Questioning the Questionnaire: Expediency of Reviewing and Publication Versus Adequate Description and Methodological Justification

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Abstract: The questionnaire is one of the fundamental research instruments in the field of Information Technology and Information Systems research. The survey as data capturing method with the questionnaire as data capturing tool is used in various research designs. The wide-ranging application field of the questionnaire as research instrument has led to varied practices in conducting and reporting questionnaire driven research. Standards of quality vary along with the assumptions underlying different philosophical traditions. Considering the ontological and methodological differences between paradigms the transfer of methods and tools between paradigms can introduce deviations in accepted practices. This raises questions about the critical constraints on using the questionnaire as research tool. The present study investigates issues related to the rigor of survey based research reporting. Precisely, it evaluates questionnaire-driven research reporting and then seeks to determine the reasons for deviating from accepted reporting practices such as providing access to the questionnaire. To fulfil this objective, the research design entails document analysis of papers presented at a leading South African Computer Science and Information Systems conference over a six-year period (2008 to 2013). The analyses sought to identify trends in the reporting of the questionnaire design. The survey-driven studies were identified from the proceedings and the reporting practice was analyzed. The specific conference was selected since it is a reputable annual conference in the South African IT/IS field. The analysis revealed that the questionnaire was made available in less than one third of the survey-based articles on average. Having found a definite trend towards omitting the questionnaire, an short survey was conducted with 12 well-published researchers to get their opinion on including the questionnaire and also to uncover the underlying reasons for the omission practice. Reporting practices impact the rigor of any research since rigorous research needs to be done and rigorous research needs to be seen to be done. The non-reporting practice affects the quality of the findings measured in terms of reliability and validity for quantitative research and in terms of trustworthiness, confirmability, and consistency for qualitative research; therefore it is important to question why this practice prevails. The contribution of the study is to highlight a practice of not providing the questionnaire as research instrument and provides some reasons why the practice prevails. This investigation is meant to open a larger debate on the governance of reporting practices. The paper should be of interest to researchers that use surveys and consume survey based findings as well as reviewers, editors and academic conference chairpersons.

Keywords: questionnaire, rigor, repeatability, trustworthiness, survey

1. Introduction

Surveys are one of the most commonly used research methods across all fields of research (Lazar and Feng 2010). Survey research provides a quantitative description of trends, attitudes and opinions of a population by studying a sample of that population (Creswell 2009). The terms ‘surveys’ and ‘questionnaires’ are sometimes used interchangeably, but to be more concise the term survey refers to the technique or method used (Creswell 2009) whereas the term questionnaire relates to the actual list of questions (Oates 2006). This study was triggered when the author was interested in repeating a specific study and could not find the questionnaire or any of the questionnaires relating to that strain of information systems research in the papers. The questionnaire may be obtained by asking the author but since reviews are normally double-blind the reviewers do not have that option. Therefore the omission of the questionnaire implies that the findings were judged without having considered the research tool – and that impacts the rigor of the findings.

Research should be rigorous and relevant (Golafshani 2003; Oates 2006; Creswell 2009). In Information Systems and Computer science rigor encompasses both systematic conduct and validity where validity means that ‘an appropriate process has been used, the findings do indeed come from the data and they do answer the research question(s)’ (Oates 2006):10. Therefore vagueness and obfuscation does not support the rigor expected of Information Systems and Computer science research. The aim of this study was to find how prevalent the non-reporting of questionnaires were, and if there was indeed such a trend, to investigate the reasons behind it. To fulfil this objective, a leading South African Computer Science and Information Systems conferences was chosen as the unit of analysis and the data was captured over a six-year period (2008 to 2013). The standard is evident from the fact that the SAICSIT proceedings is published in the ACM’s International Conference Proceedings Series (ICPS), and is available online in the ACM Digital Library. The
analysis of the articles in the six proceedings showed a trend towards non-reporting of questionnaires. To gain some insight into the reasons for this practice a follow-up investigation was done with 12 well-published academics of whom seven had published in the specific conference. The research design therefore includes document analysis and a survey. The findings from the document analysis confirm a trend of non-reporting of the questionnaire as research tool and the survey provides some insights into this behavior despite the fact that none of the participants in the survey condoned the omission of the questionnaire.

