The Value of Optimising Quantitative Instrument Development via Qualitative Techniques in Political Science Research

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Abstract
The optimization of the development of quantitative instruments is a key concern in any social science endeavour. Whilst instrument development has been for many years restricted to mono-method approaches, a new era has come that combines qualitative techniques to enhance the development of quantitative instruments. This approach constitutes one of the main rationales of conducting mixed method studies which in political science research, in contrast to the adjacent social science disciplines, has been scarcely applied. The paper’s rationale is two-fold; a) to review the three-phase exploratory design for the optimization of the development of quantitative instruments via qualitative techniques and b) to present the main benefits and challenges of the approach for political science research. Instrument development via qualitative techniques applies an inductive-deductive and an emic-etic perspective that increases construct-related validity in cross-sectional political science studies and eliminates construct bias in cross-national and cross-cultural ones. The paper’s main thesis is that the mixed method approach is not the panacea of all research inquiries. However, the optimization of quantitative instrument development via qualitative techniques may adequately serve mixed method’s fundamental principal, i.e., maximizing the potency and minimizing the weaknesses derived from the amalgamation of the two methods to enhance the validity of political studies’ conclusions.

Introduction
Mixed method studies have become increasingly popular in social sciences providing evidence that scholars utilize multiple perspectives in order to examine phenomena in a more eclectic manner (Tashakkori & Creswell, 2008; Tashakkori & Teddlie, 2010). The mixed method approach bridges across the schism between the qualitative and quantitative research traditions (Teddlie & Tashakkori, 2003) by offering a variety of choices, options and approaches (Johnson & Onwuegbuzie, 2004). Johnson, Onwuegbuzie and Turner (2007) based on the analysis of 19 mixed methods’ definitions given from academic leaders provide the following definition:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration. (Johnson, Onwuegbuzie & Turner, 2007, p. 123)

The fundamental principle of mixed method research is based on the collection of multiple data using different approaches and methods in such a way that the resulting amalgamation is likely to yield a research outcome of complementary strengths and
non-overlapping weaknesses (Johnson & Turner, 2003). Under this framework, mixed method research is likely to produce a research outcome that is superior to monomethod studies (Johnson & Onwuegbuzie, 2004). Philosophically, it is the “third methodological movement” (Tashakkori, & Teddlie, 2003, p. x) that involves the pragmatic method and system of philosophy. It combines three logics of inquiry by linking the deductive logic of traditional quantitative research (confirmation, theory/hypothesis testing), the inductive logic of qualitative research (discovery, exploration, theory/hypothesis generation) and the abductive one (generative, creative problem solving) (Johnson & Onwuegbuzie, 2004). Pragmatism has emerged as a common alternative to the either/or choice of positivism and constructivism of the quantitative and qualitative approach, respectively offering an epistemological approach that justifies the integration of methods in order for researchers to best frame, address and provide logical and practical answers to their research questions.

Mixed method research is a relatively new approach, compared to the qualitative and quantitative traditions, with a short history of approximately 20 years (Greene, 2008). Its history is even shorter in the field of disciplines such as political science and comparative politics that so far have not participated much in mixed method research discussions (Harrits, 2011).

Tarrow’s (1995) work constitutes one of the first steps of bridging quantitative and qualitative methods in the field of political science by providing some guidance on how to blend the two traditions. For instance, he highlights the importance of qualitative approach for process tracing1, for exploring the ‘tipping points’ that play a critical role in shaping long-term processes of change and for providing deeper insights into findings derived from quantitative studies. In turn, he emphasizes the importance of quantitative methods to best frame and to generalize qualitative studies’ findings. In Tarrow’s (1995) view the most valuable interaction between qualitative and quantitative methods takes place when scholars triangulate among alternative methods and data in order to answer the same research question. Whilst Tarrow (1995) provides a general framework of conducting mixed method studies, the author’s overview is not exhaustive excluding among others the crucial role mixed methods play in instrument development processes.

