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Discussions



# *Interactive comment on* "Enhancing the T-shaped learning profile when teaching hydrology using data, modeling, and visualization activities" *by* C. A. Sanchez et al.

**Anonymous Referee #1**

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General comments Interesting article about enhancing the T-shaped learning profile of hydrology students. In the article a comparison of a DMDGC simulation module with a paper laboratory module. It is hypothesized that students who followed the DMDGC module would demonstrate a better understanding of theoretical and applied hydrology concepts related to flooding in a contextualized and realistic scenario and that the simulation condition would lead to a better understanding of teh professional role of hydrologists. The DMDGC model produces a visualization of modeled and observed hydrograph results. In the paper module students had to perform hand calculations. In fact it is a comparison between a traditional paper pencil method with a computer



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simulation method, asking whether the latter method is more effective than the first one. It is good to read that the use of a simulation model can enhance student's knowledge and understanding of the hydrology field.

Specific comments About the methodology, it is not clear why the group sizes of the two groups differ. Why does the DMDGC group consist of 52 students and the control group of 36? What criteria have been used to create this difference? As far as I can read also no further analysis took place on students' backgrounds and preferred learning styles which might have influenced the outcomes of this study. Also no information is given on the results of the pretest. Were the 52 DMDGC students better than 36 control students. How did the allocation of students to each of the two methods take place? Has this allocation influenced the result of the investigation?

T-shaped learning profile. Perhaps it is my lack of knowledge and understanding about the DMDGC module, but it is unclear to me how this module, has enhanced with the students the understanding of the role of hydrologists. It is said that the lectures, which were content wise the same for both groups, focused a.o. on the roles and responsibilities of agencies that provide flood prediction and management services in the USA. How has the simulation model helped to improve student's understanding the professional role of hydrologists? Secondly, T-shape learning should not only focus only on widening one's own field of expertise; i.e. focusing on the professional role of hydrologists. In daily practice professionals should also be able to speak to people from other domains. Students should also be trained in this respect. So, this study is limited in its scope.

About the learning outcomes. These are very poorly formulated as they do not say anything about the level of knowledge and skills students . Blooms taxonomy is fully lacking in this respect. The outcomes as they are described as such do not say anything about how well and at what level students have mastered these. Have the students been informed about these outcomes before the start of the course?



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Technical comments The reading of the text could be improved to include table 3 and figure 2 in the text.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 6327, 2015.