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FOUR PRINCIPLES FOR THE DESIGN AND SUPPORT OF "GOOD-ENOUGH" SIMULATIONS FOR CRISIS MANAGEMENT NOVICES

SUMMATIVE STATEMENT
We analysed novice crisis managers' lived experience of a typical low-fidelity simulation. We conceptualised the idea of "good enough simulation" and derived design principles.

PROBLEM STATEMENT
Today's high-fidelity simulation ideal is still grounded in the belief that the more realistic the simulation, the stronger participants' engagement in the simulated situation, and the easier the knowledge or skills acquired will be transferable to the real situation (Dieckmann, Gaba & Rall, 2007). This ideal is commonly incorporated by simulation designers and participants. However, its fecundity can be questioned in several ways, especially for novice participants: we empirically observed that participation opportunities in high-fidelity crisis simulations are often limited for inexperienced crisis managers (Authors, 2018), and Van Merriënboer and Sweller (2010) stated that high-fidelity simulations can entail an excessive cognitive load for this public. Another widespread idea is that fidelity is an overall simulation quality, but an effective simulation may require high fidelity for some components and lower fidelity for others (Alessi, 2000). Therefore, we wondered if certain elements of low-fidelity simulations could contribute to design and support promising crisis simulations for novices. This necessitates an accurate analysis and characterisation of low-fidelity simulations for novices.

QUESTIONS
Under what conditions can low-fidelity simulations provide learning and development opportunities? What relevant design principles can we derive from these results?

METHODOLOGY
We studied a typical low-fidelity simulation to identify learning and development opportunities for two participants (a mayor and his general manager) with no experience in crisis management training. The scenario included an underground train collision with multiple victims. We defined these opportunities as:

- sensemaking by participants,
- planned socio-technical-organisational adjustments or transformations.

Since in the majority of cases, these simulations are not designed according to a high-fidelity ideal we studied a typical civil security crisis readiness test for local authorities in France. We employed ergonomic methods such as in-situ observations, field notes, video recordings (total: 210 minutes), and self-confrontation interviews (N= 2, M: 70 minutes) for data collection in order to understand the lived experience of participants. We combined a grounded theory approach with the course of action framework for data treatment (Theureau, 2003).

RESULTS
The analysis of the simulation and lived experience of participants enabled us to identify four design and support principles that we consider offering promising learning opportunities:
1) An authentic context: at the workplace, with colleagues. This configuration invokes the "ordinary" of work. Training in conditions close to real working conditions favours the projection of socio-technical-organisational transformations;
2) An appropriate rhythm. A slow pace, characterised by structural or facultative breaks, allows participants to temporarily stop to reflect, discuss, or imagine. It differs strongly from high-fidelity simulations that are seldomly interrupted as it would break the fictional contract established around the aim of approaching a real crisis situation;
3) A strong pedagogical support. We identify three trainers' functions:

- tutoring (bridging knowledge gaps and making prescriptions known),
- feedback (commenting on what actors have, could have and should have done in this specific case, or in similar/different cases),
- facilitation (helping to bring to the surface and conceptualise problems encountered, encouraging discussion and debate).

4) A crisis component. In order to create engagement opportunities for participants it is important that the scenario entails occasional, captivating anchoring points that refer to typical or critical situations of a virtual crisis.

When the conditions described above are present simultaneously, we observe the emergence of a situated reflexivity space we believe offer an alternative between high- and low-fidelity, combining elements of both approaches: a “good-enough simulation”.

DISCUSSION

These principles contrast largely with the pursuit of a high-fidelity ideal, often characterised by: (i) a high rhythm, (ii) the simulation having place at a dedicated crisis simulation center, (iii) no interruptions and pedagogical support. More than the alleviation of cognitive charge (Van Merriënboer & Sweller, 2010), a critical reflection on the concept of fidelity seems fruitful for reconsidering learning opportunities for novice participants. It allows examination of participation and sensemaking opportunities, and individual and/or collective planned transformations.

In this regard: the concept of a "good-enough" simulation is inspired by the work of paediatrician and psycho-analyst Winnicott on "the good-enough mother" (Winnicott, 1987), with which we see several analogous parallels (trainers taking the role of parents, participants the role of children, the simulation as an educational situation).

In resonance with Winnicott’s thinking, we develop consequences for simulation training in terms of design, pedagogical support, and trainer's posture.

CONCLUSIONS

A parent who is good enough naturally does what it takes to raise a child. Following Winnicott's optimistic hypothesis, we believe trainers have all that is needed in their pedagogical culture to design and support "good-enough" simulations. These results offer an alternative to the unbridled pursuit of high-fidelity simulations. A more systematic “proof-of-concept” study should test this conceptualisation.

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