Methodological Article

Upcoming Issues, New Methods: Using Interactive Qualitative Analysis (IQA) in Management Research

Novos Problemas, Novos Métodos: Uso da Interactive Qualitative Analysis (IQA) na Pesquisa em Administração

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■ **ABSTRACT**

Objective: this article aims to present interactive qualitative analysis (IQA) as a qualitative strategy to be used in management research, detailing its application. Since the IQA is a strategy derived from research in education, this study discusses the potentialities of its use in management research. **Methods:** the IQA is presented by the step-by-step application of the method in a research problem in entrepreneurship. **Results:** the IQA targets the generation of a shared mental map of the focus group members on the phenomenon under study. The data collection and analysis steps are conducted in parallel, and the research participants themselves carry out the first analysis. The results presented in a set of relationships between the elements of the shared mental map are theorized. The inductive character of the initial stages, combined with deductive procedures, allows discovering new ways of thinking about the investigated problems, reinforcing qualitative research's exploratory character. **Conclusions:** the replicable data collection and analysis protocol promotes researches' reliability and validity, by presenting empirical evidences that the interpretations are guaranteed by the data, allowing for methodological and theoretical advances.

Keywords: interactive qualitative analysis (IQA); qualitative research; inductive methods; research methods; methodology.

■ **RESUMO**

Objetivo: o objetivo deste artigo é apresentar a *interactive qualitative analysis* (IQA) como uma estratégia de pesquisa qualitativa a ser utilizada nos estudos em administração, detalhando a aplicação do método. Sendo a IQA uma estratégia oriunda da pesquisa em educação, o presente estudo apresenta como contribuição a discussão das potencialidades de sua utilização na pesquisa em administração. **Metodologia:** a IQA é apresentada a partir do passo a passo da aplicação do método em um problema da área de empreendedorismo. **Resultados:** a IQA tem como objetivo gerar um mapa mental compartilhado dos membros de um grupo de foco sobre o fenômeno em estudo. Coleta e análise de dados são conduzidas paralelamente e as primeiras análises são realizadas pelos próprios participantes da pesquisa. Os resultados apresentados em um conjunto de relações entre os elementos do mapa mental são teorizados. O caráter indutivo das etapas iniciais da pesquisa, combinado com procedimentos dedutivos, permite novas maneiras de analisar os problemas investigados, reforçando o caráter exploratório da pesquisa qualitativa. **Conclusão:** o replicável protocolo de coleta e análise de dados promove a confiabilidade e a validade da pesquisa, apresentando evidências de que as interpretações são suportadas pelos dados e permitindo avanços metodológicos e teóricos.

Palavras-chave: análise qualitativa interativa (IQA); pesquisa qualitativa; métodos indutivos; métodos de pesquisa; metodologia.

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INTRODUCTION

Qualitative methods have gained space and recognition in management research as essential tools for understanding complex issues and social processes underlying the study of organizations' management, as can be evidenced by the increase in publications that use qualitative approaches in number and quality and the calls for special editions on qualitative research (Arino, LeBaron, & Milliken, 2016; Bansal, Smith, & Vaara, 2018).

The business world has changed rapidly, and the complexity of organizations has grown at the same rate. New organizational structures and management models require innovative ways of understanding the intricate business context. Co-development and co-creation of products, the need for rapid innovation, the emerging importance of global supply chains, the renewed emphasis on sustainability (Narasimhan, 2014), Industry 4.0, digitization, and the interconnection of supply chains value and business models (Motzer, Armellini, & Solar-Pelletier, 2020) are some examples of these recent transformations.

This dynamic of the current business scenario challenges researchers with problems that cannot be fully answered with pre-established theoretical models and deductive methods. The discovery of the new and the theorization in administration research might be potentiated by the use of inductive methods. To illustrate, we present two concrete examples of emerging phenomena in which qualitative approach has allowed improvements in the field, the studies of Pietro, Prencipe, and Majchrzak (2018) and Scheibe and Blackhurst (2018).

The phenomenon of crowd equity-funding platforms is relatively recent. Pietro et al. (2018) aimed to understand how startups use these platforms and how investors' knowledge contributes to the development of these businesses, affecting their future results. Using qualitative research with sixty European startups that used equity-funding platforms, the researchers' work resulted in a framework that explains the value of crowd investors' inputs in the development of startups.

The research of Scheibe and Blackhurst (2018) examined factors that affect supply chain disruption propagation and how these disruptions propagate throughout multiple tiers in the supply chain. The authors took a qualitative approach using the grounded theory method and interviewed twenty-one managers of seven supply chains from different segments and levels. The results are presented in a framework that integrates three dimensions generated from empirical data and shows that, although some disruptions may be beyond the control of supply chain decision-makers, there are some aspects of risk mitigation and addressing of disruptions that can

reduce disruption propagation by taking a systemic risk perspective.

These changes and examples contextualize how, shortly, research in administration may depend more intensely on qualitative research to construct theory and advance scientific knowledge. In both examples, researchers had not consistent theoretical previous basis for answering 'how' questions and the inductive process developed in their works generated frameworks and initial explanations that may be deepened in future studies.

Bansal, Smith and Vaara (2018) argue that researchers have adopted qualitative methods to understand these challenges as we face increasingly complex problems. Such adoption is because there is an understanding that qualitative methods can provide insights that are difficult to produce with quantitative research (Gephart, 2004).

Qualitative methods are beneficial for understanding the emergence of new phenomena (Arino et al., 2016), with the potential to re-humanize research and theory, highlighting the human meanings underlying the phenomena behind the relationships between variables frequently addressed in the field (Ridder & Hoon, 2009). However, criticisms of qualitative studies are recurrent and sometimes coherent. Among the main reasons for the challenges are the fact that the methods are rarely comparable, and the description of the procedures does not always overcome the distrust in the study's reliability and validity (Ridder & Hoon, 2009). To overcome such suspicions, Langley and Abdallah (2011) claim that qualitative researchers should use rigorous analytical tools consistent with their philosophical assumptions and methodological principles and present convincing empirical arguments that their judgment guarantees the processes leading to their discoveries and interpretations.

The importance of procedures that promote qualitative studies' credibility is highlighted by adopting more explicit criteria and processes, which enable the understanding and replication of researchers in other contexts (Abdalla, Oliveira, Azevedo, & Gonzalez, 2018), promoting the process of recontextualization, which according to Godoy and Brunstein (2020) consists of the possibility of new findings (an emerging theory) being applied in other contexts and realities, contributing to the advancement of the field. Therefore, the manifest conceptions of good research practice will generate external credibility and legitimization for qualitative studies (Paiva, Leão, & Mello, 2011) and many authors have dedicated themselves to studying the quality of qualitative research, manifested in its capacity to meet the criteria established by the academic community (Souza, Dias, Silva, & Ramos, 2019). Vieira and Tibola (2005) suggested the possibility for researchers to test new techniques developed in the

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international context and produce papers that present methodologies, given the maturing context of qualitative research in Brazil. Langley and Abdallah (2011) consider that qualitative researchers should not stick to 'established models' of research.

Along the same lines, Bansal et al. (2018) argue that concentrating the research agenda on a restricted set of qualitative methods limits the ability to emerge insights, precisely the richness of this research approach. The authors suggest that researchers adopt innovative qualitative approaches, which extend the ability to understand new phenomena and organizational configurations, which is still a somewhat skimpy movement.

Lanka, Lanka, Rostron, and Singh (2021) argue that among the obstacles to greater use of qualitative methods in management research is a lack of familiarity with the range of methods available, as well as the proper way to use them. In this space, in which qualitative methods that meet explicit quality criteria are welcome, this article's objective is to present interactive qualitative analysis (IQA) as a new possibility for a methodological approach in management research and provide the field with a practical step-by-step application guide, as suggested by Lanka et al. (2021). The IQA, created by Northcutt and McCoy (2004), researchers in education and technology, respectively, is a research method whose main objective is to generate, from a focus group, a shared mental map of the group members. On a given subject, we identify relationships between self-identified components of a problem and reconciling the quantitative rigor of total quality management to a qualitative project of data collection and analysis.

Although IQA has been widely used in areas such as education (Bargate, 2014), few studies have used the method in business research. Works of Schreuders-van den Bergh and Plessis (2016), Preez and Stiglingh (2018), and Pugalia, Prakash, and Cetindamar (2020) are examples of IQA application that were published in management journals. Considering the relevance of new qualitative methods added to the IQA's adherence to the research problems of the management field, the main contribution of this article is to present IQA as a methodological alternative for the field, as well as in the communication of its techniques and procedures, aiming to contribute to its greater use by researchers.

In this article, the IQA is presented in its premises and stages of the research protocol, exemplified from applying the method to solve a research problem in the area of entrepreneurship. Seeking to understand how entrepreneurs decide to explore entrepreneurial opportunities, the authors had the following research problem to answer: How are mental models of entrepreneurs configured in decisions about opportunities development? As a methodological

approach to answer this research problem, IQA was used. The step-by-step tutorial of this application is presented below.

