Replication: Needed Now More Than Ever

The calls for replication studies in nursing are not new. For example, more than 25 years ago, Ryland (1989) wrote an editorial on the topic, asking whether disciplinary knowledge had grown since achieving public recognition as a profession. Fast forward to 2003 when Fahs, Morgan, and Kalman issued a similar call with emphasis on the benefits of replication for nursing practice. Ironside and Spurlock (2014) emphasized the need for programs of research as one approach to enhancing the science of nursing education. A strategy to building a program of research is the replication of one’s work, either through work undertaken by the initial researcher or by others.

Why are we having this conversation? One of the most important hallmarks of good science is the replication of studies. In some disciplines, such as the physical sciences, “new knowledge is often not considered valid until the original study has been replicated in other labs and the original results not refuted” (Dennis & Valacich, 2014, p. 1). Yet, few replication studies addressing important research topics in nursing education are reported in the literature. For example, a quick review of the tables of contents for the Journal of Nursing Education over the past 2 years reveals few, if any, titles reflective of replication. Based on my experience, similar findings could be obtained when reviewing other journals addressing research in nursing education. How, then, are we to build a robust science of nursing education? The answer to this question becomes even more critical given recent discussions about furthering knowledge development that challenge scientists to give serious consideration to replication (Hubbard, 2016).

What constitutes replication? Three types of replication are discussed in the literature: exact or strict, methodological or operational, and conceptual (Dennis & Valacich, 2014; Morrison, Matuszek, & Self, 2010). Exact or strict replications are self-explanatory—they use the same instruments, research questions and hypotheses, sample, and data analysis as the original study. In other words, investigators undertaking exact or strict replication try to follow as many elements as the original study. The goal is to increase the generalizability of findings. Conversely, in a methodological replication, the context is different. For example, a different sample is used. Conceptual replication is less similar to the original study than the two previous types of replication. A different methodology is used to confirm findings from the original study.

Why are we so hesitant to conduct replication studies? Fahs et al. (2003) cited three reasons why replication is not standard practice. A critical reason is the perception of lack of value; that is, investigators consider original research as more valuable than replication studies, resulting in less professional reward. However, good scientific practice dictates that changes are not implemented based on findings from only one study. Maintaining good scientific practice becomes difficult when replication is absent. Thus, we are challenged to change our perceptions of the contributions made by original and replication research.

Replication studies require resources similar to those used in the original study. However, funders typically only support studies that are original and novel in nature. Such a practice reinforces negative perceptions and makes replication undesirable and possibly unachievable. However, this barrier can also be an opportunity for funders interested in the science of nursing education. Organizations such as the National League for Nursing and Sigma Theta Tau International Honor Society of Nursing could choose to devote funds to replication studies, even in the face of limited resources.

Another reason is that many journals tend not to publish replication studies, in part for the reasons stated above. However, publication is essential if nurse scientists are to develop the science of nursing education. Responsibility for addressing this last impediment rests with both authors and editors: Authors must make clear the importance of their replication work, and editors must be willing to publish that work. Authors must be cognizant that not all studies warrant replication, and they must provide solid rationale for selection of the original study to replicate. Editors must make certain their reviewers are well equipped to review replication studies.

What issues are associated with replication? Replication of a study requires rigor as does the conduct of original research. Moreover, of critical concern is the consequence of a replication result that does not support the original study, as the original study findings can be called into question. However, several possible reasons exist for why such a situation may arise. For example, the type of replication, such as conceptual replication, may make production of identical results impossible. Conversely,
powering the replication study may be problematic.

What does this mean for those of us committed to developing the science of nursing education? Supporting the conduct and reporting of replication studies fosters transparency, and helps build a foundation of evidence-based knowledge. Some authors suggest that conducting replication studies is an excellent approach to teaching the process of research, along with increasing the appreciation of student understanding of knowledge development. Doctoral students, particularly those in professional doctoral programs, are well positioned to address the challenge of replication. However, we should not rely solely on students to help develop the science of nursing education through replication. Those of us who have conducted research addressing issues associated with nursing education must undertake replication of our work; most critically, we must be willing to encourage others to replicate our work. Given the fledgling nature of the science of nursing education, we must be willing to challenge typical practice by undertaking the replication of significant research. To do otherwise is to abdicate our responsibilities to the science of nursing education.

References


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