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(Research Paper)

Investigating the supplier-producer relationship quality: a gap-quadrant analysis approach

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Abstract

Purpose: This study aims to propose an approach for analyzing the supplier-producer relationship quality.

Design/methodology/approach: A questionnaire has been compiled and distributed to two transportation and concrete producer companies. The relationship quality by its constituent dimensions has been investigated with the aid of gap analysis and quadrant analysis.

Findings: Findings indicated that the most of relationship quality dimensions have been located in the main strength point and only three dimensions of dependency and power, relationship-specific adaptations and investments, and cooperation and coordination have been addressed as critical and required improvement.

Practical implications: This article extends the application of quality management tools and techniques to a particular area of supply chain quality management, i.e., supplier-producer relationship quality management. The proposed approach enables suppliers and producers to evaluate their relationship quality faster and recognize the dimensions that are critical and need improvement.

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Research limitations/implications: the comprehensive list of dimensions together with the proposed integrative approach seems effective in facilitating the analysis of the relationship quality between producer and supplier. By the use of gap analysis and quadrant analysis, parties can evaluate the relationship quality faster and recognize the dimensions that need improvement and are critical in relationship quality.

Originality/value: The proposed approach of the integration of gap and quadrant analysis is unique compared to the existing literature. Also, the dimensions of the relationship quality have been considered, comprehensively.

Keywords: Relationship quality, Gap analysis, Quadrant analysis, Producer, Supplier

1. Introduction

The importance of relationship quality in the supply chain due to the high and sensitive interaction between the supplier and the producer concerning producing the qualified final product and timely and economically supplying it in the target markets and with a glimpse to the expansion and penetration of the new markets have resulted in methods of investigating the quality of this relationship and its evaluation, as well as solutions to improve this field for performing scientific researches valuable. From a supplier's perspective, its extended external network is as important as, if not more important than, the internal dyadic relationship with a buyer for its daily business life and performance (Li et al., 2022). In both business practice and academic research, relationship quality has gained considerable attention (Qian et al., 2021). Relationship quality can be measured through the satisfaction ratio of buyers over time and is a determinant of the relationship between the two parties reflected by the quality of the product, the quality of service, the cost paid for the value obtained and the ratio of compliance with the relationship from the partnership between the two parties (Huntley, 2006). The gap is defined as the difference between perceptions and expectations obtained in different dimensions of an issue (Saeeda Ardekani et al., 2009) and gap analysis is the comparison of the ultimate goal of an institution with total preprogrammed plans and projects and identifying solutions to remove the created gap (Seth et al., 2006; Shahin et al., 2014). In this study, the two axes of quadrant analysis include the gap between relationship quality factors from the viewpoint of the producer as a customer on one hand and the gap between the supplier's perception of expectations and the producer's perceptions from the relationship quality factors on another hand; hence, according to the values of axes, the quadrant will have four zones.

A qualified relationship between supplier and producer based on mutual trust, group problem solving and doing the predetermined commitments prevents complex and long contracts that writing is costly and executing and monitoring is difficult and enables companies to equip themselves to adapt to unforeseen changes better, to identify and implement correct and accurate solutions for organizational problems, and to reduce the costs of survey. All these cases will ultimately help to improve the economic outputs (Ling et al., 2012).

Baxter & Kleinaltenkamp (2015) recognized the effective and efficient performance of the relationship between the producer and the supplier in the transfer and integration of resources to build value and depending on the investment of the two parties in their relationship and

facilitating it to evaluate the resources of each one of the parties. Tanskanen & Aminoff (2015) addressed the buyer and seller goals in a strategic supplier-buyer relationship to use this leverage to gain competitive advantage, and due to the high and sensitive interaction of these two in this strategic relationship, found companies very sensitive to selecting their partner in this relationship. They considered an effective factor in the internal attractions of each party which could be determined by the other side. Forslund (2014) explained how the level of logistics performance depends on the relationship quality between supplier and seller.

Claycomb & Frankwick (2010) stated that managers and researchers regard the relationship between buyer and seller as the greatest source for sustainable development of competitive advantage for the buyer and seller. Nguyen (2010) considered relationship quality as a key aspect in maintaining and evaluating business relationships. Lai et al. (2008) stated that if a relationship is recognized as highly qualified, it will be recognized as a stable and healthy relationship.

Uzzi & Gillespi (2002) stated that a buyer can act better with his seller in a market where the relationship quality of business is respected and the relationship can be considered as a path to the flow of resources and the advantages of information, which in turn can help the innovation process.