2. Literature

The literature background for this research is the questionnaire as research instrument as briefly discussed in section 2.1 to make the argument that questionnaire design is not trivial and needs to be evaluated as integral part of the research design. Questionnaire adoption and use display similarities with technology adoption, the similarities and the implications thereof are discussed in section 2.2.

2.1 Questionnaire as research instrument

A questionnaire is a purposely defined, structured and well-written set of questions to which an individual is asked to respond. Surveys using questionnaires as data-capturing instruments may look easy, but inferior data, erroneous conclusions and costly mistakes are the results of underestimating the complexity of surveys (Mouton 2001). Olivier (2004) identifies three aspects of surveys that often contain pitfalls: sampling the data, designing the questionnaire and applying the results. Oates (2006) supports the importance of questionnaire design by stating that the quality of the information obtained by a questionnaire is directly proportional to the quality of the questionnaire design. Leung (Leung 2001) highlights the importance of clarifying the dependent, independent and confounding variables in order to ensure that the right questions are asked. Furthermore, the questions should be asked right, that means appropriate wording of the individual questions where he identifies various pitfalls (Leung 2001). Research on questionnaire design is mature and many guidelines are available for regulating content, organisation, clarity, conciseness and style (Mouton 2001). Therefore further discussion of questionnaire design guidelines is beyond the scope of this study but the complexities relating to questionnaire design are mentioned to make the argument that questionnaire design is not trivial and therefore questionnaire should be evaluated as part of the quality assurance on survey based research.

Quality in quantitative research is evaluated from the perspective of explaining something while qualitative findings are aimed at understanding (Golafshani 2003) and that has implications for the research methodology. Quantitative researchers seek causal determination, prediction, and generalization of findings while qualitative researchers seek illumination, understanding, and extrapolation to similar situations (Golafshani 2003). Therefore the purpose, methodologies and the role of the researchers in quantitative research is different from that in qualitative research. A previous study into questionnaire reporting (Van Biljon 2011) investigated whether the fundamental differences between the positivist and interpretivist paradigms could be the reason behind the varying reporting practices. Besides importance, quantitative findings are judged in terms of reliability (potential replicability) and validity (Golafshani 2003; Field and Hole 2005) while qualitative findings are judged in terms of credibility, transferability, and trustworthiness (Golafshani 2003). However, despite the philosophical differences scientific progress is guided by peer evaluation and therefore research practices should be transparent and clearly described, regardless of the paradigm (Van Biljon 2011). This paper aims to extend van Biljon’s (2011) study by establishing if the questionnaire non-reporting practice is still prevalent and if so, investigate what the reasons could be.

2.2 Factors that influence technology adoption

Human behavior is goal-seeking and actions are directly controlled by intentions. Behavior prediction studies lie at the center of technology adoption research; the theory of reasoned action (TRA) (Ajzen 1985) and the Technology Adoption model (TAM) (Davis 1989; Davis 1993) which is based on the TRA represent some of the theorizations in technology adoption research. TAM is a behavioral model that represents how users come to accept and use a technology (Davis 1989). The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it as depicted in Figure 1, in particular:

- Perceived usefulness - this was defined by Davis as ‘the degree to which a person believes that using a particular system would enhance his or her job performance’.

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Perceived ease-of-use - this was defined by Davis as ‘the degree to which a person believes that using a particular system would be free from effort’ [8].

