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*for the CAEP 2016 Academic Symposium: A Writer’s Guide to Key Steps in Producing Quality Medical Education Scholarship by Chan and colleagues.*

Appendix B provides the complete lists of the top 25 items endorsed by the online medical education community that were presented to the 2016 CAEP Academic Symposium.

**Important Attributes of Well-Written Quantitative Education Studies**

|  |  |  |
| --- | --- | --- |
| **CATEGORY** | **ITEM** | **% endorsed****(*n*=19)** |
| Study Design | Literature Review | Conduct a literature review to define the research question and ensure that it has not already been answered | 89.5 |
| Conduct a thorough literature review of both the medical literature and relevant publications from other disciplines | 68.4 |
| Question | Clearly define a research question before selecting the most appropriate method to answer it | 89.5 |
| Ensure the research question is important (addresses gaps in knowledge base or clarifies educational processes) | 84.2 |
| Methods | Adhere to generally accepted ethical standards (obtain informed consent, ensure voluntary participation, maintain confidentiality, and receive ethical approval) | 84.2 |
| Collaborate or consult a biostatistician in the planning stages of the study | 78.9 |
| Be realistic in the logistics of implementation, the feasibility of outcome assessment, the number of participants, and the budgeting of time/money/other resources | 68.4 |
| When possible, randomize participants to each intervention | 68.4 |
| Emphasize confidence intervals and effect sizes rather than only p values | 68.4 |
| Writing | Problem Statement | Explain the importance or significance of the topic of study by highlighting gaps of understanding in the literature | 66.7 |
| Methods | Include statements about informed consent and institutional ethical approval | 88.9 |
| Explain the study design in enough depth for replication | 83.3 |
| Clearly describe the intervention in each of the study groups | 83.3 |
| Clearly define the population of interest and the inclusion and exclusion criteria of participants | 72.2 |
| Clearly describe the intervention and control groups | 72.2 |
| Clearly outline the anticipated effect of the intervention and how it will be observed | 66.7 |
| Discussion | Critically evaluate threats to the study’s validity and rule out as many as possible using the literature | 72.2 |
| Reflectively integrate the findings of the study with outside work without overstating study findings or understanding the work of others  | 72.2 |
| Discuss the results in relation to the strengths and weaknesses of the methodology | 72.2 |
| Editing | Ensure that the language used is clear and unambiguous | 72.2 |
| Ensure that the information presented in the tables and abstract is consistent with the text of the manuscript | 66.7 |
| Account-ability | Ensure that each cited comment is an accurate representation of the reference | 72.2 |
| Submission | Journal Selection | Ensure that the journal selected for submission publishes the type of paper that is being submitted | 94.4 |
| Ensure the manuscript meets the style and submission requirements of the selected journal  | 88.9 |
| Choose a journal which serves your target audience | 88.9 |
| Revision | Provide well-reasoned responses to every major recommendation | 77.8 |
| Try to balance conflicting reviewer recommendations | 66.7 |
| Make suggested changes whenever reasonable and possible | 66.7 |

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**Important Attributes of Well-Written Qualitative Education Studies**

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| --- | --- | --- |
| **CATEGORY** | **ITEM** | **% ENDORSED (*n*=39)** |
| Initial Grounding Work (Preparation, background) | Adequate preparation which includes a thoughtful, focused, up-to-date review of the literature | 89.7 |
| Conceptual linkage to existing theory | 84.6 |
| Declaring and reporting one’s theoretical paradigms and values, or position | 66.7 |
| Goals, Problem statement or Question | Clearly state the research goals and research questions | 87.1 |
| The problem is important, timely, relevant, critical, prevalent problem | 74.4 |
| Clear articulation of the research questions or goals | 82.1 |
| Methods | Appropriate methods are justified | 92.3 |
| Make the methodology clear | 82.1 |
| Obtain and report ethical approval or waiver | 84.6 |
| Sampling Techniques | Use a sampling plan that ensures that participants are relevant to the research question; their selection is well reasoned | 53.8 |
| Sampling should be guided and selective | 53.8 |
| Describe your sample technique | 64.1 |
| Data Collection Techniques | Clear articulation of data collection strategies | 82.1 |
| Ensuring that the data collection methods are appropriate for the research objectives and setting | 74.4 |
| Ensuring that the data collection comprehensive enough to support rich and robust descriptions of the observed/experienced events | 61.5 |
| Data Interpretation & Theory Generation | Use a systematic data analysis which aligned with the analytic processes with known methods | 61.5 |
| Linkages made between the findings of the study and other existing theories OR new theory developed that is relevant to targeted field/discipline | 79.5 |
| Measures to Optimize Rigour & Trustworthiness | Outline data analysis methods with attention to methods that establish trustworthiness throughout the study | 64.1 |
| Using one or more of the following techniques to increase rigour of the analysis: saturation, triangulation, respondent feedback, fair dealing | 59.0 |
| If multiple methods are used to increase rigour of the work, these methods should be described & benefits explained | 53.8 |
| Relevance to the field | Impactful or significant results | 51.3 |
| Comprehensive and relevant conclusions | 61.5 |
| Dissemination & Reporting | Effective presentation | 51.3 |
|  | Well-written manuscript | 84.6 |
| Evidence of Reflective Practice | Reflective critique of one’s own study, particularly examining whether the results are easily transferable | 56.4 |
| Accounts for the limitations of the study | 61.5 |