By reviewing the literature on relationship quality, it is apparent that the studies in this field have used a limited number of relationship quality dimensions. One of the studies that have applied seven dimensions is Jiang et al. (2016). There is no study wherein a comprehensive list of dimensions has been used in investigating relationship quality. For this reason, this study aims to apply a comprehensive list of dimensions in investigating the relationship quality. In addition, in recent studies, new methods have been applied to investigate relationship quality, such as Kumar & Rahman (2016), who separated relationship quality into three concepts of supplier selection, supplier development and reviewing the supplier performance and evaluated the relationship between the producer and the supplier. Also, Tsai & Hung (2016) predicted the status of the relationship quality of the supply chain by a reverse neural network contrary to the previous studies in which the focus was on finding factors that were the determinants of relationship quality. They studied customer satisfaction, delivery, cost and flexibility as supply chain performance indicators using Artificial Neural Network (ANN) and determined the status of relationship quality dimensions.

While a solid number of supply chain relationship quality studies have suggested and confirmed that an overall supply chain relationship quality has a positive impact on the collaborating partners' performance, scholarly discussions on which relationship factors are more effective are limited (Qian et al., 2023). Additionally, Considering the application of the approaches of gap analysis, or quadrant analysis, the literature review indicates a background in supply chain management. For example, Shahin and Razavi (2020) performed a gap analysis in supplier sustainable development. Shahin and Rostamian (2011) and Shahin and Rostamian (2021) are the other studies that can be addressed for the application of quadrant

analysis in selecting outsourcing strategies. Therefore, it seems that the mentioned approaches have not been applied in analyzing supplier-producer relationship quality.

With the aim of further contribution to the field of supply chain quality management and particularly, supplier-producer relationship quality, this study attempts to propose an integrative approach for investigating the relationship quality using gap analysis and quadrant analysis. In other words, the main question in this paper is how to apply the two approaches of gap analysis and quadrant analysis for investigating the quality of supplier-producer relationships. In addition, the relationship quality dimensions are studied and applied comprehensively. The Isfahan Sahandbar Transportation Company which carries out the services related to the supply and transportation of metal raw materials and the Saba Concrete Company are considered as the case studies to examine the proposed approach.

In the following, the literature on the management and quality of supplier-producer relationships is reviewed and the gap analysis and quadrant analysis approaches are introduced. The research methodology is then described and the results are presented. Finally, findings are discussed, followed by conclusions.

2. Producer-supplier relationship management

Establishing a successful buyer-supplier relationship is regarded as a key to achieving a competitive advantage and enables the buyer to achieve benefits that cannot be obtained through traditional methods (Rajendran et al., 2012).

Cooperative relationships allow the companies to strengthen their competitive status by focusing on joint affairs to improve mutual areas such as quality, productivity, delivery and customer satisfaction that are important for both parties. In this regard, success is usually the result of mutual efforts of the two parties with a focus on improving communications, clarifying expectations and needs, eliminating concerns and problems, having consistent and uniform performance and building competitive advantage (Emmett & Crocker, 2016).

Companies that engage in cooperative relationships achieve clearer improvements, higher service levels, increased flexibility, high customer satisfaction and reduced cycle time. Despite these provable and demonstrable advantages, many companies have problems in achieving the appropriate levels of cooperation and/or its expected benefits. This is due to ignoring the key details, such as the proper selection of partner and colleague, matching the needs and capabilities within an organization and the lack of clear definition of standards and objectives (Daugherty et al., 2006).

Managers describe successful buyer-seller relationships as realizing the mutual expectations of both parties and recognize the unsuccessful relationship in failing to realize the expectations of one or both interacting sectors. Of course, other factors also can make cooperative relationships successful. In other words, a major factor in the development and retention of the cooperative relationship is the perceptions and expectations of one party from the performance of the other party. When expectations are not realized or there is a mistake in

their interpretation, a cooperative relationship faces an unexpected shock in its operational system (Emmett & Crocker, 2016).

A five-stage approach to maintaining and developing cooperative relationships is addressed by Emmett & Crocker (2016) as: i) buyer's expectations; ii) seller's perceptions; iii) mutual perception and commitment; iv) implementation; and v) corrective actions.

In the implementation stage, the relationship may diverge from the expectations created at the time of establishing the cooperative relationship and thus the relationship might not remain sustainable. In this case, by using the fifth stage and corrective actions, options are provided to remove the created disruptions and to return stability to the relationship.