Figure 1: Technology adoption model (Davis 1989)

A review of technology adoption models is beyond the scope of this paper but Visser (2011) provides a useful comparison on the origin and contributions of the most important models. Similar to technology, the adoption of the questionnaire as research tool is influenced by perceived usefulness and other variables. Technology adoption is also described in terms of phases where people move through various adoption phases. The questionnaire is a tool that is used in a specific way, like other and therefore there are similarities in the process of adopting it partially, fully or not at all. Besides the decision to adopt a tool there is also the diffusion of the innovation for which Rogers (2003) proposed the following stages:

- the knowledge phase where the person gets to know about the product;
- the persuasion phase where he or she becomes persuaded of a need for the product;
- the decision phase which leads to a purchase;
- the implementation phase where the item is used; and,
- the confirmation phase where the individual seeks to confirm that he or she made the right decision in purchasing the product (Rogers 2003).

To use a questionnaire as tool in survey based research, the researcher needs to become convinced of the need for doing a survey and this is followed by the need to find an appropriate questionnaire. If an appropriate questionnaire cannot be found then the researcher may consider designing a questionnaire. Whichever way, the implementation and confirmation phases remain relevant to the adoption process. Silverstone and Haddon (1996) proposed the domestication of technology as a concept used to describe and analyze the processes of acceptance, rejection and use. Users are seen as social entities and the model aims to provide a framework for understanding how technology innovations change, and are changed, by their social contexts. The domestication of technology model consists of the following phases (Silverstone and Haddon 1996):

- Appropriation: the process of possession or ownership of the artefact.
- Objectification: the process of determining roles product will play.
- Incorporation: the process of interacting with a product.
- Conversion: the process of converting to intended future use or interaction.

Again considering the questionnaire as tool in survey based research, the researcher goes through the phases of appropriation, objectification, incorporation and possibly conversion when a questionnaire needs to be changed to suit the objectives of the study. The similarities in the process of technology adoption and questionnaire choice and application are clear. Therefore these technology adoption models are considered useful in understanding and interpreting the findings on the researchers’ behavior in using questionnaires as discussed in section 4.2.

3. Research design

The investigation now looks at questionnaire design reporting in the field of Computing. Computing refers to refers to any goal-oriented activity requiring, benefiting from, or creating computers (ACM/IEEE 2005). Computer Science and Information Systems are both classified under the umbrella definition computing but can be differentiated as follows:
Computer science is the study of the theoretical foundations of information and computation and of practical techniques for their implementation and application in computer systems (Denning and Comer 1989). Computer Scientists invent algorithmic processes that create, describe, and transform information and formulate suitable abstractions to design and model complex systems.

Information Systems developed out of the need to bridge the gap between business management and Computer Science towards an evolving new scientific area of study (Hoganson 2001). Information systems are implemented within an organization for the purpose of improving the effectiveness and efficiency of that organization (Silver and Markus 1995). The capabilities of the information system and characteristics of the organization, the work systems, people, and development and implementation methodologies together determine the extent to which that purpose will be achieved.

The conference proceedings of the South African Institute for Computer Scientists and Information Technologists (SAICSIT) was chosen for the document analysis as it is a reputable conference that attracts a wide audience of Computer Scientists and Information Technologists from across South Africa, Africa and even internationally. Section 3.1 provides more detail about the context and the research published at SAICSIT and Section 3.2 explains the document analysis procedure followed.

### 3.1 Context

Given the combination of Computer Science and Information Systems research the research approaches include qualitative, quantitative and mixed-methods research. The conference is held annually and the proceedings of six consecutive years (2008 to 2013) were analysed. SAICSIT uses a diversity of reviewers to ensure the stated aim of being internationally competitive as well as relevant to South African and African needs (Co-Chairs 2010). On average the accepted papers received between 3 and 4 reviews each (Co-Chairs 2010); this standard of a rigorous doubleblind reviewing process has been consistently followed as evident from the message from the Programme Chairs for SAICSIT proceedings 2013 (Co-Chairs 2013) and the acceptance rates depicted in Table 1.

