

MIXED METHODS: THE CRITICAL MASS

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Abstract - In an effort to justify applicable methods concerning writer's research, Utilization of Multiple Institutional Logics and Categorization in Decision Making, which by its title suggests plurality of domains and in its mechanism spurs multiplicity of effects, author can't deny the overarching leverage of mix methods over mono-method approach for the purposes of designing and conducting a research which at the end entails the light of validation and replication. This piece of writing is a brief synthesis of the development of mixed methods and suggests a 4-quartile plane of integration with higher situation-prompt degree of freedom than that of process integration.

Index Terms - Organizational Behavior, Research Methods, Quantitative Methods, Qualitative Methods, Mixed Methods

I. INTRODUCTION

Talking about the relations between research methods, on the one hand is qualitative methods and on the other hand is quantitative methods, it is obviously less controversial to use metaphors such as heavens and earth in Genesis 1:1 (Holy Scriptures) "In the beginning God created the heavens and the earth" than Adam and Eve in Genesis 2:23 "This is at last bone of my bones. And flesh of my flesh. This one will be called Woman, Because from man this one was taken." (Holy Scriptures). Which is what? Is there a relationship? are questions worth asking as in answering these questions we see sophistication in the connection between the two – symmetry, asymmetry, complementarity and harmony. In this spirit, this piece of writing presents a refinery of definitions regarding methods, identifies similarities and differences between the constituting components – qualitative methods and quantitative methods, briefly synthesizes the development of mixed methods, accentuates the its advantages and suggests a 4-quartile plane of integration which are more situation-fit than process integration, which is phase-fit..

II. BACKGROUND: BASICS CONCEPTS

A. Methods: A refinery of definition

When asked to indicate the critical existing controversies in mixed methods research (Fetters & Molina-Azorin, 2017), John Creswell referred to the debate about acknowledging mixed methods research as a method or a methodology, meaning a researcher's apprehension about mixed methods depends on their view towards it, either as a "method" to collect, analyze, and interpret data, or as a "methodology" covering research steps, including philosophical assumptions, research questions, and methods of extension. Author view mixed methods as a method. According to Creswell and Clark (2006),

methodology is "the framework that relates to the entire process of research" accompanied by essential assumptions, inquiry methods and influence on data types, design is to link between philosophical assumptions and methods, and methods are identified with particular techniques used to collect and analyze data.

Molina-Azorin et al. (2017) identifies that method is a term to direct at description of a research, its design, measures, and processes, data sources, data analysis as well as causes of bias. These authors account a method as one which has sources of data, bases of measurement, and techniques for analysis incorporated in it. Spector (2006), in a research on method variance, in answering what a method means accepted that "methods can vary in a large number of ways, and it is not always clear what the critical features of methods might be that can define them". Other authors, including Van Maanen (1979), Scandura and Williams (2000), Johnson & Onwuegbuzie (2004), Brannen (2005), Creswell and Tashakkori (2007), characterize a method with key words such as technique(s), construct development, measurement, design, and analysis, approaches, strategies concepts, language, survey, interview, focus groups, making-sense of data, systematic, data analysis, data collection, interpretation, build, develop, test. Blakie (2010) reckons that method means procedures and activities for purposes of data selection, collection, organization and analysis. A method is a way of doing research (Torrance, 2012). Research method is "a particular way of studying something in order to discover new information about it or understand it better." (Cambridge Dictionary).

Given the awareness of the importance of knowing what it means by method in mixed methods comprehension, it is better to refine the above dispersal of definitions. Defined by features and purposes, method is a purposeful systematic mode of

conduct in order to achieve further understanding about an issue of interest given resource constraints.

B. Qualitative Methods and Quantitative Methods: An analogy in Venn Diagram

The two approaches, qualitative methods and quantitative methods, by nature are distinctive. In practice they share both distinguishable and indistinguishable characteristics, laying the ground for the notion of complementary assimilability between them, which in the next section is called Mixed Methods. Diagram 1, in alignment with Johnson and Onwuegbuzie (2004), Brannen (2005), Sandelowski (2012, 2014) and Morgan (2018), shows symmetry and asymmetry. While constructivism is typical of qualitative methods, postpositivism is typical of quantitative methods, these methods take effect in research activities in an interchangeable or overlapping manner, contingent upon purposes and resources.

C. Literature Review: Mixed Methods

What is mixed methods?

Jick, in 1979, saw that then the view towards research methods use was one method or another rather than an effective combination. At that period of time, multi-methods users did not have the capacity to explain the "technique" regarding data collection and interpretation. Later studies, among those was a study by Greene, Caracelli and Graham (1989) characterize mixed-methods with at least one quantitative method, which is for collecting numbers and one qualitative method, which is for collecting words, and it is not necessary that each method has an inherent link to a paradigm.

Molina-Azorin (2007) share that there have been various definitions of mixed methods research. For example, according to Tashakkori and Teddlie (1998) it is the combination of the qualitative and quantitative approaches in one single-phased study or a study with phases. In more specific way, these two (2003) state clearly that mixed methods research utilizes qualitative and quantitative techniques in data collection and analysis in two different patterns, one is in parallel phases and the other is sequential stages. Creswell, Clark, Gutmann, and Hanson (2003) share the similar notion of concurrent or sequential phased combination and integration different stages in one process. Brannen (2005) also refer to such planned combination and noted the advantage to minimize asymmetry.

Johnson and Onwuegbuzie (2004) emphasize the importance of the fit between qualitative and quantitative methods to find a "workable solution". They view this type of fit as a type of research in which in one research what researchers do is to mix or combine quantitative and qualitative techniques, methods, approaches, concepts or language. In the

same direction with Tashakkori, Teddlie and Creswell (2003, 2005), Ivankova, Creswell and Stick (2006) affirm mixed methods as a set of accepted actions to collect, analyze, and mix or integrate both data types at stages within one single research process in order to better comprehend a research issue. Cohen (2008) view mixed methods as a methodology and deliberate analogous characteristics and purposes. Tashakkori and Creswell (2007) reaffirm that mixed methods is research where in one single one by applying qualitative and quantitative methods researchers collect and analyze data, integrate their findings, and make inferences.

Johnson, Onwuegbuzie and Turner (2007), in addition to common features of mixed methods mentioned in previous definitions, characterize mixed methods as contingent on realities, resources, and needs. Morse and Niehaus (2009) consider "mixed methods as the incorporation of one or more methodological strategies or techniques drawn from a second method, into a single research study, in order to access some part of the phenomena of interest that cannot be accessed by the use of the first method alone". Other authors share the notion of Tashakkori and Teddlie - mixed methods is one comprised of quantitative and qualitative data collection, analysis, and integration in its phase(s) (Creswell & Clark, 2011; Molina-Azorin, 2016; Venkatesh, Brown, Sullivan, 2016; Maxwell, 2016; Shannon-Baker, 2016).

