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Comment

## ***Interactive comment on “HAZAGORA: will you survive the next disaster? – a serious game to raise awareness about geohazards and disaster risk reduction” by S. Mossoux et al.***

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### General comments

I have read the abovementioned manuscript and found it a very interesting, and generally well-structured and well-written contribution. The manuscript describes in detail the game “Hazagora”, and how it might be used to raise awareness of geohazards and disaster risk reduction (DRR) measures, in particular through building resilient communities. The paper describes observations made during several game sessions with groups in various countries in Africa and also Belgium, and presents the results of

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questionnaires completed by the participants before and after the sessions, which provide an indication of how the game influenced participants' understanding of hazards and DRR. In the interests of transparency I will say up front that I have had the opportunity to play the game myself and thoroughly enjoyed it, and believe it has great potential to communicate the complicated relationships and linkages between the often difficult-to-understand concepts of hazard, exposure, vulnerability, capacity, acceptable risk, risk and resilience. Although the manuscript is generally well written, there are numerous grammatical errors throughout and I have listed suggested changes in the technical section below. A pdf of my review is also attached.

### Specific comments

1. Introduction, Page 5211, line 16: What is “the livelihood strategy”? This might need further explanation at first mention. 2. In general consider changing “Tourist guide” to “Tour guide” which is a more common term. However, obviously don't change it if it contradicts the name of the character in the game. 3. I think there is some potential for confusion between the characters, their households, huts and houses. For example, line 11 on page 5214: “number of living households” What is a ‘living household’? Do you mean: “households on the board?” and line 14 page 5214: “each household has to be sheltered in a hut, house etc” just doesn't make sense either. Do you mean: “Each player needs to be sheltered in a hut, house etc”? Also line 18 page 5217: “number of households homeless” doesn't make sense at all! Also line 9, page 5221: “hosting homeless households???” This is very confusing. I can't remember finding it confusing when playing the game – so there must just be a problem with the description. 4. Strictly speaking a hazard is a potentially hazardous event, or the chance of a damaging event occurring. Once the event is occurring or has already occurred it can't really be referred to as a “hazard” any more. I suggest changing hazard (when it is occurring) to “hazardous event” or “hazardous phenomenon”, after it has occurred it should be referred to as a damaging lava flow, tsunami or whatever. 5. Page 5223 lines 11 to 16: This section is quite confusing. Too many double negatives, maybe try

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to reword. 6. On page 5228 you might also like to mention the volcanic disaster game <http://www.volcanicdisastergame.com/PrintableRulesofPlay.pdf> 7. I think it is important somewhere to mention the availability of the game. Readers will want to know whether it is something they can order, whether it will be freely available on VHUB etc. I realize you can't use the manuscript to "advertise" the game if it is to be marketed and made commercially available, but you might be able to somehow mention what the status is of the game in terms of availability.

#### Technical corrections

1. The affiliation "1" of the first author seems strange, is that really how it is worded?
2. In the abstract line 12: "Based on the game strategies analysis" doesn't really make sense. Maybe change to: "Based on analysis of the most common game strategies observed..."
3. Abstract line 16: consider changing "playful" to "fun", and change "concept" to "concepts"
4. Introduction page 5210: a. Line 19: Change "havocs" to "havoc" (havoc does not have a plural iAŁ ) b. Line 22: Delete "the" before international institutions c. Line 23: Change "disasters outcomes" to "outcomes of disasters"
5. Introduction page 5211: a. Line 1: change "highlight" to "highlights" b. Line 2: change to: "...socio-economic context of natural hazard events is an essential factor contributing to the impact of disasters." c. Line 6: change to: "...natural resources, wealth, information and health" d. Lines 19 and 20: I suggest removing the 4th objective and creating a new sentence: "The game was designed to be accessible to...." e. Line 27: replace "start to be" with "are increasingly being"
6. Introduction page 5212: a. Line 4: what do you mean by "a visual support"? Maybe replace with "visually"? b. Lines 21 and 22: change to: "...including the players' contrasting strategies,.." and change "game in" to "game on" c. Line 24: Maybe change "playfulness" to "fun aspect". d. Line 26: change "the disaster components" to "the components of disasters" e. Line 27: I think "perspectives" is the wrong word here. Maybe "potential?" "prospects"?
7. Section 2.1, Line 4: Change to: "...community in the face of periodic geological hazards"
8. Section 2.2, Line 15: change "in" to "into"
9. Section 2.2. Line 23: change