#### Table 1: SAICSIT conference acceptance rates 2008 - 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of papers accepted</th>
<th>Acceptance rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>33</td>
<td>41%</td>
</tr>
<tr>
<td>2009</td>
<td>23</td>
<td>45%</td>
</tr>
<tr>
<td>2010</td>
<td>37</td>
<td>37%</td>
</tr>
<tr>
<td>2011</td>
<td>49</td>
<td>33%</td>
</tr>
<tr>
<td>2012</td>
<td>42</td>
<td>35%</td>
</tr>
<tr>
<td>2013</td>
<td>48</td>
<td>54%</td>
</tr>
</tbody>
</table>

Over the six year period the paper acceptance rate varied between 33% and 54% with an average of 40.8%. This acceptance rate attests to the popularity and high standard of the conference. The following universities and institutions were represented in the SAICSIT proceedings analyzed: Council for Scientific and Industrial Research; Nelson Mandela Metropolitan University; University of Cape Town; University of the Western Cape; Rhodes University; University of Fort Hare; University of the Witwatersrand; Tshwane University of Technology; University of South Africa; North-West University, University of the Free State and the University of Pretoria. The wide coverage of South African research institutions bears evidence that SAICSIT is a representative conference of the South African research landscape in Computer Science and Information Systems research. The research philosophies include positivist, interpretive and critical approaches, using quantitative, qualitative and mixed methods research with the associated range of data-collection methods. The data-capturing methods include observation, recordings, interviews, surveys and the use of secondary data. Evaluation attributes or criteria considered in the present review focus on, the number of questionnaire driven studies reported, the number of standardized questionnaires used and the questionnaire reporting practice.

### 3.2 Analysis procedure

To investigate the reporting of questionnaire-related information, document analysis was done on the SAICSIT proceedings of 2008 to 2013. The proceedings were analyzed by electronically searching the full research papers for the words survey and questionnaire. The analyses were done independently by two researchers and the results were compared and consolidated after checking the differences. A paper could include the term questionnaire without involving questionnaires in data-capturing so only the papers on research that used a
questionnaire as data capturing tool were selected. The studies where questionnaires were used were then reviewed for providing information that made it possible to evaluate the questionnaire. This meant providing the actual questionnaire, an electronic link to the questionnaire or the name of the questionnaire in the case of standardized questionnaires. To preserve anonymity the actual titles of the articles cannot be published but most studies involve the testing of an information system in a specific context with a specific user group. A possible limitation is that different kinds of questionnaires were involved, comprehensive questionnaires that formed the basis of the study, post-test questionnaires administered after usability testing and one case of a questionnaire used in an interview. However, since the questionnaire was used as data-capturing tool in all these studies there is no obvious reason why the reporting should not comply with the requirements for good governance in questionnaire usage. The results of the analysis are presented and discussed in Section 4.1.

Given the surprisingly high percentage of questionnaire omissions a follow-up investigations was done where 12 published researchers, 7 of which had published in the conference proceeding were surveyed with a short questionnaire. The results of the analysis are presented and discussed in Section 4.2.

4. Results and discussion

Evaluation attributes or criteria considered in the present review focus on, the number of questionnaire driven studies reported, the number of standardized questionnaires used and the reporting rigor.

4.1 Results

The analysis of the SAICSIT full-papers for survey driven research produced is depicted in Table 2, with the following information provided in the nine columns:

- Column 1: Conference date
- Column 2: The number of questionnaires provided in the paper.
- Column 3: The number of papers where standard questionnaires were used and referenced.
- Column 4: The number of papers where the questionnaire was accessible i.e. a reference to the questionnaire was provided or it was based on a referenced standard questionnaire.
- Column 5: The number of papers where parts of the questionnaire was described
- Column 6: The number of institutions involved
- Column 7: The total access (based on the number of papers where the questionnaire was provided, a standard questionnaire was used or access to the questionnaire was provided.
- Column 8: The number of papers analyzed
- Column 9: The percentage of questionnaires made available per papers analyzed