Guest, in 2012, notes that experts in mixed methods do not necessarily agree on one common definition for mixed methods research. However, as disseminated by Ramo (2016), mixed research has its inherent complexity in having qualitative and quantitative methods combined in a continuous interaction. In the context of applying more than one method, Molina-Azorin et al. (2017) accentuate the difference between multi-method and mixed methods. While multi-method means more than one method, either quantitative or multiple qualitative in one study, mixed methods research is quantitative-qualitative integration in one research, making it possible to mix at multiple levels from methods to methodologies, and paradigms.

The above comprehension about what mixed methods is establishes the basis on which it is possible to elaborate about its advantages stemming from the defining features and issues related to effective integration. Mixed methods, as far as defined in research methods literature, including behavioral and organizational researches, is the quantitative-qualitative methods combination or integration in different patterns at different stages of one research process. The common main stages mentioned are data collection, data analysis and data interpretation.

The methods in times

The practice of using more than one method has been in existence for decades, dating back to the early ones of the 20th century (Jick, 1979). This author mentioned the good practice of LaPiere's behavioral study early in the 1930s, the act of comparing one set of findings with another to improve validity of inferences and the use of different methods for mutual confirmatory effect by many early users of what is later labelled mixed methods. Reviews show that coherent conceptualization of mixed methods research officially started in 1980s (Bryman, 1988; Greene, Caracelli, & Graham, 1989). Since then this approach has developed in a noticeable way into a recognized distinctive research methodology (Table 1). Some claim mixed methods as a third methodological movement alongside qualitative and quantitative methods as it has been transformed and formalized in an exhilarating fashion and an enlightening course (Hesse-Biber, 2015). There have been reviews on its decades of progress bringing about added values and advantages in research activities. From different perspectives, researchers have studied the methods, acknowledged the central piece of mixed methods, i.e. integration of quantitative and qualitative approaches, and suggested prerequisites to the application of mixed methods. The establishment of Journal of Mixed Methods Research in 2007 and Mixed Methods International Research Association in 2013 have been the cornerstones in methodological movement of mixed methods and set direction as well as guidelines in this domain.

Why asymmetry matters?

Morgan (2018) when discussing differences between qualitative and quantitative methods, raises the question why it matters. According to this author, it matters as the common ground on which mixed patterns are born, in other words such differences make room for innovations by way of integrating

different methods in order to utilize complementary strengths of each. Such integration is central premise of mixed methods. Fetters (2018) acclaims enrichment from the prescribed asymmetry between qualitative and quantitative methods and indicates that that seeming incompatibility has been discernibly an array of opportunities to explore alternative dimensions (exploratory value), improve, enhance and add value to research. Technically, there are countless integration modes, customized by particularities of any researches.

McKim (2017) shares the recognition that added values found in the asymmetry between qualitative and quantitative methods are stronger validity of a research and confidence in the findings, i.e. confirmatory value. Prior research of Westwood (2012) finds these differences constructive – i.e. complementary value, and that of Venkatesh, Brown, Bala (2012) recognize that the qualitative-quantitative convergence draws better authoritative inferences, i.e. meta-inferences. Earlier work of Greene (2005) cherishes the ability to understand better particularity, generality, complexity and regularity from different perspectives inherent in the synergy of complementary strengths. Jick (1979) strongly recommends that the two methods, qualitative and quantitative, are supposed to be complementary in one assemblage instead of acting as “rival camps”. Emphasis has been placed on triangulation as it enables higher confidence in results, innovative methods, divergence in dimensions towards the subject under examination, and therefore comprehensiveness. All in all, Creswell, Greene, Tashakkori, Teddlie, Edmondson, McManus and authors share advantages of mixed methods thanks to the qualitative-quantitative asymmetry. They are complementarity, completeness, developmental (qualitative development of constructs and hypotheses and quantitative hypothesis tests), expansion (e.g. by integrated findings), confirmation, compensation, and diversity (e.g. increase in comparative observations).

Qualitative Methods	Symmetry	Quantitative Methods
<p>Naturalistic tendency Words + Categories of meaning → explained occurrences (e.g. How? and Why?) Specific information (e.g. individuals, cases): one single individual, personal experiences, vivid details Limited sample size</p> <p>Local knowledge (embedded in local context) Responsiveness to local particularities (situations, conditions, needs, changes in practice → re-positioning of the focal point Open-ended interviewing Participant observation Comparisons and analysis across cases Detail-rich description of phenomena Control and discernment of participants' interpretation of constructs</p> <p>Complex phenomena Clarity in contextual factors and settings Dynamic processes: documentation of sequence and change in patterns Grounded theory Causation in an event</p>	<p>Numericals numbers, quantifiers (e.g. many, more, most, some, a few, a lot), comparatives (e.g. more, less, identical, equal), size, time length, time points, frequency of things, patterns, regularities</p> <p>Variations of conduct questionnaires, interviews – conception, development, conduct, coordination, analysis, interpretation, and representation (e.g. surveys with both closed and open questions)</p> <p>Relations and relationships Cause and effect, directedness, roles (e.g. instrumentals, predictors, mediators, moderators, dependent variables, independent variables, control variables)</p> <p>Triangulation: use more than one method in one study → improved accuracy Pursuit of quality: Validation Replication</p> <p>Purposes of research Acceptance of subjectivity (accuracy of qualitative observations and conclusions, what to study and how to study it in quantitative terms) Pursuit of objectivity Cycle of inductive and deductive thinking</p>	<p>Precise, quantitative Numbers → Quantitative predictions Standardized and speedy in collection Random samples Large sample size</p> <p>Statistical software → Time-saving analyses Generalize findings (random samples, sufficient size, replicated - populations and subpopulation) Controls of specific influences (e.g. collinearity, dummy variables, interaction terms) Questionnaire-based interviewing Experimental designs</p> <p>Large-scaled research Theory testing and validation (constructed theories) Hypotheses testing (hypothesized before data collection) Elimination of biases in cause-and-effect relationships Results: relatively objective (e.g., effect size, statistical significance)</p>

