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Establishing Validity and Rigour in Qualitative Research: A Case Evidence of a Supply Chain Management Setting

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Abstract
As the application of qualitative inquiry increases in popularity within the field of supply chain management, the construct of validity of research in the subject field continues to receive increasing attention in the methodological literature. (Erickson, 1985; Maxwell, 1992; Denzin & Lincoln, 2005). This paper presents and describes the different methods to increase accuracy and validity in qualitative enquiries, using evidence from supply chain case study research. The paper also explains how rigour (reliability and validity) was established using verification strategies for evaluating trustworthiness and utility.

Key words: Qualitative Methodology, Verification strategy, Trustworthiness, Rigour, Validity, audit trail, Supply Chain Management, Triangulation, Clothing industry.

Contextual framework
Verification Strategies in Qualitative Research
Verification is a process of checking, confirming, making sure and being certain. In qualitative research, verification refers to the mechanisms used during the process of research to incrementally contribute to ensuring the rigor (reliability and validity) of a study. These mechanisms are woven into every step of enquiry to construct a robust outcome by identifying and correcting errors before they are built into a developing model and before they subvert the analysis (Creswell, 1997; Kvale, 1989). In qualitative enquiry, the analysis, rather than linear, iterative and self-correcting, making the researcher to move forth and back between design and implementation in order to ensure congruence and sequence among question formulation, the literature, data gathering and analysis. Verification strategies enable systematic checking of data and help the researcher to maintain focus on the fit of data and to constantly monitor and confirm the conceptual work of analysis. Its approaches help the researcher to identify when to continue, stop or modify the research process in order to achieve reliability and validity and ensure rigor.
In qualitative study therefore, trustworthiness of data interpretations is directly related to the methodological and analytical process of the research.
Proponents of qualitative research (Lincoln & Guba 1985; Eisenhart & Howe, 1992) defined validity as the trustworthiness of inferences, whilst trustworthiness is the parallel terminology for rigor (validity and reliability) in quantitative methods. Lietz, Carol & Furman (2006) defined ‘rigour’ in research as that which is ‘valid’, whilst Guba & Lincoln, (1981) emphasised that without rigor, research is worthless, it becomes a fiction, and loses its utility.

Morse et al (2002) established that the process of establishing reliability and validity in quantitative paradigm has been replaced in qualitative research by verification strategies for evaluating trustworthiness and utility. Verification strategies have moved the responsibility for establishing reliability and validity from external reviewer’s judgements to the investigators themselves, and it is fundamentally self-correcting during the conduct of inquiry itself.

Consequently, each research paradigm requires paradigm-specific criteria for addressing rigour or trustworthiness. While the rationalistic paradigm criteria for rigour involves internal validity, external validity, reliability, and objectivity, the naturalist’s paradigm proposed four comparable criteria for trustworthiness. They include credibility, transferability, dependability, and conformability. Lincoln & Guba, (1985) recommended specific strategies for achieving trustworthiness to include triangulation, researcher subjectivity and reflexivity, audit trails, negative cases analysis (confirming evidence and contradictory interpretations), peer debriefing, prolonged engagement, and member-checks and participant review.

These standards are set to evaluate the significance, relevance, impact, trustworthiness, and utility of a completed research. The operational techniques that support the establishment of trustworthiness can be explained as follows:

1. Credibility. To achieve credible data, prolonged engagement with the subject matter is maintained. It is also important to see whether the participants recognise the findings to be true to their experience.
2. Dependability. This criterion is met once the researcher has determined the credibility of the findings. It answers the question – how dependable is the result?
3. Confirmability. This is the process criterion. The way researchers document the confirmability of their findings is to leave an audit trail which other researchers can follow. The objective is to illustrate as clearly as possible the evidence and thought processes that led to the conclusions.
4. Transferability. This refers to the probability that the study findings have meanings to others in similar situations (Replicability). Rich data tend to have relevance for that particular individual. Specificity and particularity of relevance are the characteristics of transferable research outcomes.