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1 Process tracing refers to the application of qualitative techniques to investigate procedures of change within cases providing detailed evidence on causal mechanisms and causal processes that underlie quantitative findings.
A few years later, Bennett and Braumoeller (2002) emphasized the role of combining quantitative and qualitative techniques in political science research for theory testing and theory development. In the former, the mixed method approach is applied to determine whether the qualitative findings can be generalized to the wider population or whether they can be used to uncover the causal mechanisms behind correlations. In theory generating mixed method research, the outliers derived from quantitative studies can be qualitatively analyzed to provide information for identifying omitted variables. Bennett and Braumoeller’s (2002) arguments in theory generation mixed method studies, imply that the specific approach may reveal potential measurement-related problems in political science research by uncovering left-out variables through qualitative analysis of outlier quantitative data.

The significance of the mixed method approach in enhancing the quality of measurements in comparative political science research has been outlined in Lieberman’s (2005) nested design which involves the specification of different paths in the combination of statistical (large N analysis-LNA) and case study (small N analysis-SNA) techniques. Lieberman (2005, p.436) argues that the main scope of the specific design is to “improve the quality of conceptualization and measurement, analysis of rival explanations, and overall confidence in the central findings of a study”. The nested design allows the evaluation and/or development of a survey instrument for the measurement of a large number of cases (LNA) through close range analysis of one or a few cases (SNA) with the rationale of increasing the explanatory power and the robustness of the former. Whilst Lieberman (2005) advocates that the amalgamation of the advantages of SNA and LNA associated with internal and external validity, respectively result in the enhancement of the quality of the concepts and measurements, the nested design has been criticised by different scholars.

For instance, Mastenbroek and Doorenspleet (2007) argue that Lieberman’s (2005) nested strategy does not always result in the improvement of measurements unless it is applied in a comparison of most similar systems, i.e., of cases with great similarities (such as similar countries). In addition, Harrits (2010) develops some criticism against the nested design by advocating that Lieberman’s (2005) thesis with respect to the conceptualization of SNA, as a qualitative approach that focuses on the analysis of one or a few intrinsically interesting entities, is inadequate for individual-level
behaviours. Hence, SNA of close range analysis is likely to be inappropriate for evaluating and/or developing instruments measuring attitudes in large scale surveys. Whilst optimizing instrument development and confronting measurement-related issues via mixed method approaches has been an issue of concern in political science research, the utilization of qualitative techniques to enhance the development of quantitative instruments has not been fully investigated. However, the specific issue has been adequately explored in the adjacent fields of social science research providing typologies that underline that among the main rationales of conducting mixed method studies is the optimization of instrument development. For instance, Greene, Caracelli and Grahamet (1989) in their five-purpose typology include mixed method studies with the rationale to use sequentially the results from one method to help develop and inform the other. More specifically, they argue that “One method is implemented first, and the results are used to help select the sample, develop the instrument, or inform the analysis for the other method” (Greene, Caracelli & Grahamet, 1989, p.267). Furthermore, Collins, Onwuegbuzie and Sutton (2006) develop a four-fold typology of mixed method rationales involving among others instrument fidelity. Instrument fidelity refers to the assessment of the appropriateness and/or utility of existing instruments and the creation and improvement of new ones. The development of quantitative instruments and their validation through multiple research methods has a long history dated back to Campbell and Fiske’s (1959) framework of multiple traits and multiple methods (MTMM). The approach involves multiple operationalism by using at least three traits measured with three different methods, leading to nine different observed variables for validation purposes. Whilst some scholars advocate that Campbell and Fiske’s (1959) MTMM framework provide the impetus for the concept of triangulation for validating purposes (Johnson, Onwuegbuzie & Turner, 2007) others suggest that MTMM’s underling principal is that quantitative methods are sufficient for the development of quantitative instruments (Onwuegbuzie, Bustamante & Nelson, 2010). Despite the debates on MTMM’s main rationale, the amalgamation of qualitative and quantitative methods in instrument development is likely to produce a research outcome that is superior to quantitative mono-method approaches (Onwuegbuzie, Bustamante & Nelson, 2010), as the former optimize the conceptualization process and enhance measurements’ internal validity. Such a mixed method approach involves an inductive-deductive-abductive logic and an emic-etic perspective that
increases measurement-related validity in cross-sectional and cross-national/cross-cultural research in social science in general and specifically in political science. Under this framework, the main rationale of the paper is two-fold; to review one of the mixed method designs applied to the optimization of the development of quantitative instruments via qualitative techniques named sequential exploratory three-phase design and to present its main benefits and challenges for political science research.