3. The relationship quality of producer-supplier

The relationship quality of supplier and buyer affects the loyalty and profitability of both parties (Lages, 2008). For example, a good relationship and communication with buyers make it possible to increase service delivery and the reduction of transaction costs (Dyer & Chu, 2003; Lee & Koh, 2009). For the buyer, a satisfactory and sustainable relationship with the suppliers guarantees the issue of necessary and essential product and service delivery and reduces the risk due to the instabilities of market conditions (Ono & Kubo, 2009; Skarneas et al., 2008). In summary, the issue that the relationship quality in the exchange conditions of today's businesses is important has been accepted, although there is no consensus on the concept and the measurement of its structure (Athanasopoulou, 2009; Huntley, 2006; Hutchinson et al., 2011; Skarneas et al., 2008), and the complex internal communications of the nucleus dimensions of relationships have not been well perceived yet (Ha & Muthaly, 2008).

As mentioned earlier, there is no agreement on the structure of this concept and different dimensions are used to investigate the relationship quality. By reviewing the literature, three dimensions of trust, satisfaction and commitment have been observed as the dimensions mostly used in the studies and are presented as the main dimensions of relationship quality. Trust has been defined as the belief of the company that the partnership has positive outcomes for the company and the other party is doing its best and avoids actions with negative consequences (Anderson & Narus, 1990). In other words, it means the extent to which the customer knows the supplier is trustworthy, benevolent and competent (Ryssel et al., 2000). According to Walter et al. (2002), an important reason for the unsuccessful relationship is distrust between the two parties. Moreover, researchers and professionals believe the creation of trust is the main reason for long-term relationships. Satisfaction is defined as an emotional state in response to the evaluation that occurs from the mutual experiences of a relationship with the alternatives and is at the service of strengthening the strings of trust. Ultimately, commitment has also been defined as the stability desired to maintain a valued relationship (Mooman et al., 1992). Therefore, these three are deeply intertwined in the evaluation of quality relationships. There are also other dimensions in this regard, which are explained briefly in the following.

Studies on relationship quality have also addressed cooperation, opportunism, adaptation, and atmosphere as the dimensions of relationship quality. In some studies, trust is divided into two parts trust in benevolence and trust in honesty; and commitment is divided into two parts emotional and computational. Meanwhile, various studies extended beyond and proposed dimensions such as continuity expectation, target compatibility and the level of alternative comparison, the quality of perceived service or product, the quality of perceived communication and interaction, relationship stability, customer orientation and ethical characteristics, coordination and profit and communications. Meanwhile, Lages et al. (2008) in discussing export and import, designed a measurement scale for the relationship quality in which dimensions such as the amount of shared information, relationship quality, long-term relationship orientation and the satisfaction resulting from the relationship of both parties were used (Athanasopoulou, 2009).

Relationship quality has been composed of different dimensions and concepts that are referred to as stickers to maintain the relationship and the authorization to develop it (Wilson & Jantrania, 1996). It is possible to achieve better quality in relationships through more information sharing, better relationship quality, long-term orientation and more satisfaction with the relationship (Lages, 2005). Sjoerdsma & van Weele (2015) identified 12 elements and dimensions that were believed to have a strong impact on the relationship quality. They are presented regarding their importance and impact in descending order in Table 1.

Table 1. 12 Constructs that determine the relationship quality (Sjoerdsma & van Weele, 2015)

Construct	Definition
Trust	Trust is defined as a positive belief, attitude, or expectation of one party concerning the likelihood that the actions or outcomes of another party will be satisfactory; the belief of one party that the other party is honest (or credible), benevolent and competent.
Communication	Communication can be defined as the formal and informal sharing of information between firms and fulfils a coordination and alignment function between parties.
Information and knowledge sharing	Knowledge and information sharing facilitate the generation of resources and skills essential for product innovation. Knowledge and information sharing for NPD between two companies is a set of experiences, information and knowledge, which may be both tacit and explicit in nature.
Cooperation and coordination	Cooperation and coordination consist of mutual adjustment and alignment between buyer and seller: of expectations; organization; goals; and responsibilities.
Relationship-specific adaptations and investments	Relationship-specific adaptations can constitute changes by one party in processes, product technologies, or procedures to the specific needs and/or capabilities of the other party. This increases switching costs, establishes expectations of future exchanges and creates trust.
Commitment	Commitment can be viewed as a perception or attitude towards a relationship that is expressed by certain actions, such as information sharing. Commitment improves the functioning of the relationship between the buyer and supplier. Mutual commitment creates opportunities and performance within and outside the NPD project.
Satisfaction	Satisfaction can be described as a feeling of happiness or fulfilment that arises when an expected or desired result is attained.
Dependency and power	Interdependence motivates buyers and suppliers to develop long-term relationships characterized by stability, cooperation and mutual benefit. It

