Reflections on Social Measurement: How Social Scientists Generate, Modify, and Validate Indicators and Scales

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INTRODUCTION

Our vision – a paradigm shift in measurement

Measurement is at the centre of scientific research and a concern to develop and improve measurement tools unites the social sciences. In this introductory chapter, we describe the thinking that led to this handbook and our proposals for a paradigm shift in measurement. We then discuss some key aspects of the chapters in this handbook that illustrate this vision as it takes shape.

Books on measurement can be broadly classified as either theoretical or practical, either discipline or instrument focused, specialized, advanced, or introductory, and either partially or fully engaged with questions of measurement. Most texts on research present research design and research itself largely as an unproblematic process where careful planning is done in advance, predetermined methods and procedures are followed, and ‘results’ are the inevitable conclusion. The field of measurement places high priority on the statistical validation of emergent
indicators and stepwise adherence to measure development and other processes. Current literature and practice on measurement, we argue, tend to over-emphasize statistical verification and correspondingly de-emphasize issues such indicator generation and modification, nature and conceptual meaning of measurement error, and the day-to-day processes involved in developing and using measures.

Where most texts offer either measurement theory or technical guidance on how to verify that a measure is reliable and valid, in this handbook, we seek to reverse the prescriptive discussion of measurement issues. We seek insights and descriptions from leading scholars in a variety of areas in the social sciences on the measurement-related challenges they have confronted in the course of their work, which often spans many decades. Thus, the goal of this handbook is to examine some of the intangible issues that arise in the practice of measurement in day-to-day social science research. Chapters thus focus on how prominent social scientists design measures, what problems they encounter, and how they overcome these challenges. There is much to be learned by making explicit the too often implicit methodological knowledge accumulated by experienced social scientists with regard to the real world aspects of measurement that they work to resolve each day.

Our notion of the intangibles of measurement can perhaps best be explained by defining what it is not. The most striking examples of tangible aspects of measurement are the statistical procedures designed to verify the validity and reliability of indicators. The intangibles of measurement relate to how we obtain these numbers to begin with. As such, they relate to how complex constructs are defined and delineated; how items are generated and measures designed to capture such constructs; how a variety of different types of measurement error creep into the process of measure development requiring a deep conceptual understanding of the nature of such error; how research methods have to be modified to reduce a variety of types of measurement errors; how challenging contextual factors impinge on the design of measures and methods; how measurement procedures have to be implemented in large-scale data collection in real world settings with complex socio-political factors; and how an understanding of these intangibles of measurement in turn inform tangible aspects, such as innovative data analyses.

Although experienced researchers are aware of the complexities of actual measurement and what we describe as the intangibles of measurement, descriptions of such issues in the measurement literature are scant. Thus, the experiences of researchers remain implicit, specialized knowledge that a wider audience of researchers do not benefit from. We aim to address a significant gap in the measurement literature which has largely focused on such generic issues as the statistical procedures that need to be applied to data or the steps to be covered in the measure development process. Our vision calls for an emphasis on the conceptual and developmental side of measurement in understanding the processes that lead to the generation of numbers and data, whereas much of the measurement literature to date has largely focused on statistical procedures that need to be applied to numbers generated from measurement. This handbook responds to the call for scholarship on measurement to move beyond foundational, generalized descriptions of how indicators ought to be developed and step-by-step adherence to basic procedures. It seeks to inaugurate an interdisciplinary conversation that captures the experience and expertise of world renowned
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experts on the practical and methodological issues related to measurement issues and the development and validation of instruments.

Good research design and high-quality measurement are inseparable, and, in turn, lead to data that can be properly subjected to statistical verification. Thus, our vision calls for an emphasis on the process by which ‘numbers are assigned to quantities’. Our central focus is on understanding the conceptual and developmental side of measurement in terms of the nature and meaning of measurement error and its integral role in processes of developing and using measures in great detail. Such conceptual understanding is necessary to generate data for empirical testing and statistical verification, in other words, to generate numbers worthy of statistical verification that actually shed light on phenomena in the social sciences. Our vision refocuses attention on the classical definition of measurement in terms of ‘rules for assigning numbers’ whereas the literature on operationalizing constructs has tended to emphasize statistical procedures to the exclusion of other matters. Both the conceptual and the empirical are important, and our contention is that, while the latter has been prioritized across a broad range of disciplinary and methodological conversations in recent decades, the former requires significant attention. An understanding of how numbers should be generated to begin with has important implications for statistical verification procedures as well.

This handbook brings together chapters that explore how methodological decisions about how to develop measures are tied to the context of the research design and to what the researcher ultimately wants to know. The purpose and context of measure development, the properties of the measure, and the social dimensions of administration necessarily shape the final product. Similarly, researchers’ own epistemology and research training, as well as their interests and preferences, inform design. This book is thus necessarily multidisciplinary and interdisciplinary in nature. We firmly believe that too many social scientists remain fixed within their disciplines and do not look far enough beyond those disciplines to solve problems and develop new ideas and methods. Measurement is a central feature of all social science research and there is much to be learned through an examination of how these world-renowned specialists have approached measurement issues in their own areas. The chapters are written with a wide audience of social scientists in mind such that readers can benefit from path-breaking work in the wider arena of the social sciences.