Diagram 1. Asymmetry and Symmetry – Qualitative Methods and Quantitative Methods

Table 1. Mixed Methods Timeline

Before 1980	Early 1980s	Late 1980s	1990s	2000 - 2005	2006 - 2010	2010s
Possibility of mixed methods application without formal acknowledgment	Commencement of conceptualization Initiation in organizational research Authors: Jick, T. (1979), Van Maanen, J. (1979) and others	Coherent conceptual framework of design Popular use in fields such as psychology, education and healthcare Authors: Bryman, A. (1988), Gimeno, J., & Greene, J., Caracelli, V., & Graham, W. (1989) and others	Transformation and formalization Specific use in organizational research, e.g. management studies Highlight: Triangulation of methods vs. Mono-method Authors: Brannen, J. (Ed. 1992), Valerie J. Caracelli and Jennifer C. Greene (1993), Hitt, M. A., (1988), Gimeno, J., & Hoskisson, R. (1998), Tashakkori, A., (1998) and others	Transformation and formalization Advancements in rationale and design Field-specific uses Process integration Attention to issues of integration Authors: Scandura, T. A., & Williams, E. A. (2000), Greene, Benjamin, Goodyear (2001), Creswell, Plano Clark, Gutmann, & Hanson (2003), Tashakkori, A., & Teddlie, C. (Eds.2003), Hoang, H., & Antoncic, B. (2003), Maxwell, J., & Loomis, D. (2003), Pat Bazeley (2004), Niglas, K. (2004), Coviello, N., & Jones, M. (2004), Johnson, B., & Onwuegbuzie, A. (2004), Julia Brannen (2005), Mertens, D. (2005), Boyd, B. K., Gove, S., & Hitt, M. A. (2005), Hanson, W., Creswell, J., Plano Clark, V., Petska, K., & Creswell, J. (2005) and others	Process integration Innovative designs and typology (contingent on resources) Role in theory building Journal of Mixed Methods Research: perspectives and orientation, e.g designs and conducts Reviews, improved methodological fit An approach with concrete principles and coherent procedures Highlight: substantial foundational and groundbreaking publications of Tashakkori, A., Teddlie, C. Creswell, J., Plano Clark, V., Molina-Azorin, J. F., authors and editors of Journal of Mixed Methods Research and Authors: Nataliya V.Ivankova, John W. Creswell, Sheldon L.Stick. (2006), Spector, P. E. (2006), Ritchie, B., & Lam, W. (2006), Echambadi, R., Campbell, B., & Agarwal, R. (2006), Shah, S. K., & Corley, K. G. (2006), Hurmerinta-Peltomaki, L., & Nummela, N. (2006), Bergh, D. D., Perry, J., & Hanke, R. (2006), Teddlie, C., & Tashakkori, A. (2006), Greene, J. C. (2007), Armstrong, C. E., & Shimizu, K. (2007), Crump, B. and Logan, K. (2008), Alan Bryman, Saul Becker & Joe Sempik (2008), Omar Gelo,Diana Braakmann, Gerhard Benetka (2008), Bergman, M. (Ed. 2008), Janice M. Morse & Linda Niehaus (2009), Aguinis, H., Pierce, C., Bosco, F., & Muslin, I. (2009), and others.	Solutions to method issues More attention to method bias issues, esp. organizational research Streamlined guidelines Specialized applications Highlight: Triangulation, Validation and Replication Mixed Methods International Research Association: formalized and institutionalized Emerging trends Future orientation Attention to a transformative set of research skills Authors: James M. Conway, Charles E. Lance (2010), Hesse-Biber, S. (2010), Ivankova, N., & Kawamura, Y. (2010), Hesse-Biber, S. N., & Johnson, R. B. (Eds. 2015), Susan Ramlo (2016), Joseph A. Maxwell (2016), Michael D. Fetters (2016), Judith Schoonenboom (2016), Saša Baškarada, Andy Koronios (2018), Seng Yeap Kong, Naziaty Mohd Yaacob, Ati Rosemary Mohd Ariffin (2018), authors of JMMR, Tashakkori, A., Teddlie, C. Creswell, J., Plano Clark, V. and Molina-Azorin, J. F. and others

Regarding the deployment of such asymmetry, i.e. effective integration of differences, so far none of earlier researchers have contended that there is one sole correct answer to the question of how to mix between quantitative and qualitative methods. In this way, there have been various integration patterns, typologies or models of integration built, lay the foundations for adjusted applications subjected to contingencies, e.g. researchers' purposes and availability and accessibility of resources. Under the next heading are different prior patterns of integrations followed by a suggestive 4-quartile plane of integration with higher situation-prompt degree of freedom than that of process integration.

Different integration patterns. A Schrauf (2018), following prior authors, including Creswell, states that qualitative-quantitative integration can happen at various times in one research, e.g. research design, sampling, data collection, analysis, and inference. In a more systematic representation, Creswell and Plano Clark (2011) displays six original mixed methods designs. They are (1) convergent (parallel - qualitative and quantitative research activities happen at the same time), (2) explanatory (quantitative first, qualitative second, similarly described by Edmondson and McManus (2007)), (3) exploratory (qualitative first,

quantitative second, allied with Edmondson and McManus (2007) – in an inverse order in comparison to explanatory), (4) embedded (supporting data), (5) transformative (toward addressing issues of under-representedness), (6) multiphasic (combination in various phases).

Different studies of Tashakkori and Teddlie (1998, 2003, and 2010) indicate main patterns, i.e. (1) concurrent, (2) sequential, (3) conversion (quantitative data to be commuted into narratives or qualitative data to be transformed into numbers). The same authors (2009) expand their horizon to include (4) multilevel (levels of analysis, qualitative data at one and quantitative data at another), and (5) fully integrated (methods are combined interactively across-the-board).

Johnson, Onwuegbuzie, and Turner (2007) identifies pure mixed methods, qualitative-intensive, and quantitative-intensive integration modes. The latter two have resemblance to those presented by Edmondson and McManus (2007). Molina-Azorin (2012) cited the four approaches by Johnson & Onwuegbuzie (2004) located on a 2 by 2 matrix – dimension of priority between quantitative methods and qualitative methods (equal or different) and dimension of implementation (simultaneous or

sequential). This matrix produces four different patterns, i.e. (1) balanced importance and simultaneous implementation, (2) equal weight, but sequential conduct, (3) varied in importance and simultaneous in application, and (4) varied in importance and sequential in implementation.

Molina-Azorin (2007) advises researchers to consider the 'opportunistic nature' of mixed methods research, which is it can have a design predetermined, but as data collection and analysis are in progress, new components may arise, therefore researchers should be creative and go beyond the existent mixed methods designs to create designs that can effectively address the research question(s). Concerning writer's research, Utilization of Multiple Institutional Logics and Categorization in Decision Making, with one central research question, i.e. In the context of diversity, how do categorization and institutional logics as well as their relationship take effect on decisions?, the interdisciplinary nature of subjects of interest and interconnected qualitative and quantitative parts of the research questions urge for adaptive elements in research design. In response to this requirement, the next section presents a 4-quartile contingent plane integration.