Construct	Definition
Flexibility	reflects the degree of dependability on each other without which either organization encounters loss of opportunity, business or sales. The willingness and the ability to make changes to accommodate the relationship-counterpart's (changing) needs allows for more knowledge transfer between the actors in the relationship.
Reputation	Reputation is an intangible asset and it describes a perception of fairness, honesty and concern of a firm. Reputation also covers the perception of past performance, experience and competencies of a firm. A good reputation will decrease uncertainty and perceptions of risk within the relationship, allowing for increased trust build-up.
Loyalty	Loyalty can be described as the tendency of an exchange partner to maintain and continue the relationships with existing partners.
Relationship history	Relationship history encompasses the duration of a relationship and the past events within those relations. The longer a relationship is, the more likely the actors are to collaborate to a greater extent. The duration of a relationship positively affects the commitment and loyalty of both actors and contributes to the expectation of the relationship to continue.

Communication problems are recognized as the main reason for the relationship problems between the two parties (Mohr & Nevin, 1990). Bilateral exchange is needed in the relationship to achieve mutual understanding (Duncan & Moriarty, 1998). Companies with highly interactive relationships spend their managerial and financial resources on maintaining and developing their relationship network with their environment. This indicates managers' perspectives and beliefs that such communications and their impact on a strong and beneficial relationship are critically important (Calantone & Schatzel, 2000). On the contrary, inadequate communication can lead to conflict and disagreement due to misunderstanding mutual perception and dissatisfaction (Etgar, 1979).

4. Gap analysis

According to Hakatie & Ryynanen (2007), a gap analysis was designed and developed by Zeithaml, Berry & Parasuraman, and has essentially been designed to analyze the resources of quality problems and to identify suggestions for carrying out corrective actions to ensure quality. A gap occurs when the two parties do not share their perceptions of a subject, and is a situation in which there is no awareness of it in practice. This issue disrupts their interactions and communication, which can negatively affect the quality and the final product (Hakatie & Ryynanen, 2007). The two concepts of expectation and perception play an important role in this regard. Expectation returns to the level of service customers believe they should receive from the service provider, and the perception is also the ratio of the current satisfaction of customers from the service provided to them (Parasuraman et al., 1994).

5. Quadrant analysis

In this method, the quadrants are used in the importance-performance analysis. In fact, in this method, a typical matrix is divided into four corners (zones), usually based on the average arithmetic of samples that are offered in terms of the aspects presented by the axes (Figure 1). The first corner - probably excessive performance - includes features in which the

service provider acts very well, but the customer does not evaluate them as very important. The second corner -continue good actions - includes features that are important to the customer and the service provider offers them at a satisfactory level. The third corner - focus here - includes features that are important to the customer, but the service has failed to adapt to his expectations. Finally, the fourth corner - low importance - indicates the features of service that do not satisfy the customer, but the customer is also indifferent towards them (Dabestani et al., 2016).

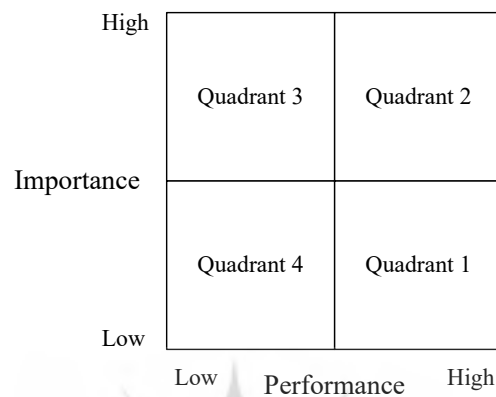


Fig. 1. Quadrant analysis

6. Research methodology

The research steps are illustrated in Figure 2. As addressed, the study starts with determining relationship quality dimensions and their associated gaps and ends with their prioritization. The steps are further described in the following.