**Sequential exploratory three-phase design**

Creswell (1999, p.460) highlights the fundamental role mixed methods play in quantitative instrument development via qualitative techniques by advocating that among the most crucial purposes of the mixed method approach is to develop “Quantitative measures and instruments grounded in the views of subjects or participants”. Such a mixed method approach is extremely valuable in cases where there are no available measures, the existing ones are poorly conceptualized and when the available measures do not represent the population being studied (Creswell, 1999; Creswell, Fetters & Ivankova, 2004; Creswell & Plano Clark, 2011).

Creswell (1999) is among the first scholars to introduce a sequential exploratory design with the rationale of instrument development. The design has been recently enriched including three phases and a detailed framework of how to apply qualitative techniques in order to construct rigorous quantitative instruments (Creswell & Plano Clark, 2011). The initial phase of the design is a qualitative one as the most adequate to explore a phenomenon (Creswell et al., 2003). The second phase represents the point of interface in mixing, as mixed method researchers build on the result of the qualitative phase to develop the quantitative instrument. The final phase includes the testing and administration of the quantitative instrument (Creswell & Plano Clark, 2011).

Although the three-phase exploratory design seems quite straightforward it has its own challenges. Researchers applying such a mixed method approach need to decide the sampling procedures applied in each phase, the most appropriate data to use from the qualitative phase to build the quantitative instrument and the processes of designing an instrument with good psychometric properties. The sampling procedures in the qualitative and quantitative approach of the sequential exploratory design are different as the participants in the former are not the same as the ones in the
quantitative follow-up study which involves large sample sizes with the rationale of inferences to the population studied (Creswell & Plano Clark, 2011).

With respect to the challenge of determining the qualitative data to be used for instrument generation, mixed method scholars need to carefully identify and assess useful quotes or sentences, coding segments of information and the grouping of codes into broad themes (Morse & Niehaus, 2009). In this process, the broad themes derived from the qualitative analysis can be applied for constructing the scales to be measured; the individual codes within each theme can be used for the variables and the individuals’ quotes for specific items or questions (Creswell & Plano Clark, 2011). Oppenheim (1992) suggests that at the initial stage of item development the over inclusion of items derived from the qualitative analysis is essential to ensure that all the aspects or dimensions of the topic are covered.

The most fundamental challenge in instrument building process is to generate an instrument with psychometric stability and feasibility (Vogt, King & King, 2004). Mixed method researchers need to employ rigorous scale development procedures addressing validity and reliability considerations (DeVellis, 2003). The former involve results that accurately reflect the concept being measured, whilst the latter refer to the consistency of results derived from the same measure (Babbie, 2002). In the process of scale development, the qualitative findings are used to generate an item pool and the appropriate scales of measurement are determined which are further reviewed by an expert panel (DeVellis, 2003). Expert consultation on the specification of constructs and the review of scaling procedures is considered by Messick (1995a) to be the sin qua non of measurements’ validity. At this stage, it might be also useful to include validated items from other scales or instruments (DeVellis, 2003). Following experts’ consultation, the instrument is administered to a sample of individuals for further validation that allow the evaluation of the items with quantitative techniques e.g., item-scale correlations, item variance, reliability (De Vaus, 1990; Oppenheim, 1992; DeVellis, 2003). The results of the pre-test allow for the optimization of the instrument and its scales’ length based on the item performance and reliability checks (DeVellis, 2003). At the final stage of the sequential exploratory design the instrument is administered to a large sample in order for researchers to conduct statistical tests and potentially make claims about the population in question.
Benefits of mixed method approach for instrument development

Munk and Verkuilen (2002, p.31) advocate that “the careful development of measures constitutes the foundation for efforts at drawing causal inferences and is a critical task in itself”. In the development of measures two processes are crucial; the conceptualization and the operationalization. The former involves the specification of observations and measurements that give concepts definite meaning for the rationale of the study. In addition, conceptualization includes specifying concept’s indicators and describing its dimensions. Operationalization is considered to be an extension of conceptualization that denotes the exact procedures that will be used to measure the variable’s attributes (Babbie, 2002). The translation of theoretical concepts into related variables as part of the operationalization process is crucial as it bridges the theoretical and conceptual level to the measurement level (Bergman, 2010). Any mismatch between the conceptual and the operational definitions constitute a serious threat to the validity of the measures and consequently to the study’s findings (Vogt, King & King, 2004).