IV. MIXED METHODS: 4-QUARTILE CONTINGENT PLANE

Patterns reflectively summarized above share commonalities of process integration, which is phased-based, featuring two main dimensions of weight and timing. None have addressed prompt situational (i.e. happenings in local context – micro-local) contingent properties which time-point contingent even though the notion of methods-wide (global) and contextualized-research (local) contingency are either clearly stated or implied in the discussion of weight or priority of methods, such as particularities of a research, e.g. what is being studied, what data to collect, availability and accessibility of data sources. In respect of timing, little has been discussed from contingency perspective, but fixatedly anchored to sequence of research stages – time-period contingent and delayed in one by one order. When referring to considerations which are central to the choice of a fitting design, Kong, Yaacob, Ariffin (2018) align them with the same set of commonalities. In this section, writer suggest a 4-quartile plane of integration with higher situation-prompt degree of freedom than that of process integration. This means as a research is in progress, the happenings show n random properties (e.g. P1, P2, P3 and P4, either positive or negative, potentially influential to the study) in principle must not make the research misalign with research quality totality set either by

prescription or benchmarking, i.e. a total of M, one scenario is researchers are free to choose the first three unadjusted properties at random, but the fourth must be chosen to be adjusted in a way that secure the total M, as a result the degree of freedom in this situation is three. The question here is on what basis to leave some properties unadjusted at random and choose to fix another among the n ones. On what conditions the unadjusted (zero-mix - no methods integration applied) can be either left unadjusted without ultimate effect, actively adjusted (mix - methods integration applied) at later time or simultaneously adjusted as the chosen one by the same mixed pattern because of high degree of between-properties commonality and high property-mix compatibility? Putting in other words, the issue is how to maintain high degree of freedom – optimal adjustment.

One solution can be a mixed pattern which is universally and or highly compatible to unadjusted properties, so it keeps the number and complexity of adjustments (i.e. respectively adjustment size and degree of adjustment) to minimum while the totality M can still be obtained. However, the critical synthesis in previous sections can guarantee that there is no such pattern when properties are not congruent, which leads to another solution which is feasible in both qualitative and quantitative terms. The solution is control of contingencies. Basically, properties are contingent on resources and capabilities. As properties are bounded by contingencies, their level of congruence are dependent on how these contingencies are managed. Such control is qualitatively attainable as the analogy in Diagram 1 shows that qualitative methods have control and discernment of participants' interpretation of constructs, acquire local knowledge and possess responsiveness to local particularities, e.g. situations, conditions, needs, changes in practice, which helps to reposition of the focal point. In quantitative terms, the procedures for control of specific influences, e.g. collinearity, dummy variables, interaction terms, are all standardized and function as long as variables are identified.

Figure 1 presents a 4-quartile contingent plane of integration in three dimensions, one is capabilities contingency, another is resources contingency and the other is weight of methods. According to Tashakkori and Creswell (2007), a strong mixed methods study starts with a strong mixed methods research question or objective, so predetermined typologies or patterns of mixed methods integration do not necessarily lead to attainment of research objectives. The contingent plane positions a research question or objective in contextualized local contingency (local resources and capabilities) to locate the fitting pattern of quantitative-qualitative mix (i.e. optimal pattern). In Quartile 1, where properties are highly congruent (e.g.

stable and positive states) on the basis of plenty of resources and strong capabilities, the global fitting mix is highly qualitative – highly quantitative. In Quartile 2, where properties are less congruent as even though capabilities are strong, fewer resources are available and or accessible, the suggested pattern is highly qualitative – low quantitative. In Quartile 3, where properties are likely incongruent as capabilities are weak and resources are few, the suggested pattern is low quantitative – low qualitative. In Quartile 4, where properties are less congruent as resources are available in plenty, but capabilities are weak, the fitting pattern is low qualitative – high quantitative. In each quartile, micro-local contingency fixes the specific complementary relation between both methods, i.e. at one time point a random property arises, accessible available resources and capabilities (know-how) at that exact point in time decides what methods are compatible to such property. The optimal mix pattern is one that addresses both global and local contingency. There are three time points of inactivity, i.e. at the bottom left corner point (no capabilities, no resources – no-nothing), at center point (all-balanced point) and at the top right corner point (saturation point).

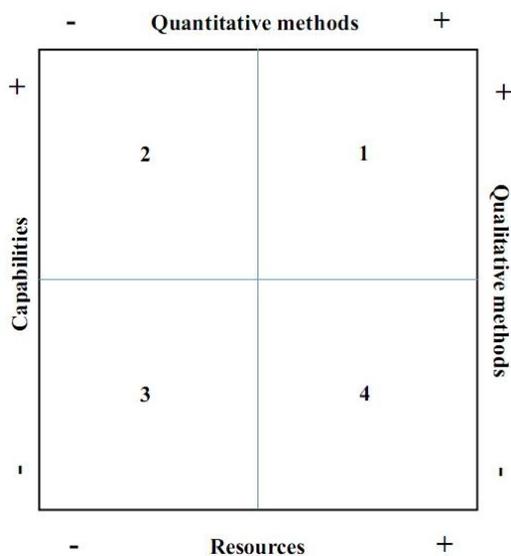


Fig.1. 4-quartile contingent plane of integration

V. DISCUSSION

To discuss further the application of 4-quartile contingent plane of integration in mixed methods research, writer's research, Utilization of Multiple Institutional Logics and Categorization in Decision Making, is one example, which can help with illuminating its usage. Starting with the research question - In the context of diversity, how do categorization and institutional logics as well as their relationship take effect on decisions?, in order to decide a proper research design, writer align

components in the research question with the symmetry and asymmetry in Diagram 1, first to identify resources and capabilities to meet the research objectives so as to choose general integration pattern, then to select strengths in methods which are functional on resources and capabilities at current time point (micro-local contingency). As the research question conveys complexity, e.g. clarity of contextual factors, interaction between individuals, understanding of individuals' multiple logics, nature of interaction of between individuals, implications of biases, it is necessary to use both methods at the same time – mixed methods. There are plenty of resources, capabilities are strong. The mixed methods pattern can be position in Quartile 1: Highly quantitative – Highly qualitative. At this point in time, two properties arise, e.g. P1 - some groups do not have diversity in membership, P2 -incongruent understanding of constructs, taking into consideration micro-local contingency which is characterized with limited documentation equipment, low diversity in terms of demographics among participants, small sample size, it is descending resources – high capabilities. So, the pattern is in Quartile 1, but must be located to the upper left side and towards Quartile 2, meaning it is not a time to place emphasis on quantitative methods, and it is better to invest more time and effort in qualitative methods. As P1 and P2 are different in state, they have to be addressed separately. Technically, incongruent understanding of constructs may require more direct exchange and explanation rather than sending out a survey with options to diagnose what is wrong. However as rule in direct exchange, e.g. in personal interviews, demographical information can be available, and interviewer can purposeful increase sample size by adding contacts of participants, which even though not random sample selection, can facilitate the creation of sources to triangulate, compare and contrast findings. As the research is moving out of the region of P2, at this time point the arising property is the need for random sample selection, which might require quantitative weight than qualitative. The interaction between the two approaches happens continuously until the patterns of interaction reach close to saturation point. It is where the mass of interactions is so large that researcher can be comprehensively confident in the quality of their research.