Qualitative Safeguards for achieving validity

As stated above, there are six safeguards applicable to achieving validity of research outcomes in qualitative inquiry. They include (a) triangulation, (b) data trail, (c) researcher subjectivity and reflexivity, (d) member checks and participant review, (e) prolonged engagement, and (f) disconfirming evidence and contradictory interpretations. These safeguards were employed as instruments for verifying credibility, dependability, confirmability, and transferability of research outcomes in the case study under discussion in this paper.

Triangulation

Knafl and Gallo (1995) contends that triangulation contributes to the overall quality of a study ‘only to the extent that it facilitates the achievement of some clearly articulated purpose’. They argued that the significance of triangulation is to ensure that research should be a search for objective truth, and that if there is truth to be found, the researcher should take a range of measures to ensure they find it. Knafl and Breitmayer (1991) emphasised that to achieve completeness through a triangulated approach, researchers must be clear about their purpose and be able to demonstrate how their approach to triangulation contributes to the completeness of the resulting findings. Jick (1983); Fielding and Fielding (1986) and Shih (1998) underlined that triangulation is a ‘within’ study technique that uses findings from diverse sources, bearing in mind the strengths and weaknesses of those finding, and it looks for a convergence of the evidence to draw overall conclusions. They argued that by providing multiple views, triangulation potentially reveals diverse dimensions and achieves coverage of all aspect of the topic being researched. It involves using multiple data sources, investigators, theories, or methods to confirm a warranted interpretation or conclusion. The idea is that the trustworthiness of inferences is increased when multiple examples of support are available. Denzin (1989) mentioned four types of triangulations for enhancing the credibility of qualitative research. They include (1) source triangulation, (2) investigator triangulation, (3) theory triangulation, and (4) methodological triangulation.
Source triangulation:
Source triangulation is the use of multiple sources of empirical data that include several different participants, programmes or settings in data collection to understand the phenomenon (situation). For example, a researcher interested in understanding how a new agriculture technology could be accepted might interview the farm technology provider, the farmer, the buyers of farm produce (retailer), as well as the end consumer of the produce. The researcher will then compare these multiple perspectives to develop one written description of the context.

Investigator triangulation:
This involves the use of multiple researchers for data collection and analysis. Consistency of results can then be determined by comparing the results across the multiple researchers.

Theory Triangulation:
This uses multiple theories and perspectives for understanding qualitative data. In this case, the researcher attempts to understand and interpret research findings from multiple theories. Theory triangulation involves looking at the research situation from different theoretical perspectives. For example, a study of college students’ groups might adopt both a functionalist and an interactionist perspective. The assumption is that by applying more than one theoretical approach, a better understanding might evolve.

Methodological triangulation:
This incorporates both within-method and between-method types. Within-method triangulation involves using different data collection modes, such as observation, interview, and document analysis, while between-method triangulation involves using different research designs. For example, case study and survey methods, or a mixed method, using survey and interview to increase the validity of results and interpretations. Using a range of methods may allow the findings from one method to be checked against the findings from another. The use of multi-methods allows findings to be corroborated or questioned by comparing the data produced by different methods.
Triangulation is not just about validation or a method of cross-checking data from multiple sources to search for irregularities in the research data, but it also aims at deepening and widening the researcher’s understanding.

**Establishing an Audit (data) Trail**

Halpern (1983) developed the concept of external audit that allows critical thinking and helps qualitative research to be open to critique by the research community. Schwandt (1997) simply refer to audit trail as that including recorded materials such as cassette tapes, interview scripts, interview guides, lists of interviewees, lists of categories (labelling derived from open and axial coding) used while analysing the data, as well as notes about research procedures.