This article was structured to introduce the method and its epistemological assumptions, the stages of the research protocol, illustrated by the authors' application. In the end, the potential, challenges, and contributions that the use of this method can offer to research in management are discussed.

THE INTERACTIVE QUALITATIVE ANALYSIS (IQA)

The IQA was developed by professors Norvell Northcutt, from the Department of Educational Administration at the University of Texas at Austin and Danny McCoy, designer of multimedia instructional systems, researcher, and qualitative research professor. The researchers' objective was to reconcile the quantitative rigor of total quality management with a qualitative project of data collection and analysis (Northcutt & McCoy, 2004).

The public interested in IQA includes cognition researchers, especially those interested in cognitive mapping, a fruitful area for organizational research. The primary purpose of the IQA is to generate a shared mind map from the perception of the members of a focus group, identifying relationships between self-identified components of a problem. Research with IQA can also generate individual maps (by each participant) or group mind maps, and the researcher can use both as a basis for its interpretation (Harrel, 2004).

The IQA protocol makes it possible to minimize the researcher's involvement in the initial moments of data collection and analysis, giving the research participants a high degree of freedom to, within the framework provided, carry out the first steps of data analysis, organizing their speech into categories and analyzing the relationships between them. The researcher's role becomes that of a research facilitator, causing participants to generate and analyze their data, with minimal external influence (Northcutt & McCoy, 2004).

With this logic, "IQA challenges the traditional assumptions of qualitative research which suggest that the role of participants is to generate data, which only the researcher is qualified to analyze" (Bargate, 2014, p. 12). Participants generate, analyze, and interpret their own data and the researcher guides them through the process. This is a mean to promote trustworthiness, dependability, and confirmability in qualitative research, thereby assuring its rigor (Davis, 2019).

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The epistemological basis of the IQA is social constructivism, based on the premise that people know their world through the social construction of meaning (Davis, 2019). Therefore, participants were asked to induce meaning, then define and refine it, and, finally, deductively investigate the influence relationship between the categories created (Bargate, 2014). Both deduction and induction are necessary to investigate the studied phenomena's meanings (Northcutt & McCoy, 2004).

The IQA results in a graphic representation of the mental models of a group of people with some experience concerning a specific phenomenon. The relationship between the categories of the map can then be theorized (Bargate, 2014). The mind map is, in fact, a theory, albeit an endogenous one, as it contains a set of relationships from which testable hypotheses can be deduced (Davis, 2019). Northcutt and McCoy (2004) argue that despite the fact that IQA is "clearly favorable to the theory" (Northcutt & McCoy, 2004, p. 17), this is a theory in the perception of a group about a particular phenomenon, different from theoretical assumptions previously established.

Research using the IQA goes through four main phases: (1) research design; (2) the focus group; (3) the interviews; and (4) the report. The procedures in each of these phases are detailed in the topics that follow, always illustrated based on an application of the authors' method. The concepts are described, and their application is demonstrated next.

RESEARCH DESIGN

The design of the research with IQA consists of three significant steps: (a) statement of the problem; (b) definition of constituency groups; and (c) the formulation of the research question (Northcutt & McCoy, 2004). The problem's definition stems from the desire to know more about a phenomenon that is still poorly understood or defined. According to Northcutt and McCoy (2004), the IQA is capable of responding to at least three types of research problems: (I) what are the components of a phenomenon? In IQA, these components are called 'affinities' and constitute the elements of a system; (II) how do these components relate to each other in a perceptual system? The perceptual system, represented by a mind map, consists of affinities and relationships between them; and (III) how do systems compare in terms of components, intra-systemic relationships, and inter-systemic relationships (if there is more than one group)? It is possible to compare the perceptual system's meanings for members of a group or between different groups if the research involves more than one group of participants.

Although there is no explicit rule for writing the problem statement, it has to attend at least two of the previous three points (I and II or I, II, and III). Northcutt and McCoy (2004) warn of congenital deformities. These troubles occur when a research question cannot be answered by the data (i.e., the data generated by the IQA process is not able to answer the question) or when the research questions can be answered, but nobody cares (i.e., the problem is insignificant from a theoretical and practical point of view). The research problem that guided the application presented in this study was: How are mental models of entrepreneurs configured in decisions about opportunities development? This problem is compatible with type I, as the objective was to investigate which elements make up the entrepreneurs' mental model about opportunity development and with type II since the mental model per se is composed of elements and their characteristics and relations.

Once the problem is defined, the research design follows the research participants' definition, who, as the authors define, have 'something to say' about the subject. Northcutt and McCoy (2004) call the group of participants 'constituency'. They are a group of people who share the understanding of a phenomenon, and their training must be evaluated using two criteria: distance and power.

Distance consists of the proximity of individuals to the research problem. Power reflects how much constituents can influence or decide about the problem (Northcutt & McCoy, 2004). Imagine leadership research in organizations. An employee who does not exercise the role of leader can be considered close to the phenomenon (distance) since he/she lives with leaders in his/her day-to-day activities. However, this employee has little power over the phenomenon, whereas a team leader being close to the phenomenon has power over it since his/her actions directly affect the phenomenon under study.

The main criterion for the formation of the group is to emphasize similarities in terms of distance and power, providing different opinions, but from a common perspective of the research problem (Harrel, 2004). The information for the focus group obtained by consensus will be detailed shortly. Northcutt and McCoy (2004) suggest the sensitivity of not forming groups with participants 'owners of reason' who tend to make their opinion prevail, nor participants as shy to the point of having difficulty expressing their point of view. The choice of participants therefore requires prior preparation and knowledge of their characteristics and their involvement with the research problem in order to intentionally define the research participants.

In applying the method reported in this study, the decisions for choosing individuals were based on the criteria of minimum distance and maximum power, maintaining the homogeneity of the group. In this way, nine founding

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business entrepreneurs were chosen as constituents, who had successfully identified and explored an opportunity at least three years ago, and who were still ahead of the management of this company, being the main responsible for the decision to explore or refute opportunities, regardless of the markets in which they operate, age, gender, or academic background. Northcutt and McCoy (2004) do not invalidate research conducted with smaller groups but suggest that the research should be conducted with twelve to twenty participants. The reason for this suggestion is that, in the case of very small groups, the theoretical coding process, described in the following sections, can be skewed. For example, one individual can influence 5% of the results of theoretical coding in a focus group with twenty participants whereas 20% in a group with only five participants.

The last stage of research design is to define how the problem statement will be presented for the constituencies to start the focus group. Different participants have a different understanding of the phenomenon. Therefore, this question that will guide the focus group must be meaningful to everyone. The problem statement is always a variation of "tell me about…" presenting terms and vocabulary that are understandable and real to a given group.

For example, returning to the research problem, we aimed to discover "how are mental models of entrepreneurs configured in decisions about opportunities development?" but the question used to start the focus group was "Try to remember the moments when you identified and started to think about the opportunities you explored. What thoughts crossed your mind to assess these opportunities? What made you decide to explore or refute these opportunities?" With these definitions, we proceeded to the next stage of the IQA study, which is the focus group's realization.

The conduct of the focus group and the first analysis

The initial stage of data collection at the IQA is the group that aims to identify the 'map pieces,' called affinities by Northcutt and McCoy (2004). These represent the group's experience with the phenomenon. At this stage, participants are expected to share their experiences, backgrounds, and relationships with the research problem. Ensuring that participants feel free to express their points of view is essential for the research's good conduct since all decisions were made by consensus. It is also essential to clarify the research objectives and seek an understanding of all constituents on the focus group's guiding question.

It then begins what Northcutt and McCoy (2004) call 'silent brainstorming.' With the participants accommodated in individual desks, on which several units of 10 x 20 cm paper cards and pens are previously available, the researcher launches the research question and asks respondents to reflect on their experience with the phenomenon under study. The researcher encourages constituents to recall what thoughts, reflections, memories come to mind when they think of the guiding question. Constituents are asked to write their experiences on cards placed on the tables, a single thought per card, giving preference to words or short phrases.

While the constituents generate the cards, the researcher encourages them with some phrases such as "do not analyze, just write," "there will be no judgment, feel free," "the authors of the cards will not be identified," among others. After a few minutes (thirty in the case of this application), all the cards produced (sixty-eight) are pasted on a board or wall, arranged in columns and lines without defining order or identifying who wrote them. At this point, cards may be fixed randomly, there is no need to organize them into themes or similarities. This work will be carried out later. Following, the researcher reads each card to reach a consensus on its meaning, establishing the first basis of a reality shared among the group members. The researcher then requests that the participants organize the cards in columns, groups of meanings, or categories. The participants place the cards in themes they believe are common (columns) and classify them until the cards get organized in what the authors call 'affinities'. This process is called 'inductive coding' (Northcutt & McCoy, 2004).