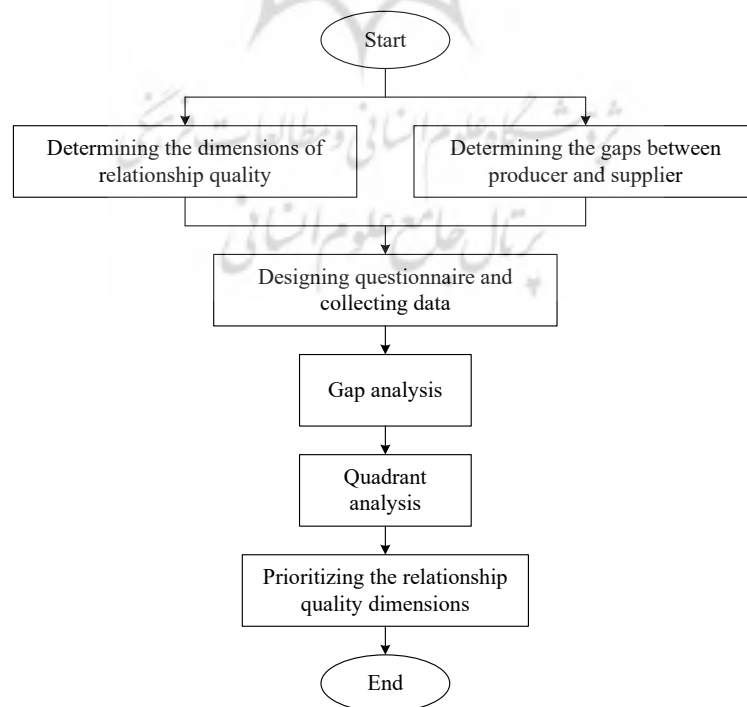


Fig. 2. The research steps

In this study, two gaps are defined in the relationship between the producer and the supplier. The first gap emerges from the difference between the importance and the perception of the producer (customer) from each dimension of relationship quality in the relationship between him and the producer in the supply chain. The second gap is due to the difference in the perception of the supplier from the importance and the perception of each of the dimensions from the viewpoint of the producer.

The determinant dimensions of relationship quality are used in Table 1, which has been prioritized by Sjoerdsma & van Weele (2015), to determine the relationship quality. The reason for the use of this reference is that it has numerous variables, their prioritization and the research is up to date. Accordingly, 12 dimensions are used in measuring the relationship quality, in order of importance and impact including trust, communication, information and knowledge sharing, cooperation and coordination, relationship-specific adaptations and investments, commitment, satisfaction, dependency and power, flexibility, reputation, loyalty and relationship history.

On the one hand, due to the service nature of the relationship and the point that the relationship is one of the dimensions of service quality (Shahin, 2007), as well as the use of gaps and gap analysis to calculate the relationship quality on the other hand, two gaps are considered. First is the gap between the producer's expectation and perception of the relationship quality, and the second is the supplier's perception of the producer's expectation and perceptions of the relationship quality. After identifying the gaps and using quadrant analysis (Figure 3), the ratio of importance degree and criticality of the issue is specified and appropriate actions can be also addressed and performed to reduce these gaps. Moreover, the data of this study is collected by questionnaires prepared using a Likert's five-point scale.

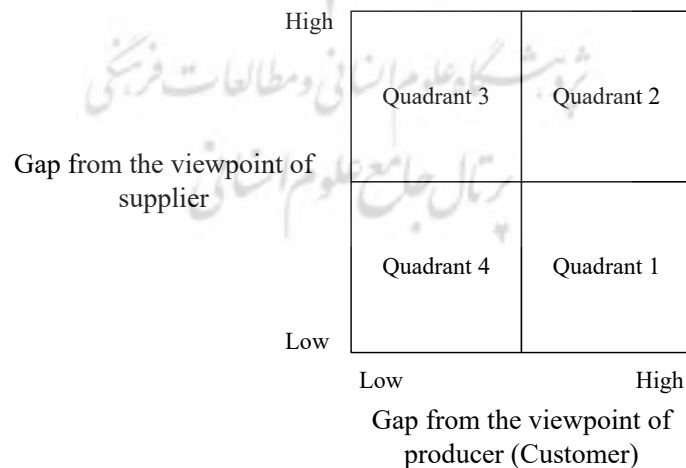


Fig. 3. The conceptual model of research

Regarding the conceptual model of research in Figure 3 it can be argued that the lower the gap from the viewpoint of the producer (customer), the supplier's performance is in a way good, and the higher this gap, the supplier's performance is poor. In the case of the gap from the viewpoint of the supplier, it is also possible to know the low gap in evaluating the

supplier's performance as positive or in a way the supplier's satisfactory performance for the customer from his viewpoint and vice versa, and the high gap can be considered in the supplier's poor performance or dissatisfactory performance from his viewpoint in the relationship with the producer.

