

Chapter 9

Beyond Statistical Power and Significance in Entrepreneurship and Management Research

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ABSTRACT

Findings in most empirical research on entrepreneurship and management focuses on a few things: statistical representativeness of the data, the methodological rigor used for arriving at the results, and the statistical power of the results. However, both results and data are far from being free of criticism. This chapter provides a way forward that uses the mixed-methods approach without falling into the common confusion of multiple methods used in one research. It looks back at the reliance of statistical testing, null-hypothesis, and testing the statistical significance as the criteria. It explores available alternatives that can offer to overcome the problem of non-significance, rather than rejecting it as is usually done. It acknowledges some quantitative solutions like replication, conjoint, and comparative analyses and extends the use of some qualitative methods like exploratory methods, case studies, and theory development studies that offer alternatives to treating the presence or absence of significance. It discusses the concepts used and gives the limitations of the study.

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INTRODUCTION: ISSUES WITH STATISTICAL SIGNIFICANCE TESTING

In this chapter, the researcher revises the heavy reliance on statistical significance as a truth criterion and explore available alternatives that mixed methods can offer to overcome this problem. According to Schmidt (1996), statistical significance is not an appropriate approach and relying on it leads to slow development of cumulative knowledge in psychology making it something that needs to be replaced. Similarly, in predicting the findings most of the empirical research on entrepreneurship and management, like research in many other social sciences, focuses on a few things: *statistical representativeness* of the data, methodological *rigor* to arrive at the results, and the *statistical power* of the results. However, both results and data are far from being criticism free as noted by Schmidt (1996). According to Bettis, Ethiraj, Gambardella, Helfat, & Mitchell (2016), statistical methods have been common in many fields since the 1950s, but reliability of statistical tests is questionable, and therefore, scholars need appropriate knowledge about the use and interpretation of statistics.

There is a need to know the meaning of the significant results as well as the reasons for the non-significance of some of the results.

The author discusses the following three points, as well as their respective problems with statistical representativeness, methodological rigor, and statistical power. This chapter also discusses the way forward to go beyond statistical power and recognition of non-significance in entrepreneurship and management research.

- (1) *Issues of assumption of randomness and statistical representativeness of the data that directly affect the interpretation of the results:* One issue related to the assumption of randomness and the statistical representativeness of the data that affects the interpretation of the results directly is the assumption of randomness in most quantitative research (Shaver, 1993) but the results do not always take care of the theoretical relevance and theoretical representativeness of the data (Davidsson, 2004). Theoretical relevance of the sample is needed to enrich the applied theory instead of just representative sampling and its associated significance testing or statistical power. It is not easy to find an empirical population that is theoretically relevant that exists in one place at one time so that we can sample it probabilistically based on certain predictions (Davidsson, 2004). It is a challenge to define such a category of the population, entirely or as a sample that gives the assurance that the results have the validity for the entrepreneurship phenomenon. Both simple random and stratified sampling should be supplemented with clear reasons for representing a phenomenon that theory tries to explain, rather than proving its statistical representativeness. It

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