External audit consists of two parts, the audit trail, and the audit process. Lincoln and Guba, (1985) further explained the audit trail is that involving making the written data (both raw data and interpretations) available for review by others. An audit trail is an important part of establishing rigour in qualitative work (Lincoln and Guba, 1985; Johnson and Waterfield, 2004; Padgett, 1998), and it consists of six categories (a) raw data - including all raw data, written field notes, unobtrusive measure, (b) data reduction and analysis products - including summaries such as condensed notes, unitised information and quantitative summaries as well as theoretical notes, (c) data reconstruction and synthesis products - including structure of categories (themes, definition, and relationships), findings and conclusions, and a final report including connections to existing literature and integration of concepts, relationships, and interpretations, (d) process notes including methodological notes (procedures, designs, strategies, rationales), trustworthiness notes (relating to credibility, dependability, and confirmability) and audit trail notes, (e) materials relating to intentions and dispositions including inquiry proposal, personal notes (reflexive notes and motivations), and expectations (predictions and intentions), (f) instrument development information- including pilot forms, preliminary schedules and observation formats.

The audit process, on the other hand, involves a five-step evaluation of the data to ensure the result can be confirmed. They include (a) preen try (tidy/pilot), (b) determination of auditability, (c) formal agreement, (d) determination of trustworthiness, and (e) closure.

The presence of an external audit brings integrity to the study by making the data available for inspection by others, without revealing the identity of the data subject.
**Researcher Subjectivity and Reflexivity**

Subjectivity has been viewed as both a strength and a weakness of qualitative research. Subjectivity is the influence of the researcher’s experiences, knowledge, training, and emotions on research. Similarly, reflexivity refers to the examination of the researcher’s belief, judgements, and practices during the process of research and how these may have influenced the research.

Whilst quantitative researchers view subjectivity as the inserting of value judgement and researcher bias into research, resulting in distorted “truth” about the phenomenon and constructs, in contrast, qualitative researchers view subjectivity as a potential asset of qualitative research. It is seen as a useful and personal quality of a researcher, resulting in unique insights into the understanding of a phenomenon. Smith (1998) however argues for the provision of a formal, systematic monitoring of the researcher subjectivity throughout the research process and that the results of the monitoring must be shared in research reports so that readers can make informed decisions about what they have read.

Horsburgh (2003) emphasised that reflexivity helps the researcher to increase rigor in qualitative study. He defined reflexivity as ‘active acknowledgement by the researcher that their own actions and decisions will inevitably impact upon the meaning and context of the experience under investigation’. This, Horsburgh said, involves deconstructing who we are and the ways in which our beliefs, experiences and identity intersect with that of the interviewees. Instead of trying to hide behind the ‘false’ sense of objectivity, the researcher makes their sociocultural position explicit. Emphasising the principles of reflexivity, (Erlandson et al 1993, p. 143) maintained that the researcher keeps a reflexive journal that documents information about the researcher’s schedule, logistics, insights and reasons for methodological decisions.’ Examples of how to use reflexive technique is to engage in prolonged dialogs with participant through meetings and email communication regarding the project, and with others that acknowledge the researcher experience and perspectives. This is with the belief that a third person might be able to uncover hidden meanings in the narratives, with the view of dealing with subjectivity by having multiple perspectives come together in the decision-making process.
Member-checking and participant review

This process is also known as participant validation. It involves seeking feedback from participants (Lincoln & Guba, 1985). It allows participants to review and respond to data and interpretations in order to confirm or challenge the accuracy of the work (Creswell, 1998, 2003; Horsbourgh, 2003; Johnson and Waterfield, 2004;). Mabry (1998) offered a two-step process to member-checking - the first is where all participants are offered copies of relevant data that had not been interpreted, such as interview scripts or observation field notes, to correct errors or to provide additional information that might improve the accuracy of the data. This process is usually conducted to increase the descriptive validity of results; the second stage is an offshoot of the first. It involves sending a draft of the researcher’s initial interpretations to participants for their reactions. This stage is to increase the interpretive validity of the results. Generally, not all participants can be involved in the review of the research.