The assessment of measurement validity in an instrument development process involves three types of validation; content validity, criterion-related validity (including predictive and concurrent validity) and construct validity (Cronbach & Meehl, 1955). Content validity assesses the degree to which the items are relevant to and representative of the content being measured. According to Cronbach and Meehl (1955), criterion-related validity assesses the extent to which scores produced by a measure are correlated with scores of independent/external variables (called criterion variables) which are considered to measure directly the phenomenon of concern (concurrent validity) and are useful in predicting future scores representing hypothetically related phenomena (predictive validity). Construct validity assesses the extent to which an instrument adequately measures the constructs they are designed to measure.

The triumvirate of content, criterion and construct validity does not represent three distinct types of measurement validity but rather reflects a unitary concept that places construct validity at the centre encompassing all types of measurement-related validity evidence (Cronbach & Meehl, 1955; Messick, 1989a; 1989b; 1995b). Valid measurements are derived when scores accurately reflect the intended concept; hence a prerequisite of valid measurements is the refinement and clarification of the concepts of concern (Adcock & Collier, 2001).
In social science research in general and specifically in political science investigators are usually concerned with concepts that are more complex to handle. Northrop (1947) distinguishes between two types of concepts; the concepts-by-intuition and the concepts-by-postulation. The former involve simple concepts whose meaning is immediately apparent and involve feelings, judgments, norms and behaviours which are relatively clear what they mean. On the contrary, concepts-by-postulation or constructs, as they are also called, involve less obvious concepts and hence require explicit definitions to be properly understood (Saris & Gallhofer, 2007). Concepts-by-postulation can be captured by using a set of items that represent simpler concepts, i.e., concepts-by-intuition. Concepts-by-postulation have been also characterised as thick concepts due to their multidimensional nature and their measurement through multiple indicators. Thick concepts (such as “social trust”, “political trust”, “political efficacy” etc) are rather prevalent in political science research (Coppedge, 1999).

Political democracy is a traditional example of a thick concept that has been frequently applied in political science research. However, various scholars address the challenges of political democracy’s measurement in terms of its conceptualization, operationalization and aggregation specifically when the concept is applied across diverse contexts (Bollen, 1980, 1990; Coppedge & Reinicke, 1990; Przeworski et al., 2000; Munk & Verkuilen, 2002; Bowman, Lehoucq & Mahoney, 2005).

The qualitative techniques are more adequate than quantitative ones to measure thick concepts as they allow for more careful conceptualization enhancing the internal validity of measurements (Coppedge, 1999). Qualitative scholars are highly concerned with conceptual validity hence their primary focus is on the development of precise and clear conceptual definitions (Mahoney & Goertz, 2006; Bergman, 2010). On the contrary, scholars of the quantitative strand sacrifice definitional complexity by applying thin but broad concepts, i.e., simplistic descriptions of cases that allow testing generalizations in the larger population (Coppedge, 1999). Furthermore, in the quantitative tradition the measurement detaches information from its original ecological “real world” (Moghaddam, Walker, & Harre, 2003), a phenomenon that has been characterised as decontextualization (Viruel-Fuentes, 2007). On the contrary, the qualitative approach investigates individuals holistically within their natural environment allowing a fully contextualised approach of rich accounts of human experiences examined within the original context in which observations occur (Gelo et al., 2008).
The enhancement of quantitative measurements’ internal validity through the initial qualitative phase of the sequential exploratory design is accomplished as the process of defining the elements that are relevant to and representative of the construct under study is grounded in real life situations and observations (Padgett, 1998; Rowan & Wulff, 2007; Nassar-McMillan et al., 2010). The initial qualitative phase explores respondents’ variations in the construction of concepts’ meaning informing the processes of conceptualization and operationalization and yields items characterised by high degrees of content validity (Haynes, Richard & Kubany, 1995; Vogt, King & King, 2004; Bergman, 2010).