This handbook has a number of unique features that stem from our broad vision: it explores how social scientists design measures, what problems they encounter, and how they overcome these challenges; it brings together a blend of renowned scholars who have contributed to their respective fields by developing new ways to measure and understand constructs; it offers multidisciplinary, interdisciplinary, and international perspectives from researchers who are leaders in their fields; it brings together many chapters that share the semi-autobiographical reflections of researchers that illustrate trends, issues, and significant principles in measurement design concretely; it examines the relationship between the theory and practice of measurement and addresses measurement at methodological, procedural, and conceptual levels through accounts of the process of generating indicators and scales; and it advances understanding about the diverse and emergent ways researchers measure the social.
Operationalizing our vision – organization of the handbook

Our vision unfolds through chapters that begin to address a number of questions about the intangibles of measurement: What are the fundamental issues in measurement? How can measurement and research design be improved? How should measures be developed for complex constructs? How should diverse contexts be incorporated into measurement? How does measurement occur in the real world within the complex array of socio-political factors? And what are some critical perspectives of measurement in the social sciences?

The handbook is organized as follows. In Methods and Data Collection, authors discuss some of the basic methods used in measurement. Chapters cover topics such as how respondents make sense out of questions, how observational rating scales are developed, linguistic factors affect measurement, lessons learned from measurement, how the objective of the research and purpose of measurement is a central consideration in the procedures used, and what the central issues are in asking questions about sensitive topics. These chapters provide cutting-edge insights for improving measurement and research design.

The range of rich contexts where measures are developed and used in the social sciences takes centre stage in The Context of Measurement, an area that is replete with challenges and raises a host of questions. For instance, in the arena of cross-cultural measurement, questions include how the process of measure development, validation, and use incorporate cultural perspectives and how researchers can develop rigorous measures with minimal error when used in diverse cultural and language communities? The chapters in this section address such topics as cross-cultural measurement, measurement of culture, and international comparisons of educational attainment. The second part of this section expands the focus to include measurement across time and space, where authors consider measurement across the life-course and across urban space.

In Fundamental Issues in Measurement, our vision takes shape through such foundational issues such as the meaning and nature of measurement error, emphasizing the conceptual elements of measurement over the statistical. This section emphasizes that measurement error should be understood in great detail in each stage of developing and using measures. The intangibles in developing and using measures and broader perspectives on the assumptions of measurement and the need to enrich measures in the social sciences are discussed. Other such fundamental issues include the need to ground and thereby enrich measures in the context-rich reality that they are designed to capture. The section emphasizes the need to conduct social research to inform the generation, modification and verification of measures. This section also includes some chapters that apply critical lenses to the notion of assigning numbers and measuring phenomena in the social sciences, thus opening up debate beyond normal confines.

In The Real World Practice of Measurement, authors reflect upon the complex socio-political factors that impact measurement in the real world. The chapters in this section are characterized by an emphasis on some of the macro-level issues that impinge on measurement; such as the administration of large-scale measurement, interactions with institutions, and so forth. These chapters make clear the interplay between measurement and a host of other issues involved in gathering aggregate-level data in the public arena. Contributors cover real-world challenges including interdisciplinary, multidisciplinary, and mixed-method approaches; managing large-scale
and team projects; and administrative and secondary data. The chapters cover a host of issues from the social process in collecting data on child sex abuse to measuring social capital or consumption behaviour.

**Summarizing our vision – confronting measurement challenges in the 21st Century**

The need for high-quality measurement is increasing with the ever-expanding capacity to study a wide range of phenomena through empirical research. Governments, non-governmental entities, and academic and private institutions around the globe are rapidly expanding their commitment to generate, acquire, store, disseminate, and prioritize the use of data. Technological progress in the last century has brought us from pencils and index cards to cutting-edge virtual reality caves. However, as calls for performance measurement and accountability take centre stage in policy making and administrative arenas are fuelled by the increased capacity to produce and store data, there is an accompanying risk of increasing disconnection between the findings generated and the actual social phenomena they intend to represent. The gap between social reality and what the indicator captures is a recurring measurement challenge. The measurement literature, with an overemphasis on statistical verification, has to shift fundamentally to address the complexity of measurement and confront the significant challenges that lie ahead for social science research.

This handbook presents a vision of measurement approaches and instruments designed for 21st century challenges and capable of capturing the complexity of measurement in the social sciences and the challenges that need to be confronted. Our vision emphasizes the intangibles relating to conceptual and developmental side of measurement through understanding the processes that lead to the generation of numbers and data. We focus on the meaning of measurement error and its integral role in processes of developing and using measures in great detail. Although both the conceptual and the empirical sides of measurement are important, our vision calls for an overdue increase of attention on the former. This handbook consolidates decades of practical experience and insights gained through innovation into a single volume. It serves as an essential sourcebook for researchers in need of inspiration and guidance on their own process of measure development. We hope it will prove to be an essential addition to the bookshelf of researchers across the social sciences.