Reviewer's report

Title: Hospital process orientation from an operations management perspective: development of a measurement tool and testing in three ophthalmic practices.

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Reviewer: Paul Gemmel

Reviewer's report:

Major compulsory revisions:

1. The main purpose of the paper is to further operationalize constructs to measure process orientation in a hospital. They identified these constructs from previous research and they operationalize them from an OM perspective. Although the purpose is well described, it is not clear what the meaning is of the OM perspective. This is due to the fact that (1) the explanation of the meaning of operations in a hospital on page 5 and 6 (“Operations in hospitals can be grouped into …”) is not clear and (2) by consequence the authors did not convince the reader that their approach is different from previous studies which addresses PO from a management and organization theory perspective or from an information system perspective. The added value of their study is really based on this positioning.

2. The authors prefer to practically test the measurement tool rather than to statistically validate a possibly deficient tool. It is a strong point that they first want to test the tool from a practical point of view, but it is a rather weak point that they do not statistically validate their tool. This study produces a tool with face validity and some reliability, but no construct validity nor other types of internal validity. In other words if we want to use this tool we are not sure that the proposed tool captures the 5 dimensions as described in the paper. Is the new tool better capturing the 5 dimensions of PO than the original tool as developed by McCormack? Of course the authors try to avoid this critique by indicating that they add a new perspective to the tool (the OM perspective), but as already described it is not clear that this new perspective makes the tool really different from the tools in the previous studies.

3. The study of Gemmel et al. (2008) formulated the following statement: “A second observation is that many of the items as defined in the original BPO survey (McCormack & Johnson, 2001a) are retained in our analysis (such as PM1, PM2, PM4 and PM5, PV3 and PV4, PJ1, PJ2 and PJ3). In the case of the dimension of Process Jobs, no one of the four added items are retained in the final factor analysis...This confirms that most of the items as defined in the BPO components of McCormack and Johnson (2001a) are robust and useful even in a healthcare environment, which is fundamentally different from the business sectors where the BPO tool was validated. In other words the HPO is not fundamentally different from the BPO.” With the current study we cannot check...
whether this is the case. So it might happen that after statistical validation that we end up with the same list of 3 or 5 dimensions as defined in the basic article of McCormack?

4. The practical testing of the tool was performed in a rigorous way (description p.18 and p 19). It is a good approach that they went back to the participants to test the comprehensibility and that they collected quantitative data on hospital operations to verify the respondents perceptual responses. How the thirteen indicators are used to verify the respondents responses is not very clear. These indicators are also very general indicators. It is not clear to what extent they are related to PO.

5. On page 13 to 17 the authors describe how they operationalized and measured each dimensions with a number of items. For instance PV is describe through 11 items. It is not clear how the 11 items are selected based on the method they used. So we are missing a research protocol showing how you go from the data (interviews) to the list of items. In other words the relationship between the data and the items selected per dimensions is not clear. Are we sure that the researcher does not have an impact on the final selection of the items?

6. The authors state very clearly that ‘the case studies allowed a deep understanding of the nature and complexity of the complete phenomenon (PO), which could be translated into recommendations to improve the measurement tool for measuring hospital process orientation’. But at the end, we do not know whether it is statistically valid tool which is better than the tools which have been proposed earlier by other scholars.

7. The authors clearly indicate that the tool is measuring the difference in perception between respondents (p.27). It would be good to make this clear from the beginning of the paper. The tool is perception-based.

8. They make clear that the objective was to practically test the measurement tool and its contents as a first step towards statistical testing of validity and measurement precision. Of course the question is who will do the statistical testing, because this is a necessary step before the tool can be used in practice. If the statistically testing was performed, it would be advisable to include the results in this paper.

9. The authors have identified the relevant studies which have been working on the development of a process orientation tool. There is also a pretty elaborate literature on Business Process Maturity tools (see for instance Van Looy, De Backer and Poels, Total Quality Management & Business Excellence, Volume 22, Issue 11, 2011). How does the study on process orientation relate to the process maturity models?

10. The authors should recognize that the term “hospital process orientation” has been first introduced in the paper of Gemmel et al. 2008.

Minor essential revisions:
1. p.8 can you explain ‘sequential modelled care processes’?
2. p.16 It is not clear what you mean with the following sentence: “The cultural context of a process-oriented hospital needs to correspond with the process approach culture”.
3. p.19 It is not clear why the researchers decided originally to use a four-point Likert scale. It is not a surprise in the end that they changed the scale to a 7-point Likert scale.
4. p.22 The low PMM score was probably due to a lack of outcome indicators to measure the performance of the begin-to-end. I assume that you could have verified this during the interviews?
5. p.24 “A result that was not foreseen was that hospital 3 came out with the highest average score” (for the PJ and PVB dimensions). Can this not be linked to the smaller scale of the Hospital 3 department? In smaller teams, PJ and PVB are perhaps part of the job?
6. p.25 The average score of the team leaders was often lower than the average score of the healthcare professionals. The authors try to give an explanation for this. Is there literature supporting this explanation?
7. p.29 I do not understand why the fact that the hospital will have to adapt existing medical guidelines to local circumstances and preferences in order to define a care process description is one of the biggest obstacles to acquire an adequate process view in hospitals.
8. p.30 The study suggests that by measuring the 41 items, a hospital can assess the degree of PO of the organization. Please add here from an ‘OM perspective’.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.