The ideal number of affinities should be between four and twelve. A focus group that results in less than four affinities is likely to be diverging cards, which could have been grouped into new affinities. In the case of a focus group that results in a set of more than twelve affinities, it is possible that some of these affinities are very similar and can be grouped. However, the researcher should only 'provoke' the participants to review their categories, never indicating or influencing the results (Northcutt & McCoy, 2004).

With the cards organized in columns, it is necessary to name the affinities. The process is achieved through discussions between constituents until a consensus can be reached. The group's names are refined until each participant agrees that the assigned name accurately reflects the meaning of the affinity. These titles are written at the top of each vertical column (Northcutt & McCoy, 2004). Figure 1 illustrates how a table with two affinities would be organized.

Named affinities, the researcher must request that the constituents create a brief definition of each one, summarizing in a sentence or paragraph the affinity concept. Again, the activity is carried out in order to reach a consensus. This step is called 'axial coding' (Northcutt & McCoy, 2004).

In the application described in this study, the steps of inductive coding and axial coding lasted 94 minutes and were filmed for further analysis or retrieval of some information, if necessary. The affinities and their definitions, created by the constituency, are presented in Table 1.
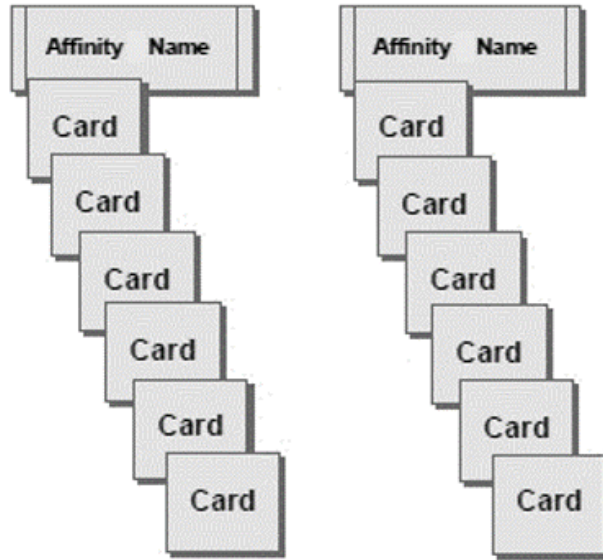
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Figure 1. Affinities and cards.

Source: Published with permission of Sage Publications, from "Northcutt, N., & McCoy, D. (2004). Interactive qualitative analysis: A systems method for qualitative research. Thousand Oaks: Sage"; permission conveyed through Copyright Clearance Center, Inc.

Table 1. Affinities and cards.

Affinities	Definition
1. Demand	How big is the market?
2. Differentials	How can I differentiate my company from the others?
3. Business Idea	What is the business idea?
4. Personal Motivation	What motivates me to undertake?
5. Internal Operations	How to manage processes efficiently?
6. Solution	What solution will I offer to customers?
7. Viability	Is the opportunity feasible?

Note. Source: Elaborated by the authors.

The second stage of the focus group aims to analyze the nature of each affinity relationship, based on a set of rules derived from systems theory. Each participant receives a form called 'affinity relationship table (ART)', with the names of the affinities in alphabetical order and space to identify the relationship between them, with three possibilities: A → B (A influences B), B → A (B influences A), or < > (no relationship). Unlike the creation and appointment of the affinities, this step is performed individually and without the participants exchanging information.

The purpose of this step is to generate the necessary data to draw the representation of perceptual terrain of a group about the phenomenon described in the issue statement. Named theoretical coding, this step refers to ascertaining the perceived cause-and-effect relationships among the affinities in a system. The goal is to identify the structure of the group mind map, which will be summarized in a diagram posteriorly (Northcutt & McCoy, 2004).

Performing this step individually will generate a greater volume of data and consequently a greater reach, since the researcher will be able to analyze up to the individual level, creating mind maps for each participant. However, in larger groups and research with a different constituency, that volume of data can be a problem. To facilitate this process, in a trade-off between the level of detail and volume of data, the researcher can choose to perform this step in dyad coding formats, with participants grouped in pairs or triad coding, into groups of three. In these cases, the relationships between affinities are marked by consensus (Northcutt & McCoy, 2004).

In this application of the IQA, the 'simple affinity relationship table' was selected, which documents the relationships' direction, but does not record details of how they occur, nor examples. Other more explanatory possibilities are presented by Northcutt and McCoy (2004). When all participants have completed the ART, the focus group can be finalized. Figure 2 represents the ART used in the research application.
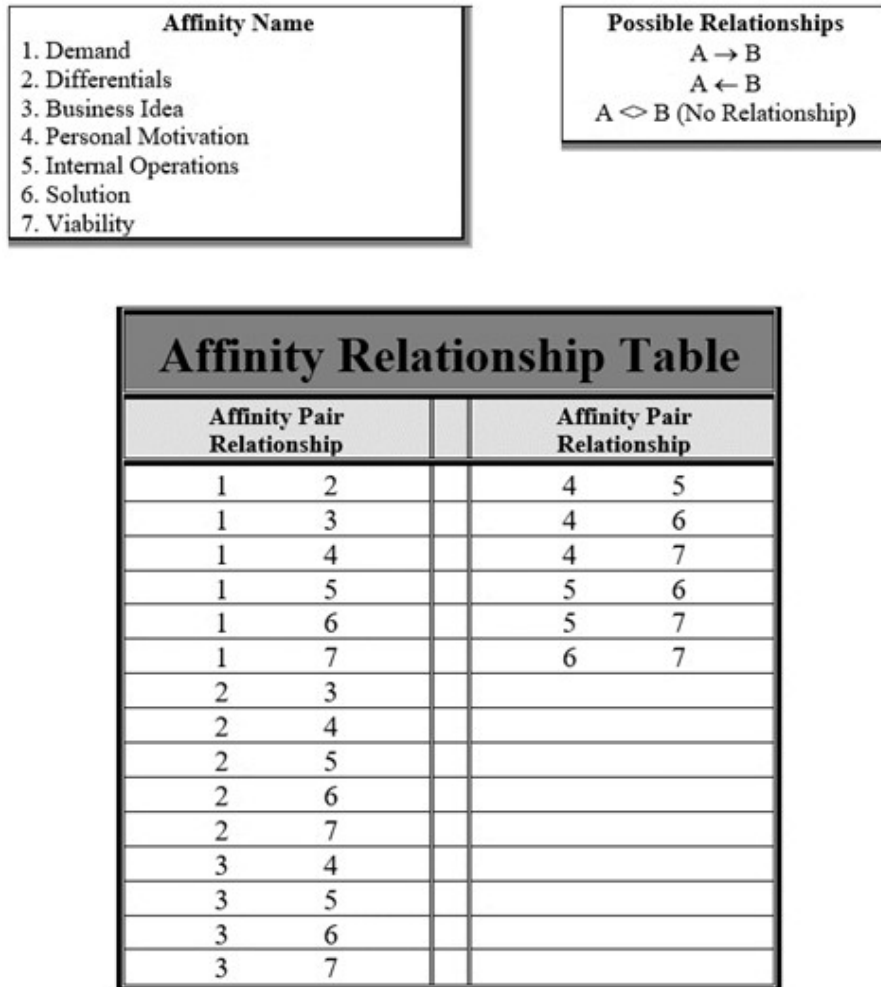
Affinity Name
1. Demand
2. Differentials
3. Business Idea
4. Personal Motivation
5. Internal Operations
6. Solution
7. Viability

Possible Relationships
A → B
A ← B
A ◇ B (No Relationship)

Affinity Relationship Table

Affinity Pair Relationship				Affinity Pair Relationship	
1	2			4	5
1	3			4	6
1	4			4	7
1	5			5	6
1	6			5	7
1	7			6	7
2	3				
2	4				
2	5				
2	6				
2	7				
3	4				
3	5				
3	6				
3	7				

Figure 2. Affinity relationship table (ART).
Source: Elaborated by the authors.

After completing the 'ART' filling, the participants were dismissed and the focus group session ended, since the method of calculation chosen was the Pareto Protocol, indicated by Northcutt and McCoy (2004), in which the analysis is performed after the focus group, by counting each relationship code.

Each relationship's frequency is determined and recorded in a spreadsheet, which is used to calculate all the relationships pointed out in the ARTs. The sum of the frequencies attributed by the participants to each affinities pair is shown in Table 2. It is worth mentioning that each pair of affinities could have a maximum of nine relationships, number of constituents of the focus group. Considering the relationship between affinities 1 (demand) and 2 (differentials), for example, one participant stated that affinity 1 influences 2 (direction of arrow: →), while eight participants claimed that affinity 2 influences 1 (direction of arrow: ←). The cases in which the sum of the relationships did not total nine indicate that one of the participants stated no relationship between the affinities (< >).

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Table 2. Frequency table of theoretical focus group coding.