Prolonged Engagement

Prolonged engagement is the investment of sufficient amount of time in the research setting for the purpose of increasing rapport (Creswell, 1998, 2003; Li, 2004; Lincoln and Guba, 1985; Padgett, 1998). This is intended to achieve participants’ opennessness and better interactions with the researcher and to help to achieve the researcher purposes. Lincoln and Guba (1995) viewed that the amount of time-investment determines the magnitude of purposes achieved. These purposes may include (a) the extent the researcher learns and understands the culture (context), (b) test of misinformation introduced by distortion of the researcher or the interviewees, (c) the researcher builds trust and rapport with informants, (d) extent the researcher identifies those characteristics and elements in the situation that are most relevant to the problem or issue being investigated, and (e) the ability to reach saturation of the data.

Peer debriefing

Peer debriefing allows a qualified peer researcher to review and assess transcripts, the emerging and final categories from those transcripts, and the final themes or findings of a given study. Also, a peer may review selected site documents, observational notes, and possibly other written work of the researcher. The peer reviewer may also assess whether a researcher has missed a key point, overemphasized a minor one, or repeated one or more points. In addition, a peer acts as a sort of critical detective and is similar to an auditor auditing the ledgers of finance. Many writers have suggested that peer debriefing enhances the trustworthiness and the
credibility of a research project (Lincoln and Guba, 1985; Spall, 1998; Barber, & Walczak., 2009; Janesick, 2011; Hail, Hurst, & Camp, 2011). Included in the peer review of information might be anywhere on a continuum from complete review of every single data set to a purposeful sampling of the data sets. Thus, one might review all interview transcripts or a portion of the set, all documents and photographs or a portion therein. The peer reviewer and the researcher provide a rationale for the selection.

**Disconfirming Evidence and Contradictory Interpretations**

For fairness to the readers, the researcher should consider alternative interpretations that are reasonable and credible. Erickson (1986) asserted that the qualitative researcher who does not seek disconfirming evidence can be accused of searching only for information that strengthens their interpretations. Disconfirming evidence and contradictory interpretations should be sought and critically appraised so that inadequacies within the original interpretations can be made (Eisner, 1991; Erickson, 1986).

**Application: Case Study Evidence and Research Outcomes**

The six safeguards in verification process were applied to a qualitative clothing supply chain case study research. The goal was to understand, explain and interpret through “thick description” (Geertz, 1973) the experiences and practices of owner-managers in small clothing manufacturing firms within their natural culture setting and through their own voices. Three qualitative techniques, open-ended in-depth interviews, participants observation, and company documents were used to guide the collection and analysis of data.

The case study investigated the methods of information sharing and decision making of small and medium sized clothing manufacturers in the United Kingdom in the early to mid-2000. The main data collection methods included observation of clothing manufacturers in the factories, interview of key informants, including training providers and technology suppliers to the industry, and analysis of company-related documents. Adopting a holistic approach helped to appreciate data within their contexts, and rather than being prescriptive in nature, holistic analysis encouraged the emergence of results from the data throughout the investigation (Mabry, 1998).
The general results that emerged from the data were (a) culture of secrecy and lack of trust, breeding relationship that rests on win-lose rather than win-win outcomes; (b) barriers working against the smooth flow of demand data, as there were no particular structures for information sharing, causing the quality of information to water down as it moved upstream the supply chains; (c) Lack of interest in, or knowledge of the relevance of modern information and communication technologies to their business, (d) inadequate resourcing of design, information and communication technologies, resulting in poor information sharing abilities of clothing SME manufacturers; (e) low level of education and weak communication skills of owner-managers; (f) unequal and unstructured supplier-retailer relationships leading to adversarialism and poor decisions making; (g) lack of innovation and new product development skills.

Five relevant questions emerged from the data:

1. How was information sharing taking place between the suppliers and their customers (i.e. by what strategy/method and under what condition)?

