Assessing internal marketplace relationships: measuring internal service quality within a petrochemical company

M. Dhurup & P.B.P.L. Mohamane

A B S T R A C T

Researchers have accentuated the importance of operations management and internal marketing as approaches in fostering a service- and customer-oriented culture within organisations. To ascertain whether internal service quality efforts are successful, managers need a means by which internal service quality can be measured. With limited research being reported on internal service quality, little consensus has been reached on the measurement thereof. Noting the apparent lack of a conceptual framework that illustrates the understanding of the mechanics of internal service quality, the purpose of this study was to develop an empirically tested instrument that could be applied to the measure of internal service quality. Hence the study examines the relationship between administrative personnel (internal suppliers of service) with the research and development personnel (internal customers) within a petrochemical company. Dimensions of this study are compared to the dimensions of the SERVQUAL instrument. The internal service quality dimensions comprise five dimensions, namely: credibility, accessibility/tangibility, preparedness, reliability and competence. The dimensions of accessibility and tangibility, reliability and competence exerted the strongest influence on satisfaction. Effect sizes using Cohen’s d statistic were computed to establish practical differences between the five dimensions with respect to gender and to the different departments. Small and practically non-significant differences were found between the reliability and competence dimensions in the various departments. The reliability and validity of the instrument was explored and found to be acceptable.

Key words: Service quality, internal service quality, internal services, internal marketing, services marketing, operations management

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INTRODUCTION AND BACKGROUND TO THE STUDY

An important tenet of Total Quality Management (TQM) is that each employee should treat other organisational members with whom they interact as valued customers (Finn, Baker, Marshall & Anderson 1996: 36). Within the operations management function, quality is viewed as pertinent in any organisation as it contributes to increased revenue, profitability and market share, and in the process ensures that quality services are offered to both internal and external customers (Pycraft, Singh, Phihlela, Slack, Chambers, Hartland, Harrison & Johnston 2005: 612). Such assertions are in agreement with scholars in the field of marketing, as Chang & Chen (1998: 258), Anderson, Fornell & Lehmann (1994: 60) and Heloifs & Jacobson (1999: 18) reach similar conclusions in their empirical studies.

To establish whether such internal service efforts are successful, managers need a means by which internal service quality can be measured. Thus, when an internal delivery system is designed to match internal customer needs, the results entail more efficient internal exchanges among the various organisational members and departments, lower waste, lower costs and improved internal service quality, which are all pieces of the TQM mosaic (Radcliff & Brooks 1993: 41).

TQM requires all facets of an organisation to be truly effective, as every activity within an organisation, performed by every person, affects the quality of services performed by others (Pycraft et al. 2005: 738), implying that errors in the services provided within an organisation will eventually affect the services that ultimately reach the external customer. While the role of service quality is widely recognised as being a critical determinant for the success of an organisation, high levels of services rendered are seen as a means for an organisation to achieve competitive advantage and differentiation (Berry 1986: 3; Reichheld & Sasser 1990: 105; Metha, Lalwani & Han 2000: 64). A decline in internal customer satisfaction due to poor quality of service would be a matter of concern, as internal consumers are aware of rising standards in service prompted by competitive trends and have developed higher service expectations (Frost & Kumar 2000: 358; McDermott & Emerson 1991: 61).

Internal marketing literature suggests that the way to satisfied customers is through satisfied employees, and that the ability to meet customer requirements is vital, not only between two separate organisations, but also within the same organisation (Heskett, Jones, Loveman, Sasser & Schlesinger 1984: 170). The external focus on customers should thus be equally balanced with a strong focus on internal customers (Bansal, Mendelson & Sharma 2001: 61). The best way to ensure that external customers are satisfied is to establish the idea that every part of the organisation contributes to external customer satisfaction by satisfying its own internal customers (Pycraft et al. 2005: 738) through its various micro operations that form an interconnecting network of physical and information flows within the macro operation. TQM utilises this concept by stressing that each micro operation has a
responsibility to manage these internal customer–supplier relationships. They do this primarily by clearly defining their own needs and those of their customers. In effect, this means defining what constitutes ‘error free’ service: the quality, speed, dependability and flexibility required by internal customers.