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**Important Attributes of Well-Written Innovation Reports**

|  |  |  |
| --- | --- | --- |
| **CATEGORY** | **ITEM** | **% ENDORSED (*n*=21)** |
| Goals / Need for Innovation | There is a thorough description of the problem and need for innovation; including importance, how the problem has been identified, and who is affected | 81.0 |
| There is a statement about the degree to which the problem is generalizable | 61.9 |
| There is a clear statement of research question and goals | 66.7 |
| The research question is transferrable into many contexts | 42.9 |
| Preparation  | There is a thorough literature search, and critical review of related research | 52.4 |
| There is provision of evidence that the innovation or intervention is in fact new | 66.7 |
| There is description of how the project builds on the existing literature | 76.2 |
| There is a statement of ethics approval | 47.6 |
| Innovation Development | The details of why a particular solution was selected and/or developed are presented, ideally with supporting evidence (ex. local factors, generalizability factors)  | 61.9 |
| The innovative nature of the solution is clearly defined | 66.7 |
| A framework was used to guide the development of the innovation | 47.6 |
| Innovation Implementation | There is a description of conditions under which innovation was tried | 71.4 |
| There is a description of the principles, concepts, or theories that guided the implementation | 52.4 |
| There is a description of both successes and failure in implementation, and subsequent lessons learned | 71.4 |
| There is a description of the barriers and challenges experienced | 71.4 |
| Evaluation of Innovation | There is a clear description of the metrics used to evaluate the innovation | 76.2 |
| Feasibility information is included (time, costs/materials, and acceptability)  | 57.1 |
| Evidence of Reflective Practice | The impact of the innovation on the field and discipline is clearly stated | 42.9 |
| There is a description of how the solution situated in the larger context of education, research, and/or patient care  | 52.4 |
| Significant justification is presented for the innovation to pass the “who cares?” test | 66.7 |
| The sustainability of the innovation is discussed | 47.6 |
| Future directions for research are presented | 52.4 |
| Reporting and Dissemination | The report is written concisely and in a straightforward manner with complex ideas broken down into clear and enticing rhetoric | 66.7 |
| The writing uses appropriate vocabulary, respectable grammar, language that communicates directly, and a style that is suitable to the topic, audience, and journal outlet  | 66.7 |
| The report follows the journal’s submission rules and style guide | 61.9 |

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**Important Attributes of Well-Written Reviews & Scholarship of Integration**

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| --- | --- | --- |
| **CATEGORY** | **ITEM** | **% ENDORSED (*n* = 5)** |
| Pitfalls to avoid | Ignorance of literature | 80.0 |
| Poor research design | 80.0 |
| Misunderstanding/misapplying data/literature | 80.0 |
| Preparation | Evaluate if systematic review is appropriate  | 100.0 |
| Use framework (PRISMA)  | 80.0 |
| Assemble team  | 80.0 |
| Seek input from experienced systematic reviewer  | 60.0 |
| Seek input from librarian  | 60.0 |
| Consider bibliographic software  | 60.0 |
| Methods | Explicitly describe type of study  | 80.0 |
| Indicate if a review protocol exists  | 60.0 |
| Specify study characteristics used as criteria for eligibility, giving rationale  | 80.0 |
| Describe all information sources used in the search  | 60.0 |
| Use multiple databases  | 100.0 |
| Include international literature  | 60.0 |
| Include grey literature  | 80.0 |
| State process of selecting studies  | 60.0 |
| Describe method of data extraction from reports  | 80.0 |
| Describe methods of handling data and combining results of studies  | 60.0 |
| Describe how quality was assessed  | 60.0 |
| Results | Include PRISMA flow diagram  | 60.0 |
| Include table with key features of each study  | 60.0 |
| Provide the numbers of studies screened, assessed for eligibility and included in the review with reasons for exclusions | 80.0 |
| Present results of each meta-analysis done  | 60.0 |
| Discussion | Summarize main findings including strength of evidence for each main outcome | 80.0 |
| Discuss limitations | 100.0 |
| Provide interpretation of results in context of other evidence and implications for future research | 60.0 |
| Funding | Provide details of funding | 60.0 |