

With J. E. Gerow, N. Roberts, & J. B. Thatcher. (2010) "The Diffusion of Second-Generation Statistical Techniques in Information Systems Research from 1990-2008," *Journal of Information Technology Theory and Application (JITTA)*, Vol.11(4), 5-28.

Second-generation statistical techniques like Structural Equation Modeling (SEM) are being used more frequently by IS researchers to evaluate theoretical models. The purpose of this study is three-fold. First, we aim to ascertain whether there is a "fit" between IS researchers' choice of analytic method and theoretical models when they use second-generation techniques. Second, we seek to determine the degree to which IS researchers have internalized knowledge about second-generation techniques. Finally, we want to see how these factors have changed over time. Analysis of four leading IS journals between 1990 and 2008 matched the use of second-generation techniques to rational reasons for using a specific analytic technique and the degree of knowledge internalization found in 265 published empirical articles. In the early period (1990-2002), we found the use of second-generation techniques was not associated with rational choices or reasons for their use. Once researchers had ready access to Gefen et al.'s (2000) work presenting the proper use of SEM-based analytical tools (referred to as the "later period" between 2003-2008), we found their use was associated with rational choice and there was a higher degree of knowledge internalization. Our findings suggest that, over time, researchers were able to leverage their internalized knowledge of second-generation techniques when testing mediation and moderation models as indicated by the higher ratio of internal to external method citations. The paper concludes with implications for IS research.