ability to react adequately and increase both reliability and fluidity of human action within life-threatening situations. But what does ECfS, offered by schools, kindergartens, or company-training centers, for example, look like? Do these institutions support people in reacting adequately within disasters by training their preventive, proactive and reactive strategies of action? How could this support by improved?*

*The paper presents a target-group and scenario-specific approach of measures of ECfS, which stresses the role of organizations in building a more resilient and less vulnerable society whose individuals can be „islands of sober-mindedness" because of their knowledge and abilities to (re)act reliably in situations of crisis and catastrophe.*

Various studies show that the German civil population is quite ill prepared for disasters. For example, a survey by the German Red Cross (Deutsches Rotes Kreuz, *DRK*) in 2008 showed that nearly 80% of the questioned people believe that in the case of a power outage they could take care for themselves for fourteen days without problems. But reality looks different from that: As several examples show, even two days without electric power can cause dramatic situations because outages are not an everyday situation. Most people do not know how to handle them and worse, they are not aware of their lacking capacities to act. This and the problem to raise awareness and call people's attention to problems that are not problems yet are the main challenges for communication for security.

To handle this, communication for security spans a time period from preventive, proactive and reactive strategies of action. It is able to improve civil ability to react adequately and increase both reliability and fluidity of human action within unexpected life-threatening situations. The aim of such efforts is the maintenance of acting capacities, less vulnerability and more resilience in both individual and social dimensions. But what does communication for security against this background look like? Who could offer the necessary trainings and education? How strong is the binding character of such offers? These questions should be discussed in more detail in the following minutes.

Causes for the poorly trained civil population are with *Ungerer and Morgenroth* the fall of the iron curtain and the absence of danger from the East as well as an ideological denial

of current perils. This denial is seen as a process of individual repression, because this is the much easier way compared to training and education, which cost a lot of time and money. Another cause is that there is lacking awareness of danger. Today, living in the Western civilization is predominantly safe and secure in physical, mental and social questions. This lifestyle is not intended to deal with potential risks and dangers.

Individuals often realize and accept life-threatening dangers not until they are directly confronted with them and a spatiotemporal proximity is given. Before this, they can hardly be motivated to get prepared. But when people become aware of a certain danger, it is often too late to train certain skills. That is one of the big dilemmas for security research and communication: How can you raise people's awareness and their motivation to learn certain skills and keep them ready even if - in an ideal case - they will never need them? The crux of the matter is if the eventuality occurs, these strategies of action may safe these people's life and the lives of many fellow men.

The status quo of civil protection and disaster management in Germany cannot be described in detail here (for an overview, see *Dombrowsky*), but let me summarize the current problems in a few words. On the one hand it is argued, that the governmental efforts do not involve the public (e.g., it does not participate in disaster exercises). The government simply puts some directives and rules together to whom people should react to like Pavlovian dogs. On the other hand, the civil population does not accept the training offers although they are potentially threatened. As a result, people neither have adequate knowledge nor do they have appropriate strategies of action to safe their lives in cases of emergency. To solve this problem, rethinking on both sides is absolutely necessary. The potentials of a more active role and increased participation of the public have to be recognized. People have to be seen as mature citizens with rights and responsibilities but even with their own problem solving capacities and ideas which may differ from the governmental or official solutions. In contrast, the civil population should be more aware of its responsibilities. To transfer them to the German State and its political agents, legitimized by the argument of high taxes that are paid, is neither near-term nor in the long run productive; in fact, it is leading nowhere. The aim should be a deeper understanding of people as "experts of everyday life" (quote by *Hörning*). They are an essential part of civil protection and disaster assistance and their expertise in self-security and self-protection as well as their capacities in helping to help themselves should be realized and used more effectively.

