CURRENTS IN PHARMACY TEACHING AND LEARNING:
Author Guidelines –Research Articles
Author Guidelines –Research Notes

Original Research Article and *Research Notes* Content Guidelines:

Original Research Articles and *Research Notes* are both hypothesis-driven inquiries with the purpose of contributing to generalizable knowledge (i.e., builds on prior knowledge) about teaching, learning, or education in pharmacy. The primary difference between these two article types is that studies described in *Research Notes* exhibit notable issues related to validity and/or generalizability that limit the extent to which the findings contribute to the literature. Authors are strongly encouraged to submit manuscripts that represent a pilot study of a larger research project as a *Research Note*.

Clear and direct communication of the scientific process is a vital guiding principle for both *Original Research* and *Research Notes*. An important part of research is the potential for replication by others, which is very difficult if the study methods and procedures are poorly described. Many of these reporting guidelines can be found online at the EQUATOR Network clearinghouse (http://www.equator-network.org). Authors are encouraged to use subheadings throughout their manuscript, especially with their Methods and Results. *Original Research Articles* and *Research Notes* include the following components: [NOTE: bolded headers below must be used as the article section headers].

Introduction

- Provide a context or background for your study (that is, the nature of the problem and its significance—its relevance to readers).
- Cite only directly pertinent references.
- Do not report any data or conclusions from this investigation.
- Explicitly state the specific purpose of your investigation; this purpose may be presented as research question(s) or research objectives(s), or in the form of appropriately-worded research hypotheses.
- This section should be written in the past tense.

Methods

- The Methods section should be clear about how and why a study was done in this particular way.
- All study methods and procedures should be described in sufficient detail to allow others to reproduce the results.
- When human subjects are involved, the Methods section *must* include a statement indicating that the responsible ethics review body approved the investigation or exempted it from the need for review; this statement or a statement (with verification) that ethics review was not needed is required before any submission will be considered for peer review; place this statement at or near the beginning of this section.
- Consider the following subheadings to organize content and help the reader: Context (or setting), design, sample (or population), instrument (and/or outcomes), statistical analysis
- Clearly describe the selection of your study sample, including eligibility, inclusion/exclusion criteria and a description of your source population.
- If appropriate, communicate any reporting guidelines that you used.

Author Guidance modified from:
International Committee of Medical Journal Editors. Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals. Available: http://www.icmje.org/recommendations/browse/manuscript-preparation/preparing-for-submission.html#three, accessed December 17, 2015.

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting Qualitative Research. *Acad Med.* 2014;89(9):1245-1251.

Methods (Continued)

- For study variables and measurement approaches:
  - Variables being examined in your study should be clearly described, as well as the methods by which they are measured (e.g., student empathy was measured with the Kiersma-Chen Empathy Scale)
  - References to established methods (e.g., previously developed measurement instruments) should be provided when appropriate
  - Brief descriptions for methods that have been published but are less well known should be provided to aid the reader in understanding their meaning and appropriateness
  - Development of new methods or substantial modification of existing methods should be described along with the reasons for using them
  - Give readers an overview of where your test content information came from—this is your content evidence of measurement validity
  - Provide sufficient detail to allow readers to understand how learners took your assessments (i.e., multiple-choice, constructed response, observer/rater scoring of global rating scale or checklist)—this is your response format evidence of measurement validity.
  - If survey instruments are used, the items must be provided in either tabular form with results or as the actual survey instrument as this information is necessary for the peer review process and is helpful to readers.
  - For situations where there are compelling reasons (e.g., copyright issues), the actual survey items will not be published.
- *For quantitative research*
  - Clearly state the study design employed using commonly accepted study design terminology.
  - Clearly describe any comparisons being made between groups or across time.
  - Describe your statistical methods with enough detail to enable a knowledgeable reader with access to your original data to judge its appropriateness for your study and to verify your reported results.
  - Provide references if you use study designs or analytical techniques that are unique, new, innovative, or otherwise relatively unfamiliar to the general reader; keep in mind that a brief description may be helpful in addition to a reference.
  - Define statistical terms, abbreviations, and most symbols—refer to AMA Manual of Style (http://www.amamanualofstyle.com/) for additional information.
  - All statistical analyses should be related to the stated research objectives; any post hoc analyses or unspecified subgroup analyses should be clearly distinguished from those specified by your research objectives.
  - Provide a clear rationale for any analyses that are exploratory in nature (e.g., what factors are related to student success on APPEs?) including support from prior literature and/or existing theory.
- *For qualitative research*
  - Address issues related to design, credibility, dependability, transparency, triangulation, transferability, and authenticity; these all are important.
  - Describe your specific qualitative approach and research design used, including the context of your study and researcher characteristics that may influence your results.
  - Clearly describe sampling, data collection including instruments, data analysis, coding, software/equipment (giving the manufacturer's name and location in parentheses), and procedures in sufficient detail to allow a knowledgeable reader to verify the quality of your work.
  - Discuss techniques used to enhance the trustworthiness and credibility of your data analysis (e.g., member checking, audit trails) where appropriate.
- This section should be written in the past tense.