Relationship between affinity pairs	Frequency	Relationship between affinity pairs	Frequency	Relationship between affinity pairs	Frequency
1 → 2	1	2 → 4	4	3 → 7	5
1 ← 2	8	2 ← 4	3	3 ← 7	4
1 → 3	4	2 → 5	6	4 → 5	6
1 ← 3	3	2 ← 5	3	4 ← 5	1
1 → 4	7	2 → 6	4	4 → 6	5
1 ← 4	0	2 ← 6	5	4 ← 6	2
1 → 5	4	2 → 7	4	4 → 7	2
1 ← 5	5	2 ← 7	4	4 ← 7	6
1 → 6	8	3 → 4	6	5 → 6	3
1 ← 6	1	3 ← 4	1	5 ← 6	6
1 → 7	7	3 → 5	7	5 → 7	3
1 ← 7	2	3 ← 5	1	5 ← 7	6
2 → 3	4	3 → 6	7	6 → 7	5
2 ← 3	5	3 ← 6	2	6 ← 7	4

Note. Source: Elaborated by the authors.

From the information in Table 2, the 42 relationships between the affinity pairs were copied to Table 3 and classified in descending order (columns A and B).

The cumulative frequency column (C) indicates the cumulative count of the relationships between the affinity pairs (from 8 to 174 relationships). The column cumulative percentage (ratios) (D), in turn, shows the cumulative percentage of ratios over the total (1 ratio of 42 = 2.4%, 16 ratios of 42 = 4.8%, and so on). The column cumulative percentage (frequency) (E) indicates the accumulated percentage of the total relations included in the table (8 ratios of 174 = 4.6%, 16 ratios of 174 = 9.2%, and so on). The power column (F) is calculated by subtracting the cumulative percentage (ratios) from the cumulative percentage (frequency).

Northcutt and McCoy (2004) indicate Pareto's principles for selecting the affinity pairs that will be used in the construction of the shared mind map, the final result of the focus group. The decision seeks to generate a trade-off, representing the system's maximum variation (percentage accumulated based on frequency), minimizing the number of relationships due to parsimony (percentage accumulated based on relationships).

Therefore, when the cumulative percentage of frequencies reaches 80%, it must be the point of selection for affinities since the most significant variance will be included in the ongoing relationships. According to the cut-off line inserted in Table 3, the cumulative percentage of frequencies reaches 83.9% in the twenty-seventh pair of relationships between affinities (6 < 7), which accumulates 64.3% of the

relationships. All relationships below this point should be disregarded in the construction of the mind map. Thus, according to Northcutt and McCoy (2004), the researcher will use the least number of relationships representing the most significant amount of variance.

To eliminate ambiguous relationships, which receive votes in both directions, Northcutt and McCoy (2004) indicate to examine the relationships selected in the previous step, in order to identify conflicts. If both pairs of affinity (e.g., 1 → 2 and 1 ← 2) are present, one should be considered in the elaboration of the map — only the relation that obtains the highest number of indications of the constituents. For example, the 1 ← 5 affinity pair has frequency five, while the 1 → 5 pair has frequency 4. In this case, the 1 → 5 relation will be eliminated and the 1 ← 5 relation maintained in the construction map. In this step, six pairs of relationship (1 → 5, 2 ← 7, 2 → 3, 2 → 6, 3 ← 7 and 6 ← 7) were eliminated, leaving twenty-one pairs used in the construction of the mind map.

With these definitions, the 'interrelationship diagram (IRD)' of the focus group was constructed. For this construction, each of the affinity relationship pairs was entered twice in the diagram. Each arrow destined for an affinity was counted as an out, and each arrow received was considered an in. From the number of the ins and outs, the value of Δ (Δ = outs – ins) was calculated. The diagram was then ordered in descending delta order to indicate the position of each affinity in the system. Only the IRD is presented, already in decreasing order of Δ (Figure 3).

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Table 3. Frequency table of ordered focus group theoretical coding.

Relationship between affinity pairs A	Ordered frequency (descending) B	Cumulative frequency C	Cumulative percentage (ratios) D	Cumulative percentage (frequency) E	Power F
1 < 2	8	8	2.4	4.6	2.2
1 > 6	8	16	4.8	9.2	4.4
1 > 4	7	23	7.1	13.2	6.1
1 > 7	7	30	9.5	17.2	7.7
3 > 5	7	37	11.9	21.3	9.4
3 > 6	7	44	14.3	25.3	11.0
2 > 5	6	50	16.7	28.7	12.1
3 > 4	6	56	19.0	32.2	13.1
4 > 5	6	62	21.4	35.6	14.2
4 < 7	6	68	23.8	39.1	15.3
5 < 6	6	74	26.2	42.5	16.3
5 < 7	6	80	28.6	46.0	17.4
1 < 5	5	85	31.0	48.9	17.9
2 < 3	5	90	33.3	51.7	18.4
2 < 6	5	95	35.7	54.6	18.9
3 > 7	5	100	38.1	57.5	19.4
4 > 6	5	105	40.5	60.3	19.9
6 > 7	5	110	42.9	63.2	20.4
1 > 3	4	114	45.2	65.5	20.3
1 > 5	4	118	47.6	67.8	20.2
2 > 3	4	122	50.0	70.1	20.1
2 > 4	4	126	52.4	72.4	20.0
2 > 6	4	130	54.8	74.7	20.0
2 > 7	4	134	57.1	77.0	19.9
2 < 7	4	138	59.5	79.3	19.8
3 < 7	4	142	61.9	81.6	19.7
6 < 7	4	146	64.3	83.9	19.6
1 < 3	3	149	66.7	85.6	19.0
2 < 4	3	152	69.0	87.4	18.3
2 < 5	3	155	71.4	89.1	17.7
5 > 6	3	158	73.8	90.8	17.0
5 > 7	3	161	76.2	92.5	16.3
1 < 7	2	163	78.6	93.7	15.1
3 < 6	2	165	81.0	94.8	13.9
4 < 6	2	167	83.3	96.0	12.6
4 > 7	2	169	85.7	97.1	11.4
1 > 2	1	170	88.1	97.7	9.6
1 < 6	1	171	90.5	98.3	7.8
3 < 4	1	172	92.9	98.9	6.0
3 < 5	1	173	95.2	99.4	4.2
4 < 5	1	174	97.6	100.0	2.4
1 < 4	0	174	100.0	100.0	0.0
Total frequency	174	174	100%	100%	= E-D

Note. Source: Elaborated by the authors.

Tabular IRD – Sorted in Descending Order of Δ										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**OUT**	**IN**	**Δ**
3	←	↑		↑	↑	↑	↑	5	1	4
1		←	↑	↑	←	↑	↑	4	2	2
2	↑		←	↑	↑	←	↑	4	2	2
6	←	↑	←	←	↑		↑	3	3	0
4	←	←	←		↑	↑	←	2	4	-2
7	←	←	←	↑	↑	←		2	4	-2
5	↑	←	←	←		←	←	1	5	-4

Figure 3. Interrelationship diagram (IRD) from focus group sorted in descending order by Δ.
Source: Elaborated by the authors.

The IRD is the basis for elaborating the 'system influence diagram (SID)', identifying the positions of each affinity in the SID or 'topological zones', as they are called by Northcutt and McCoy (2004). In applying the method reported in this study, the business idea affinity is the primary driver of the system (or independent variable), followed by demand and the differentials that are secondary drivers. The solution affinity is the system's pivot, while personal motivation and viability are secondary outcomes. Internal operations appear in the system as a preliminary outcome — that is, it is the affinity that receives the most influences from the others. Both primary and secondary outcomes are considered dependent variables in the system.

Inspiration 9.0 software was used to build the SID. Affinities are arranged horizontally, from left to right, according to the topological zones: primary driver, secondary driver, pivot, secondary outcomes, and preliminary outcomes. When any of the zones contains more than one affinity, they are positioned vertically in decreasing delta order (Northcutt & McCoy, 2004).
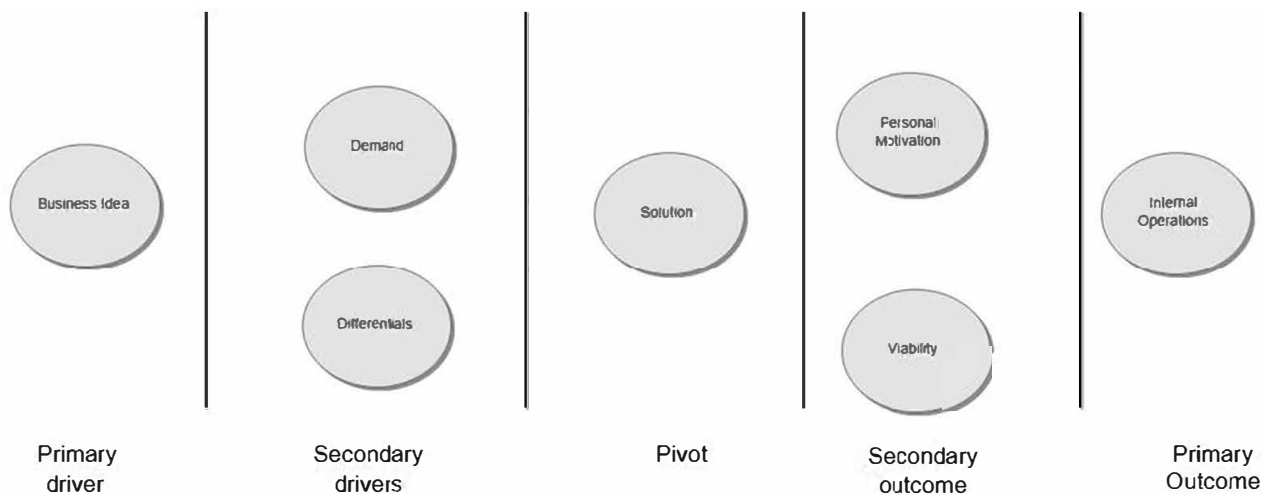

Figure 4. Affinities organized in topological zones (focus group).
Source: Elaborated by the authors.