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Q provided</td>
<td>Standard Q</td>
<td>Q access</td>
<td>Q Description</td>
<td>Institutions</td>
<td>Total Q access</td>
<td>Q Papers analyzed</td>
<td>Access Q %</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>14</td>
<td>28.6</td>
<td></td>
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<tr>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>15</td>
<td>46.7</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>62.5</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>54.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>3</td>
<td>1</td>
<td>21</td>
<td>19</td>
<td>60</td>
<td>AVG</td>
<td>31.7</td>
<td></td>
</tr>
</tbody>
</table>

The analysis found that in total 60 papers used questionnaires but the provision of the questionnaires varied. In only 27% (16 of the 60 papers) was the questionnaire included in the paper. Columns 3 and 4 refer to papers where a standard questionnaire was used or the questionnaire was based on a standard questionnaire.
latter could be problematic since a questionnaire is a balanced instruments and using selected sections only could detract from the rigor. Considering questionnaire availability (not only direct provision) those papers were included and then the average is 31.7%(19 of 60 papers).

The cases where only sections of the questionnaire was provided (column 5) was not included since it is essential to be able to evaluate the entire questionnaire. This practice also introduces subjectivity since the selection was made by the authors. The availability of the questionnaires ranged from 25% to 54.5% with an average of 31.7%. If the values from column 4 are ignored (there is a strong argument for using a questionnaire as a unit) then the questionnaire access drops to a range of 25% to 45.5% with the average remaining at 31.7%. Note, the difference between the papers in columns 4 and 5 is that the former made selections from a standardized questionnaire and then made all the questionnaire items from the sections selected available while the papers counted in column 5 selected provided only the questionnaire items that produced interesting results. Either way the evidence indicates a trend to omit the questionnaire. The practice of non-reporting was not limited to specific institutions but researchers from the Nelson Mandela Metropolitan University showed a trend towards using standardized questionnaires. This paper argues that the findings from a survey cannot be evaluated without access to the questionnaire and omitting the questionnaire can cause reasonable doubt about the validity of the findings. Therefore the identified tendency to omit the questionnaire, despite the possible negative effects on validity, prompted further investigation. A short survey (four questions) was conducted with 12 well-published researchers, 7 of which had published in their SAICSIT conference proceedings. Some of these researchers had provided access to the questionnaire in their SAICSIT articles, some had not done so and some had done so in some of their articles. The questions and a summary of the responses are depicted in Table 3.

Table 3: Questionnaire on questionnaire access put to researchers

<table>
<thead>
<tr>
<th>Consider a piece of research where a questionnaire was used as data capturing tool. Please indicate which of the following apply to the provision of the questionnaire and motivate your response.</th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The questionnaire should be provided</td>
<td>10</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2 Access to the questionnaire should be provided i.e. URL.</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3 Only the relevant sections need to be provided.</td>
<td>1</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>4 The questions items need to be provided for the important findings only.</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

From the responses depicted in Table 3 for question 1 it can be inferred that the majority of the interviewees (10 of the 12) would always expect the questionnaire to be provided. Two would be satisfied with sometimes. Note that none of them indicated ‘never’ as an option.

The idea of an URL, as mentioned in question 2 was new to some respondents, one expressed concern about the anonymity but 6 of the 12 selected always as option. The last two questions had to be clarified where the question 3 referred to selection based on the questionnaire items and question 4 referred to selection based on findings. Looking at the wording of the questions, that confusion is understandable and this underscores the argument of this paper, namely that the questionnaire items should be provided. However, both questions refer to the practice of allowing the researchers decide on what part of the questionnaire to provide. The majority (7 in both cases) responded with Never. Thus the results show that most participants found it unacceptable to provide only parts of the questionnaire. The reason given was that the researchers sacrificed objectivity in deciding what to omit and could be accused of ‘cherry-picking’, the fallacy of incomplete evidence based on the act of pointing to individual cases or data that seem to confirm a particular position, while ignoring related cases or data that contradict that position .