Thus, provided that in evaluating the relationship between the producer and the supplier a factor was located in the first zone, since it is evaluated as poor from the viewpoint of both parties, it is thus considered in a way as the main weak point in the relationship, and requires quick and appropriate actions to improve the status of this factor. Provided that a factor is located in the second zone since the performance of this factor is evaluated poorly from the viewpoint of the producer (customer) and it is evaluated positively from the viewpoint of the supplier, it has high sensitivity and provided that the supplier cannot detect it on time and does not act to improve it, it can lead to the producer's dissatisfaction and consequently results in the reduction of relationship quality and ultimately leads to the termination of cooperation. This zone is considered in a way as a hidden weak point in the relationship quality between producer and supplier. In the case of the third zone, the performance is good from the viewpoint of the producer (customer), but the supplier has not considered his performance adequate in that area for attracting customer satisfaction. If the supplier improves the factors that are located in this zone, he will waste his resources and time the factors in the zone do not need any specific action, and they are somehow a hidden strength point from the viewpoint of the supplier. The fourth zone is the performance is evaluated as good from the viewpoint of the producer and also the supplier has evaluated his performance in the relationship as satisfactory, and it is in a way the main strength points in the relationship, and the appropriate strategy for the factors in this zone, the continuity of activity by the previous chosen method in the relationship is in line with those factors.

7. Case study and findings

The proposed model of this research was examined by implementing in the Isfahan Sahandbar Transportation Company which carries out the services related to the supply and transportation of metal raw materials for Saba Concrete Company. The research statistical population consisted of two groups producer employees and supplier employees. The supplier is the Sahandbar Transportation Company which has six employees and the producer is Saba Concrete Company which is presented in this research as the producer of concrete and dependent products and has 40 workers.

After distributing and collecting questionnaires in the two mentioned populations, the primary results were obtained as addressed in Table 2.

Table 2. Summary of the findings regarding the gap from the viewpoint of the producer (Customer)

Relationship quality construct	Expectation average value	Perception average value	Gap value
Trust	4.6	4.2	0.4
Communication	4.6	4.0	0.6
Information and knowledge sharing	4.4	3.8	0.6
Cooperation and coordination	4.6	3.8	0.8
Relationship-specific adaptations and investments	4.4	2.8	1.6
Commitment	4.8	4.0	0.8
Satisfaction	4.8	3.6	1.2
Dependency and power	4.4	2.4	2.0
Flexibility	4.4	3.2	1.2
Reputation	4.4	4.0	0.4
Loyalty	4.8	4.6	0.2
Relationship history	4.8	4.8	0.0
Gap average value			0.817

What can be deduced from the above table is that there are relatively large gaps in the dimensions of dependency and power, relationship-specific adaptations and investments, satisfaction and flexibility. In addition, the gap between the two dimensions of cooperation coordination and commitment is also considerable. The existence of a relatively large gap in the dimension of dependency and power in this zone can be due to the lack of strategies to create motivation to develop long-term relationships. In addition, the lowness of trust of two parties in each other can be effective. The existence of a gap in two dimensions of relationship-specific adaptations and investments, and flexibility can be due to the inability of parties to create changes that are required because of participation in this relationship. The gap related to satisfaction has also occurred probably because of the failure to achieve the desired results. The gap between cooperation and coordination can also be due to the lack of alignment and adjustment of mutual affairs between the two parties, and the gap of commitment is probably due to the inaccurate perception or attitude towards the created relationship that can be influenced by information sharing and impacts on the commitment.

In Table 3, the summary of collected data related to the second gap is presented:

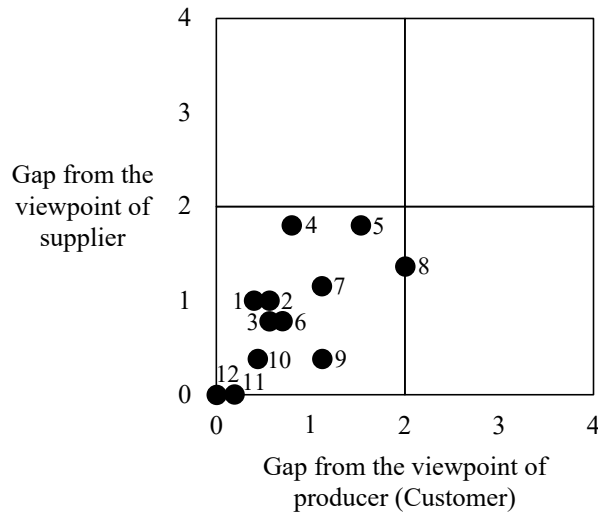
Table 3. Summary of the findings regarding the gap from the viewpoint of the supplier