In addition, the combination of the qualitative and quantitative approaches in a sequential exploratory design with the rationale of instrument development allows the incorporation of insiders’ views (stemming from the participants involved in the instrument development) and the outsiders’ views (stemming from extant theories, researchers’ a priori assumptions and experts’ consultation) on the specification of the construct. The insiders’ views involve the *emic* viewpoint of the group members whilst the outsiders’ views capture the *etic* viewpoint (Pike, 1967; Currall & Towler, 2003). By mixing the two viewpoints with the rationale of instrument development an inside-outside legitimation is accomplished enhancing measurement-related validity (Onwuegbuzie & Johnson, 2006). Such a mixed method approach not only increases the validation of the instrument but also reveals additional facets of the phenomenon under study optimizing research outcomes. As Bergman (2010) argues the systematic concept analyses through qualitative approaches:

…not only help in validating research instruments and scales, but may go further in that they could produce complementary subsets of results, which would enrich overall findings (Bergman, 2010, p.172)

Furthermore, instrument development via mixed method studies is particularly useful when seeking to establish equivalence in the theoretical concepts and their operational indicators as they are applied for comparisons across different cultural contexts (Onwuegbuzie, Bustamante & Nelson, 2010) and over time. Equivalence implies that concepts measure the same latent traits in a way that respondents’ scores on certain items and scales can be compared in a direct and straightforward manner across different contexts (Hui & Triandis, 1985; Dogan & Pelassy, 1990; Sartori 1994; Van de Vijver & Leung , 1997; Van de Vijver, 1998).
The validation of an instrument in a specific context does not imply that the theoretical concepts and their operational indicators can be applied in multiple environments (MacIntyre, 1971; Messick, 1989b). Diverse understandings of a concept are likely to result in different operationalizations (Adcock & Collier, 2001). For instance, the concept of political participation is likely to mean very different things across different contexts, such as voting in one country or mobilizing activists against nuclear power in another. Moncagatta’s (2009) paradoxical findings with respect to the high support of the democratic regime in Venezuela both by respondents of great and no trust to president Chávez reflect in-equivalence problems of the concept of “support to democracy” when applied in diverse cultural settings. Scholars conducting comparisons across different contexts have to ensure that their instrument measures the same underlying factors otherwise there is a serious threat of construct in-equivalence and consequently of construct bias in the study’s findings (Van de Vijver & Leung, 1997). Construct bias takes place when there is only partial overlap in the definitions of the construct, there is incomplete coverage of the construct’s facets and when constructs are associated with different behaviours or characteristics across individuals in different nations, cultures and cultural groups (Van de Vijver & Tanzer, 2004).

Scholars from comparative political research are highly concerned with the application of constructs that are vulnerable to in-equivalence (Bunce, 1995; Munk & Verkuilen, 2002). For instance, Bollen (1990) emphasises the need to optimize the measurement of political democracy in comparative political research by further clarifying its meaning and applying new measures. Similarly, Munk and Verkuilen (2002) offer a comprehensive framework with the rationale of improving democracy’s conceptualization and measurement in cross-national studies.

Instruments that are applied for comparisons over time are also susceptible to in-equivalence, as the meaning of different constructs and the items used to measure them might change as time passes. For instance, Baumgartner and Walker (1990) emphasise the need of a new measurement of group membership in the United States as the measures applied reflect conceptualizations that are appropriate for previous generations. Furthermore, Elkins and Sides (2009) advocates that comparisons of democracy over time potentially exhibit serious issues of non-equivalence.

Whilst there are statistical tools to diagnose in-equivalence problems and consequently construct bias, these techniques are inadequate to trace and tackle the
sources of such bias (Elkins & Sides, 2009). Van de Vijver (2011) highlights the pivotal role the mixed method approach plays on tracing and tackling the sources of in-equivalence in specific items through the careful re-conceptualization and the deeper knowledge of the context that a concept is investigated, i.e., processes that are adopted in the initial qualitative phase of the sequential exploratory design. The same author advocates that the qualitative approach in the development of an instrument that is applied across different contexts helps researchers to evaluate the appropriateness of the concept definition, identify missing concepts, employ appropriate question wording and create suitable response formats (Van de Vijver, 2011).