When asked to give reasons for not providing a questionnaire the following responses were obtained on why it should be included:

- “I personally like a data trail.”
- “One needs to see what the respondents see.”
- “Results can be affected by the wording of the questions. Thus the research must report the words used.”
“No – it is important otherwise a researcher could have made the results up and results have to be linked to the different questions. Evidence of this is thus necessary.”

“All questions should be provided to prevent bias/selective inclusion of results that fit purpose of research.”

The following responses were obtained on why the questionnaire would be omitted:

- “Because of space restrictions and because a paper often focusses on only part of the work.”
- “When you have done ‘creative’ interpreting or plan to market an instrument (IP).”

In Figure 2 the advantages and disadvantages of providing the questionnaire is depicted based on the interviewee comments provided in reply to the request to motivate their responses.

**Figure 2:** Factors impacting on the decision to provide the questionnaire

### 4.2 Discussion

Considering the results from section 4.1 it can be deduced that in the SAICSIT conference proceedings from 2008 to 2013 there was a definite trend towards omitting the questionnaire. This is based on the fact that it was included in less than a third of the papers on average.

In section 4.2, the results of a short survey conducted with researchers indicated that researchers found it necessary to provide access to the questionnaire. Over time there had been calls for the Computing community to raise the bar on what can be expected from reporting research. Louridas and Gousios (2005) recommend that published papers include the following:

- All measurement data.
- All interviews, questionnaire, research protocols, and other related data derived from subjects, anonymized if necessary.
- Full details on the statistical methods used. These should include scripts and programs, so that it is easy for other researchers to run them. If statistical frameworks are used (e.g., r or spss), full details on the versions and libraries should be provided as well.
- Any other code that has been used in the publication’s re-search.
- Documentation for all of the above.
Decision making can be biased in different ways but Dobelli (2013) calls the confirmation bias the mother of all misconceptions. The confirmation bias is “the tendency to interpret new information so that it becomes compatible with our existing theories, beliefs and conviction” (Dobelli 2013): 23. Therefore researchers have to follow procedures carefully and transparently to produce evidence of their confirmability, reliability, and credibility to minimize opportunities for bias. This begs the questions why the questionnaire is not routinely provided. The factors that influence human behavior in adopting and using a technology may provide some insight. Looking at the difference between best practices and the way people behave from an Information security angle, Renaud and Goucher (2014) investigated the difference between the intention to behave in a specific way and the actual execution of the behavior. They distinguished the Gulf of Evaluation from the Gulf of Execution as depicted in Figure 3.

![Figure 3: Antecedents of actual use adapted from Renaud and Goucher (2014)](image)

Considering the many factors against providing the questionnaire (as depicted in Figure 2) it becomes clear why the more abstract concept of rigor does not outweigh the many practical factors that drive the practice of omitting the questionnaire.

5. Conclusion

This paper reported a study on the use and reporting of questionnaires. Based on the findings it is concluded that questionnaires were not routinely provided as it was done so on average in less than a third of the conference papers analyzed over a six year period for the selected conference. Given the fact that this is a reputable South African conference with an acceptance rate of 40.8% on average a follow-up investigation was conducted to probe why this trend prevailed - despite the adverse consequences for the rigor of the research. In the short survey the majority of the researchers thought it necessary to provide the questionnaire as research tool – even if they had omitted it in some papers themselves. The reasons for non-reporting relate to intellectual property, practical issues and governance issues. The specific reason mentioned were intellectual property, space consideration and the fact that it is not required by most conferences. Requiring the questionnaire in some format, i.e. as a separate file in the review process could address some of the problems mentioned. The findings are based on one conference only therefore more research is needed to investigate the trend and the reasons for not routinely providing the questionnaire. Research needs to be done rigorously, but it also needs to be seen to be done rigorously. Conference chairmen, journal editors and reviewers have a responsibility to ensure that expediency of reviewing and publication does not come at the expense of adequate description and methodological justification. This is in line with Louridas and Gousios’s (2005) call for specifying reporting requirements and it is hoped that this paper will revitalize the debate on reporting practices for ensuring reporting rigor.

Acknowledgements

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Reference