Relationship quality construct	Expectation average value	Perception average value	Gap value
Trust	4.8	3.8	1.000
Communication	4.6	3.6	1.000
Information and knowledge sharing	4.6	3.8	0.800
Cooperation and coordination	4.2	2.4	1.800
Relationship-specific adaptations and investments	4.4	2.6	1.800
Commitment	4.6	3.8	0.800
Satisfaction	4.8	3.6	1.200
Dependency and power	4.6	3.2	1.400
Flexibility	4.4	4.0	0.400
Reputation	4.4	4.0	0.400
Loyalty	4.6	4.6	0.000
Relationship history	4.8	4.8	0.000
Gap average value			0.883

The relatively large and high gaps existing in this zone can be, on the one hand, due to the importance of most of the relationship quality dimensions from the viewpoint of the producer according to the supplier, because, according to the supplier, the producer seeks a qualified relationship to exploit its advantages and, on the other hand, underestimating the factors from the viewpoint of producer can be rooted in the weaknesses of the supplier in that dimension, and by knowing this he has considered the producer's evaluation in that dimension to be low. Moreover, about the duration of the relationship between these two, and the recognition of supplier and producer from each other, the supplier can also make such evaluations about the producer's weaknesses. For example, in the two dimensions of cooperation and coordination and relationship-specific adaptations and investments, each of which requires some kind of changes, it is likely that from the viewpoint of the supplier, one or both parties of the relationship have deficiencies in these two areas, or respect of dependency and power gap, the lack of incentive for long-term cooperation or both parties' lowness of trust in each other can be the factors that create these gaps. The two dimensions of loyalty and relationship history due to the positive evaluation of the previous relationship of the supplier with the producer can have no gap.

According to the two tables presented, the first gap, which is related to the producer (customer), has a value equal to 0.817, and the average of differences (gaps) between the importance and the evaluation of each one of the factors of relationship quality in the relationship between the producer and supplier is obtained from the viewpoint of the producer. The second gap also results from the average differences in supplier's perception of importance and the evaluation of relationship quality factors from the viewpoint of the producer, and as it is observed has a value equal to 0.883.

As it has been shown in Figure 4, most of the relationship quality dimensions are located in the fourth zone and thus they are in a way located in the main strength point of the relationship between the two parties. To determine the better establishment of each dimension, the fourth zone is divided into four equal sub-zones, it is specified that three dimensions of dependency and power, relationship-specific adaptations and investments, and cooperation and coordination are located in the zones close to other zones and in a way, they can leave the fourth zone with a slight change in the relationship between the two parties. Therefore, it is better to implement actions to maintain and improve the status of these dimensions by the two parties.



1:Trust 2:Communication 3:Information and knowledge sharing 4:Cooperation and coordination
 5:Relationship-specific adaptations and investments 6:Commitment 7:Satisfaction 8:Dependency
 and power 9:Flexibility 10:Reputation 11:Loyalty 12:Relationship history

Fig. 4. Comparison of gap values using quadrant analysis

8. Discussion

The current status of the dimensions of dependency and power can be due to the lack of strategies for creating motivation for the development of long-term relationships. In addition, the low trust of two parties in each other can be also effective in this regard. Moreover, regarding relationship-specific adaptations and investments dimension, the current status can be due to the inability of the two parties to create changes that are required due to participation in this relationship. The reason for the cooperation and coordination dimension status can be also due to the lack of adjustment and alignment of the mutual affairs between the two parties.

8.1 Theoretical implications

In this study, by using more dimensions of relationship quality, the relationship quality has been investigated, and according to Jiang et al. (2016), in connection with investigating the dimensions of relationship quality in the research of this field, the distinction point of this research is specified in applying a more comprehensive list of dimensions. On the other hand, similar to recent studies such as Kumar & Rahman (2016) and Tsai & Hang (2016), who applied new methods in investigating the relationship quality, this study also proposed an integrative approach for investigating relationship quality between producer and supplier, by using two methods of gap analysis and quadrant analysis. While in quadrant analysis, merely one factor is measured on each of the axes of the two-by-two matrix, e.g. Importance-Performance Analysis (Goharshenasan and Shahin, 2017; Phadermrod et al., 2019), in the proposed quadrant analysis, the difference of two factors, i.e. expectation and perception is addressed on each axis. The proposed approach can be recognized as one of the tools/techniques for benchmarking. One of the advantages of the proposed approach over the other approaches is its simplicity in use. As researchers such as Hutton and Zairi (1994) emphasized two significant factors in benchmarking, i.e. strategic importance and ease of

benchmarking. Accordingly, the proposed approach not only contributes to the knowledge of supply chain management but also contributes to the knowledge of benchmarking, as a means of simplifying internal (effectiveness) as well as external (competitiveness) benchmarking.