CONCLUSION

In conclusion, mixed methods have developed rapidly over the decades of 1980s, 1990s, 2000s and 2010s. Huge number of relevant quality researches and publications on mixed methods has big enough for this methodological movement to gain a foothold in the

domain of research methods. The amount of time and effort that researchers invest in mixed methods studies has been vast enough so it pay off in insights into the methods. For examples, regarding integrating qualitative and quantitative approach as the central premise of mixed methods, reviews and syntheses has been concrete enough to make the commonality and anomaly clear so as to establish commonly accepted typologies and different patterns of integration in mixed methods. This paper has indicate the symmetry, asymmetry, complementarity and harmony in the relationship between quantitative research and qualitative researches. In the direction of adaptation, formalization, and transformation, writer suggests a 4-quartile plane of integration which are more situation-fit than process integration, which is phase-fit.

REFERENCES

- [1] Abbas Tashakkori, John W. Creswell. 2007. Editorial: Exploring the Nature of Research Questions in Mixed Methods Research. *Journal of Mixed Methods Research*. DOI: 10.1177/1558689807302814
- [2] Aguinis, H., Pierce, C., Bosco, F., & Muslin, I. 2009. First decade of Organizational Research Methods. Trends in design, measurement, and data-analysis topics. *Organizational Research Methods*, 12, 69-112.
- [3] Alan Bryman, Saul Becker & Joe Sempik. 2008. Quality Criteria for Quantitative, Qualitative and Mixed Methods Research: A View from Social Policy. *Int. J. Social Research Methodology* Vol. 11, No. 4, 261-276. DOI: 10.1080/13645570701401644
- [4] Andrea Tunarosa, Mary Ann Glynn. 2016. Strategies of Integration in Mixed Methods Research Insights Using Relational Algorithms. *Organizational Research Methods*. <https://doi.org/10.1177/1094428116637197>
- [5] Andrew, S., & Halcomb, E. (Eds.). 2009. *Mixed methods research for nursing and the health sciences* Chichester, UK: Wiley-Blackwell.
- [6] Armstrong, C. E., & Shimizu, K. 2007. A review of approaches to empirical research on the resource-based view of the firm. *Journal of Management*, 33, 959-986.
- [7] Bergh, D. D., Perry, J., & Hanke, R. 2006. Some predictors of SMJ article impact. *Strategic Management Journal*, 27, 81-100.
- [8] Bergman, M. (Ed.). 2008. *Advances in mixed methods research*. London: Sage
- [9] Blakie, N. 2010. *Designing social research* (2nd ed.). Cambridge, England: Polity Press.
- [10] Boyd, B. K., Gove, S., & Hitt, M. A. 2005. Construct measurement in strategic management research: Illusion or reality? *Strategic Management Journal*, 26, 239-257.
- [11] Brannen, J. (Ed.). 1992. *Mixing methods: Qualitative and quantitative research*. Aldershot, UK: Avebury.
- [12] Bryman, A. 1988. *Quantity and quality in social research*. New York, NY: Routledge.
- [13] Bryn R. Hammack-Brown, Kim Nimon. 2015. Book Review. *The Oxford Handbook of Multimethod and Mixed Methods Research Inquiry*, editors S. Hesse-Biber, and R. B. Johnson, New York, NY: Oxford University Press, 2015, 717 pages. *New Horizons in Adult Education & Human Resource Development* 28(4), xx-xx
- [14] Cameron, R., Sankaran, S., & Scales, J. .2015. Mixed methods use in project management research. *Project Management Journal*, 46, 90-104.
- [15] Catharine Biddle, Kai A. Schafft. 2015. *Axiology and Anomaly in the Practice of Mixed Methods Work: Pragmatism, Valuation, and the Transformative Paradigm*. *Journal of Mixed Methods Research* 2015, Vol. 9(4) 320 - 334 DOI: 10.1177/1558689814533157
- [16] Courtney A. McKim. 2017. The Value of Mixed Methods Research: A Mixed Methods Study. *Journal of Mixed Methods Research*, Vol. 11(2) 202 - 222 DOI: 10.1177/1558689815607096
- [17] Coviello, N., & Jones, M. 2004. Methodological issues in international entrepreneurship research. *Journal of Business Venturing*, 19, 485-508.
- [18] Creswell, J. W..2015. *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.
- [19] Creswell, J. W., & Plano Clark, V. L..2007. *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- [20] Creswell, J. W., & Plano Clark, V. L..2011. *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks: Sage.
- [21] Creswell, J., Plano Clark, V., Gutmann, M., & Hanson, W..2003. Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 209-240). Thousand Oaks, CA: Sage.
- [22] Creswell, Tashakkori. 2007. Differing Perspectives on Mixed Methods Research. *Journal of Mixed Methods Research* Volume 1 Number 4 303-308 DOI 10.1177/1558689807306132
- [23] Cristina B. Gibson. 2016. Elaboration, Generalization, Triangulation, and Interpretation On Enhancing the Value of Mixed Method Research. *Organizational Research Methods*. <https://doi.org/10.1177/1094428116639133>
- [24] Crump, B. and Logan, K. 2008. A Framework for Mixed Stakeholders and Mixed Methods. *The Electronic Journal of Business Research Methods* Volume 6 Issue 1, pp. 21 - 28, available online at www.ejbrm.com
- [25] Curry, L., & Nunez-Smith, M..2015. *Mixed methods in health sciences. A practical primer*. Thousand Oaks, CA: Sage.
- [26] David L. Morgan. 2018. *Living Within Blurry Boundaries: The Value of Distinguishing Between Qualitative and Quantitative Research*. *Journal of Mixed Methods Research* Vol. 12(3) 268-279 DOI: 10.1177/1558689816686433
- [27] Dawn Freshwater and Jane Cahill. 2012. Why Write?. *Journal of Mixed Methods Research* 6(3) 151 - 153 DOI: 10.1177/1558689812452416
- [28] Denscombe, M. 2008. Communities of practice. A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2, 270-283.
- [29] Donna M. Mertens. 2010. Divergence and Mixed Methods. *Journal of Mixed Methods Research* 4(1) 3-5 DOI: 10.1177/1558689809358406
- [30] Echambadi, R., Campbell, B., & Agarwal, R. 2006. Encouraging best practice in quantitative management research: An incomplete list of opportunities. *Journal of Management Studies*, 43, 1801-1820.
- [31] Edmondson, A. C., & McManus, S. E. .2007. Methodological fit in management field research. *Academy of Management Review*, 32, 1155-1179.
- [32] Edward Cohen. 2008. Book Review. Creswell, J. W., & Plano Clark, V. L. (2006). *Designing and Conducting Mixed Methods Research*. Thousand Oaks, CA: Sage. DOI: 10.1177/1049731508318695
- [33] Florin Popa, Mathieu Guillermin. 2017. Reflexive Methodological Pluralism: The Case of Environmental Valuation. *Journal of Mixed Methods Research* Vol. 11(1) 19 - 35 DOI: 10.1177/1558689815610250
- [34] Gioia, D. A., Corley, K. G., & Hamilton, A. L..2013. Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16, 15-31.
- [35] Gitte Sommer Harrits. 2011. More Than Method?: A Discussion of Paradigm Differences Within Mixed Methods Research. *Journal of Mixed Methods Research* 5(2) 150 -166 DOI: 10.1177/1558689811402506