Self-control and individual responsibility are known as the basic competences to survive within live-threatening situations. But there are some further terms that should be noticed in this context: *resilience*, on the one hand and on the other hand *reliability*, which includes the concept of *mindfulness*. With *Holling*, resilience "determines how vulnerable the system is to unexpected disturbances and surprises (…)." Used as an attribute for human behavior, "resilience is tantamount to coping with complexity and to the ability to retain control" (*Hollnagel*). But rather than a stable personality trait,

resilience is a fixed-term coping ability. *Bonanno* stresses that it is not an exception or anomaly, but much more ordinary than one would guess. So, resilience capabilities are regularly underestimated - vice versa to panic: there is by far not as much (mass) panic as especially the media would make people believe. Therefore, it is known as the "myth of panic" (cf. *Quarantelli*). But the buzzword "panic" and if something really is a panic or not - that is another story…

Another keyword I would like to refer to has been elaborated by *Weick* and *Sutcliffe* and is called "*mindfulness*". Originally used within the context of so-called HROs (high reliability organizations) mindfulness "enables people to manage juxtapositions of events they have never seen before [and it] both increases the comprehension of complexity and loosens tight coupling". This concept can be perceived as a kind of flexibility in human thinking and acting which helps to maintain acting capacities. Together with resilience, mindfulness as a part of reliability can be merged under the keyword "sober-mindedness" which describes according to *Bochnik* the ability to "reserved and appropriate perceiving, decision making and acting". These concepts build the conceptual framework and the base upon which training and education efforts can be started because, with *Fischhoff*, „lay people seem to be highly educable but only moderately educated."

The maintenance of acting capacities implies communicative capacities, too, because we refer to action-theoretical thoughts as a base of our work and therefore communication can be seen as a way of acting, as Prof. Rusch has already explained. He has as well explicated our understanding of individuals and communication according to systems theory and constructivism. So I will only point out that from my point of view communication for security can be understand first as communication about security-relevant measures in the preventive, proactive and reactive stage of an incident (for example, broschures, shows on TV or broadcast, web pages…) and secondly as a way of secure communication, in terms of robust communicating and "to know what to say to whom at what time in which way". To communicate, you need media. Without going into details of media history, it can be noticed that every new medium is put in relation to the potentials and usage of face-to-face communication. Up to now, there is no medium with comparable qualities. At this point, the significant role of personal oral interactions especially in acute life-threatening situations has to be stressed.

A concept of communication for security has to merge the different requirements depending on the stage of an incident and the individual degree of concern. There has to be target-group specific as well as scenario-specific communication offers that support people's resilience and keep their acting capacities up. It requires much more research to answer the question about which media are to select best, dependent on situation and concern. But at this point of my work I can only state that there seems to be something I would like to call the "Communicative Continuum".
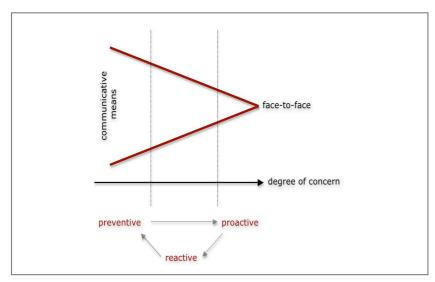
Fig. 1: Target-group and scenario-specific Communicative Continuum

This tapered form shows that the quantity of adequate communicative means depends on the degree of concern of the involved actors, respectively on the stages of an incident. It starts with a broad range of different possible media and communication channels in the preventive stage and narrows to the "last possibility" of face-to-face in an acute situation. Communicative means for the reactive stage can be found in the middle of this continuum.

Now that the requirements of a communication for security should be a little bit clearer, the question about the providers of such trainings and education should be answered, whereby I would like to focus on institutions of the area of education. Especially offers during kindergarten- and school-time lay the foundation for the security education of the next generations. Being aware that you cannot teach an old dog new tricks, an early awareness raising for security issues is very important. So children and adolescents should train security-relevant actions as well as individual security communication skills. Both can be strengthened by regular trainings and exercises during their life. Of course there should be possibilities for a civil-societal security education at a later date in a human life, too. Thinkable provider for such training modules and courses are relief organizations and emergency services as well as state-aided institutions like the "Federal Office of Civil Protection and Disaster Assistance" (in German: Bundesamt für Bevölkerungsschutz und Katastrophenhilfe, BBK). The American FEMA with its various offers is a good example for the next steps Germany has to take.

It should be clear that without governmental support such ideas could not be realized, because questions of security are finally questions of financial resources and possibilities. The degree of the social binding character of such a recommended civil security education has to be framed - again a challenge that cannot be solved without governmental and or political support (e.g. by directives or sanctions). When such educational structures are being developed, it is very important that all players with their special competences, capacities and knowledge are getting involved so that existing

potentials can be reasonably used. Throughout all stages of an incident, efforts of emergency communication for security can have a positive effect for the broader aim of a less vulnerable and more resilient society that - in an ideal case - consists only of "islands of sober-mindedness".

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