8.2 Managerial implications

Regarding the findings, appropriate measures to improve the current status relationship quality between the two parties could be explained. To improve dependency and power and consider the reasons for its occurrence, managers can create motivation for the development of long-term relationships with each other by providing incentives such as discounts for the producer and also providing rewards for the supplier in the case of succeeding in the process of supplying and attracting the producer's satisfaction. Moreover, solutions to increase mutual trust can also be effective in reducing this gap. To improve relationship-specific adaptations and investments, designing a precise production plan, trying to optimize the production process, as well as providing assurance storage can be highly helpful in improvement. Finally, to improve the cooperation and coordination dimension, the interaction and relationship of the two involved parties either internally or externally, and also the exchange of more information between them, can be effective in improvement. As stated earlier, most of the supply chain relationship quality studies have suggested and confirmed that an overall supply chain relationship quality has a positive impact on the collaborating partners' performance, while scholarly discussions on which relationship factors are more effective are limited (Qian et al., 2023). Therefore, the proposed approach provides an effective solution for managers and practitioners in selecting the most critical relationship quality dimensions and using them for analyzing their impact on supply chain performance.

9. Conclusions

In this study, an integrative approach was proposed for analyzing the relationship quality of supplier and producer by using gaps and quadrant analysis in Isfahan Sahandbar Transportation Company. Three dimensions of dependency and power, relationship-specific adaptations and investments, and cooperation and coordination were found as dimensions required to be improved and associated improvement actions were suggested, respectively.

As an important advantage of this study, the comprehensive list of dimensions together with the proposed integrative approach seems effective in facilitating the analysis of the relationship quality between producer and supplier. By the use of gap analysis and quadrant analysis, parties can evaluate the relationship quality faster and recognize the dimensions that need improvement and are critical in relationship quality.

9.1 Research limitations and future study agenda

Like any other study, this study has some limitations. Since relationship quality has many dimensions, the dimensions used in this study may not merely be sufficient to determine the relationship quality, while the authors attempted to apply a comprehensive list; therefore, it seems further research on the dimensions of relationship quality will result in more accurate

findings. For example, dimensions such as opportunism, atmosphere and relationship conditions, continuity expectation and stability of the relationship, the level of comparison of alternatives in the relationship, the quality of service or product, customer orientation, and the ethical characteristics of the opposite party and the profit and benefit obtained from the relationship can be considered in the calculation of relationship quality. Each of the relationship quality dimensions has a detailed definition, which makes it difficult to determine and measure them more precisely. This study was limited to the main relationship quality dimensions (12 dimensions) and possible sub-dimensions were not considered for the study. In addition, the proposed solutions to managers to reduce the gaps were obtained by prioritizing the number of gaps in each dimension, and the viewpoints of the two parties involved in the relationship and the prioritization techniques and recognizing the proper actions appropriate to any problem have not been used in prioritizing the dimensions to provide a solution. To analyze data related to the gaps and performance, the simple average method was used. The relative importance of dimensions was considered equal. The statistical population of the producer and the supplier were not large, while the main aim was to propose a new approach and the case study was only a means for testing its applicability. According to the results and Figure 4, most of the dimensions were located in quadrant 4. This implies that the rest of the quadrants in the proposed approach are useless.

Regarding the above-mentioned research limitations, some subjects are suggested as future study opportunities. The relationship quality dimensions should be specialized regarding the case study and concerning the specific field of activity of the producer and supplier. In other words, the dimensions should be specialized and then selected. Because most of the dimensions were located in quadrant 4, this quadrant in turn can be separated into four quadrants further and for each of the sub-quadrants, the priorities of the dimensions can be re-analyzed, hence the proposed approach can be developed to be applied in two phases, if all the dimensions locate in just one quadrant. Researchers and practitioners are suggested to consider relative importance weights for the dimensions. They are also suggested to study sub-dimensions and to consider relative importance weights for them either. Appropriate techniques could be also applied for prioritizing and identifying improvement actions for reducing the gaps in each dimension. The present study could be performed in more organizations with different types of business, i.e., service, manufacturing, etc. and with a larger statistical population.

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