With the affinities positioned in their respective topological zones, each constant relationship of the IRD was established between the ellipses, utilizing an arrow, forming the first version of the SID, called 'cluttered SID' (Northcutt & McCoy, 2004), which for containing all the relationships becomes challenging to understand.
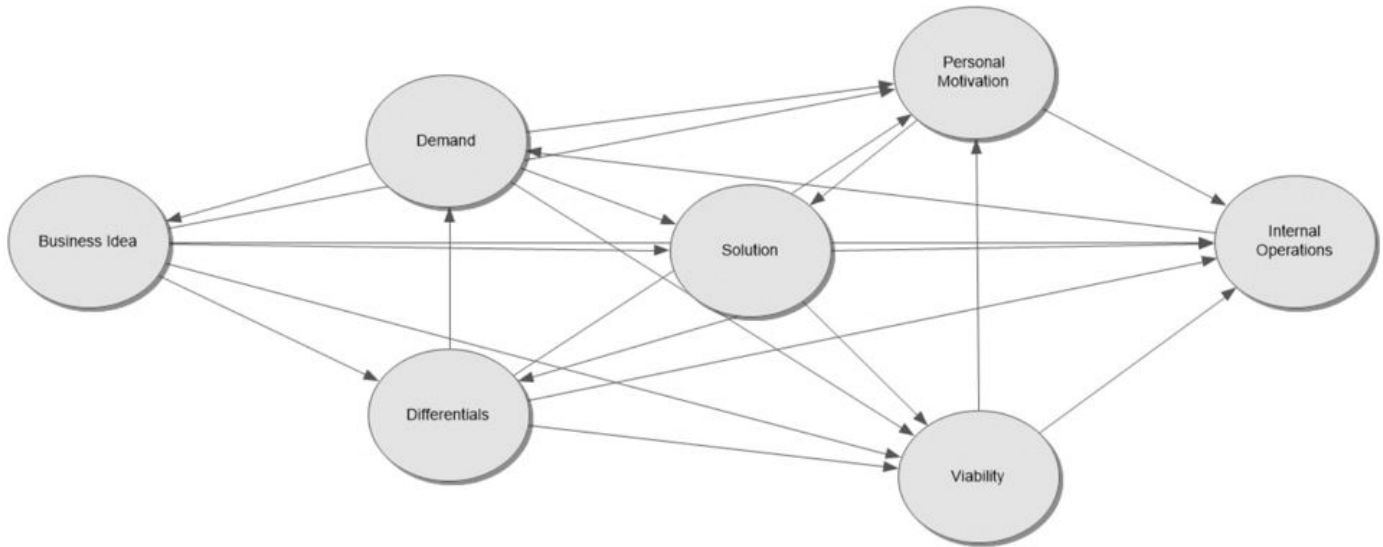
Figure 5. Cluttered SID.
Source: Elaborated by the authors.

As suggested by Northcutt and McCoy (2004), the topological zones were positioned in a circle (Figure 6) so that the links between affinities become more visible, making it possible to identify and remove redundant links between affinities. In this stage, relations between affinities are eliminated; even if removed, an indirect path from the driver to the result is maintained through an intermediate affinity (Northcutt & McCoy, 2004).
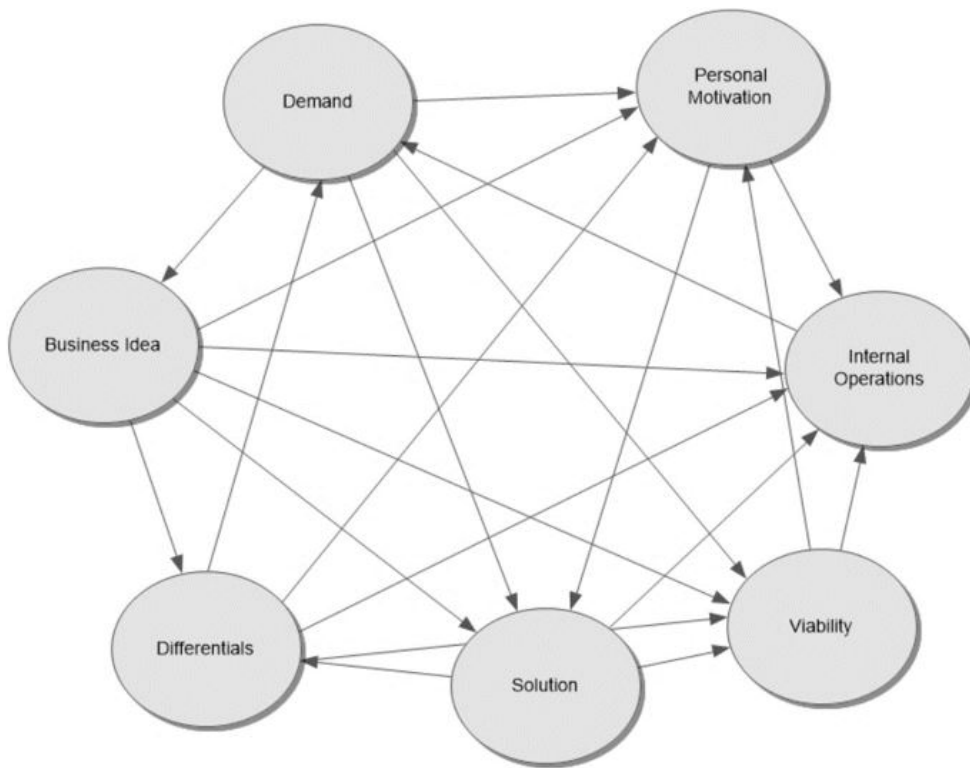

Figure 6. Cluttered SID in circular format.
Source: Elaborated by the authors.

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There is an arrow of influence from the business idea affinity to the internal operations affinity. However, there is also an arrow of influence from the business idea to solution affinity, which influences internal operations. In this case, Northcutt and McCoy (2004) suggest the exclusion of the business idea → internal operations relationship that will be exposed indirectly in the diagram (business idea → solution → internal operations). This exclusion aims to make the mental map more understandable, with the elimination of redundant relationships. In this example, nine relationships were removed and the remaining twelve were used in the creation of 'uncluttered SID'. The main result of the focus group according to Northcutt and McCoy (2004) is the simplest and, paradoxically, the most explanatory representation possible of the relationships contained in IRD.
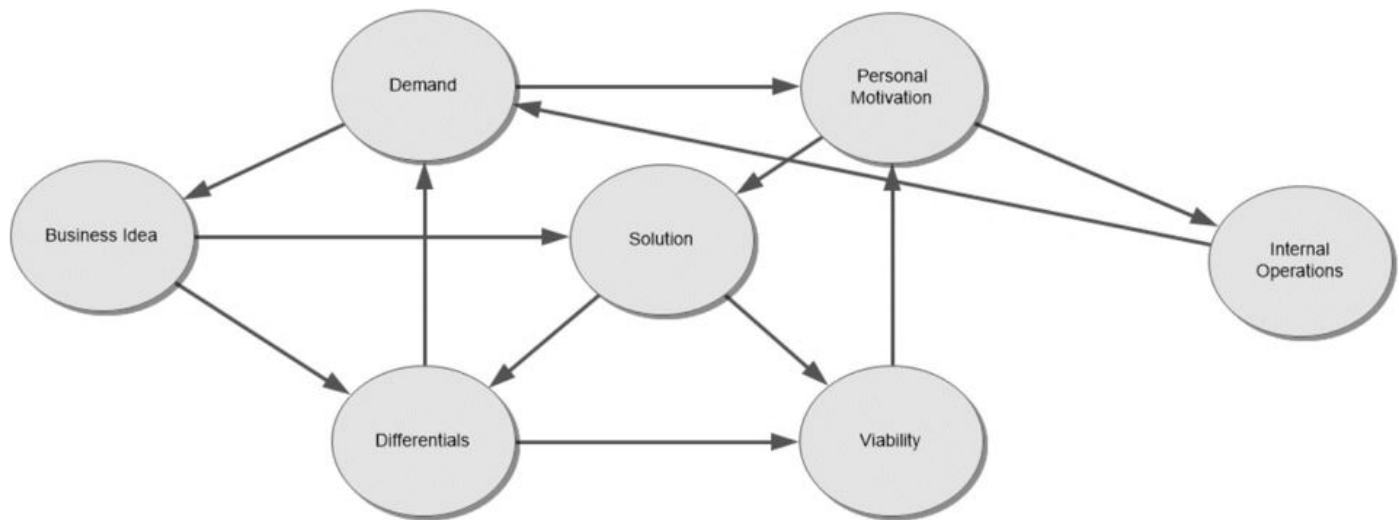

Figure 7. Uncluttered SID — focus group.
Source: Elaborated by the authors.