2. Did information move through the process at the same pace (i.e., was it faster at the first-tier prime contractors link closer to the retailers, and slower at the other upstream subcontractors further in the supply links?)

3. Why did the information shared from the retail end not getting to the second and third tier suppliers in its complete form?

4. Were there any barriers and what were the causes?

5. What critical factors came into play and how could any possible hindrances to the smooth flow of complete and quality information be prevented to achieve the desired goals?

The answers to these questions rested on two premises:

Premise 1: the farther in the supply chain player was to the market, the thinner (in terms of quantity and quality) the information they received.

Premise 2: the less sophisticated the method of information technology employed, the less efficient the process for receiving, storing, using and sharing information.
**Conclusion:** The less efficient the method, the lower the quality of information received, and the less effective the decision making.

**Fig 1. Model showing the changing conditions of information as it moves across the downstream and upstream links of the supply chain.**

Source: Adewole (2004) Model showing information dysfunctional flow across the supply chain. Model developed from original research data.

It also emerged from our analysis that to achieve efficient optimisation of information for effective decision-making, the old-fashioned manual and semi-manual methods must change. It must be that every link in the supply chain, no matter how distant they are from the market, must have the opportunity of access to accurate, timely and complete information simultaneously as other trading partners in that supply chain. One of the significant outcomes of our case study research was that market information filtering must not occur, and that supply chain transparency must be enhanced with the application of modern technologies. In this way, there will exist the guarantee that no one in the supply chain will miss out of information in
their various business activities towards achieving the desired goal of satisfying customer needs.

The systematic application of the six safeguards helped the development of two new concepts from the case study data interpretations. The concepts were: The integrated Unique Alliance Principles (IUAP) and the Open Share-Frame Architecture (OSFA).

**The Integrated Unique Alliance Principles (IUAP)**

The IUAP concept developed out of the researcher’s experience with SME clothing manufacturers during our visits to their business premises and from their responses to interview questions. The concept of Integrated Unique Alliance Principle revolved around supplier-customer special relationship that is efficient, effective, and trustworthy. It is directed towards addressing specific weaknesses or inabilities of supplier/manufacturer to their retail customers. The idea is to exhibit a high degree of distinctiveness in the relationships between the supplier and their retail partners to enable the retailer to explore the core strengths of the supplier and at the same time help to provide the required assistance in the areas of weaknesses with the aim to further strengthen the partnership. The ultimate aim of IUAP is to establish a strong supply chain collaboration mechanism for value delivery to the end consumer.

The research argued that the future of supplier-customer relationships will lie in a new integrated approach that supports efficient flow information in a manner that will help owner-managers to make effective supply chain decisions.

**The Open Share-Frame Architecture (OSFA)**

The second key outcome from the case study research was the theory that efficient and effective information sharing and supply chain relationships require exchange of quality information
assisted by modern technology on a continuous basis. This has been described as the "Open Share-Frame Architecture (OSFA) Theory ".

The open share-frame architecture (OSFA) idea is based on the concept that technology enabled information sharing, of necessity, implies efficient and effective flow of data for management planning and control in business. OSFA rests on the reality that, of necessity, complete, accurate and timely information is required to ensure efficient business operations in a way that will effectively deliver the overall value that meets the customer expectations.

In our case study under review, the vision of OSFA is that every garment made on the factory floor can be traced to a production forecast, a customer requirement, or a specific order. It rests on the idea that the adoption of automated production technologies will support SME clothing manufacturers to maximise their output and minimise waste because it will be easier, quicker and better to predict and manage the material needed. The model is to provide a simplified explanation of how data can be efficiently sourced, shared, and effectively used for supply chains management and operations decisions making. OSFA idea has four components in mind for illustration:

(1) To encourage the supply chain partners to share full information via electronic mode of communication, including the use of video link platforms. Strategic hybrid approach will also help to enable both virtual and physical face-to-face negotiations meetings with trading partners, because it will enhance the feeling of being an integral member of the teams involved in the manufacturing, procuring, supply and sale of the garment.