**Challenges of mixed method approach for instrument development**

In the previous section it was advocated that instrument development via the sequential exploratory design increases measurement’s internal validity as the initial qualitative phase allows for more careful concept construction specifically of thick multidimensional and complex concepts frequently applied in political science research (Coppedge, 1999). However, such an increase in internal validity is done at the cost of external validity of the measurement as the qualitative phase involves results derived from a small number of cases that do not represent universally applicable, comparable and generalizable concepts. Qualitative scholars in defense of such criticism would advocate that their quantitative counterparts have to deal with the opposite challenge. The increase of external validity through the application of broad but thin concepts for testing generalizations in the larger population is done at the cost of internal validity as the simplistic indicators applied in the quantitative analysis do not capture all the relevant aspects of thick multidimensional concepts (Coppedge, 1999; Munck & Verkuilen, 2002; Bowman, Lehoucq & Mahoney, 2005). The diverse focus on internal and external validity of the qualitative and quantitative strand respectively reflects the chasm that exists in the two traditions with respect to measurement issues in social science research in general, and specifically in political science (Mahoney & Goertz, 2006). On the one hand, qualitative scholars attempt to minimize measurement error by concentrating on conceptual validity; on the other hand quantitative scholars consider that measurement error occurs at the level of indicators and not at the conceptual one. Hence, the latter focus on modeling
measurement errors and modifying indicators rather than developing processes associated with concept revision.

The most crucial challenge in the application of qualitative techniques for optimizing instrument development is to bridge the two traditions with the rationale of enhancing simultaneously the internal and external validity of measurements. The three-phase sequential exploratory design is likely to produce such an outcome as the initial qualitative phase increases the internal validity of the measurement by refining the concept of concern (Haynes, Richard & Kubany, 1995; Padgett, 1998; Vogt, King & King, 2004; Rowan & Wulff, 2007; Bergman, 2010); whilst the second phase through the expert panel consultation and the quantitative analysis of the pre-test results optimizes the external validity of the measurement based on the item performance and reliability checks (De Vaus, 1990; Oppenheim, 1992; Messick, 1995a; DeVellis, 2003).

The sequential exploratory design has been applied in numerous studies exploring diverse social phenomena, verifying that the challenges of mixing the two traditions with the rationale of instrument optimization can be adequately confronted in empirical research (Meijer, Verloop & Beijaard, 2001; Mak & Marshall, 2004; Durham, Tan & White, 2011). For instance, the specific design has been applied for developing instruments that measure perspectives of academia held by school psychology graduate students (Nagle et al., 2004), the nature of domestic violence against women (Smith, Earp & DeVellis, 1995), the shopping motivations (Arnold & Reynolds, 2003), the organizational assimilation in diverse industries (Myers & Oetzel; 2003), the factors affecting changes in the size of graduate programs (Milton et al., 2003), and the health promoting lifestyle behaviours among Japanese college women (Tashiro, 2002).

Mixed method scholars in the process of instrument development for comparisons across different contexts are likely to face additional challenges associated with the conceptual stretching which arises when the concept of concern is applied to cases for which, by relevant scholarly standards, it is inappropriate (Sartori, 1970; Collier & Mahon, 1993). Sartori (1970) argues that concepts are formed at different levels of abstraction (or generality) due to the trade off between concept’s “intension” (i.e., the number of defining attributes) and “extension” (i.e., the number of cases it can be applied). Qualitative scholars are more concerned with the more detailed contextual analyses working with a high level of concept’s intension (i.e., incorporate relatively
complex conceptual definitions), at the cost though of its extension (i.e., involve a limited number of cases). Meanwhile, quantitative scholars develop concepts of high extension (i.e., involve relatively big sample sizes) applying comparable and generalizable concepts; at the cost though of the concepts’ intension (i.e., apply relatively simplistic indicators).

