This chapter briefly traces the development of the concept of critical quantitative inquiry, provides an expanded conceptualization of the tasks of critical quantitative research, offers theoretical explanation and justification for critical research using quantitative methods, and previews the work of quantitative criticalists presented in this volume.

Critical Quantitative Inquiry in Context

Frances K. Stage, Ryan S. Wells

Seven years ago, New Directions for Institutional Research published the volume, Using Quantitative Data to Answer Critical Questions (Stage, 2007). In that volume, a group of quantitative researchers sought to differentiate their approaches to quantitative research from more traditional positivistic and postpositivistic approaches. The term quantitative criticalist was used to describe a researcher who used quantitative methods to represent educational processes and outcomes to reveal inequities and to identify perpetuation of those that were systematic. The term also included researchers who question models, measures, and analytical practices, in order to ensure equity when describing educational experiences. These scholars resisted traditional quantitative research motivations that sought solely to confirm theory and explain processes.

In this chapter, we briefly summarize the academic basis of the underlying constructs related to critical quantitative inquiry, describe critiques of this perspective, and provide an overview of the work of the quantitative criticalists highlighted in this volume. Next, we discuss the future of the critical quantitative paradigm in two ways: (a) an expanded conceptualization of the tasks of critical quantitative inquiry regarding oppression and underrepresentation of particular groups of people, and (b) continued scrutiny and reflection on the theoretical underpinnings of critical quantitative research as it moves forward.

Background

The academic relationship between qualitative and quantitative researchers had evolved from mutual disdain in the 1980s, characterized by paradigm debates at academic meetings and in journals, to an uncomfortable truce.
through the 1990s, simply ignoring one another’s scholarship but competing fiercely regarding grants, awards, and hires based on methodological issues. As quantitative criticalist scholars, my colleagues and I wanted more, and sought a rapprochement, believing that any scholar could learn from critical research, no matter the method, including our own critical quantitative work. We resisted the term positivist with its implications of fixed theoretical frameworks and prescriptive variable definitions. We used quantitative work, not to prove the relevance of grand theories, but rather to add to knowledge about the students and faculty whom we studied, and specifically those who were underrepresented and/or oppressed.

Kincheloe and McLaren’s (1994) description of critical work was useful to us as we attempted to describe our view of our own work:

- Thought is mediated by socially and historically created power relations.
- Facts cannot be isolated from values.
- The relationship between concept and object is never fixed and is often socially mediated.
- Language is central to the formation of subjectivity.
- Certain groups in society hold privilege over others that is maintained if subordinates accept their status as natural.
- Oppression has many faces that must be examined simultaneously.
- Mainstream research practices generally reproduce class, race, and gender oppression.

We acknowledged qualitative approaches as central in critical inquiry, but argued that quantitative approaches had a contribution to make beyond what had been known as traditional quantitative scholarly inquiry. We asserted that quantitative approaches should be employed in explicitly critical inquiry as well.

Evolving Critical Quantitative Inquiry

The chapters of the 2007 volume described the work of quantitative criticalist scholars who were engaged in one of two related, but differing tasks. The first was to “use data to represent educational processes and outcomes on a large scale to reveal inequities and to identify social or institutional perpetuation of systematic inequalities in such processes and outcomes,” and the second was to “question the models, measures, and analytic practices of quantitative research in order to offer competing models, measures, and analytic practices that better describe the experiences of those who have not been adequately represented” (Stage, 2007, p. 10). The purpose of the volume was to encourage others to engage in similar
sorts of quantitative criticalist work. To those tasks for critical quantitative researchers we now add a third, “to conduct culturally relevant research by studying institutions and people in context.” Scholars engaged in such scholarship might delve more deeply into institutional contexts within which underrepresented scholars and students work and study.

Since publication of that first volume, growing numbers of researchers have embraced the term quantitative criticalist; some have written chapters for this volume. As such, these scholars have rejected the labels of positivist and postpositivist, and have turned their quantitative skills toward work on equity goals and outcomes. Encouragement of a critical quantitative perspective since the 2007 publication is also evident based on the existence of the ASHE Institutes on Equity and Critical Policy Analysis, one of which was titled “Research Methods for Critical Analysis of Quantitative Data.” These institutes concluded with a special issue of Review of Higher Education where the observation was made, “the gap between critical policy studies and analysis and the development of a sustaining equity and access agenda remains large indeed” (Anderson, 2012, p. 135). The purpose of this volume is to extend the discussion of critical quantitative work, partially as it relates to the newly conceptualized third task, and to highlight recent higher education scholarship that employs the approach across a range of topics. Our hope is that this endeavor will not only raise awareness of past work but also encourage future research using a critical quantitative perspective that will help to shrink the gap between equity-minded research and policy.

Resistance to Quantitative Criticalism

Despite use among scholars such as those represented in this volume, and more acceptance in the higher education research community generally, those employing critical quantitative approaches have received criticism as well. On one side, this critique has come from critical qualitative researchers. One thrust of this critique seems to be that the epistemological underpinnings of quantitative research are fundamentally at odds with the goals of critical inquiry. However, Sprague (2005) points out that many of these criticisms—in her example from feminist research (but true of other critical research as well)—are really aimed at positivism more broadly. “That is, the critics are sliding from a concern about a particular methodology to a wholesale rejection of a class of methods” (p. 81).