(2) To encourage trading partners to adopt digital technologies for planning, scheduling, tracking, and fulfilling order requirements. This consists of a system that enables the
manufacturer to automate the factory floor and ensures that order requirements and products are traced and tracked to avoid unnecessary delays.

(3) To develop suitable information strategy and invest in appropriate business information structure that is based on the information needs of the supply chain to operate competitively. The information architecture will serve as a flexible information resource with an access structure that is open to all secured and approved parties and strictly accessible to recognisable electronic systems within that supply chain.

(4) To develop a new mind-set in clothes manufacturers to have more positive attitude towards the adoption of digital technologies to enhance their entire operating model and making fundamental changes to their processes. The case study revealed that if clothing SMEs will adopt utilisation of advanced manufacturing and information sharing technologies, the innovation could impact on their operations efficiency and improve business relationships with their trading partners.
### The OSFA Model

**Open information frame** allows trading partners to share transparent information assisted by advanced information and communication technologies.

**Information known to all**

- Technology helps any redundant or concealed information to be revealed and simultaneously shared with digitally secured trading partners.

**Information not shared between parties**

- Information not shared between parties - Restricted information (barriers in information sharing)

**Closed information frames** causing barriers to information flow between trading partners.

**Leading to**

- Lack of visibility
- Adversarial relationship
- Mistrust
- Added costs
- Inability to achieve lead-time requirement
- Lack of /misunderstanding of market information
- Poor availability of stock
- Poor inventory control
- High shrinkage leading to added cost
- Poor co-ordination
- Late and incomplete delivery
- Win-lose negotiations
- Business close down

**Leading to**

- Transparency, traceability, visibility, and trust
- Efficient and effective communication
- Improved company performance
- Improved trading relationship
- Efficient customer response (rapid response to customer orders)
- Effective management decisions
- Reduced lead times
- Increased control of inventory and lower inventory holding
- Better understanding of each other's businesses
- Competitive advantage
- Better inventory management
- Availability of stock
- Improved transportation and material management
- Required flexibility
- Creativity and innovation
- Reduced waste and risk of garment items out of fashion.
- Reduced production cost
- Improved cash flow
- Win-win negotiations
- Business growth

Source: (Adewole. A 2004) OSFA Model developed from case study analysis
Application of safeguards protocols for validity of research

The six safeguards were implemented throughout the research process to increase the validity, credibility, and trustworthiness of results. A description of the specific application of the six safeguards is provided below.

Establishing Triangulation

The research case study design included three triangulation procedures. The first type of triangulation used was source triangulation. Source triangulation was categorised into clothing manufacturers (this included the three tiers (i.e., the home workers, the Cut, Make and Trim (CMTs) and the Prime manufacturers), clothing retailers, technology (hardware and software) suppliers to the clothing industry, and technology skills training services suppliers to the industry. Purposive selection of key informants was enhanced by personal introductions through one contact to another, and to the next, and so forth. Owner-managers in the manufacturing category, the buying manager in the retail categories, training managers in technology skills, and technology suppliers’ categories were interviewed. The researcher was the final data source with detailed field notes taken each day interviews were conducted.

The second type of triangulation used in the case study was the methodological triangulation. The three different data collection methods used involved interview, observation and organisation document analysis. 25 in-depth interviews with clothing SME manufacturers/Suppliers, 3 senior retail buyers, 5 management training service suppliers and 2 technology suppliers to the industry were conducted. In addition, 32 observations were conducted at various locations including clothing manufacturers’ factories, organised manufacturer-retailer meetings, and technology training seminars. In addition, company documents were available for analysis. The documents analysed included: technology
providers manuals, management training resource guide and themes. Memos and other communication tools. Documents were read, analysed and summarised regarding the contents of documents.

