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Some Recommendations for the Reporting of Quantitative Studies

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Editorial:**Some Recommendations for the Reporting of Quantitative Studies**Ximena López^a Jorge Valenzuela^b Miguel Nussbaum^c Chin-Chung Tsai^d

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The quality of research design and results reporting are of paramount importance when judging and ultimately accepting academic articles for publication. The pertinence of methodological procedures and the appropriateness of statistical analysis are not only relevant to defend the robustness of the research results being presented; more importantly, they are relevant to understand the contribution of these results to the broader field of study.

The academic debate has become increasingly controversial regarding the use of widely accepted statistical procedures, such as null hypothesis significance testing and related techniques (Sharpe, 2013; Trafimow & Marks, 2015). Quantitative experts have criticised the over-reliance on these procedures as they not only provide insufficient quantitative information on the data; more worryingly, they may also mislead the interpretation of results by fellow researchers (Kline, 2013). The debate has also been extended to other procedures, suggesting that misuse of appropriate statistical practices may stem from insufficient knowledge of further statistical concepts (such as statistical power and test assumptions) or from a lack of awareness of more modern and advanced statistical techniques (Sharpe, 2013). In other cases, such misuse may be associated with theoretical and/or operational difficulties when planning or carrying out the study (Cumming, 2014).

This editorial aims to provide guidelines to encourage a clearer and more complete reporting of research outputs for quantitative studies. Research outputs, however, are directly determined by the research design and data analysis. As Pierson (2004) states, "*No amount of rewriting, creative data presentation, or statistical manipulation can make up for the fact that the study used the wrong model or study design, collected data in a manner that would not allow a meaningful examination of the hypothesis, or made too few measurements to permit confident conclusions to be drawn*" (p. 1250). Hence, these guidelines are also an invitation to reflect on the suitability of research design decisions and the suitability of data analysis procedures for the research aims within a quantitative approach.

It is not our intent to suggest that we will accept manuscripts using a quantitative method over a qualitative one. We deeply value a plurality of epistemological approaches and research designs that suit the vast variety of questions that are intrinsic to the complex nature of our field of study. However, given the large amount of research studies using a quantitative design submitted to Computers & Education, it is important to make explicit some specific guidelines that will contribute to the quality of such manuscripts.

We will, in due course, publish an editorial focussed on enhancing the quality of submissions that are based on research that adopts a qualitative approach.

As a general recommendation, manuscripts based on a quantitative approach that are submitted for publication, besides having an appropriate number of significant figures, should report detailed information to allow a knowledgeable reader to a) replicate the study; b) assess the rigorousness of the research design; and c) evaluate the robustness of the results and generalisability of the conclusions. In order to do so, authors should consider the following aspects:

1 Regarding participants

1.1 Using representative samples

A representative sample is a subset of elements, the characteristics of which reflect the whole population from which it has been drawn. Using a representative sample is the only way to generalise the results for the population as a whole. Randomisation is key to ensuring the representativeness of

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