

Qualitative Comparative Analysis (QCA): An Innovative Approach for Integrating Qualitative and Quantitative Analysis

Longjun Zhou

Jiangsu Second Normal University, Nanjing 211200, Jiangsu, Chin

“Such highly qualitative leadership is demanded especially in the realm of the fostering of right international relations. Here the demand is simply irresistible.”

—John Raleigh Mott

EDUCATIONAL research has long used quantitative and qualitative analysis. Quantitative analysis is the process of quantifying things through the use of numbers, which represent quantifiable characteristics of things such as scale, speed, and degree, as well as the spatial arrangement of their constituents (Yang, 1995). Qualitative analysis is the polar opposite, i.e., evaluating things on the basis of their quality rather than their quantity. A thing's quality refers to its normative nature, which distinguishes it from other things (Li, 1997). Simply put, quantitative analysis focuses on the "what" and employs numerical expressions to depict a given reality, whereas qualitative analysis aims to comprehend the "why" and investigates how we describe something.

Qualitative and quantitative analysis, on the other hand, each have their own set of advantages and disadvantages. Qualitative analysis enables us to delve deeply into the subject under investigation. It is frequently criticized for its ambiguity and uncertainty, as well as its susceptibility to analyst subjectivity, because it is based on relatively small sample sizes and specific cases rather than on random selection and extensive sampling (Sun, 2005). In

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comparison, quantitative analysis is appropriate for large-scale investigations and frequently produces informative results (Zeng, 2000); it is performed with a high degree of standardization and is less susceptible to analyst bias. On the other hand, quantitative analysis has a limited depth of inquiry and its results are subject to the influence of social factors.

Ragin develops qualitative comparative analysis (QCA) to bridge the divide between qualitative and quantitative analysis. QCA allows for more flexibility in sample selection in response to the uniqueness of each case; it is more focused on the sufficient and necessary conditions for a research result; and it prioritizes investigating the combinatorial factors underlying a social phenomenon. QCA is a collection of three fundamental techniques: fuzzy set QCA (fsQCA), crisp set QCA (csQCA), and multi-value QCA (mvQCA). By establishing sufficient and necessary relationships between explanatory and outcome variables, researchers can investigate the multifactor combinations influencing a particular case using fsQCA (Ragin & Pennings, 2005).

The Effects of Class Teachers' Leadership and Personal Characteristics on Student Academic Performance: A Qualitative Comparative Analysis of Fuzzy Sets The article Citing H Middle School as a Case Study in this issue examines 24 grade seven classes at Lianyungang H Middle School. It employs fsQCA to examine the effects of differential combinations of factors on student academic performance, including class teacher characteristics and leadership behavior, by creating truth tables and performing necessary computations. The primary objective of this study is to determine the effect of class teachers' leadership behaviors on student academic achievement and to provide useful guidelines for school administrators in selecting appropriate class teachers (Zhao & Zhang, 2022).

We can draw the following conclusions from the study: i) Democratic class teacher leadership is effective in class management and popular with students; ii) Class teacher tenure is detrimental to student academic performance improvement; iii) Class teachers with a high capacity for democratic leadership can make a significant difference in student academic achievement; iv) The effect of class teachers' marital status and gender on student academic results varies depending on their specific combinations with other factors (Zhao & Zhang, 2022).

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Correspondence to:

Longjun Zhou, Ph.D.
Jiangsu Second Normal University
Nanjing 211200
Jiangsu
China
E-mail: 294437034@qq.com

Conflict of Interests: None.

Doi: 10.15354/bece.22.co003