The third type of triangulation used was the theoretical triangulation. Throughout the research, attempts were made to use multiple theories and perspectives to interpret the data. One set of findings described how suppliers shared information within the levels of tiers of suppliers and their retail customers. Several theories were used to interpret field data revealing the culture of supplier-customer information sharing practices. Theoretical triangulation helped to ensure that multiple viewpoints were used as the “lens” for interpretation.

The use of multiple source and multiple data collection approaches helped to establish validity (credibility). Whilst the researcher engaged in coding and analysis, he was looking for consistency to help to build a robust interpretation, and on the contrary, inconsistency to determine whether to pursue the interpretation into more depth. Researcher did not automatically dismiss any inconsistencies as unimportant, rather they were further analysed to determine their source, importance, and relevance.

**Data Trail**

Due to time and financial constraints, limited external audit was conducted during the research. The transcribed data and their interpretations were made available to senior buyers of two retail companies involved in the interviews and five purposively selected prime supplier/manufacturers involved for confirmation and accuracy checks. However, the internal audit process was well organised and efficient. All observation field notes, interviews, and extracts from documents were word processed and saved on Microsoft
discs. All narratives, interview transcripts and outlines were individually annotated and highlighted according to the researcher’s thoughts and insights about what he saw and heard. Furthermore, the researcher made deliberate efforts to archive his thoughts about interpretations, themes, and insights by documenting them in a separate journal. This process was rigorous but helped to enhance discussion and analysis.

Acknowledging Researcher Subjectivity

The issue of subjectivity was considered in several ways. The researcher’s background and his ten years management experience in the food and clothing retail sectors, preceding the time of research, provided him with added advantage to view the world of the UK clothing sector. Theoretical framework however provided a clearer description of researcher subjectivity. By acknowledging this conceptual framework, the researcher was more aware of the influences it has on data analysis and interpretations. The researcher substantially reduced his subjectivity in the research by using the words of the participants wherever possible rather than paraphrasing what was said. By using the participants’ own words, the researcher assumed that readers would have the advantage of making their own interpretations of what the participants had told me.

Member Checks and Participants Review

Participants’ review involved two types of data - observation narratives and interview transcripts. Selected transcribed interviewees and observation notes were sent to purposively chosen interviewees for review. They were also encouraged to add comments for clarity. Chosen participants were asked to review the transcripts carefully for clarity and accuracy. Comments received provided additional information about the culture and practices in the industry.
**Prolonged Engagement**

Throughout the period of field work, an extensive and consistent visit to the interviewees’ business premises were carried out for data collection. Significant amount of time was spent on observation of work process, examining paper documents such as memos, letters, and other communications tools between the manufacturing SME managers and their trading partners. During each observation, which usually lasted about 15 to 20 minutes while the owner-manager would conduct the researcher around in the factory to show the equipment and explain factory operations, the researcher noted that his presence was interfering with the routing of factory workers who were mostly females, as their attention seemed to be diverted due to curiosity.

**Peer debriefing**

A portion of the interview transcripts, field notes and observation notes, final emerging categories and final themes were carefully chosen and made available to the research review panel for assessment and to identify any missing key points.

**Disconfirming Evidence and Contradictory Interpretations**

The researcher adopted the concept of auto-prove and self-refutation (Burnyeat, 1977)) at the stage of data interpretation and analysis. He went back to re-examine the data to confirm the validity with the purpose to uncover the status of any invalid data from trusted and reliable sources and to automatically correct contradictions and refine the data to enhance its validity. The idea is to ensure that emerging categories and themes can be self-refuting and to correct or remove any data that shows any falsity if the claims could not be justified at the discussion stage.
Conclusions
In this paper, the researcher employed the six verification safeguards that had been established in the literature and explain how they were applied to achieve validity (credibility) in a qualitative case study research. The researcher presented a summary of the findings and of the reviewed case study research and demonstrated the research contributions to the body of knowledge. The researcher is aware that validity is a constant struggle in qualitative research, but also that the responsibility to ensure that research results are accurately reflective of the experience investigated is paramount.

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