- [36] Greene, Benjamin, Goodyear. 2001. The merits of mixed method in evaluation. Sage Publications
- [37] Greene, J. C. 2007. Mixed methods in social inquiry. San Francisco, CA: Jossey-Bass.
- [38] Greene, J. C. 2015. The emergence of mixing methods in the field of evaluation. *Qualitative Health Research*, 25, 746-750.
- [39] Greene, J., Caracelli, V., & Graham, W. 1989. Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11, 255-274.
- [40] Grimmer, M., & Hanson, D. 2009. Qualitative and quantitative research published in the *International Journal of Human Resource Management*, 1998-2007. Paper presented at the annual meeting of the Australian and New Zealand Academy of Management (ANZAM), Melbourne.
- [41] Guest, G. 2013. Describing mixed methods research: An alternative to typologies. *Journal of Mixed Methods Research*, 7(2), 141-151.
- [42] Hanson, W., Creswell, J., Plano Clark, V., Petska, K., & Creswell, J. 2005. Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, 52, 224-235.
- [43] Harry Torrance. 2012. Triangulation, Respondent Validation, and Democratic Participation in Mixed Methods Research. *Journal of Mixed Methods Research* 6(2) 111 - 123 DOI: 10.1177/1558689812437185
- [44] Hesse-Biber, S. 2010. Emerging methodologies and methods practices in the field of mixed methods research. *Qualitative Inquiry*, 16, 415-418.
- [45] Hesse-Biber, S. 2015. Introduction: Navigating a turbulent research landscape. Working the boundaries, tensions, diversity, and contradictions of multimethod and mixed methods inquiry. In S. Hesse-Biber & B. Johnson (Eds.), *Oxford handbook of multimethod and mixed methods research inquiry* (pp. xxxiii-liii). Oxford, UK: Oxford University Press.
- [46] Hesse-Biber, S., & Johnson, B. (Eds.). 2015. *Oxford handbook of multimethod and mixed methods research inquiry*. Oxford, UK: Oxford University Press.
- [47] Heyvaert, M., Hannes, K., Maes, B., & Onghena, P. 2013. Critical appraisal of mixed methods studies. *Journal of Mixed Methods Research*, 7(4), 302-327.
- [48] Hitt, M. A., Gimeno, J., & Hoskisson, R. 1998. Current and future research methods in strategic management. *Organizational Research Methods*, 1, 6-44.
- [49] Hoang, H., & Antoncic, B. 2003. Network-based research in entrepreneurship. A critical review. *Journal of Business Venturing*, 18, 165-187.
- [50] <https://dictionary.cambridge.org/fr/dictionnaire/anglais/research-method> Access: 10:57 03 October 2018
- [51] Hurmerinta-Peltomaki, L., & Nummela, N. 2006. Mixed methods in international business research: A value-added perspective. *Management International Review*, 46, 439-454.
- [52] Ivankova, N., & Kawamura, Y. 2010. Emerging trends in the utilization of integration designs in the social, behavioural and health sciences. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (2nd ed., pp. 581-611). Thousand Oaks, CA: Sage.
- [53] James M. Conway, Charles E. Lance. 2010. What Reviewers Should Expect from Authors Regarding Common Method Bias in Organizational Research. *Journal of Business & Psychology* 25:325 - 334 DOI 10.1007/s10869-010-9181-6
- [54] Jick, T. 1979. Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24, 602-611.
- [55] Joakim Öhlén. 2011. Review. Janice M. Morse & Linda Niehaus (2009). *Mixed Method Design: Principles and Procedures*. Walnut Creek, CA, USA: Left Coast Press Inc.; 193 pages; ISBN 978-1-59874-298-5. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* (ISSN 1438-5627)12(1), Art. 15
- [56] Johannes Meuer, Christian Ruppert. 2016. Integrating QCA and HLM for Multilevel Research on Organizational Configurations. *Organizational Research Methods*. <https://doi.org/10.1177/1094428116665465>
- [57] Johnson, B., & Onwuegbuzie, A. 2004. Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33, 14-26.
- [58] Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. 2007. Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- [59] Joseph A. Maxwell. 2016. Expanding the History and Range of Mixed Methods Research. *Journal of Mixed Methods Research*, Vol. 10(1) 12 - 27 DOI: 10.1177/1558689815571132
- [60] Judith Schoonenboom. 2016. The Multilevel Mixed Intact Group Analysis: A Mixed Method to Seek, Detect, Describe, and Explain Differences Among Intact Groups. *Journal of Mixed Methods Research* Vol. 10(2) 129-146 DOI: 10.1177/1558689814536283
- [61] Julia Brannen. 2005. Mixing Methods: The Entry of Qualitative and Quantitative Approaches into the Research Process. *Int. J. Social Research Methodology* Vol. 8, No. 3, July 2005, pp. 173-184 DOI: 10.1080/13645570500154642
- [62] Kathleen M. T. Collins, Anthony J. Onwuegbuzie, and R. Burke Johnson. 2012. Securing a Place at the Table: A Review and Extension of Legitimation Criteria for the Conduct of Mixed Research. *American Behavioral Scientist* 56(6) 849 - 865 DOI: 10.1177/0002764211433799
- [63] Kristin L. K. Koskey, Toni A. Sondergeld, Victoria C. Stewart, Kevin J. Pugh. 2018. Applying the Mixed Methods Instrument Development and Construct Validation Process: The Transformative Experience Questionnaire. *Journal of Mixed Methods Research*, Vol. 12(1) 95 - 122. DOI: 10.1177/1558689816633310
- [64] Louis Botha. 2011. Mixing methods as a process towards indigenous methodologies. *International Journal of Social Research Methodology* Vol. 14, No. 4, 313 - 325 DOI: 10.1080/13645579.2010.516644
- [65] Masterson, C. R., Corley, K. G., & Schinoff, B. S. 2016. Innovation through collaboration: Working together on data analysis and interpretation. In R. M. Kramer & K. D. Elsbach (Eds.), *Handbook of innovative qualitative research methods: Pathways to cool ideas and interesting papers* (pp. 331-340). New York, NY: Routledge.
- [66] Maxwell, J. (2013). *Qualitative research design: an interactive approach* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- [67] Maxwell, J., & Loomis, D. 2003. Mixed methods design: An alternative approach. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 241-271). Thousand Oaks, CA: Sage Publications.
- [68] Mertens, D. 2005. *Research and evaluation in education and psychology. Integrating diversity with quantitative, qualitative and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage.
- [69] Michael D. Fetters, Dawn Freshwater. 2015. Publishing a Methodological Mixed Methods Research Article. *Journal of Mixed Methods Research*, Vol. 9(3) 203 - 213 DOI: 10.1177/1558689815594687
- [70] Michael D. Fetters, José F. Molina-Azorin. 2018. *Journal of Mixed Methods Research* Vol. 12(4) 363 - 365 DOI: 10.1177/1558689818800134
- [71] Michael D. Fetters. 2016. "Haven't We Always Been Doing Mixed Methods Research?": Lessons Learned From the Development of the Horseless Carriage. *Journal of Mixed Methods Research* Vol. 10(1) 3 - 11 DOI: 10.1177/1558689815620883
- [72] Michael D. Fetters. 2018. Six Equations to Help Conceptualize the Field of Mixed Methods. *Journal of Mixed Methods Research* Vol. 12(3) 262 - 267 DOI: 10.1177/1558689818779433
- [73] Molina-Azorin, J. F. 2007. Mixed methods in strategy research: Applications and implications in the resource-based view. In D. Ketchen & D. Bergh (Eds.), *Research methodology in strategy and management* (Vol. 4, pp. 37-73). Oxford, UK: Elsevier.
- [74] Molina-Azorin, J. F. 2012. Mixed methods research in strategic management: Impact and applications. *Organizational Research Methods*, 15, 33-56.

