

Interactive comment on “HydroViz: evaluation of a web-based tool for improving hydrology education” by E. Habib et al.

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We thank the reviewer for the extensive review and the very valuable comments. Our replies to the reviewer's comments and how we revised our manuscript are included below in a blue font

The authors are presenting an interesting tool to make Hydrology understood by students. The presented web-based tool aims at improving the way student acquire knowledge in Hydrology by introducing topics in a step-by-step manner. The manuscript is well written and falls into the scope of the Special issue to present advances in Hydrology education in a changing world, and manuscript presents in details the evaluation done by the students who followed this method of learning.

Special comments:

However the way in which the text of the manuscript is presented, it is in my own view, a major problem for being considered for publication at this moment. I am explaining here my view and I have, however, some suggestions to the authors, on how to solve the problem:

The majority of text is taken from the website presenting the tool, including text and figures of other papers disseminating the tool, papers that are available to the public in the same website (<http://hydroviz.cilat.org/> - last accessed 30 March 2012). Therefore I would like to ask the authors to consider a different structure of the paper, a different way of introducing the tool, in order to avoid what is so-called, by some authors, as “self-plagiarism” (Not to mention that the text of the website is copyrighted to “Copyright © University of Louisiana at Lafayette, 2010”, and not to the authors of the submitted HESSD paper). My suggestion, to the authors, is to use very short summaries of what the web-based tool contains, and send the reader to the tool itself for the lengthy descriptions (e.g. catchment, modules, etc). Even the evaluation itself it is at length, presented in the website, under the item “Evaluation”. You could consider a new structure of the paper, in which you still keep the analysis of the data and the conclusions and recommendations, but you avoid duplicating your own text. While I understand that your wish to disseminate a good tool to different audiences leads you to consider that the previous work needs to be restated in order to lay the groundwork for a new contribution, I still do not understand why you are not even citing yourself in the present article. For example the main author has a poster presented to a conference, where all the evaluation presented in the present manuscript submitted to HESSD, is presented in exactly the same manner.

Author response: At the time this manuscript was submitted to HESS, the authors' website contained outdated information about our publication plans; in fact, the manuscripts listed in our website as (Habib, E., Y. Ma, and D. Williams (2011) in AEE journal) are not actually published, or considered for review by any other journals. As such, the HESS doesn't contain any overlap with the authors' own publications. We apologize for any misunderstanding that may have occurred because of the outdated information listed on our own website under the “Publication” tab. The reviewers and the Editor also indicated possible overlap with material on the authors' own website. We point out that the website was intended to be as an early preview of our development since the publication process usually takes significant amount of time. We also point out that our website went through a major revision in which only the main highlights of the HydroViz are now included and proper reference to the current HESS manuscript is listed.

General Comments:

If the above issues are addressed then my comments to the paper would be that some of the sections of the paper should be more balanced. For example I find section 2, which presents the case study, very long, given the fact that the purpose of the paper is to present the evaluation of the learning experience, no matter the case study. If this is not the case, if the case study itself has an influence on learning the general notions in hydrology, then this should be clearly presented and commented.

We have significantly shortened the section that deals with the case study (watershed, hydrologic data and simulations). The length of this section is currently reduced to about two pages; we believe a minimal description of the watershed and the hydrologic data and simulations that were used to build HydroViz is still necessary for the self-completeness of the manuscript.

Moreover, the case study is presented in section 2, before any presentation of the modules, which are part of Section 4. I would suggest, to do the presentation of the case study as sub-section in what is now section 4.

We revised the paper in such a way that the educational need and rationale for HydroViz is now better explained earlier in the paper (Introduction section). However, we prefer to first introduce the HydroViz tool (data and simulation contents, software aspects) before we talk about the class learning modules that are embedded into it.

It was not clear for me, what is a module. There are 13 modules defined in Hydroviz, but they are not explained if these are topics to be addressed over one semester, or if each module is considered a subject in itself, each running for a whole semester. A clear study load for each module would have been helpful. It is stated in the paper that the study load was heavy, but not what would this mean: what is the equivalent of contact hours and study load time, as compared with a face to face course. Explanations of the designed time to follow the module, by a student, should be made available to the reader. I could not sort out if students participating in the evaluation are following these modules in a face to face mode, and using in parallel Hydroviz as a resource platform, while they have the chance to pose questions to a lecturer in Hydroviz, or they were students from all over the place following Hydroviz, as if it is one of their online courses. Are the Hydroviz modules, part of the student study track of a student?

The usage of HydroViz modules is intended to be done in parallel to the regular class activities. For example, as the instructor covers a chapter on watershed concepts and characteristics, he/she can assign the first 3-4 HydroVis modules to the students who can work on them in parallel to other regular course material and activities. In this sense, HydroViz modules supplement and support, but don't replace, the regular course activities. They can be done outside the regular class hours (e.g., as outside-class projects). As such, they can be used in any course setting (face-to-face or online). It is left up to the instructor to include students' submissions related to HydroViz assignments as part of the students' grades.

We added the following section to the manuscript to further explain how HydroViz can be used in the classroom (we also added some more information in Table 2):

"It is pointed out that the HydroViz course modules are not designed to be a replacement of regular course material or activities. Instead, they are designed to support subjects that the instructor covers in a typical hydrology class, to emphasize concepts that are difficult to convey using traditional approaches, or to help introduce new subjects that are not typically covered. The modules are primarily designed for in junior/senior level courses within Civil and Environmental Engineering curriculum. Selected modules can be used in freshmen-level civil engineering courses. Advanced modules in HydroViz can also be used in first-semester graduate courses. Table (1) indicates which curricular course level each module can be used in (first column in the table) and which topics/chapters in the course that can use HydroViz (last column in the table). The modules can be introduced to the students at different stages within a single course, where

each module can serve as an educational companion to the technical subject covered by the instructor (Table 2). Instructors can choose from the other modules based on their course syllabus. Each module starts with an introduction to the technical subject followed by a set of activities that the students need to complete. The activities are interactive and inquiry-based and include investigative tasks as well as quantitative and qualitative analyses.”

I understand that these modules were assessed, but it is not clear if these modules will become part of the students marking for the courses listed in table 2, or they participated in the evaluation of the Hydroviz on a voluntary basis.

For the current evaluation experiment, students were required to perform the HydroViz tasks assigned to them by the respective instructors. The instructors graded the students’ homework submissions and reported such grades back to the students; however, whether HydroViz grades were included in the final course grades was left up to each instructor.

Why does the tool do not have any forum or blog space included in it.

This is a good suggestion that we can try to incorporate in the future iteration of the software.

Looking at Table 4, can you draw any conclusion regarding which topics are not well presented in Hydroviz? Maybe you can also conclude which topics need improvement.

We talked about that later in the paper.

As very small remarks, section 6 is repeated twice. We revised this section and the repetition no longer exists.

The Introduction part starts with “Several national reports : : :”. I would state “several US : : :”, because the reader can not know just from the abstract where is this assessment made.

We no longer use the word “National” when we refer to reports; specific information about these reports is now included.