When concepts travel across different contexts, then scholars in order to avoid conceptual stretching have to move up the ladder of abstraction (or generality), i.e., to increase the extension of the concept by redefining it as something broader and more applicable to different contexts (Sartori, 1970). Such a climbing, on the one hand, ensures the concept’s comparability over time and space but on the other the concept per se is likely to become very imprecise and abstract. In order to confront with conceptual stretching, Sartori (1970) suggests that scholars may opt to make ‘bounded generalizations’ for comparisons between relatively homogenous cases. Alternative solutions to cope with conceptual stretching is to develop appropriate subtypes of the concept of concern; for instance, researchers can develop appropriate subtypes of democracy that simultaneously allow them to capture diverse forms of democracy and avoid conceptual stretching (Collier & Levitsky, 1997).

An additional solution to conceptual stretching, although not so welcome by Sartori and his followers (Lindberg, 2009), is to redefine the concept of interest by eliminating some of its characteristics and adding new ones. Whilst it is feasible to accomplish this alternative with the application of the sequential exploratory design, recently more advanced mixed method designs have been developed for instruments applied across diverse cultural settings. For instance, Onwuegbuzie, Bustamante and Nelson (2010) present a ten-step mixed method process for instrument development and construct validation through multiple data sources and crossover analyses for cross-cultural comparisons.

**Discussion**

The optimization of instrument development is a key concern in any social science endeavour. Quantitative tools that are valid in their indented purpose and measure the concepts they are intended to measure possess the requisite psychometric properties to provide valid conclusions and to lead to advances in theory and practice (Cronbach & Meehl, 1955; Messick, 1989b; Messick, 1995a; DeVellis, 2003; Groves et al., 2009; Bergman, 2010). Whilst there is a massive literature on quantitative measures,
indicators and scales, quantitative scholars insist on focusing whether the items represent the construct of concern as measured by reliability and validity scores disregarding the origins of questionnaire items (Rowan & Wulff, 2007; Nassar-McMillan et al., 2010). The crucial process of item generation becomes the major concern of qualitative scholars who focus on conceptual validity in contrast to their quantitative counterparts who concentrate on measurement validity by modeling measurement errors and modifying indicators (Mahoney & Goertz, 2006) as the mathematical statistics applied are not designed to tackle measurement errors on the conceptual level (Jacoby, 1991). However, the process of conceptualization is crucial in instrument development, as Lazarsfeld and Barton (1965) advocated a few decades ago.

Before we can investigate the presence or absence of some attribute ... or before we can rank objects or measure them in terms of some variable, we must form the concept of that variable. (Lazarsfeld & Barton, 1965, p.155)

Whilst the chasm between qualitative scholars’ concern for substantively valid concepts and the quantitative scholars’ interest in good numerical measures seems unbridgeable, the sequential three-phase exploratory design is likely to yield instruments with high levels of internal and external validity. Such a design allows mixed method scholars to shift from the constructivist principles of the initial qualitative phase that involve multiple perspectives and deeper understanding of the concept of concern to the positivist principles of quantitative analysis of measuring variables and statistical trends (Creswell & Plano Clark, 2011). Hence, instead of relying on deductive reasoning and general premises to reach specific conclusions or inductive approaches that seek general conclusions based on specific premises an abductive logic is adopted that simultaneously allows the generation of a practical research solution and the integration of various theories and approaches (Tomiymal et al., 2003) with the rationale of developing valid and reliable measurements. The sequential exploratory design employs a pragmatic approach that sidesteps the debates between the existence of objective ‘truth’ and the value of subjective perceptions and balances the etic viewpoint of outsiders’ views (i.e., researchers, expert panels) with the emic one derived from real life observations. Such a mixed method approach is likely to produce a rigorous instrument that is superior to using exclusively quantitative techniques for instrument development (Onwuegbuzie, Bustamante & Nelson, 2010).
Whilst mixed method approaches is not the panacea of all research inquiries the sequential exploratory design with the rationale of instrument development adequately serves mixed method’s fundamental principal i.e., maximizing the potency and minimizing the weaknesses derived from the amalgamation of qualitative and quantitative techniques (Johnson & Turner, 2003) to enhance validity in political science research conclusions.

References