Results

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- See and follow General Author Guidelines for details on reporting quantitative and/or qualitative results.
- Results should be presented in logical sequence in the text, tables, and figures.
- The text, figures, and tables *should not* be duplicative, rather they should be used as complementary approaches to present findings; emphasize or summarize only the most important observations in the text.
- Provide results on all primary and, if applicable, secondary outcomes identified in the Methods section.
- All results should be reported in this section; do not report any new data in the discussion.
- If educational or psychological testing was used, you must report your sample's psychometric reliability as essential evidence for measurement validity
- Report the absolute numbers from which any. percentages (or other derivatives) were calculated.
- Specify the statistical significance (p-value) attached to them, if appropriate; however, also report the effect-size as evidence for practical/educational significance.
- Avoid nontechnical uses of technical terms in measurement and statistics, such as "random" (which implies a randomizing device), "normal," "significant," "correlations," "reliable," "valid," or "sample".
- This section should be written in the past tense.

Discussion

- A brief summary (i.e., a few sentences) of the most major main findings may be useful to begin the Discussion section; for *Research Notes*, this summary may not be warranted.
- Do not repeat, in detail, data or other information given in other parts of the manuscript, such as in the Introduction or the Results section; similarly, new findings should not be included in the Discussion section.
- Situate the results of your investigation with the literature.
- Emphasize innovative and important aspects of the study in the context of the totality of the best available evidence in the literature.
- Provide possible mechanisms or explanations for your study's findings.
- Clearly state limitations of your study, including its implications for teaching practice *and* for future research.
- Keep in mind that limitations may arise from a variety of sources including, but not limited to, the study sample, study design, measurement/psychometric methods, and the quality of collected data.
- This section should be written in the present tense.

Conclusions

- Provide conclusions *only* for the stated objective(s) of your study.
- Avoid unqualified statements and conclusions not adequately supported by your data.
- In particular, distinguish between statistical and practical/educational significance.
- When warranted, explicitly state new hypotheses for future consideration.

A structured abstract using these section headings also should be submitted for both Research Articles and Research Notes.

Original Research Article and _Research Note_ Format Guidelines:

- 5000 word limit for *Original Research Articles* (somewhat flexible – contact Editor-in-Chief)
- 3000 word limit for *Research Notes* (somewhat flexible – contact Editor-in-Chief)
- Restrict tables and figures to those needed to explain assertions in the paper and to assess supporting data (not included in word limit).
- Use graphs and tables as appropriate to best present the study results; however, do not duplicate data reporting in graphs, tables, and text (not included in word limit).
- Supplementary materials and technical details can be placed in an appendix where they will be accessible but will not interrupt flow of the text.
- References are not included in word limit.

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