This mind map is used as a basis for preparing the script for individual interviews, explained in the next topic.

Individual interviews: understanding the concepts and relationships

From the SID, a protocol for conducting individual interviews was defined. The purpose of the interviews is to obtain a rich, detailed, and exemplified description of each affinity from each participant's perspective (Northcutt & McCoy, 2004). In addition, information is collected to triangulate the data obtained in the focus group. All focus group participants are invited to a semi-structured interview.

Since IQA's primary purpose is to represent a phenomenon in terms of elements and the relationships among them, the interview protocol is determined by the affinities developed from the focus group and goals to obtain a rich and detailed description from each participant about the affinities and their relationships. The questions of the interview protocol intend to engage the participant in a dialogue. Phrases like 'Tell me what this means to you' aim to explore participants' relevant experiences to each affinity (Northcutt & McCoy, 2004). Therefore, meanings and experiences related to each affinity should be included in the interview protocol, even if they are open-ended.

The interviews were recorded, totaling 6 hours and 36 minutes, with an average of 44 minutes per interview, later transcribed, resulting in 178 pages of content. The entire transcript of the interviews was analyzed with the aid of the axial coding table for the interviews (Table 4) and the 'theoretical coding table for the interviews' (Table 5), proposed by Northcutt and McCoy (2004).

The first objective of the interviews was to deepen the understanding of the seven affinities defined during the focus group. The interview protocol aimed to obtain a detailed and exemplified description of each affinity from the point of view of the participants' experience. Table 4 shows an example of an interview excerpt regarding the demand affinity (1), coded as proposed by Northcutt and McCoy for later use in the research report. Table 4 indicates the affinity, the participant, and the lines of the transcript.

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Table 4. Axial coding table for individual interviews.

Axial coding table for individual interviews			
Affinity	Interviewee	Transcription lines	Citation
1. Demand	E4	83-90	And, well, we have five thousand … oh, now I don't remember the right number … it's five thousand … I think it's eight hundred and a few municipalities … So, today, we had one very good year. We serve at the base of seventy municipalities. It's a great service. And this company I worked for, which already had a legal income, served an average of thirty to forty municipalities. So if I have five thousand eight hundred … there is a market for that. Put numbers there.

Note. Source: Elaborated by the authors.

As the article's objective is to describe the application of the method, the remaining affinities will not be detailed. In the second moment of the interviews, the participants were invited to analyze the perceived relationships between the affinities resulting from the focus group by filling in a new ART. This second part of the interview was carried out in a structured way, covered all the pairs of affinities, and questioned the entrepreneurs if they had any of the three types of relationships (A → B — A influences B; B → A — B influences A; or < > no relationship). When pointing out a relationship, the participant was asked to exemplify it in his entrepreneurial activity and experience. The analysis of these excerpts from the interviews was conducted with the theoretical coding table of the interviews. In Table 5, three respondents reveal how they understand that differentials (2) influence demand (1). The participants did not have access to the ART previously answered during the focus group.

Table 5. Axial coding table for individual interviews.

Theoretical coding table			
Affinity relationship pair	Interviewee	Transcription line	Citation
1 ← 2 1 Demand 2 Differentials	E1	807	It's related. Because when I create a differential, the demand increases. But also because of … ah, if there are few … few people, few sales, I will seek differentials in order to sell more.
	E3	282	I think it's the differentials. Precisely because we deal with a different product, so … everything we do, and we put it in the product, everything we put back into the product, ends up influencing the demand.
	E5	272	I think that, in our case, our differentials influence demand. We have already won competitions with other competing companies, but our differential experience is what made us be chosen.

Note. Source: Elaborated by the authors.

According to Northcutt and McCoy (2004), the objective of this new response cycle is not to make the process exhaustive but to triangulate the data. For the creators of the method, the interview content does not generate new categories of meaning and is based on the focus group results. The triangulation's objective is in the expectation that the mind map composed with the sum of the individual interviews has a structure very similar to that resulting from the focus group.

All the steps taken after the focus group were previously detailed and repeated to create a new SID, based on the ART completed in the individual interviews, reaching the result shown in Figure 8.
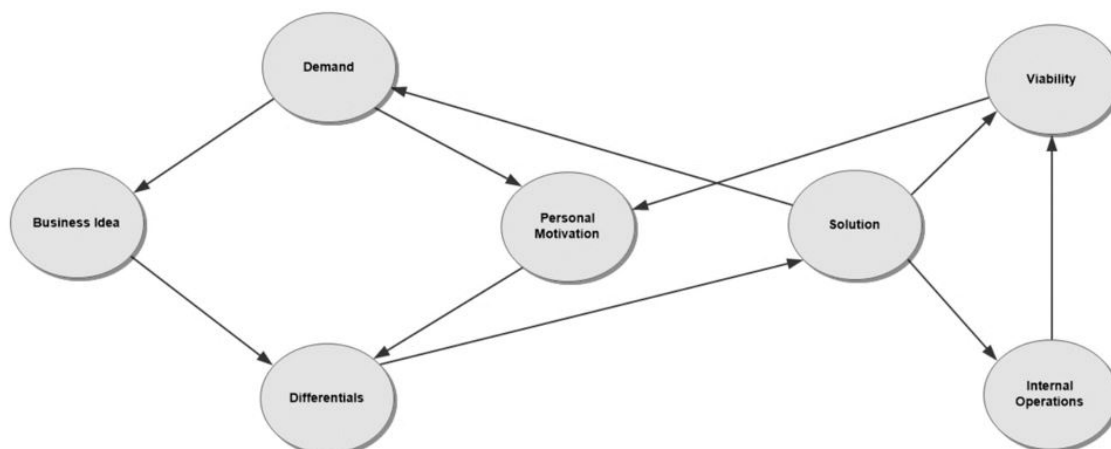

Figure 8. Uncluttered SID — from the interviews.
Source: Elaborated by the authors.

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In the presented study, the mind map resulting from the IQA exposes the constituents' shared mental model with decisions to explore entrepreneurial opportunities. Following is the synthesis of the results and comparison of theoretical discussions.

1. The previous theory with the results;
2. Differences between focus group SID and individual interviews;
3. Details of each of the affinities in the view of the research participants;
4. Relationships identified in the model.

Although it is not the objective of this article to discuss the specific theoretical contributions to entrepreneurship theory, the map presents relevant contributions. Affinities and their cause-and-effect relationships (arrows) demonstrate how entrepreneurs decide to explore opportunities. An opportunity is individualized, it is a significant research gap in the area, pointed out by Wood, McKelvie, and Haynie (2014).

Loops, closed circuits between affinities (business idea → differentials → solution → demand and business idea and differentials → solution → internal operations → viability → personal motivation → differentials), adhere to the assumptions of discovery and creation of opportunities, respectively. The results demonstrate that discovery and creation and causation and effectuation coexist in entrepreneurial practice (Fisher, 2012; Sarasvathy, 2001).

It is also important to emphasize that new categories, not pointed out in theory, emerged from the study, and the relationships between affinities serve a research gap in the area, constituting a relevant theoretical contribution. Finally, the hypotheses generated from the mind map can be tested empirically, contributing to the advancement of scientific knowledge in the field. In this sense, Northcutt and McCoy (2004) point to the IQA as a method that generates theory, understanding theory as a set of testable concepts and relationships between them.

The report: illustrating and exemplifying affinities, their relationships, and discussing them theoretically

Finally, according to Northcutt and McCoy (2004), the fourth stage of the IQA is the creation of the report that must present the results (SID) and researchers' interpretation. In the description of results is necessary to achieve two objectives:

I. Name and describe the system's components: the affinities resulting from the focus group are described and exemplified from the information collected in the individual interviews, seeking the richness of details in the speech of the research participants.

II. Explain the relationships between these elements: based on the combination of the new filling in ART and the interviewees' testimonies, we seek to clarify and exemplify the relationships between affinities.

In this phase of interpretation, named structural, SIDs are compared and contrasted in terms of their systemic properties. The researcher must describe each affinity and interpret the relationships between them and their positions in the topological zones (as drivers and outcomes). It is useful to explore constituent quotations, especially to exemplify the definitions and perceived relationships.

According to Northcutt and McCoy (2004), the mind map resulting from the IQA procedures is a set of relationships, a consistent picture of the theory in action that informs and guides the group's understanding of the meaning of a particular phenomenon. At this point is necessary to do theoretical analysis, in which systems are examined vis-à-vis existing theoretical perspectives or to criticize existing perspectives. The researcher needs to theorize the SID, linking the results with the literature.

In the research that illustrates this presentation of the IQA method, each affinity obtained from the data and its relations with others were contrasted to the entrepreneurial opportunities' theory. We noticed that some of these elements were in the previous theory (the sources of ideas for new businesses, for example). However, other categories provided new findings, fulfilling exploratory and inductive research roles.

In addition to the descriptions of affinities and their exemplifications, the analysis of mind map's structure was compared to theory, revealing that in the studied group, processes of discovery and creation of entrepreneurial opportunities occur simultaneously, in continuous and interconnected loops. This was one of the main theoretical contributions of that research.

The SID resulting from the research, with the affinities that comprise it, their relationships, and the main points arising from individual interviews for each of the study categories, is shown in Figure 9. This graphical representation summarizes the empirical results and the theoretical discussions held by the authors.

Good examples of IQA research reports can be found in Harrel (2004), Robertson (2015), and Davis (2019). The works of Bargate (2014) and Lee and Chen (2016) are more focused on the presentation of the resulting mind maps and not so much on descriptions of affinities and relationships. Figure 10 shows the flow of a survey conducted from the interactive qualitative analysis.
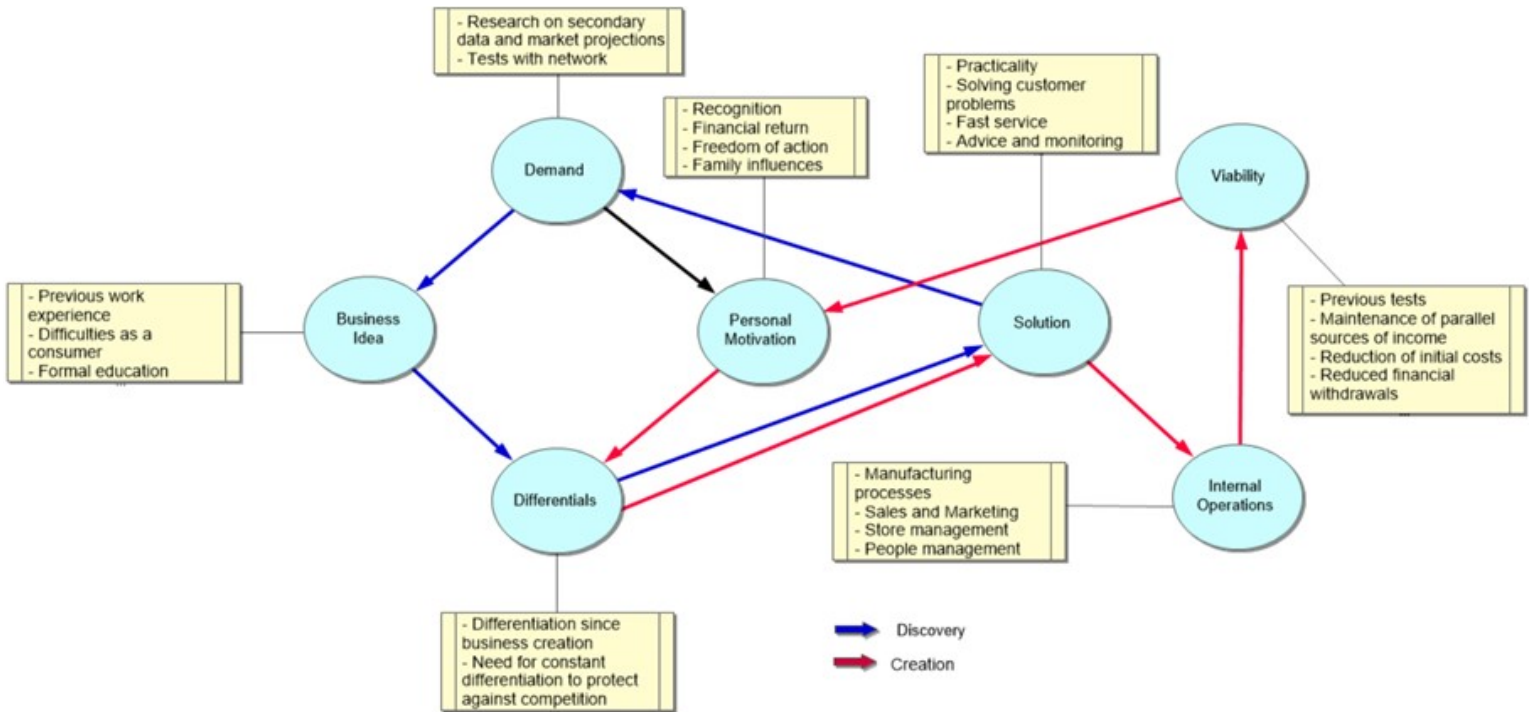
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Figure 9. System influence diagram.
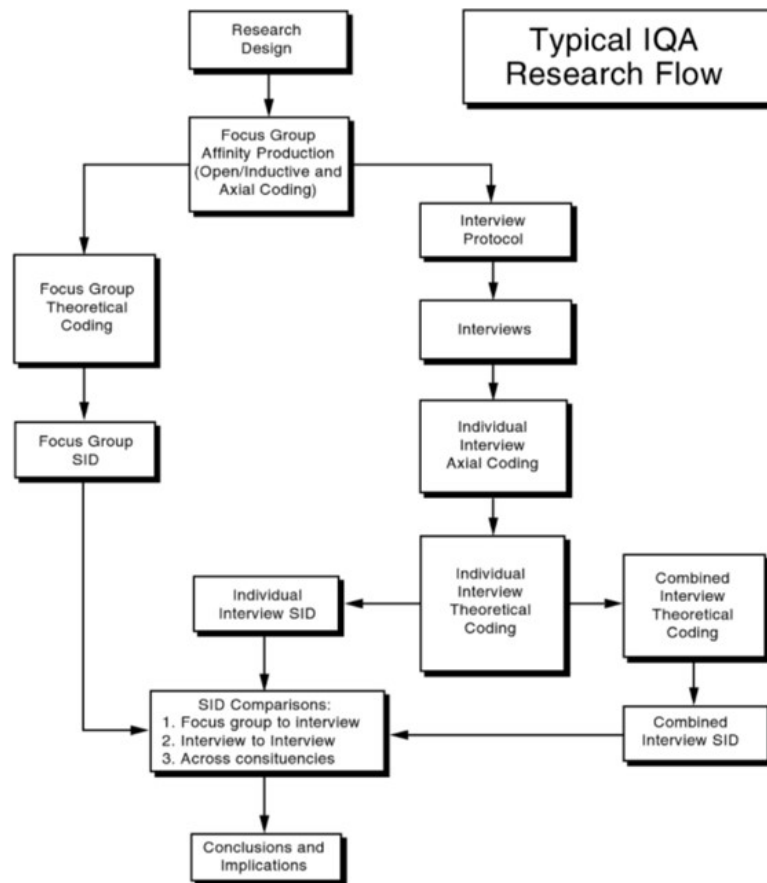
Source: Elaborated by the authors.

Figure 10. IQA search flow.

Source: Published with permission of Sage Publications, from "Northcutt, N., & McCoy, D. (2004). Interactive qualitative analysis: A systems method for qualitative research. Thousand Oaks: Sage", permission conveyed through Copyright Clearance Center, Inc.

FINAL CONSIDERATIONS

Administration science is full of publications that test and retest theories and call for empirical confirmation of consolidated constructs and previously defined categories, whether in quantitative or qualitative studies. However, there is a need and possibilities for generating new theoretical insights through methods that challenge the status quo of the area and provide considerable advances, and the search for consolidated methods in other areas of knowledge may be the right path.

Used in education for over 15 years, IQA can be very beneficial for research in administration. Used as an inductive and exploratory method to search the field for knowledge socially constructed by individuals with experiences concerning a phenomenon, the IQA is a contributory methodological tool for the generation of theory. Several fields of administration can benefit from studies with IQA, especially those in which cognitive mapping and decision-making are essential. Studies on entrepreneurial cognition, leadership, organizational change, behavioral strategy, consumer behavior, and people management stand out.

Above all, with a clear, consistent, and replicable data collection and analysis protocol, the IQA protects the results of a series of questions traditionally asked of qualitative studies. Its rigorous system eases suspicions about reliability and validity (Abdalla et al., 2018; Ridder & Hoon, 2009) by presenting persuasive empirical arguments that the processes that lead to discoveries and interpretations are guaranteed by the data (Langley & Abdallah, 2011). The IQA rehumanizes research and theory (Ridder & Hoon, 2009) by seeking human interactions and meanings underlying social constructionism's studied phenomena. Finally, it avoids the 'established models' of research (Langley & Abdallah, 2011), allowing for methodological and theoretical advances.

By presenting the step-by-step empirical application of the IQA, this study contributes to disseminating and promoting its use in management research. We use the standard IQA procedures, but Northcutt and McCoy (2004) report other less common ways of applying the method that might be more appropriate for other research questions. Therefore, in addition to this guide, we suggest that those interested in the method look for the work of Northcutt and McCoy (2004) in addition to consulting examples of the empirical application detailed in the thesis and dissertations of Harrel (2004), Robertson (2015), and Behling (2019).

REFERENCES

Abdalla, M. M., Oliveira, L. G. L., Azevedo, C. E. F., & Gonzalez, R. K. (2018). Qualidade em pesquisa qualitativa organizacional: Tipos de triangulação como alternativa metodológica. *Administração: Ensino e Pesquisa*, *19*(1), 66-98. https://doi.org/10.13058/raep.2018.v19n1.578

Arino, A., LeBaron, C., & Milliken, F. J. (2016). Publishing qualitative research in Academy of Management Discoveries. *Academy of Management Discoveries*, *2*(2), 109-113. https://doi.org/10.5465/amd.2016.0034

Bansal, P., Smith, W. K., & Vaara, E. (2018). New ways of seeing through qualitative research. *Academy of Management Journal*, *61*(4), 1189–1195. https://doi.org/10.5465/amj.2018.4004

Bargate, K. (2014). Interactive qualitative analysis - a novel methodology for qualitative research. *Mediterranean Journal of Social Sciences, 5*(20), 11-19. https://doi.org/10.5901/mjss.2014.v5n20p11

Behling, G. (2019). *Modelos mentais e oportunidades empreendedoras: A influência dos modelos mentais no desenvolvimento de oportunidades* (Doctoral dissertation). Universidade do Vale do Itajaí, Biguaçu, SC, Brazil. Retrieved from http://siaibib01.univali.br/pdf/Gustavo%20Behling%202019.pdf

Davis, J. S. (2019). IQA: Qualitative research to discover how and why students learn from economic games. *International Review of Economics Education*, *31*, 100160. https://doi.org/10.1016/j.iree.2019.100160

Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship theory and practice*, *36*(5), 1019-1051. https://doi.org/10.1111/j.1540-6520.2012.00537.x

Gephart, R. P., Jr. (2004). Qualitative research and the Academy of Management Journal. *Academy of Management Journal*, *47*(4), 454–462. https://doi.org/10.5465/amj.2004.14438580

Godoy, A. S., & Brunstein, J. (2020). Análise de dados nas metodologias qualitativas. In J. Brunstein, A. S. Godoy, E. P. Z. Brito, & E. J. M Arruda Filho (Orgs.), *Análise de dados qualitativos em pesquisa: Múltiplos usos em Administração*. Rio de Janeiro: Editora FGV.

Harrell, T. A. (2004). *How teachers think about their work: The first step in defining quality teachers* (Doctoral dissertation). University of Texas at Austin, Austin, TX, USA.

Revista de Administração Contemporânea, v. 26, n. 4, e-200417, 2022 | doi.org/10.1590/1982-7849rac2022200417.en| e-ISSN 1982-7849 | rac.anpad.org.br

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Langley, A., & Abdallah, C. (2011). Templates and turns in qualitative studies of strategy and management. In D. D. Bergh & D. J. Ketchen (Eds.), *Building methodological bridges* (Research methodology in strategy and management, vol. 6, pp. 201-235). Bingley, United Kingdom: Emerald Group Publishing Limited. https://doi.org/10.1108/S1479-8387(2011)0000006007

Lanka, E., Lanka, S., Rostron, A., & Singh, P. (2021). Why we need qualitative research in management studies. *Revista de Administração Contemporânea*, *25*(2), e200297. https://doi.org/10.1590/1982-7849rac2021200297.en

Lee, Y.-L., & Chen, L.-C. (2016). Using IQA to extract mental models concerning quality evaluation factors for social networking services on smartphones. *Social Networking*, *5*(1), 16-26. https://doi.org/10.4236/sn.2016.51003

Motzer, P. L. H., Armellini, F., & Solar-Pelletier, L. (2020). Change management in the context of the Fourth Industrial Revolution: An exploratory research using qualitative methods. *The Journal of Modern Project Management*, *7*(4). Retrieved from https://www.journalmodernpm.com/index.php/jmpm/article/view/JMPM02208

Narasimhan, R. (2014). Theory development in operations management: Extending the frontiers of a mature discipline via qualitative research. *Decision Sciences*, *45*(2), 209-227. https://doi.org/10.1111/deci.12072

Northcutt, N., & McCoy, D. (2004). *Interactive qualitative analysis: A systems method for qualitative research*. Thousand Oaks: Sage Publications.

Paiva, F. G., Júnior, Leão, A. L. M. S., & de Mello, S. C. B. (2011). Validade e confiabilidade na pesquisa qualitativa em administração. *Revista de Ciências da Administração*, *13*(31), 190-209. https://doi.org/10.5007/2175-8077.2011v13n31p190

Pietro, F. D., Prencipe, A., & Majchrzak, A. (2018). Crowd equity investors: An underutilized asset for open innovation in startups. *California Management Review*, *60*(2), 43-70. https://doi.org/10.1177/0008125617738260

Preez, H. D., & Stiglingh, M. (2018). Confirming the fundamental principles of taxation using interactive qualitative analysis. *eJournal of Tax Research*, *16*(1), 139-174. Retrieved from http://www.austlii.edu.au/au/journals/eJTR/2018/7.pdf

Pugalia, S., Prakash, S., & Cetindamar, D. K. (2020). Personal networks' influence on student entrepreneurs: A qualitative study. *International Journal of Innovation and Technology Management*, *17*(05), 2050037. https://doi.org/10.1142/S0219877020500376

Ridder, H.-G., & Hoon, C. (2009). Introduction to the special issue: Qualitative methods in research on human resource management. *German Journal of Human Resource Management*, *23*(2), 93-106. https://doi.org/10.1177/239700220902300201

Robertson, C. A. (2015). *Leadership development for technical and vocational education and training college leaders in South Africa: A post-graduate curriculum framework* (Doctoral dissertation). Stellenbosch University, Stellenbosch, South Africa. Retrieved from https://scholar.sun.ac.za/bitstream/handle/10019.1/96966/robertson_leadership_2015.pdf?sequence=2&isAllowed=y

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *The Academy of Management Review*, *26*(2), 243-263. https://doi.org/10.2307/259121

Scheibe, K. P., & Blackhurst, J. (2018). Supply chain disruption propagation: A systemic risk and normal accident theory perspective. *International Journal of Production Research*, *56*(1-2), 43-59. https://doi.org/10.1080/00207543.2017.1355123

Schreuders-van den Bergh, R., & Plessis, Y. D. (2016). Exploring the role of motivational cultural intelligence in SIE women's adjustment. *Journal of Global Mobility*, 4(2), 131-148. https://doi.org/10.1108/JGM-02-2016-0003

Souza, R. A., Neto, Dias, G. F., Silva, R. R., & Ramos, A. S. M. (2019). Efeitos dos softwares de análise de dados qualitativos na qualidade de pesquisas. *Revista de Administração Contemporânea*, *23*(3), 373-394. https://doi.org/10.1590/1982-7849rac2019170357

Vieira, V. A., & Tibola, F. (2005). Pesquisa qualitativa em marketing e suas variações: Trilhas para pesquisas futuras. *Revista de Administração Contemporânea*, *9*(2), 9-33. https://doi.org/10.1590/S1415-65552005000200002

Wood, M. S., McKelvie, A., & Haynie, J. M. (2014). Making it personal: Opportunity individuation and the shaping of opportunity beliefs. *Journal of Business Venturing*, *29*(2), 252-272. https://doi.org/10.1016/j.jbusvent.2013.02.001

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2nd author: conceptualization (equal); formal analysis (equal); project administration (equal); supervision (equal); writing – review & editing (equal).

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Data Availability

The author claim that all data and materials have been made publicly available through the Harvard Dataverse platform and can be accessed at:
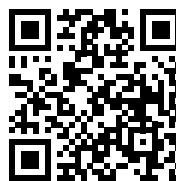
Behling, Gustavo; Lenzi, Fernando César; Rossetto, Carlos Ricardo, 2021, "Replication Data for "Upcoming issues, new methods: using Interactive Qualitative Analysis (IQA) in Management Research" published by RAC. Revista de Administração Contemporânea", Harvard Dataverse, V1.
https://doi.org/10.7910/DVN/LTULNQ

RAC encourages data sharing but, in compliance with ethical principles, it does not demand the disclosure of any means of identifying research subjects, preserving the privacy of research subjects. The practice of open data is to enable the reproducibility of results, and to ensure the unrestricted transparency of the results of the published research, without requiring the identity of research subjects.

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