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Review - Breaking the Silos

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Referee comment on "*Breaking the Silos: an online serious game for multi-risk disaster risk reduction (DRR) management*" by Marleen Carolijn de Ruiten et al., Geosci. Commun. Discuss., <https://doi.org/10.5194/gc-2021-3-RC1>, 2021

Breaking the Silos: an online serious game for multi-risk DRR management

Overall assessment

This paper presents a new role-playing game (RPG) '*Breaking the Silos*' – designed to replicate the complexities of disaster risk management, the game exposes players to a range of hazards through a series of rounds. Players are asked to make recommendations for spending towards disaster risk reduction measures to the President and are confronted with the consequences of these actions as the game proceeds through the rounds, new hazards are experienced, and the narrative builds.

Overall, this is a very interesting study and I extremely pleased to see some much-needed thinking in this area. Gaming, and particularly RPGs are a novel approach in this field, are a difficult route to investigate, and I think the *Breaking the Silos* game is a great first step. Often games in this arena fail to provide empirical evidence to support their application, so I am also very happy to see a preliminary evaluation of the games impact. The data collections are fairly shallow, principally comprising quantitative collections and I'd recommend more detailed data collections, including qualitative data during future game tests, which could really shed further light on the games impact and efficacy. For example, an aim of the game is to communicate about the complexities in the decision making process – consideration for the interaction between players during the game, in terms of collaborations and disagreements, could help to understand if the game is capable of expanding awareness in this area.

Overall, the paper is pleasant to read, well written and well structured, although a more concise description of the game mechanics would make the paper a little more efficient. Some of the detail on the game mechanics is a little hard to conceptualise, so perhaps a little more precision here might help.

General comments and questions:

- Right at the beginning of the piece, I think the main aims of the game need to be much more strongly stated and with a description of why you think the game, and particularly its mode as an RPG, is able to achieve your aims over other methods of stakeholder education and outreach (e.g. scenarios) and even other game styles.
- What is the time duration of each of the rounds in terms of both, how long it physically takes to play but also what is the temporal dimension of each round and between round 1 and round 2?
- The figures are really low resolution and make it hard to see the detail on the game boards. This might be due to the draft document in the review process, but would recommend these being much higher resolution where possible.
- In your literature review, be careful to be distinctive where games are table top, digital or role playing games. Different styles and platforms of gaming have varying benefits and drawbacks and can be difficult to compare. Hence, some are more effective than others.
- You mention frequently throughout about randomness in the storyline and game design (e.g. L73 and L348) – can you expand on what you mean by randomness in these situations, how ‘randomness’ is brought about (i.e. is there a game mechanic to facilitate it), and what randomness in the narrative actually looks like?
- How do the players know what actions they can take per round? Do you provide a ‘cheat sheet’ or do you leave this to their imagination?
 - Can you provide some examples of the DRM actions that could be taken by players?
- You include the game boards from the game sessions, but it’s hard to understand the temporal aspect of the story – can you demonstrate this with a timeline of actions perhaps?

Specific Comments

- P2 Line 46 – “Several studies have demonstrated the successful use of these serious games in increasing risk awareness” – This is a little vague, can you expand on exactly what you mean by ‘successful’, and explain what success would look like for this game.
 - Citations L 47: hate to be one of those reviewers who push their own work, but Mani, Cole and Stewart, 2016 (using video games for volcanic hazard education and communication with at-risk communities) is also highly applicable here.
- Minor point of preference on language – Game Master would be more appropriate than moderator, perhaps.
- L210 – you mention that players are asked to reflect on the game – are their reflections directed by the moderator, or how does this happen? This is important because it is a step in the experiential learning cycle, so I wonder about the scaffolding to support this?
- L275 – already mentioned about COVID changes to gameplay, remove redundancy.
- P11 L323-329 – you use the phrase ‘highly realistic’, ‘highly enjoyed’ – this is a bit sensationalist, yes the results are positive but I think you can remove the ‘highly’ from both (particularly as high relates to scores of both 4.5 and 3.8).

- The way the players distributed their spending is of particular interest – does the variation in approach relate to the expertise of the game players?
- To what extent do the players own knowledge play into the scenarios developed? i.e. the ability of players to embody themselves in their characters and take relevant actions.

This piece is very much needed and adds to the growing evidence base for the use of games within the DRR sphere. The authors have taken on a challenging route adopting an RPG, and have demonstrated an approach that has great potential. The paper and analysis is an important first step in understanding its efficacy and I look forward to following this work as it continues to evolve.