Quantitative criticalists received a challenge in the original 2007 volume when Baez encouraged us to go beyond asking critical questions toward explicitly linking findings with suggested actions for social transformation. Many critical quantitative scholars do indeed provide suggestions for social transformation as well as changes in educational research
methods; some of those prominent scholars include Estela Mara Bensimon and coauthors (Bensimon, Hao, & Bustillos, 2006), Sylvia Hurtado and coauthors (Hurtado, Alvarez, Guillermo-Wann, Cuellar, & Arellano, 2012), Edward St. John (2006), and Deborah Faye Carter (2006). Additionally, the newer scholars who wrote chapters for this volume advocate for changes in quantitative research methods as well as in educational practice.

Since that volume, others from the critical qualitative community have moved beyond such a challenge into an extended critique, arguing that a critical quantitative approach fails to represent fully a critical theoretical grounding because, while critical questions are important, to be truly critical the methods must be directly transformative and not rely on indirect action based on research results (Pasque, Carducci, Gildersleeve, & Kuntz, 2011). This deeper critique of the supposedly nontransformative nature of most critical quantitative work implies that no inquiry is critical that does not essentially employ some type of action research design. While we applaud critical research that precipitates action, quantitative and qualitative alike, we also value any research, no matter the method, that reveals inequity and unfairness in educational practice. While a healthy debate should continue concerning critical work, we believe that a wider conceptualization of critical inquiry has been, and will continue to be, both viable and valuable in the broad attempt to understand educational processes.

Less anticipated than critiques from qualitative researchers has been criticism from the dominant (positivist) quantitative perspective. These critiques either hold fast to the notion that there is an objective truth and reject critical notions of the existence of oppression and the need to address it, or presume that “bias exists but does not systematically favor particular social positions…” (Sprague, 2005, p. 83). In general, there seems to be a fear from this perspective that if you tamper with a positivist epistemology, the whole quantitative approach is somehow tainted. Interestingly, this criticism is similar to one of the main critiques from the qualitative side of the house, but in reverse, conflating methods and methodology.

Critiques described above have been partially manifested in resistance from faculty that is encountered by graduate students who attempt to make use of the critical quantitative paradigm. Additional resistance stems from journal editors and reviewers who critique researchers who explicitly use the paradigm. Among our own colleagues, we have seen dissertation committees reject the validity of this perspective, and journal reviewers recommend acceptance of a manuscript conditional on the removal of a section discussing the critical quantitative perspective.

We appreciate continued conversation about conducting rigorous and well-grounded research, and hope such concern about producing high-quality studies in higher education continues. However, questioning from
a critical stance is an increasingly evident way of conducting quantitative research. This approach does not seek merely to verify models; it seeks new models and ways of measuring. Rather than focusing on explanation or fairness, the focus is on equity concerns that can be highlighted through analysis of large data sets and by examining differences by race, class, and gender. In this way, the products of the educational enterprise are explored to reveal systematic inequities that are produced within that enterprise for particular groups of people (Briscoe, 2008).

**Summary of Chapters**

The chapters that follow present work focused on underrepresented persons in a variety of levels of higher education. Each scholar has used critical quantitative approaches to examine access and success in the higher education arena. The scholarship described pushes the boundaries of what we know by questioning mainstream notions of higher education through the examination of policies, the reframing of theories and measures, and the reexamination of traditional questions for nontraditional populations. While the work is divergent, the commonality of the presentations lies in each scholar’s critical approach to conventional quantitative scholarship via one or more of the three tasks outlined above. Their research is intended to highlight inequities as well as to explore factors not typically included in traditional quantitative analysis.

In Chapter 2, Williams studies students of color, examining how financial and academic barriers influence the efficacy of innovative pipeline interventions on STEM career-related plans for underrepresented students of color. Alcantar, in Chapter 3, examines researchers’ use of a national data set to measure civic engagement and its relevance in models of college success for Latino students. She suggests alternate measures that are more relevant to the population. Next, Oseguera and Hwang investigate school context and other critical conditions for college access for low-income students by race and ethnicity in Chapter 4. They provide suggestions for policymakers and school administrators to improve academic preparation and college enrollment of low-income students.

In Chapter 5, Conway expands the critical quantitative perspective to examine degree completion and transfer for immigrants and children of immigrants. In Chapter 6, John and Stage examine the relative roles that minority-serving institutions, predominantly minority institutions, and predominantly White institutions play in the education of college students from U.S. underrepresented minority groups. Metcalf, in Chapter 7, takes a critical look at the transition to the STEM workforce. She interrogates the discourses, models, and data used when typically examining the STEM “pipeline” and complicates them with her analyses of
underrepresented students. Finally, Rios-Aguilar, in Chapter 8, contextualizes the approaches of the authors in this volume within the general body of critical work in higher education. She provides an additional framework to support this type of research and provides suggestions for future research related to the topics of the individual chapters, as well as new directions for critical quantitative work more broadly.

**Conclusion**

Our expectation is that readers of this volume will gain an understanding of the usefulness of critical quantitative research to help understand the complex issues of access and success for underrepresented populations on college campuses. The research presented in the chapters that follow serve as exemplars for quantitative and critical work, while informing scholars interested in similar issues of access, success, and outcomes on college campuses. Hopefully, this work will inspire new possibilities for future research.

**References**


FRANCES K. STAGE is a professor of higher and postsecondary education in the Department of Administration, Leadership, and Technology at New York University.

RYAN S. WELLS is an assistant professor of higher education in the Department of Educational Policy, Research, and Administration at the University of Massachusetts Amherst.

