

Interactive comment on “Computer-supported games and role plays in teaching water management” by A. Y. Hoekstra

Anonymous Referee #2

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The paper addresses a topic relevant to the journal. Some parts of the text could, however, be further clarified and/or integrated with additional references.

1. Introduction – The paper argues the (potential) role to be played by computer-supported games on the basis of two premises: a call for interdisciplinary approaches in water management and the degree of attraction that students manifest towards computer-aided education. Number of references should be increased to support these two points. There is a large body of literature that discusses both the call for interdisciplinary approaches (particularly linking this with the emergence of the IWRM paradigm) and the increasing importance of simulation games in teaching methods. – The question is whether the push for computer-supported games and role plays

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derives from 'the advance in computer technology' and 'the extent to which students are accustomed to computer aided education' or from emerging pedagogical theories. A more prominent influence may have been played by theories on how people learn ('activated learning'), rather than by advances in computer technology etc. This perspective seems also to be more in line with what presented in section 2: it appears that in the two games discussed in this paper computer do not play a relevant role in the learning process (feedback seems to come from facilitator, rather than from the computer). – Perhaps as a curious consideration, but the wording 'interdisciplinary approach in teaching hydrology' appears somewhat contradictory. If an approach is interdisciplinary, it would suggest that multiple disciplines are incorporated in this approach. Hydrology, if it seen as being a discipline, would by definition be monodisciplinary. – The author writes that the relevance of social science for WRM was already been acknowledged by Hufschmidt in 1967. It may be relevant to also mention that social science studies on water resources management have been undertaken prior to this (see for instance the "hydraulic civilizations" by the Wittfogel in his book *Oriental Despotism*, 1957). – Paragraph 2, page 1861 is a bit unclear: what is the link between computer technology/way people interact with interactive digital media and the societal call for sustainable development? Row 17 -20 is difficult to read: the author may consider rephrasing it.

2. and 3. The Games – While the introduction emphasizes the potential of role plays (and computer-based games) for creating an interdisciplinary learning environment, this interdisciplinary nature does not clearly emerge from the description of the two games presented in the two chapters (2 and 3). The question, therefore, is to what extent these games achieve the goal as described in the introduction (how and to what extent are the two games interdisciplinary? what disciplines are involved in playing the game?). The paper would benefit from a clarification on how different systems (bio-physical system, the infrastructure system and the organizational/institutional system) are integrated and incorporated in the game and on what disciplines are being addressed and taught through the two games. – It is argued that learning will always

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happen (page 1867, row 23): how is the learning measured? What learning happens in the case 'participants consistently fail to understand the underlying hydrology and economics'? Are the learning objectives achieved anyways? – Some of the experiences (chapter 3.2, p. 1873, line 15-23) listed under the Globalization of Water role play seem to be general to all simulations, rather than specific to this game. The author could consider discussing this in the conclusions.

4. Discussion and conclusion – In the last paragraph it is argued that it is hard to find earlier research on the effectiveness of plays in general. However, many studies have been done on simulation games and active learning and the role and impact of simulation on learning. It is, therefore, advised to reformulate this statement.

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