

## ***Interactive comment on “Role-play simulations as an aid to achieve complex learning outcomes in hydrological science” by Arvid Bring and Steve W. Lyon***

### **Anonymous Referee #1**

Received and published: 29 January 2019

This is an interesting paper on an educational topic that is a good fit for HESS. I have a few comments below that I think will deepen the argument of the paper and hopefully strengthen its case.

[1] Introduction: Paragraph two discusses the problem of placing hydrology into the right context within a classroom setting. I think that this is a very interesting issue, which could be discussed a bit further. Wagener et al. (2007) surveyed the hydrology teaching community and found that the use of hydrology textbooks (which contain theory, but little about how to place it into context) for classroom teaching is rather limited (as fraction of the material taught). A large reason for this is that we (as educators)

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have to put a lot of effort into providing examples of context. The authors do this well in terms of the water management framing, but maybe they could expand this section a bit more for a broader discussion?

See: Wagener et al. (2007). Taking the pulse of hydrology education. *Hydrological Processes*, 21, 1789-1792.

[2] Section 1.1: I would find it useful to see more depth on the discussion of the role of participatory modelling in IWRM. I remember using such role-play games like the once discussed in this paper over 20 years ago in classes I took from Eelco van Beek. I am not trying to say that the content of this manuscript is not interesting or new, but rather that there exists a very rich literature of the use of such software not just to teach students, but also to teach stakeholders and others about how IWRM management works. I think the authors should go more into depth of reviewing how such tools are used more widely to broaden the appeal of their paper. There will also be a lot of literature on how successful such software is in changing the thinking of stakeholders, which might be useful to include in the discussion section of this educational paper.

See example references: <https://www.sciencedirect.com/science/article/pii/S1364815217300>  
<https://unesdoc.unesco.org/ark:/48223/pf0000143430>

[3] Results: What I am missing in this part is a before-after survey of the students. While I understand that the authors only have a single student group (so there is no benchmarking group). However, the students are at the Master's level and I assume it is not their first exposure to hydrology. Could the authors not use a survey including questions on how students see the role of stakeholder negotiations etc. and compare their perception before and after the course? Or at least it would be interesting to hear the students state how their perceptions might have changed from the work done in the course.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-618>, 2019.

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