- [75] Molina-Azorin, J. F., & López-Gamero, M. D. .2016. Mixed methods studies in environmental management research: Prevalence, purposes and designs. *Business Strategy and the Environment*, 25, 134-148.
- [76] Molina-Azorin, J. F., López-Gamero, M. D., Pereira-Moliner, J., & Pertusa-Ortega, E. .2012. Mixed methods studies in entrepreneurship research: Applications and contributions. *Entrepreneurship & Regional Development*, 24, 425-456.
- [77] Molina-Azorin, J.F. 2016. Mixed methods research: An opportunity to improve our studies and our research skills. *European Journal of Management and Business Economics* 25 (2016) 37–38. DOI: 10.1016/j.redeem.2016.05.001
- [78] Molina-Azorin, J.F., Donald D. Bergh, Kevin G. Corley, David J. Ketchen, Jr. 2017. Mixed Methods in the Organizational Sciences: Taking Stock and Moving Forward. *Organizational Research Methods*, Vol. 20(2) 179-192 DOI: 10.1177/1094428116687026
- [79] Molina-Azorin, J.F., Michael D Fetters. 2016. Mixed Methods Research Prevalence Studies: Field-Specific Studies on the State of the Art of Mixed Methods Research. *Journal of Mixed Methods Research* DOI: 10.1177/1558689816636707
- [80] Molina-Azorin, J.F., Michael D. Fetters. 2017. The Journal of Mixed Methods Research Starts a New Decade: The First 10 Years in Review. *Journal of Mixed Methods Research*, Vol. 11(2) 143 - 155 DOI: 10.1177/1558689817696365
- [81] Molina-Azorin, J.F., Michael D. Fetters. 2018. Future Special Issues at the Journal of Mixed Methods Research. *Journal of Mixed Methods Research*, Vol. 12(4) 369 - 370 DOI: 10.1177/1558689818800897
- [82] Molina-Azorin, J.F., Michael D. Fetters. 2018. In This Issue. *Journal of Mixed Methods Research* Vol. 12(3) 251 - 253 DOI: 10.1177/1558689818781885
- [83] Morgan, D. L..2007. Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research*, 1(1), 48–76.
- [84] Morse, J., & Niehaus, L. 2009. *Mixed method design. Principles and procedures*. Walnut Creek, CA: Left Coast Press.
- [85] Nataliya V.Ivankova, John W. Creswell, Sheldon L.Stick. 2006. Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Field Methods*, Vol. 18, No. 1 DOI: 10.1177/1525822X05282260
- [86] Niglas, K. 2004. *The combined use of qualitative and quantitative methods in educational research*. Tallinn, Estonia: Tallinn Pedagogical University Press.
- [87] Oldřich Krpec, Petr Ocelík, Hubert Smekal. 2016. Narrowing the Divide: Perspectives on the Future of Mixed Methods Report From Central and Eastern Europe. *Journal of Mixed Methods Research* 11(1) DOI: 10.1177/1558689816676660
- [88] Olivier Berthod, Michael Grothe-Hammer, Jörg Sydow. 2016. *Network Ethnography A Mixed-Method Approach for the Study of Practices in Interorganizational Settings*. *Organizational Research Methods*. <https://doi.org/10.1177/1094428116633872>
- [89] Omar Gelo,Diana Braakmann, Gerhard Benetka. 2008. *Quantitative and Qualitative Research: Beyond the Debate*. *Integrative Psychological and Behavioral Science* Volume 42, Issue 3, pp 266–290 DOI: 10.1007/s12124-008-9078-3
- [90] Open Science Collaboration. 2015. Estimating the reproducibility of psychological science. *Science*, 349(6251). Retrieved from <http://science.sciencemag.org/content/349/6251/aac4716>
- [91] Pat Bazeley. 2004. Issues in Mixing Qualitative and Quantitative Approaches to Research. in: R. Buber, J. Gadner, & L. Richards (eds) (2004) *Applying qualitative methods to marketing management research*. UK: Palgrave Macmillan, pp141-156.
- [92] Pat Bazeley. 2010. Book Review. V. L. Plano Clark and J. W. Creswell (Eds.) *The Mixed Methods Reader*. Thousand Oaks, CA: SAGE, 2008, 617 pp. Supplied by Footprint Books.
- Journal of Mixed Methods Research 4(1) 79–81 DOI: 10.1177/1558689809356926
- [93] Paul E. Spector, Michael T. Brannick. 2010. Common Method Issues: An Introduction to the Feature Topic in *Organizational Research Methods*. *Organizational Research Methods* 13(3) 403-406 DOI: 10.1177/1094428110366303
- [94] Peggy Shannon-Baker. 2016. Making Paradigms Meaningful in Mixed Methods Research. *Journal of Mixed Methods Research* Vol. 10(4) 319–334 DOI: 10.1177/1558689815575861
- [95] Plano Clark, V. L., & Badiee,M. .2010. Research questions in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 275-304). Thousand Oaks, CA: Sage.
- [96] Plano Clark, V., & Ivankova, N..2016. *Mixed methods research. A guide to the field*. Thousand Oaks, CA: Sage.
- [97] Ritchie, B., & Lam, W. 2006. Taking stock of small business and entrepreneurship research. *International Journal of Entrepreneurial Behaviour & Research*, 12, 312-327.
- [98] RobertW. Schrauf. 2018. Mixed Methods Designs for Making Cross-Cultural Comparisons. *Journal of Mixed Methods Research* Vol. 12(4) 477 - 494 DOI: 10.1177/1558689817743109
- [99] Roslyn Cameron. 2011. Mixed Methods Research: The Five Ps Framework. *The Electronic Journal of Business Research Methods* Volume 9 Issue 2 (pp 96-108), available online at www.ejbrm.com
- [100]Sandelowski, M. 2012. The weakness of the strong/weak comparison of modes of inquiry. *Research in Nursing & Health*, 35, 325-327. doi:10.1002/nur.21475
- [101]Sandelowski, M. 2014. Unmixing mixed methods. *Research in Nursing & Health*, 37, 3-8. doi: 10.1002/nur.21570
- [102]Sandelowski, M. 2016. Is mixed methods research too inclusive? Keynote address at Mixed Methods International Research Association, Durham, England.
- [103]Saša Baškarada, Andy Koronios. 2018. A philosophical discussion of qualitative, quantitative, and mixed methods research in social science. *Qualitative Research Journal*, Vol. 18 Issue: 1, pp.2-21, DOI 10.1108/QRJ-D-17-00042
- [104]Scandura, T. A., & Williams, E. A.2000. Research methodology in management: Current practices, trends and implications for future research. *Academy of Management Journal*, 43, 1248-1264.
- [105]Scott F. Turner, Laura B. Cardinal, Richard M. Burton. 2015. *Research Design for Mixed Methods: A Triangulation-based Framework and Roadmap*. <https://doi.org/10.1177/1094428115610808>
- [106]Seltzer-Kelly, D., Westwood, S. J., & Peña-Guzman, D. M. (2012). A methodological self-study of quantizing: Negotiating meaning and revealing multiplicity. *Journal of Mixed Methods Research*, 6(4), 258-274.
- [107]Seng Yeap Kong, Naziaty Mohd Yaacob, Ati Rosemary Mohd Ariffin. 2018. Constructing a Mixed Methods Research Design: Exploration of an Architectural Intervention. *Journal of Mixed Methods Research* Vol. 12(2) 148 - 165 DOI: 10.1177/1558689816651807
- [108]Shah, S. K., & Corley, K. G. 2006. Building better theory by bridging the quantitative-qualitative divide. *Journal of Management Studies*, 43, 1821-1835.
- [109]Shannon L. David, John H. Hitchcock, Brian Ragan, Gordon Brooks, Chad Starkey. 2018. Mixing Interviews and Rasch Modeling: Demonstrating a Procedure Used to Develop an Instrument That Measures Trust. *Journal of Mixed Methods Research*, Vol. 12(1) 75 - 94 DOI: 10.1177/1558689815624586
- [110]Sharlene Hesse-Biber, R. Burke Johnson. 2013. Coming at Things Differently: Future Directions of Possible Engagement With Mixed Methods Research. *Journal of Mixed Methods Research* 7(2) 103–109 DOI: 10.1177/1558689813483987
- [111]Spector, P. E. 2006. Method variance in organizational research: Truth of urban legend. *Organizational Research Methods*, 9, 221-232.

