

## ***Interactive comment on “Creative practice as a potential tool to build drought and flood resilience in the Global South” by Anne F. Van Loon et al.***

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I really enjoyed reading this paper, highlighting gaps in the literature about the use of creative practice to foster awareness and promote action and collaboration in marginalised and vulnerable communities facing environmental issues. It presents a fascinating pilot project with a community in S. Africa, where storytelling workshops were organised to create narratives about impacts of and preparedness for future droughts. This tackles some of the gaps previously identified in the literature, and complements a still mostly unexplored research field into the use of creative practice to increase resilience to natural hazards. In my opinion this paper is more than suitable for publication in Geoscience Communication, for the special issue's theme of 'Five years of Earth sciences and art at the EGU (2015–2019)'. In particular, I really enjoyed

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reading about the current literature in the field and discovering the pilot project (an amazing project - congratulations!) and how it aimed to tackle some of the literature gaps (which are very clearly defined). I however have a couple of minor comments that I would like to raise, and which I would encourage the editor and the author to consider prior to publication:

### Main comments

- The authors seem to suggest throughout the paper that the impacts of using creative practice should be analysed against using more traditional methodologies. E.g. on P1 L16-17 and P16 L398-399. In my opinion however, and as raised by the authors in the last bullet point on P16, creative practice should be used in combination with more traditional methodologies. As such, the aim should not be to compare the impact of both processes, but rather to investigate the added value of creative practices within more traditional current processes.

- As a succession to this point, it would be great if you could strengthen your point on how creative practice can complement more traditional methodologies, perhaps in the discussion. This is very nicely reflected in the methodology you follow for the pilot project, as explained on P10 L228-229: the use of model outputs to prompt the participants' imagination. A few questions it would be great to have your opinions on are: 1) How can creative practice tackle the point you raise on P1-2 L23-26? E.g. you mention on P15-16 L375-379 that creative methods can help increase resilience if previous extreme events happened a long time ago or for future events outside of previous experience (which is expected to happen more frequently with climate change). 2) Another point is that the success of increasing dialogues between groups in a community is better measured on the long-term (P10 L216-217). Could you please reflect on how creative practice has a role in insuring this "longevity" of the success of a project. E.g. I would argue that art is timeless, whereas other more traditional methodologies might not be. 3) As hinted by your comment on P11 L230, different art forms appeal to different communities given their culture. E.g. some communities might prefer sto-

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rytelling, others dancing, etc. as these are art forms already deeply rooted within their culture. This is where creative practice can help over more traditional methodologies, by echoing a community's culture.

- I found it interesting to read about the different examples of creative practices and their goal, doer and audience on P3-4 L70-110, but found it hard to understand the exact purpose of these paragraphs. It appears to already be a part of the literature mapping and hence might fit better in the next sub-section? If their purpose is to give examples of different combinations of the three dimensions you put forward earlier, it would be helpful to clarify this. It might also help guide the reader to be consistent and use the same language as introduced earlier regarding the three dimensions within these five example paragraphs. E.g. For the first point, the goal is to raise awareness by passing on knowledge between generations, the doer and audience are the community.

- Where do games stand in the midst of the creative processes you looked at? I would argue that they are a creative practice. However, there is very little mention of games until P11 L230 (if I'm not mistaken). On P4 L109-110 you say that there is no example to your knowledge of artistic products in decision-making. I think that there are plenty of resources on the use of games in decision-making which it would be great to highlight. E.g. the numerous workshops organised by the Red Cross using "serious games": <https://www.climatecentre.org/resources-games/games>, the IHE Delft games: <https://www.un-ihe.org/serious-games-decision-making>, or the HEPEx games: <https://hepex.inrae.fr/resources/hepex-games/>.

- I found it hard to understand Fig. 4 and visualise the results you mention on P9-10 L196-203. I think another graphic format may be more suitable to highlight these results and the gaps in the existing literature. Pie charts may be more intuitive? Could you please also change "Method" to "Doer", to be consistent with language introduced on P3 L63. It is not clear to me why 2 of the CS and one F5 circles are lighter in colour. Additionally, I think it would be very interesting to be able to map the wider literature onto this graphic to see how the flood- & drought-related literature compares to it.

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- Could you please reflect in the “reflections & perspectives” on: 1) how your findings may be limited by the mapping methodology you used: searching for research papers. There are surely a lot more creative practice examples out there, less research-oriented and with different goals, audience and doer, but not mentioned in any research paper. 2) What worked very well and less well in your pilot project: would you do anything differently now? What tips would you give to people who want to create such projects? 3) How do you foresee the continuation of the project? Do you plan to put in place methods to evaluate the long-term impacts this project may have on the community and decision-makers?

#### Specific comments

- P1 L20: Could you please define here what you mean with Global South communities, perhaps by moving the definition on P2 L33-34 here.

- P2 L25-28: These 2 sentences seem like a repetition. Please considering merging and/or reformulating.

- P2 L31-32: This statement puzzled me at first. Could you maybe give examples of creative practice (with and without end products) and of artistic artefacts.

- P2 L37: Could you please clarify what you mean by “suitable traditional structural or non-structural measures”.

- P2 L41: Could you please explain briefly what the main critiques of the term “resilience” are.

-P3 L63-64: The examples of goals you mention here do not correspond to the goals you mention on P4 L112. Please consider updating this list, as well as throughout the paper.

- P3 L73-74: Please specify what is the purpose of the practice described by McEwen et al.