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“is following” to “follows” 10. Page 5214 line 4: “impacts” seems to be the wrong word here. Maybe you mean “potential hazard zones”? Same line – consider changing to: “In the beginning, players are able to place two households.....” 11. Page 5214 line 13, change to: “. . .resources, representing the variable part of the income, are obtained each year by rolling two dice (Fig 1d)”. Dice is the more common plural. Note also that numbers below 10 are generally written in full in English (one, two etc) 12. Page 5214 line 19: Change “spare” to “thus conserve” 13. Page 5215 a. line 6: change “randomly selecting” to “random selection of” b. line 9: add “, which has just one level of destruction (total destruction)” after lava flow c. line 10: “with commentary provided by the game master” d. line 13: delete “board game” e. line 16: “It should be noted that impacts other than. . .” f. line 22: change “but” to “and” g. line 23: delete “also” 14. Page 5216 a. Line 14: “forecast” not “forecasted” b. Line 17 and 18: “the adaptation cards allow the players to reinforce and protect infrastructure. . .” c. Line 28: change “hazard” to “hazardous event” 15. Page 5217 a. Line 5: “joint” b. Line 7: “. . .is voted for, the game master decides on. . .” c. Line 10 and 11: “. . .players to experience a large suite of different hazardous events and explore and refine different mitigation strategies. They can also experience the same type of hazardous event several times. . .” 16. Page 5218 a. Line 6: “were varied” (not “were contrasted”) b. Line 7: change “or” to “and” c. Line 14: “each hazardous event” 17. Page 5219 a. Line 3: “allowed observation of. . .” b. Line 5: “No correlation between age, background and experience with strategy could be made, instead it seems strategies adopted. . . .” 18. Page 5220 a. Line 18: “because this conserves resources” (or saves resources) b. Line 21: “. . .risk locations, and whether the possibility existed to . . .” 19. Page 5221 a. Line 25: “hazardous event” 20. Page 5222 a. Line 6: “In contrast, the tour guide. . .” (and spell out all the numbers) b. Line 27: maybe change “better” and “less good” to improved and diminished? 21. Page 5223 a. Line 24: change apprehension to “comprehension” or “understanding” b. Line 24: What do you mean by “adapted choices”? Maybe “adaptive”? 22. Page 5225 a. Line 19: “rapidly develop” b. Line 20: “spent on”, and “those players gamble that they will be spared by hazardous events” c.

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Line 22: “higher chance of incurring fatalities” d. Line 24: change “are living” to “live”  
23. Page 5226 a. Line 8: “to overcome disasters” b. Line 18: “a specific strategy”  
(not “for”) c. Line 22: “. . .character, thus influencing. . .” 24. Page 5227 a. Line 5:  
“helps develop important” b. Line 21: “having to wait too long” 25. Page 5228 a.  
Line 8: spell out “three hours” b. Line 11. “Characters (not “pawns”) also help the  
players” c. Line 24: “to contribute more” 26. Page 5229 a. Line 6: feedback. No  
such thing as “feedbacks” 27. Page 5230 a. Line 15: what do you mean by “adapted  
DRR strategies”? Do you mean: “DRR strategies adopted during the game”? b. Line  
19: “This ensures that a . . .” (delete the ‘former’) c. Line 28: “nor does it consider”  
(not “considers”) 28. Page 5231 a. Line 10: “it might prevent some players relating  
directly to the game as the specific . . . . .are not represented” b. Line 25: “and it may  
be more suitable as an extra-curricular. . .” 29. Page 5233 a. Line 9: “not used to  
playing” b. Line 13: “more aware of 1) mechanisms of hazards. . . .2) the elements  
influencing. . . . . and 3) potential strategies. . . .” 30. Figure caption figure 2: “Huts (one  
household: blue) and a house (two households: red) with road access to a water well  
and a food market (yellow and green tiles, respectively). This allows these households  
free access to these resources. 31. Figure 4: “A cross over an infrastructure means  
it is destroyed.” Change “hazard” to “hazardous event” Also: I can’t see the small  
cross? 32. Figure 7 is pretty small I couldn’t read it.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/3/C1806/2015/nhessd-3-C1806-2015-supplement.pdf>

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