TQM is sometimes referred to as ‘quality at source’, thus stressing that quality is the responsibility of each member. In addition, it is necessary to examine all costs and benefits associated with quality, which entails prevention costs, appraisal costs, failure cost and extended failure costs. Furthermore, instead of being reactive, members need to be proactive in preventing anything negative from happening, thereby administering the service properly the first time. Finally, an organisational structure, with responsibilities, procedures, processes and resources for implementation of quality management, should be put in place (Slack, Chambers, Hartland, Harrison & Johnston 1998: 769).

By understanding and responding to employees’ needs and concerns, the level of satisfaction that customers experience within the firm may be enhanced (Bitner, Booms & Tetreault 1990: 77). Piercy & Morgan (1991: 85) claim that internal marketing programmes are a direct parallel to conventional external marketing and operations programmes, using the same concepts and elements. In order to achieve organisational change, there is a need to carry out the same process for the internal marketplace as there is for the external marketplace. Ahmed & Rafiq (2002: 113) affirm that while the focus of internal marketing is on internal marketplace relationships, these relationships influence and enhance external marketplace relationships. For any organisation that aspires to succeed in the long term, the contribution of the operations function is important, as it provides the organisation with an ‘operations-based advantage’ (Pycraft et al. 2005: 48). This can be achieved through five basic performance objectives, namely: doing things right, doing things fast, doings things on time, being able to adapt and change what you do, and doing things cheaply. Figure 1 illustrates the five performance objectives and the advantages derived from them. These operationally based advantages should ideally be incorporated within the company’s marketing objectives to achieve maximum results.

Thus, internal marketing, operations management and marketing, when used together, result in greater customer satisfaction and allow a company to sustain a competitive edge. Like external customers, employees engage in numerous service encounters to satisfy their needs in the course of carrying out their job responsibilities (Kang, James & Alexandris 2002: 279).

PURPOSE OF THE STUDY

Apart from understanding external service quality, marketers need to understand how service quality is enhanced between internal stakeholders within the internal marketplace (Frost & Kumar 2000: 358). In other words, the crucial question to be
Doing things right gives a quality advantage
Doing things fast gives a speed advantage
Doing things on time gives a dependability advantage
Changing what you do gives a flexibility advantage
Doing things cheaply gives a cost advantage

Source: Pycraft et al. (2005: 49)

Figure 1: Performance objectives

answered is how an organisation goes about ensuring that its internal customers receive quality services from its internal suppliers of service. Since internal service quality is necessary for superior external service quality, service providers need to understand service discrepancies in order to be in a better position to understand, directly influence and improve human resources in running internal service operations (Varey 1995: 51).

The purpose of the study was to develop and empirically test an instrument that could be used to measure internal service quality. Within the company, administrators play a pivotal role in ensuring effective service delivery. The current study therefore examines the relationship between administrative staff (internal suppliers of service) and research and development (R&D) employees (internal customers) within a petrochemical company. Figure 2 provides an overview of the study, comparing internal customers’ expectations of services with their perceptions of services based on Parasuraman, Zeithaml & Berry’s (1988: 12–39) Gap Model. The bottom part of the figure represents the operation and marketing domain of quality, while the top part represents the internal customer’s domain. These two domains meet in the actual service encounter, which is provided by the organisation and experienced by the customer (Slack et al. 1998: 637).

PROBLEM STATEMENT

Much of the research literature on service quality and the measurement thereof has focused on organisations serving external customers (Pitt, Bruwer, Nel & Berthon
Source: Adapted from Slack et al. (1998: 637)

Figure 2: The internal customer service quality model

1999: 1). One of the issues raised in the literature is the apparent lack of a conceptual framework to illustrate the understanding of the mechanics of ‘service quality’ within a service organisation (Reynoso & Moores 1995: 68; