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CASE STUDY PROTOCOL FOR QUALITATIVE RESEARCH IN OPERATIONS MANAGEMENT[1]

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ABSTRACT

In operations management field, researches that adopt the case study method are often criticized for lack of rigor. That is worrisome, considering the popularity of this method. Achieving rigor requires some actions from the researcher and one of them is the adoption of a robust research protocol. However, information about the case study protocol is fragmented in literature. Many studies address the method, but those dealing specifically with protocol are scarce. Aiming to assist other researchers, in this study is proposed a case study protocol for qualitative researches in operations management that can be applied in any type of case study, especially in those that study organizations and their internal processes and adopt the interview as the main source of information. The proposal is the result of a protocol tested in the field and an extensive literature review covering different areas of knowledge (focusing on the most classic and important papers on the subject). The protocol was replicated eighteen times in a study about an important organization and evaluated by six researchers in different phases. It comprises a set of recommendations and should be used as a reference guide on how to proceed in data collection step. If planned and used with care, the protocol will guide the researcher, favoring the rigor and quality of the results, eliminating doubts and uncertainties, and reducing reworks.

Keywords: Protocol. Case study. Qualitative research.

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1 INTRODUCTION

Operations management (OM) is a very important cross-functional field linked to Management, Business, Engineering, and other sciences; it deals with the operations and resources that generate the goods and services (products) in organizations and supply chains. At the beginning of his doctoral program in OM field, the author of this article realized that the focus of the research chosen clearly indicated the case study as the most appropriate research strategy. Adopting the perspective of Supply Chain Management (SCM) approach, the author analyzed the problems that one of the largest aircraft manufacturers in the world faces in the procurement process. This type of company tends to be very careful and selective when it discloses information about internal operations, which includes strict codes of conduct for employees. Added to this is the fact that there are few such companies in the world. Thus, from the outset it became evident that the case study to be developed left no room for mistakes. The concern of the author was principally the data collection. For example, interviewees should be carefully selected, convinced to participate in the research, and interviews should be conducted in a way which minimizes possible reworks. As a second contact would be difficult, finding out after an interview that the questionnaire was incomplete would inevitably compromise the research quality. Under these circumstances, planning is the best strategy. Although the author already mastered the basic concepts of scientific methodology and case study often presented in undergraduate courses, his need required more rigor. Because of this, he searched for a complete and robust case study protocol model in the literature, but some difficulties arose.

An analysis of the literature (see the fifth section) generated in the author the perception that the information available on the case study protocol is very fragmented. Thus, it may be risky for a researcher to select and adopt two or three references, because they probably will not eliminate many doubts of those who are about to enter the field to conduct a case study (especially for the first time). Therefore, the author initially sought to elaborate a protocol using the experience of several researchers in specific areas (business, management, OM, etc.), with the objective of planning his research and minimalizing risks and reworks. With the research progress, the author also decided to take advantage of the contribution of other areas (methodology, social sciences, etc.) that face similar difficulties and that have adopted the case study method for as long as or more than the OM field. This decision made difference in his research because several texts from other areas helped the author to prepare for situations which are discussed more incipiently in OM. That reinforced in the author the conviction that the protocol would be more robust if it were based on the experience of other researchers and also took advantage of the contribution from different fields.

A second difficulty faced by the author was the criticisms and shortcomings associated with the case study method (several researchers address this issue: Barratt, Choi, & Li, 2011; Piekkari, Plakoyiannaki, & Welch, 2010; Seuring, 2008; Woodside, 2010). It is not uncommon to find in texts or hear in the corridors of universities criticisms that limit the scope of the case study and challenge its methodological rigor. Fortunately, there are already studies in the literature (Johnston, Leach, & Liu, 1999; McCutcheon & Meredith, 1993; Stuart, McCutcheon, Handfield, McLachlin, & Samson, 2002; Tsang, 2014) that present a careful and constructive analysis of which criticisms are meaningless and which have foundation and, in the latter case, in which contexts they are valid (and how to avoid them). Notwithstanding, the criticisms initially discouraged the author. However, with the research progress and some guidelines, he realized that criticisms should not be seen as a reason to change the method, but as a warning reinforcing the importance of a robust protocol.

This study represents the result of a real experience that an OM researcher had with case study research. The next section deals with the case study method and protocol. The third

section details the objective and method. In the fourth section, some additional information on the author's research is presented. In the fifth section a case study protocol model for qualitative research is proposed. Lastly, final considerations are presented, followed by references.

2 CASE STUDY METHOD AND THE PROTOCOL

There are several case study definitions in the literature. "Case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme or system in a 'real life' context" (Simons, 2009, p. 21); ". . . a research strategy that examines . . . a phenomenon in its naturalistic context, with the purpose of 'confronting' theory with the empirical world" (Piekkari, Welch, & Paavilainen, 2009, p. 569). Yin (2009) recommends this method for the researcher who wants to understand a real-life phenomenon in depth, but such understanding should encompass important contextual conditions. "The task of the analyst [researcher] is to progressively construct the context and boundaries of the phenomena under investigation . . .. The research object, its boundaries and context are often emergent outcomes of the research process" (Dubois & Araujo, 2007, p.171); "no attempt is made to isolate the phenomenon from its context, but instead, the phenomenon is of interest precisely because of its relation to its context" (Johnston et al., 1999, p. 203).

A case study usually has the following features: it is flexible because the researcher can include a range of methods in the same study (Simons, 2009; Thomas, 2011); it employs a variety of data sources (Piekkari et al., 2009; Voss, Tsikriktsis, & Frohlich, 2002); the researcher has little or no capability of manipulating the events or phenomena under study (McCutcheon & Meredith, 1993); it requires considerable time, effort and expense to conduct (Johnston et al., 1999; McCutcheon & Meredith, 1993; Meredith, 1998; Stuart et al., 2002); it needs skilled interviewers (Voss et al., 2002); and it is useful for both generating and testing theory (Flyvbjerg, 2006).

In the context of case study method, there is a protagonist element: the protocol. Various researchers (some examples: Dubois & Gibbert, 2010; Gibbert & Ruigrok, 2010; Stuart et al., 2002; Tellis, 1997a; Yin, 2009) associate the protocol with the rigor of the case study method. But what is the protocol? It is a document usually prepared at the beginning of the research that guides the researcher's focus and conduct, thus helping to proceed with rigor and efficiency. Although the term *interview protocol* is recurrent in literature (see for example: Gioia, Corley, & Hamilton, 2012; Weston et al., 2001), in fact there is no strict or inflexible law or rule that determines where the scope of a protocol starts or ends. However, in practice its most common use is actually to support the data collection step.

If in the broad literature there is an extensive discussion on qualitative research and the case study method, including excellent references that are recurrently cited (Corbin & Strauss, 2015; Merriam, 1998; Simons, 2009; Stake, 1995; Tellis, 1997a, 1997b; Yin, 2009), the same cannot be said about the case study protocol. Actually, specific references about this theme are scarce. Particularly in OM field, an article dealing specifically with the case study protocol is not found in the most influential journals. What is found are some excellent studies (for example: Stuart et al., 2002; Voss et al., 2002) that provide some guidance on the protocol because they deal with the case study method. But because of their broader scope, the protocol is not discussed in much detail as it is not the focus of these studies. There are also several texts (see the fifth section) that provide more specific contributions on the protocol. However, the fragmentation of information about the protocol is not exclusive to the OM field. In general, the references available in other areas are also divided among those which offer more specific contributions (fifth section) and those which have general guidelines on the protocol (Eisenhardt, 1989; Tellis, 1997b; Yin, 2009), but that do not

deprive themselves of complementation when the goal is to plan a complex research as a case study. For example: Yin (2009) (one of the most respected authorities on case study) recommends a content to protocol. But the particularities of the researches on organizations (with their focus on understanding complex phenomena, processes, internal structures, and supply chains) demand more detail than that provided in his book, in order to support the investigator's work. So, there are still gaps in the literature on the theme *case study protocol*.

3 OBJECTIVE AND METHOD

It's expected that ". . . the OM field will continue to see increasing numbers of qualitative case studies . . ." (Barratt et al., 2011, p. 338). In this context, this article presents a protocol model for qualitative case studies. The proposed model facilitated the development of the author's research and contributed to the results, eliminating doubts and uncertainties, and reducing reworks. The author then wanted to share his experience aiming to contribute to the lack of articles that directly discuss the case study protocol. Although the protocol was originally developed for a research in OM field, its structure and content can be used (with minimal adaptation) in any qualitative case study research, especially in those that study organizations and their internal processes and adopt the interview as the main source of information.

It is important to highlight some features of the proposed protocol. As clarified, the contribution of several researchers from different areas was used. "Researchers in operations management should not be afraid to learn from their colleagues in other areas, where empirical research is the norm" (Flynn, Sakakibara, Schroeder, Bates, & Flynn, 1990, p. 269). Observing a phenomenon from different perspectives provides a clearer and more accurate picture of it. Unlike other studies that approach the case study method or the protocol from a purely theoretical-conceptual perspective, this article is one result of an applied research developed in OM field (see the introduction). In the fifth section, this research was used to illustrate the entire content of the proposed protocol (examples or illustrations are typically provided at the end of each topic). Thus, besides testing and applying the contributions of other researchers, the author sought to organize and extend them into a protocol.

The first version of the protocol was created in a little less than a year and a half, during the initial steps of the author's research. Through an extensive review of the literature, several texts that present orientations about the protocol or the steps of a research were gathered. A content analysis (Krippendorff, 2004) was then carried out aiming to identify, understand and organize the information. Then the information was coded (Corbin & Strauss, 2015; Neuman, 2014) according to the activities that are typically performed in case study steps. The comparison of the information of a same code allowed to capture its meaning, generating interpretations. Other interpretations were obtained by comparing the codes. The protocol was divided into parts and topics, and each contained a set of these interpretations.

This first version was evaluated by two OM researchers who at the time were the research supervisors. Subsequently, it was applied in a pilot interview. After making the necessary corrections, the author used it for data collection and as a guide for consultation and guidance. It was used in eighteen interviews (individual, face-to-face) and evaluated by four independent researchers (without direct relation to the research) from OM field, in two different moments: two researchers evaluated the protocol after the first interviews and at the end of the author's doctoral program, when it was also evaluated by two other researchers. The protocol was kept by the author in a database, in digital format. After his doctorate, the author imagined the possibility of assisting other researchers by providing this protocol model.

4 ADDITIONAL INFORMATION ABOUT THE AUTHOR'S RESEARCH

The reader needs to be aware that, before going to the field to collect data (supported by a protocol), it is necessary to define the research focus (in terms of problem and objectives) and select the information sources (literature, documents, historical records, interviews, etc.), cases and interviewees. Recommendations about these research steps are beyond the scope of this text and can be found in more traditional references on research methods (for example: Corbin & Strauss, 2015; Eisenhardt, 1989; Johnston et al., 1999; Mason, 2002; Simons, 2009; Stake, 1995; Yin, 2009). However, the author believes that it is worth providing some reports of his experience associated with these steps.

After deepening the literature review and conducting the first interviews, the author realized that the question originally defined in his research could be refined. That is, the research had to move forward until the author found a better alignment between what the literature expected (in terms of contribution) and what the reality offered. The first interviews also revealed that some concepts (Supply Chain Flexibility and Supply Chain Risk Management), not considered initially, would be fundamental to understand the chosen phenomenon and, therefore, should be added to the theoretical framework. Thus, changes in a case study do not always represent planning deficiencies. If they are treated with criteria, rigor and creativity, they can represent excellent opportunities to improve the research.

Obviously, the researcher must be supported by reliable information sources. But this does not mean that less rigorous sources cannot be used in the research. In interviews conducted by the author, some interviewees (employees from the aircraft manufacturer studied) cited situations that affected the air transport sector, but without providing details or company names (as a matter of secrecy). Subsequently, the author identified press news that confirmed the interviewees' accounts and served to illustrate the situations cited.

In case study research, the selection of interviewees must be supported by the concept of data triangulation (see: Blaikie, 1991; Gibbert & Ruigrok, 2010). So, the author conducted interviews involving different positions, areas and hierarchical levels. People who worked for the aircraft manufacturer at the time of the research and former employees were interviewed. The question that motivated this decision was: "Is there a risk of current employees behaving in interviews based on a biased or prepared discourse?". Seeking to ensure that the context analyzed by the interviewees was the same, the author was cautious to choose former employees who had left the company in the last two years (at most).

Prior to data collection, an accurate estimate of the number of interviews may be difficult. Therefore, any initial estimate should not be considered as a goal. The theoretical saturation concept (Boeije & Willis, 2013; Guest, Bunce, & Johnson, 2006) is a good reference to evaluate the need for new interviews. For example, the author initially estimated that twenty to twenty-five interviews would be necessary. However, as the information collected was repeating itself a lot, the author decided to stop the process after eighteen interviews.

In his research, the author chose to conduct individual interviews (not in group), given that the quality of the findings depended on the convergence of the interviewees' answers (they were compared). As the interviewees were busy and a second meeting would be difficult, the author evaluated that they would devote more time and focus if the interviews were face-to-face (the other option would be to conduct interviews mediated by some technology, synchronous or asynchronous, such as phone and e-mail, respectively – see Deakin & Wakefield, 2014; Irvine, Drew, & Sainsbury, 2013; James & Busher, 2006). As the phenomenon studied was relatively complex, the semi-structured interview (see: Given, 2008; Mason, 2002) was chosen: the questionnaire had preestablished questions that favored the

efficiency of the interview, but it was flexible enough to allow adjustments according to the answers.

5 THE PROPOSED CASE STUDY PROTOCOL

The content of the proposed protocol was divided into two parts. Part I is more detailed because it meets the most common goal of a protocol: to support data collection. Complementing it, Part II presents a guide for conducting interviews. Recommendations about data analysis were not included because this step justifies a specific study (some examples of excellent references that address this subject: Corbin & Strauss, 2015; Eisenhardt, 1989; Miles, Huberman, & Saldaña, 2014; Neuman, 2014), considering the wide variety of data types in qualitative research (Neuman, 2014) and the various ways of handling them (Tessier, 2012).

This protocol provides a set of recommendations to assist other researchers in the development of their qualitative case studies. The reader will notice that in many topics that make up the two parts of the protocol the author's research is cited to illustrate, support or complement the recommendations. Additional or complementary information can be obtained in the texts quoted throughout the parts of the protocol.

Yin (2009) states that "the protocol is for the data collection from a single case . . ." (p. 88) or ". . . a single respondent" (p. 79), therefore suggesting a study (especially multiple cases) may have a protocol for each "single data point" (p. 79). However, as a protocol encompasses much general information, nothing prevents the researcher from adopting a single document, but with subdivisions (each oriented to a particular case or interviewee). The recommendations presented in this text are independent of the chosen format.

Before presenting the proposed protocol, it is important to highlight that a case study research can encompass a huge amount of data (Eisenhardt, 1989; McCutcheon & Meredith, 1993). So, it is recommended (Gibbert & Ruigrok, 2010; Yin, 2009) to have some kind of database to store (and organize) data. This will facilitate the access of the researchers involved in the study and preserve data confidentiality when necessary. During his research, the author preferred to use a computer composed of folders divided according to the type of data (literature articles, company documentation, interview transcripts, files with the result of the data analysis, etc.), besides a portable external hard drive. It is essential to adopt a data recording routine with a regular frequency.

Part I: Recommendations on data collection

Data collection should be preceded by a systematic plan that details what information will be sought and how (Johnston et al., 1999). This part of the protocol presents recommendations to assist the researcher in the elaboration and execution of this plan.

The research protocol

In the field, it is very important that the researcher has confidence in his/her protocol. Therefore, it is recommended that the protocol be analyzed by other researchers (with experience in the study's research line and/or in the case study method). After making the appropriate corrections, the researcher should test it in a pilot case or in pilot interviews.

> By definition, pretesting involves simulating the formal data collection process on a small scale to identify practical problems . . . . A typical pretest in qualitative research involves administering the interview to a group of individuals that have similar characteristics to the target study population . . . . If problems arise in the pretest interview, it is expected that similar challenges will arise in the administration of interviews during the formal study. (Hurst et al., 2015, pp. 56-57)

The tests show problems related to the questions (Flynn et al., 1990), the time spent in the interview and signs of interviewee fatigue (Hurst et al., 2015) and undue attitudes or postures assumed by the researcher during the interview. It is possible to record some pilot interviews and scrutinize the recording later (Mason, 2002) or ". . . ask a colleague to sit in on some pilot interviews and give you their views about how you are handling the situation" (p. 75).

As described in the third section, the protocol was evaluated by the author's research supervisors and by four independent researchers. It was also tested in a pilot interview. The professional profile of the chosen interviewee contributed to the effectiveness of the field test: besides holding a managerial position in the company where the study was carried out, he had considerable academic experience (as part-time professor and researcher at a university).

Questions of the questionnaire

There are typically two groups of questions that need to be included in a protocol (Yin, 2009). The first one includes questions derived from the research problem and closely linked to the chosen line of inquiry. These are questions addressed to the researcher and must always be fresh in his/her mind. The second group includes questions (derived or adapted from the first group) that will be addressed to the interviewees. The questions in the second group should consider the particularities or differences among the cases or interviewees (for example, probably not all questions asked to a customer will be repeated to a supplier, the same is true for interviews with an operational-level employee and an executive). The typical references to elaborate the questions are: previous research, literature, theories, pilot interviews or studies and, of course, the research focus (research problem and objectives) (Antin, Constantine, & Hunt, 2015; Given, 2008; Weston et al., 2001). Adjustments to questions (such as inclusions or changes) are allowed, but only make sense if they are not due to haste or lack of rigor, since reworks can be costly in case studies.

The author identified in literature the problems related to procurement process as well as the strategies to address them. This information suggested the initial questions of the protocol. New questions emerged from a detailed study on SCM approach (an important topic in OM and directly related to the research problem). The author's research supervisors evaluated the questions elaborated and later they were refined in a pilot interview. Aiming to facilitate the data analysis (especially the comparison of collected data), the author sought to establish a direct relationship between the problems or strategies and the questions (each question dealt with a problem or a strategy) and each interviewee was treated as a case.

In the literature there are general recommendations regarding the elaboration of the questions of the second group: the language and the terms used should be familiar to the respondent (Flynn et al., 1990; Gioia et al., 2012); the question should not contain ambiguous statements or words which are not well defined (Hurst et al., 2015; Lummus, Vokurka, & Duclos, 2005) or compound events (the respondent can agree with one part of the question but disagree with another, "making the overall response meaningless") (Lummus et al., 2005, p. 2692); combining two or more important issues in a single question can make respondent confused (Hurst et al., 2015); the question cannot induce a response by the respondent in any direction (biased question) (Gioia et al., 2012; Lummus et al., 2005; Roulston, 2010); redundant questions should be eliminated (Hurst et al., 2015); and the order of the questions should be planned (the *funnel model* is common: the questions are asked from general to specific topics) (Roulston, 2010; Voss et al., 2002).

The author received additional recommendations from the researchers who evaluated his protocol: does the question make clear the context in which it should be answered? Is the scope of the question according to the desired? (For example: does the question deal with a

momentary/specific or general situation?) Would the question be better if it were more personal/impersonal, more formal/informal, more direct/indirect? Would any answer to an earlier question invalidate (or influence the answer to) a later question? Would it be better to divide a question (into two or more) or group some of the questions? Compare the research focus (problem and objectives) with the questions: is there any important question or concept that was not included in the questionnaire? Is there any unnecessary question or concept in it? Evaluate the appropriateness of the questions to the intended audience: are the respondents authorized or able to provide the requested data?

It is important the questionnaire creates and maintains the interest of respondents. Therefore, the researcher must assess whether it is tedious or too long.

Actions preceding the interview

To avoid misunderstandings or surprises, the researcher must confirm the interview and the time a few days before the scheduled date. If the interview is face-to-face, it is also important to confirm the location, get permission to access the organization and check in advance if there is any access restriction (an example: when visiting a factory, it is common to require specific clothing or shoes that may not be provided by the company). After the interview, if the researcher intends to visit a particular area or process of the company, searching for "verification and clarification of . . . interview responses" (Voss et al., 2002, p. 207), it is fundamental to organize this previously.

It is essential to reserve adequate time for each interview. The best reference is the tests carried out (pilot case or pilot interviews). Irvine et al. (2013) have found that telephone interviews tend to be, on average, shorter than face-to-face interviews. A suggestion (adopted by the author and valid for face-to-face interviews) if the interviewee is very important for the research, but does not have the requested time: when the interview occurs just before lunch, there is always the possibility of the interviewee to invite the researcher to the meal and, in this case, the interview can go on for a while.

From the author's experience, when a face-to-face interview exceeds two hours, the interviewees begin to show signs of tiredness, inattention or impatience. Fatigue will inevitably affect the quality of an interviewee's responses (see Hurst et al., 2015).

There should be special attention to the place of the interview, because it influences the quality of the information collected (Hurst et al., 2015). In non-face-to-face interviews, attention should be increased, because the researcher will have less control over where the interviewee will be (see Deakin & Wakefield, 2014). Noise is a typical problem: in addition to disrupting communication and concentration, it "makes the clean transcription of a human voice captured on the digital recorder more difficult" (Sinha & Back, 2014, p. 473). Therefore, the researcher must choose (or request) a comfortable, quiet room with pleasant temperature and where there is minimal possibility of interruptions generated by the external environment. It is not advisable that people who do not participate in the research remain at the place of the interview, aiming to avoid distractions, interruptions and influence on responses (for example, proximity to the boss can affect an employee's responses). When it is not possible to avoid, the researcher must declare this fact in the case study report.

What to bring to the interview

The author recommends: a recorder (if allowed by the interviewee and company) and a clock (a smartphone can replace both), a pencil, a pen and an eraser, diagrams, figures and texts that complement or illustrate the questions or discussions that may occur during the interview, any document that is necessary for entry into the organization (if the interview is face-to-face) and the Part II of this protocol. Clothing should be appropriate for the environment and the interviewee's position.

Starting the interview

Often the interview is not scheduled directly with the informant, but with another person. Therefore, even if the meeting was previously negotiated, at the beginning of the interview (and in a formal way) the researcher must confirm the informant's consent to participate in the research. When the informant does not participate of his/her own free will, the interview tends to be unproductive, because "weak consent usually leads to poor data" (Miles et al., 2014, p. 60). Consent can be obtained through a verbal statement or the interviewee's signature. However, the researcher must act with caution, as Deakin and Wakefield (2014, p. 610) reveal: "this [the consent] was necessary in order to conform to ethical guidelines; however, it did not always produce the best environment to build rapport before the interview".

Another subject to address at the beginning of the interview refers to the need to keep the organization name and informant identity confidential (in OM field, the first information is typically more relevant and therefore whenever possible should be disclosed). There are situations in which company policy imposes restrictions. In others, the researcher can present the options and let the informants choose. One advantage of keeping the interviewees' identity confidential is that as they will not be publicly associated with the research, they may feel in a more comfortable and secure position that will give them more freedom to talk. Foreseeing a potential difficulty in deepening his understanding about the research problem, the author decided to adopt this strategy after consulting some peers and interviewees.

The researcher needs to be aware that ensuring confidentiality is a perpetual commitment. There are at least two concerns: data sharing and archiving (Saunders, Kitzinger, & Kitzinger, 2015). When submitting a text for publication or making research data available to another person, the researcher must ensure that the information provided will not allow identification of those involved. In addition, access to the research database should be restricted during its development and after its closure. In this context, Palys and Atchison (2012, p. 362) cite "the new tendency toward cloud computing" and the risk of data storage "on someone else's server".

Once the interview is started, the researcher must be rigorous in controlling the time, avoiding to exceed the agreed upon duration.

The researcher's role during the interview

In the interview, the researcher's role cannot be interpreted in a mechanical (instinctive, automatic) or improvised way, but needs to be carefully planned. It is fundamental to gain the confidence of the interviewee (Stuart et al., 2002), because it favors the flow and quality of information. The challenge is that there is often not enough time for this – so it is important to create opportunities. The author always sought to start a face-to-face interview with a coffee or a more informal conversation. In non-face-to-face interviews, "exchanging emails, messages or reports can facilitate . . ." (Deakin & Wakefield, 2014, p. 613). It is also essential to find ". . . a good balance between talking and listening" (Mason, 2002, p. 75). This means, among other things, that the interviewee should not be interrupted (unless it is truly necessary). Another critical point: when going into the field, the researcher can take strong biases. Illustrating: the study addresses a problem with some possible solutions and the researcher is a defender of one of them. "Personal biases can shape what you see, hear and record" (Voss et al., 2002, p. 210). Therefore, adopting a neutral (impartial) position is an obligation: the researcher cannot express an opinion on the research topic (Roulston, 2010), issue judgment on the interviewee's speech or compel responses in any direction.

In practice a data analysis already happens during the interviews (data collection step), although later it is intensified. This influences the researcher's role. "The researcher's challenge is not just to observe, listen and record in a systematic manner. Much of the important data come from analyzing and interpreting what individuals are trying to say" (Stuart et al., 2002, p. 427). Leonard-Barton (1990) compares the researcher to an investigative reporter. Thus, the researcher must ". . . interpret the answers" (Yin, 2009, p. 69), ". . . make connections" (Brayda & Boyce, 2014, p. 320) and look ". . . for convergence of views and information about events and processes" (Voss et al., 2002, p. 209). It is also important to be aware of the possible untruths said by the interviewees (Roulston, 2010), incomplete views (Voss et al., 2002), inaccuracies due to poor recall, reflexivity (when the interviewee gives what the interviewer wants to hear) and conspiratorial corroboration (when the interviewees repeat the same speech) (Yin, 2009).

Ethics should be the foundation of any scientific research, so the researcher should not obtain confidential information from the interviewee. However, the author found that, at the same time, the researcher cannot be overly careful because he/she runs the risk of remaining on the surface of the case. Thus, during the interviews the author tried to deepen the discussions, but adopting a state of permanent attention: when the information seemed confidential, the author asked the interviewee for authorization to divulge it.

Record of data

There are two main ways to record data during an interview (see Tessier, 2012). The first is to use field notes. Due to the difference in speed between speech and writing, the author sought to prioritize the annotation of the most important points of the informant's response, requesting the repetition of some points whenever necessary. Beyond the answers, it is important to record ideas and insights that arise during the interview: "one key to useful field notes is to write down whatever impressions occur, that is, to react rather than to sift out what may seem important, because it is often difficult to know what will and will not be useful in the future" (Eisenhardt, 1989, p. 539). Field notes have important disadvantages: the researcher will always be busy writing and therefore will lose data (of the interviewee's speech and body language) and potential researcher biases may be reflected in the notes.

The second way is to use a recorder to capture interview data (audio and video or audio only). Thus, the typical disadvantages associated with field notes can be reduced (Tessier, 2012), favoring scientific rigor (actually, when interview data cannot be recorded with a tape or digital recorder, it is recommended to present a justification in the case study report). The problem is that a recording device on the table can be intrusive, intimidating some informants. Therefore, the researcher must ask the interviewee for authorization to use a recording device and then be strictly faithful to what was negotiated (this issue is particularly important in non-face-to-face interviews; see Deakin & Wakefield, 2014). In his research, the author respected the preference of the interviewees and used field notes. At the end of interviews, when asked by the author they stated that inevitably the presence of a recording device would have affected (negatively) the amplitude and depth of their responses (the questions addressed practices and internal processes of the company studied).

Tessier (2012) recommends that the methods of data collection be combined. Thus it is possible to take advantage of ". . . the strengths of each method while reducing their weaknesses" (p. 447). Nowadays, available technologies facilitate the adoption of this strategy (see more details in Tessier, 2012).

In the field, the researcher should not only record what is heard, but also what is observed, because the interviewee conveys valuable nonverbal data: nervousness, doubt, fatigue, boredom, etc. This type of data will be of great value to the researcher in the data analysis step. Denham and Onwuegbuzie (2013, p. 674) argue that nonverbal communication

can allow researcher to "corroborate speech narrative", "capture underlying messages", "discover nonverbal behaviors that contradict the verbal communication", "broaden the scope of the understanding" and "create new directions based on additional insights". Therefore, nonverbal data should be collected in a planned and systematic manner (evidently, in non-face-to-face interviews the collection of these data will suffer losses).

The author used a coding system to facilitate the collection of nonverbal data in the field. Illustrating: in field notes, the author included (discretely), for example, the symbol [?] next to the response whenever the informant showed doubt and the symbol [!] when a response from the current informant seemed to corroborate strongly with that of a previously interviewed informant (in the opposite situation, when there was a clear divergence, another symbol was used).

Facing difficulties

Several difficulties may arise during an interview. For example: "when working with other cultures, researchers are presented with unique challenges" (Brayda & Boyce, 2014, p. 321). Thus, before interviewing informants from other countries, the researcher should study their habits and customs. This will prevent disagreements or embarrassing situations.

Another difficulty arises when the informant does not answer a question or provides a superficial answer. Obviously the interviewee may not know the answer, but the author noted in his research that this also occurred when the question addressed more sensitive issues. When a question involves potentially confidential information, the researcher should ask the respondent to respond in a more general context or proceed with the response to a level of detail that does not expose this type of information.

A third difficulty: in some interviews, the informant asked for the author's opinion about practices adopted by the company that was the focus of his research. Although seemingly innocent, these requests conflicted with the role (of researcher) played by the author. The risk is the research interview turning into something else, such as a coaching, counseling, therapy, professional conversation (Lippke & Tanggaard, 2014) or consulting (Stuart et al., 2002). In these situations, a polite tone (aiming not to lose the confidence of the interviewee) should be used to preserve the role of the researcher.

Complementing and storing collected data

As soon as possible after completing each interview (taking advantage of the fact that the interview is still fresh in the mind), the researcher should complement the field notes with new ideas, impressions and insights that emerged after the meeting with the informant (see: Antin et al., 2015; Tessier, 2012). Problems or unforeseen occurrences in the field should also be recorded. This will enrich the data collected, contributing to the analysis step. Antin et al. (2015, p. 215) used to register after an interview "summaries of salient ideas related to the research topics of interest, thoughts about what the respondent emphasized or omitted, contradictory discussions about the main research topics of interest and reflections on how themes from this respondent related to others . . .".

Soon afterwards the researcher must store all data recorded during and after each interview in the research database. It is recommended that the field notes be transcribed into a digital text file, ensuring data integrity and preservation, but this will require some effort. Nothing compares, however, to the transcription of the recordings: it is estimated that, for each hour of recording, the transcription requires from four to seven hours (see: Palys & Atchison, 2012; Tessier, 2012). In addition to this great effort, generating a transcript can lead to loss of data and errors (Tessier, 2012). These disadvantages can be reduced if the researcher has access to software packages that facilitate the transcription process (see Palys & Atchison, 2012). However, the researcher who used a digital recorder has another option: to

work directly from sound or video files, without transcription (see Tessier, 2012). For example: ". . . software developed for digital sound files makes it easier to jump through interviews when searching for a specific excerpt" (Tessier, 2012, p. 449). This option will require access to softwares with specific features.

These different options are intrinsically related to the method adopted to record interview data and the technologies available to the researcher. At this point it is worth strengthening the recommendation of Tessier (2012) (previously mentioned): if possible, combine methods to record and store the data, because ". . . combination is better than substitution" (p. 446). The advantage is synergy, fostered by technology: ". . . technological developments bridge the gap between field notes, transcripts and tape recordings" (p. 457). However, the discussion about the use of technology in qualitative research raises concerns that need to be considered (see Palys & Atchison, 2012): there may be a risk to information security, the hardwares and softwares can be expensive and university budgets may be more geared towards quantitative softwares.

When transcribing field notes and recordings, the researcher should include details or a description of nonverbal data. To facilitate this work, the researcher can create or use an existing coding system (see for example Irvine et al., 2013). If the researcher decides to work directly from digital sound or video files, observations about nonverbal data may be included in the original files by means of software (see Tessier, 2012). Typical examples of nonverbal data include: pauses, overlaps, repairs, laughter, turn-taking, etc. (Creswell, 2007; Roulston, 2010).

In practice, the steps of data collection and analysis tend to overlap (Eisenhardt, 1989; Gioia et al., 2012; Hermanowicz, 2013; McCutcheon & Meredith, 1993). This was made clear in the author's research (the step is data collection, but a data analysis has already started). The transcription of the collected data demands from the researcher a deep mental effort – therefore, not a mere mechanical task of translating notes or recordings into text files. While creating a transcript, the researcher's mind (full of information) releases memories, makes connections and seeks understanding. Then interpretations of the collected data emerge and the researcher must register them. Doubts about the interviewee's responses, potential contradictions and incomplete responses are also often revealed in this process (and thus must be recorded).

Member checking

The next activity is the *member checking* process in which transcriptions and interpretations are sent back to interviewees so they can judge the accuracy and credibility, solve misinformation, etc. (Creswell, 2007; Roulston, 2010).

The author explained the member checking to each informant at the end of the interview. About one week after the interview, an e-mail was sent with the transcript of the data collected, interpretations of the author and doubts about the answers (obviously, information about nonverbal data was not sent). The informants then returned their responses confirming the information and suggesting changes or exclusions (in interviews, informants may provide information that they later decide not to disclose). To avoid delays in the progress of the research (James & Busher, 2006, report this problem), the author made it clear in the e-mail message that the agreed upon term should be fulfilled (the informants had about two weeks to return their responses), otherwise it would be understood that the informant fully agreed with the information sent by the author.

Whereas "one of the most logical sources of corroboration is the people you have talked with and watched" (Miles et al., 2014, p. 309), the member checking should also occur in the data analysis step. Thus, in the same way, this must be scheduled in advance with the informants.

Part II: Interview guide

In this part an interview guide model is presented to be used in each interview (or case). Its purpose is to help the researcher to record data and conduct the interview efficiently. It should be created in some digital format. During an interview, the researcher can work directly on the digital file or use a printed copy. Aiming to minimize risks (difficulty to enter the company with a laptop, low battery, unavailability of electrical outlet, etc.), the author preferred the second option. As eighteen interviews were conducted, the author created eighteen copies of the guide that were completed during interviews and later stored in the research database (which required transcripts). In order to prepare adequately for the interviews, the author always maintained Part I of the protocol attached to this guide. Before each interview, the author sought to study this part and the guide in detail.

The guide has been divided into topics that follow the chronological order of the interview phases. Description of the topics includes additional recommendations on data collection, complementing those presented in Part I (they were included here because of their close relation to the guide).

Information about the interviewee, the company, and the interview (for researcher control)

On the first page, the researcher must fill out information about the informant, the organization studied and the interview, to register who was interviewed and the type of interview conducted. Ideally, this information should be obtained before the interview, because this will allow more time for the application of the questionnaire. However, some may only be collected at the beginning of the interview.

Regarding the informant, the following information is typically relevant: name, phone number and e-mail; academic background; professional information: date of entry into the organization, department, position and starting dates (in the department and position). Because the purpose of a study can vary greatly, it is important to define precisely what information about the organization is essential. Some examples: name and location (headquarter and subsidiaries); general information: number of employees, revenue and profit; product lines; market share; main clients, competitors and suppliers. Information about the interview: date and start time; location (or locations, if the researcher and interviewee are not face-to-face); interview type (face-to-face or mediated by some technology); the form of data recording (field notes, audio/video recording, e-mail, etc.); if the organization name and informant identity should be kept confidential (*yes* or *no*). Any other relevant information should be included on the page of this topic.

The author spent about ten to fifteen minutes to: (i) collect the previous information that could not be obtained in advance, (ii) confirm the informant's consent to participate in the research, (iii) negotiate the form of data recording and (iv) request authorization to disclose the organization name and informant identity. Miles et al. (2014, p. 63) affirm that "confidentiality and anonymity are usually promised – sometimes very superficially – in initial agreements with respondents". Thus, the author evaluated that it might not be enough to make a verbal commitment with the informants. For this reason, with the help of a lawyer he developed a (simple) document (a *term of commitment*), but legally valid, declaring the author would not ". . . associate or relate, directly or indirectly, in written, verbal or in any other form . . .", the informant to the research, ". . . during or after . . ." its development. The printed document was presented to all interviewees but was only delivered (after being signed by the author) to those who expressed the desire to receive it (about half of those interviewed). The author believes that in some situations this type of document can make the

informant more comfortable to participate in the research and answer the questions, favoring data collection quality.

Information about the research (to be explained to the interviewee)

". . . Research participants have a right to know the nature and potential consequences of the research" (Tracy, 2010, p. 847). All important information about the research should be gathered on the second page. For example: the researcher's contact details (name, phone number, e-mail and professional address); information about the sponsor and organization responsible for the research; level or type of research (undergraduate, doctoral, government-funded sectoral research, etc.); research focus (problem and objectives); expected contributions (to the academy, sector and informant's organization); and current research step (for example: field research).

> Most experienced case researchers have developed some skill in explaining the research problem in ways that make sense for the participants. Often, thoughtful participants express appreciation for being put through the interview process precisely because they have rarely reflected on the discussed topics and "talking them through" provides them with a better understanding. (Stuart et al., 2002, p. 427)

The author preferred to print this page and deliver it to all interviewees. In addition, the author spent about five to ten minutes highlighting key information, including expected contributions. This strategy helped to gain the informant's confidence because it favored the feeling of truthfulness of the research and importance of the interview.

Instructions about the interview (to the informant)

On the third page, it is valid to include brief instructions that should be read to the informant before the application of the questionnaire. One instruction used by the author was: "In this interview you are free to use your professional knowledge and experience and personal opinion to answer the questions. You can cite examples that facilitate or illustrate your response, as well as make general or specific comments on the subject of the question and its context. However, *sensitive information should be preserved*".

Definition of terms used in the questionnaire

"Interviewees sometimes sought clarification from the researcher. . .. Most clarification requests related to the specific terms . . . of a researcher's question" (Irvine et al., 2013, p. 96). There are situations in which the researcher identifies terms in the questionnaire that may generate doubts in the interviewees but are difficult to avoid because they are intrinsically associated with the research. In the field, two undesirable situations may occur: during the application of the questionnaire, the informant may request that the researcher explain the term, generating an undesirable interruption in the interview (and in the line of reasoning of both); it is also possible for the informant to answer the question by interpreting the term with a meaning different from that considered by the researcher.

To avoid these risks, the author recommends that these terms and their meanings be included on the fourth page and read to the interviewee before starting the questions. However, it is important to be careful in selecting terms to avoid wasting valuable time (the selection of many terms may indicate that the language used in the questionnaire is not appropriate). In his study the author selected four terms, one of them being the following: "Supply chain: refers to the set of companies responsible for some stage of transformation of the final product – a car, for example. The term encompasses, in this

example: the automaker, the direct suppliers of the automaker (first tier suppliers), the suppliers of the automaker's suppliers (second tier suppliers) and so on".

The questionnaire

Following are the pages with the questionnaire. The researcher should never underestimate the importance of field notes, even when a recording device is used. Therefore, it is essential to leave generous spaces between the questions or to reserve blank pages.

Completion of the interview

After the interviewee answers the last question, there are some actions that will take about fifteen to twenty minutes. The following information was included on the penultimate page of the guide to remind the author to complete them:

- "Inform that the interviewee can at any time contact the researcher [author] by e-mail or telephone if he/she wishes to make additional comments or additions to his/her answers" (note that the researcher's contact details is on the second page of the guide, distributed to informants).
- "Ask permission to send a new question (which may arise later during the research) to the interviewee, by e-mail or phone" ("'backtrack' to prior informants to ask questions that arise from subsequent interviews", Gioia et al., 2012, p. 26).
- "Ask the interviewee for constructive criticism, suggestions or comments about how the interview was conducted, the questions presented and the discussions that emerged throughout the interview".
- "Considering that the content of the study has already been presented: Would the interviewee like to recommend a professional (from this or another organization) to participate in the research? In this case, how could this professional be contacted?" (note the snowball method).
- "Explain the member checking process to the interviewee and agree upon deadlines".
- "Record the interview end time".
- "Provide an estimate of the research end date. Does the interviewee want to receive a copy of the final report?".
- "Finally, thank the interviewee".

Control of expenses

Information about the expenses associated with the interview should be included on the last page of the guide: type of expense (fuel, toll, food, hotel, ticket, etc.), amount spent, date and location. All supporting documents must be attached. This control is fundamental, especially in researches carried out with third-party resources.

6 FINAL CONSIDERATIONS

The proposed protocol includes a set of recommendations and should be used as a reference guide on how to proceed in data collection step. As in practice the studies can have very different characteristics and contexts, the researchers must make the appropriate adaptations (modifications and inclusions) in the protocol. These adaptations are likely to be deeper in some types of study (longitudinal, for example) because of their particularities. Regardless of the protocol adopted, two actions are fundamental: the review of the protocol by the pairs and the execution of pilot interviews aiming to test it in the field.

Flexibility is a striking feature of the case study method (Dubois & Araujo, 2007; Seuring, 2008). However, it is vital that the researcher understands how this flexibility relates to protocol. Even the most robust and exhaustively field-proven protocol will have to undergo

adjustments when the researcher faces unexpected events or applies it in new contexts or situations. Uncertainty and unpredictability, although intrinsic to investigation work, may reveal new horizons for research. Therefore, the good protocol is one that adapts to the circumstances, whenever this adaptation is a necessity that will contribute to the research. On the other hand, to correct a protocol because, in the field, it was incomplete or deficient has nothing to do with the flexibility of the method. No method, even the most flexible, survives the lack of planning, scientific immaturity, and insufficient commitment to rigor.

In the search for the chain of evidence, that is, the progression of the research from the initial question to its results and conclusions, the case study protocol plays an essential role because it directly affects the efficiency (proper use of resources) and the effectiveness (achievement of expected objectives) of the research. If planned and used with care, the protocol will guide the researcher, favoring the rigor and quality of the results.

REFERENCES

Antin, T. M. J., Constantine, N. A., & Hunt, G. (2015). Conflicting discourses in qualitative research: The search for divergent data within cases. *Field Methods*, *27*(3), 211-222.

Barratt, M., Choi, T. Y., & Li, M. (2011). Qualitative case studies in operations management: Trends, research outcomes, and future research implications. *Journal of Operations Management*, *29*(4), 329-342.

Blaikie, N. W. H. (1991). A critique of the use of triangulation in social research. *Quality and Quantity*, *25*(2), 115-136.

Boeije, H., & Willis, G. (2013). The Cognitive Interviewing Reporting Framework (CIRF): Towards the harmonization of cognitive testing reports. *Methodology*, *9*(3), 87-95.

Brayda, W. C., & Boyce, T. D. (2014). So you really want to interview me? Navigating 'sensitive' qualitative research interviewing. *International Journal of Qualitative Methods*, *13*, 318-334.

Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). SAGE Publications.

Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five approaches* (2nd ed.). SAGE Publications.

Deakin, H., & Wakefield, K. (2014). Skype interviewing: Reflections of two PhD researchers. *Qualitative Research*, *14*(5), 603-616.

Denham, M. A., & Onwuegbuzie, A. J. (2013). Beyond words: Using nonverbal communication data in research to enhance thick description and interpretation. *International Journal of Qualitative Methods*, *12*(1), 670-696.

Dubois, A., & Araujo, L. (2007). Case research in purchasing and supply management: Opportunities and challenges. *Journal of Purchasing and Supply Management*, *13*(3), 170-181.

Dubois, A., & Gibbert, M. (2010). From complexity to transparency: Managing the interplay between theory, method and empirical phenomena in IMM case studies. *Industrial Marketing Management*, *39*(1), 129-136.

Eisenhardt, K. (1989). Building theories from case study research. *The Academy of Management Review*, *14*(4), 532-550.

Flynn, B. B., Sakakibara, S., Schroeder, R. G., Bates, K. A., & Flynn, E. J. (1990). Empirical research methods in operations management. *Journal of Operations Management*, *9*(2), 250-284.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, *12*(2), 219-245.

Gibbert, M., & Ruigrok, W. (2010). The 'What' and 'How' of case study rigor: Three strategies based on published work. *Organizational Research Methods*, *13*(4), 710-737.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: Notes on the Gioia Methodology. *Organizational Research Methods*, *16*(1), 15-31.

Given, L. M. (Ed.). (2008). *The SAGE encyclopedia of qualitative research methods*. SAGE Publications.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, *18*(1), 59-82.

Hermanowicz, J. C. (2013). The longitudinal qualitative interview. *Qualitative Sociology*, *36*(2), 189-208.

Hurst, S., Arulogun, O. S., Owolabi, M. O., Akinyemi, R., Uvere, E., Warth, S., & Ovbiagele, B. (2015). Pretesting qualitative data collection procedures to facilitate methodological adherence and team building in Nigeria. *International Journal of Qualitative Methods*, *14*, 53-64.

Irvine, A., Drew, P., & Sainsbury, R. (2013). 'Am I not answering your questions properly?' Clarification, adequacy and responsiveness in semi-structured telephone and face-to-face interviews. *Qualitative Research*, *13*(1), 87-106.

James, N., & Busher, H. (2006). Credibility, authenticity, and voice: Dilemmas in online interviewing. *Qualitative Research*, *6*(3), 403-420.

Johnston, W. J., Leach, M. P., & Liu, A. H. (1999). Theory testing using case studies in business-to-business research. *Industrial Marketing Management*, *28*(3), 201-213.

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). SAGE Publications.

Leonard-Barton, D. (1990). A dual methodology for case studies: Synergistic use of a longitudinal single site with replicated multiple sites. *Organization Science*, *1*(3), 248-266.

Lippke, L., & Tanggaard, L. (2014). Leaning in to 'muddy' interviews. *Qualitative Inquiry*, *20*(2), 136-143.

Lummus, R. R., Vokurka, R. J., & Duclos, L. K. (2005). Delphi study on supply chain flexibility. *International Journal of Production Research*, *43*(13), 2687-2708.

Mason, J. (2002). *Qualitative researching* (2nd ed.). SAGE Publications.

McCutcheon, D. M., & Meredith, J. R. (1993). Conducting case study research in operations management. *Journal of Operations Management*, *11*(3), 239-256.

Meredith, J. (1998). Building operations management theory through case and field research. *Journal of Operations Management*, *16*(4), 441-454.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.

Neuman, W. L. (2014). *Basics of social research: Qualitative & quantitative approaches* (3rd ed.). Pearson.

Palys, T., & Atchison, C. (2012). Qualitative research in the digital era: Obstacles and opportunities. *International Journal of Qualitative Methods*, *11*(4), 352-367.

Piekkari, R., Plakoyiannaki, E., & Welch, C. (2010). 'Good' case research in industrial marketing: Insights from research practice. *Industrial Marketing Management*, *39*(1), 109-117.

Piekkari, R., Welch, C., & Paavilainen, E. (2009). The case study as disciplinary convention: Evidence from international business journals. *Organizational Research Methods*, *12*(3), 567-589.

Roulston, K. (2010). Considering quality in qualitative interviewing. *Qualitative Research*, *10*(2), 199-228.

Saunders, B., Kitzinger, J., & Kitzinger, C. (2015). Anonymising interview data: Challenges and compromise in practice. *Qualitative Research*, *15*(5), 616-632.

Seuring, S. A. (2008). Assessing the rigor of case study research in supply chain management. *Supply Chain Management*, *13*(2), 128-137.

Simons, H. (2009). *Case study research in practice*. SAGE Publications.

Sinha, S., & Back, L. (2014). Making methods sociable: Dialogue, ethics, and authorship in qualitative research. *Qualitative Research*, *14*(4), 473-487.

Stake, R. E. (1995). *The art of case study research*. SAGE Publications.

Stuart, I., McCutcheon, D., Handfield, R., McLachlin, R., & Samson, D. (2002). Effective case research in operations management: A process perspective. *Journal of Operations Management*, *20*(5), 419-433.

Tellis, W. (1997a). Introduction to case study. *The Qualitative Report*, *3*(2), 1-14.

Tellis, W. (1997b). Application of a case study methodology. *The Qualitative Report*, *3*(3), 1-19.

Tessier, S. (2012). From field notes, to transcripts, to tape recordings: Evolution or combination. *International Journal of Qualitative Methods*, *11*(4), 446-460.

Thomas, G. (2011). A typology for the case study in social science following a review of definition, discourse, and structure. *Qualitative Inquiry*, *17*(6), 511-521.

Tracy, S. J. (2010). Qualitative quality: Eight 'big-tent' criteria for excellent qualitative research. *Qualitative Inquiry*, *16*(10), 837-851.

Tsang, E. W. K. (2014). Generalizing from research findings: The merits of case studies. *International Journal of Management Reviews*, *16*(4), 369-383.

Voss, C., Tsikriktsis, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations and Production Management*, *22*(2), 195-219.

Weston, C., Gandell, T., Beauchamp, J., McAlpine, L., Wiseman, C., & Beauchamp, C. (2001). Analyzing interview data: The development and evolution of a coding system. *Qualitative Sociology*, *24*(3), 381-400.

Woodside, A. G. (2010). Bridging the chasm between survey and case study research: Research methods for achieving generalization, accuracy, and complexity. *Industrial Marketing Management*, *39*(1), 64-75.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). SAGE Publications.