- [112] Susan Ramlo. 2016. Mixed Method Lessons Learned From 80 Years of Q Methodology. *Journal of Mixed Methods Research* Vol. 10(1) 28 - 45 DOI: 10.1177/1558689815610998
- [113] Tashakkori, A. (2009). Are we there yet? The state of the mixed methods community [Editorial]. *Journal of Mixed Methods Research*, 3(4), 287–291.
- [114] Tashakkori, A., & Teddlie, C. (Eds.). 2010. *Handbook of mixed methods in social & behavioral research* (2nd ed.). Thousand Oaks, CA: Sage.
- [115] Tashakkori, A., & Teddlie, C. (Eds.). 2003. *Handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: Sage.
- [116] Tashakkori, A., & Teddlie, C. 1998. *Mixed methodology. Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- [117] Tashakkori, Creswell. 2007. Developing Publishable Mixed Methods Manuscripts. *Journal of Mixed Methods Research* Volume 1 Number 2 107-111 DOI 10.1177/1558689806298644
- [118] Tashakkori, Creswell. 2007. The New Era of Mixed Methods. *Journal of mixed methods research*, Volume 1 Number 1 Sage Publication DOI 10.1177/1558689806293042
- [119] Teddlie, C., & Tashakkori, A. 2009. *Foundations of mixed methods research. Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Thousand Oaks, CA: Sage.
- [120] Teddlie, C., & Tashakkori, A. 2006. A general typology of research designs featuring mixed methods. *Research in the Schools*, 13, 12-28.
- [121] Thomas W. Christ. 2016. Book Review. Hesse-Biber, S. N., & Johnson, R. B. (Eds.). (2015). *The Oxford handbook of multimethod and mixed methods research inquiry*. London, England: Oxford University Press. ISBN: 9780199933624. 776 pp. DOI: 10.1177/1558689815622704
- [122] Trenton A. Williams, Dean A. Shepherd. 2015. *Mixed Method Social Network Analysis Combining Inductive Concept Development, Content Analysis, and Secondary Data for Quantitative Analysis*. *Organizational Research Methods*. <https://doi.org/10.1177/1094428115610807>
- [123] Valerie J. Caracelli and Jennifer C. Greene. 1993. *Educational Evaluation and Policy Analysis*, Vol. 15, No. 2, pp. 195-207 American Educational Research Association
- [124] Van Maanen, J. 1979. Reclaiming qualitative methods for organizational research: A preface. *Administrative Science Quarterly*, 24, 520-526.
- [125] Venkatesh, V., Brown, S., & Bala, H. 2013. Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, 37, 21-54.
- [126] Vicki L. Plano Clark, Nancy Anderson, Jessica A. Wertz, Yuchun Zhou, Karen Schumacher, Christine Miaskowski. 2015. Conceptualizing Longitudinal Mixed Methods Designs: A Methodological Review of Health Sciences Research. *Journal of Mixed Methods Research* Vol. 9(4) 297 - 319 DOI: 10.1177/1558689814543563
- [127] Vicki L. Plano Clark, Nataliya V. Ivankova. 2015. *Mixed Methods Research: A Guide to the Field. Companion Website. Student Resources*. Sage Publications
- [128] Viswanath Venkatesh, Susan A. Brown, and Yulia W. Sullivan. 2016. Guidelines for Conducting Mixed-methods Research: An Extension and Illustration. *Journal of the Association for Information Systems* Vol 17, Issue 7, pp. 435 - 495

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