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- P4 L93: I would argue that here the audience would also be the end-users of the research product, for example the readers of the research paper if the research is published, who may or may not be researchers.
- P4 L106: Could you please clarify what you mean by “mental models”.
- Fig. 1: If you have the data to plot this, it would be great to be able to visualise the separation per wider topics as well (i.e. hazards and disasters, climate change, other environmental issues, health, social and economic inequality, violence and conflict; or broader topics even), as different colours/patterns on the bars, to see how these change over time. E.g. Are the natural hazard articles more recent, even if they make a small overall portion of all papers?
- P6 L 140-141: Could you please clarify what is “Photovoice (or Photo-Elicitation Methods or Camera-User-Study)” for less familiar readers like me.
- P6 L 145-146: I understood this sentence only after having finished reading the whole paragraph. Could you please rephrase to clarify what is meant by “asking participants to develop new material”.
- P7 L166-167: Would you be able to give an estimate of the % for all environmental papers you looked at in the literature mapping? It would be nice to have it to compare the % with those for papers on droughts & floods later on, on P10 L200-201.
- P7 L167: Could you please clarify what you mean by “medium or high” (also on P8 L169).
- P8 L176: Please clarify that these papers are D1&2.
- P8 L184-185: This is a repetition of the line on P8 L180-182. Please consider merging.
- P8 L186: Please clarify that these papers are F1-5.
- P9 L192: Please specify here that this is referring to Fig. 4.

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- P9-10 L196-199: This is not clear to me. Are the 2 categories you mention within the “goal” and “audience” categories? If so, could you please rephrase these sentences. The choice of the words “Firstly” and “Secondly” may be confusing me. Could you please also discuss what results are with regards to the “Doer” (or “Method”).
- P10 L199: Is “instigating action” pre-disaster similar to “raising awareness”?
- P10 L201: It would be great if you could mention again here what the percentages are of studies with a co-creation aspect, for comparison, for: floods & droughts, health issues and environmental issues.
- P10 L210: Could you please clarify what you mean by “experimentation”.
- P10 L212: You use the plural form of “approach” on P10 L207. Is this because the project was made of several approaches which your creative approach was a part of? Please clarify in the text.
- P11 L230: This is very interesting and merits further discussion. It appears that participants preferred storytelling as it is an art form already rooted in their culture perhaps? It would be great if you could add a few lines in the discussion about how processes/media might not be transferrable across communities as different communities have different histories/sensitivities to different arts. This perhaps complements your second point on P16: the goal, doer and audience are situation-specific, but so is the creative form/media used.
- P11 L240: Do you have any reference you could cite here for the SHETRAN model?
- P11 L252-253: I imagine the phrasing of these scenarios was worked on with care as they could lead to different responses from the participants. Could you please say a bit more on how the storylines were written? And maybe give a written example of a model output and the attached storyline in the paper?
- P11 L254: Are the workshop categories in Phase 3 the same as in Phase 1?

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- P12 L287-289: Do you think this is just because of the age difference of these groups? These sentences would fit better in the former paragraph I think.
- P13 L296-297: Please specify that you are referring for the workshops of phase 3.
- P13 L311: Do you mean “request for government support”?
- Fig. 5: It would be great, if possible, to have tangible narrative content in the paper as well. Only if possible, please consider adding perhaps parts of a narrative transcript, or a few quotes from several narratives, to the paper.
- P14 L329-330: Could you please share opinions on why you think that is?
- P14 L333-335: I am not sure I understand this sentence. Could you please clarify.
- P14 L336-340: I think you are being too harsh with yourselves. While you couldn't, as part of this project, evaluate the long-term benefits of your creative practice, there are some clear short-term benefits that are worth mentioning again in the discussion. E.g. the fact that policymakers found the images you captured useful, the intergenerational exchanges your workshops led to, the fact that your workshops encouraged participants to use their imagination and exchange ideas vs referring to God in an uncertain future. . . These are already brilliant outputs which should feature here.
- P15 L371-373: This feels like an important point. Could you maybe answer this question using your pilot study? As you have seen both aspects in phase 1 and 3 of your workshops.
- P15-16 L375-379: This is where creativity can foster exchanges across communities. E.g. A community who has not yet experienced a drought and may be confronted by these events in the future (for example due to climate change) could get an idea of what it is like on the ground by learning from communities facing droughts on a regular basis.
- P16 L382-386: Could you please explain the purpose of this point further.

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- P16 L404: Could you please clarify what “longitudinal studies” are.
- P16 L396-405: Could the effectiveness of creative practice be measured by comparing different communities and how they have coped with environmental issues? For example aboriginal communities where the use of art seems to be deeply rooted in culture vs a culture where art is very rarely used.
- P17: Please summarise briefly what your paper is about before mentioning results.

#### Technical corrections

- P1 L21: Remove “and”.
- P1 L22: Replace “and” after “water demands” by a comma.
- P3 L73: Add a dot after “environmental stress”.
- P3 L73: “describe” without an s.
- P4 L89: “built on” with a t.
- P4 L111: Add “we” before “will”.
- P4 L112: “instigating”.
- P7 L156: “developed”.
- P10 L209: “redundancy” might not be the adequate wording. Do you mean “repetition”?
- P10 L217: “members’ travel to”.
- P11 L247: “3°C”.
- P11 L247: Remove “a” in front of “climate”.
- P12 L294-295: “We used one climate change scenario and two scenarios related to human activities”.

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- P14 L323: Add “the” in front of “images”.
- P14 L324: “faced by the villagers”?
- P17 L422: “combine”.

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