

Interactive comment on “Perspectives and ambitions of interdisciplinary connectivity researchers” by Eva Nora Paton et al.

G. Ali (Referee)

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Review of manuscript titled “Perspectives and ambitions of interdisciplinary connectivity researchers” (hess-2018-445)

This manuscript describes the communication challenges encountered by connectivity scientists coming from different backgrounds but who wish, for one reason or another, to partake in interdisciplinary or multi-system connectivity research. Having been part of a few connectivity-related research groups myself and having interacted with individuals with very different horizons and ambitions, I could definitely see strong parallels between my own collaborative experiences and the elements raised in this manuscript. While issues of terminology and language or understanding barriers have been men-

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tioned anecdotally or qualitatively in previous connectivity review papers or at conferences, the current manuscript goes beyond that by formalizing the discussion in terms of mental models, and by highlighting different types of connectivity researchers. Such papers targeting the advancement of science – especially interdisciplinary science – through self-awareness and the acknowledgement of communication issues are rare and for that reason, I believe that this manuscript should be published and should be a great interest to connectivity scientists and “non-connectivity” scientists alike. Tables and figures are clear and straightforward to understand. There are, however, elements that I found unclear in the text so I hope that my comments and questions can help the authors improve their manuscript.

Main/major comments

Page 3, Lines 28-30 The authors should provide a succinct description of what they mean in their current manuscript so that their argument stands on its own and does not require readers to read another paper in full. The reference should be for readers who seek additional information. I suggest that the authors provide a brief definition of what queuing theory is, and how it has been applied to connectivity.

Page 3, Line 32 The authors could make a broader statement here and just talk about “other disciplines” in general... I am not sure that hydrogeomorphology and telecommunications can really be seen as “neighbouring” fields (?)

Page 4, Line 5 It might be useful to the readers if the authors were to identify, at the end of this paragraph, examples of “borrowing-from-another-discipline-gone-wrong” scenarios. . . otherwise that argument remains a little bit abstract.

Page 4, Lines 8-13 I am puzzled by the first two sentences of this paragraph. I understood the first sentence as meaning that the conceptual perspective transcends disciplines by reconciling elements from many disciplines other than environmental science (here I am using the word “reconciling” on purpose because, in my opinion, it goes beyond just borrowing). However, the second sentence of the paragraph is providing

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discipline-specific examples, so it looks like I got the first sentence of this paragraph wrong. Could the authors clarify what they mean?

Page 5, Line 1 An example or two of how people outside of Academia perceive connectivity might be useful here... I cannot help but think of how the connectivity and isolation concepts have been mentioned and criticized, either directly or indirectly, in discussions and court decisions (including Supreme Court decisions) surrounding the U.S. Clean Water Act. In the 2005 Rapanos decision, for instance, the legal notion of "significant nexus" was introduced by U.S. Supreme Court Justice Kennedy and that notion has been widely acknowledged as a way to say that tangible evidence of water, sediment, chemical or biological connectivity needs to be obtained before specific lakes, wetlands, riparian areas or streams are protected by the Federal Government. While I understand that the Connecteur Group that the authors are affiliated with is based in Europe, I think that mentioning the U.S. example here would not only be useful but also lead the current paper to be "picked up" by North American stakeholders, policy makers and land or water managers. If the authors have other specific examples from Europe or elsewhere, I strongly suggest that they include some in their manuscript, this again as a way to make their argument less abstract.

Page 5, Lines 4-7 There are papers that address that very question and that may help provide tangible examples for inclusion in this paragraph. Quick to come to mind are: Freeman et al., 2007; Nadeau and Rains, 2007; Leibowitz et al., 2008; Golden et al., 2017; and to a lesser extent Ali et al., 2018.

Page 5, Line 15 In the version of the manuscript that I have, section 3 only covers mental models in general and elicitation techniques but does not specifically address them in the context of connectivity in section 3. The authors are only doing that in section 4.

Page 5, Line 16 There is no section 3.2 so do we really need a section 3.1?

Page 6, Line 24→next page I suggest that the authors break this very long sentence

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into four separate ones. Also, I am a bit confused as to whether this long sentence is supposed to describe Figure 3. In Figure 3, I do not see any "contours" but rather bands of color and black dashed lines. Also, with respect to the following sentence in the text (Page 7, Line 1), there is no green element at all in Figure 3 (?)

Page 7, Line 1 Where is the green "contour" shown?

Page 8, Line 33→next page This sentence is a bit difficult to follow

Page 9, Line 5 Not sure what the authors mean by "aligned interactions". Clarification is needed.

Page 18-18 Figure 2 and its caption appear on these pages; however, Figure 2 is never referenced in the text (?)

Minor comments

In my annotated copy of the manuscript, I provide a few other minor comments and some editorial suggestions for the authors to consider.

References

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Freeman M.C., C.M. Pringle, C.R. Jackson. 2007. Hydrologic connectivity and the contribution of stream headwaters to ecological integrity at regional scales. *Journal of the American Water Resources Association*, 43: 5-14. doi: 10.1111/j.1752-1688.2007.00002.x.

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Nadeau T.L., M.C. Rains. 2007. Hydrological connectivity between headwater streams and downstream waters: How science can inform policy. *Journal of the American Water Resources Association*, 43: 118-133. doi: 10.1111/j.1752-1688.2007.00010.x.

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Sincerely,
Genevieve Ali

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2018-445/hess-2018-445-RC1-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-445>, 2018.

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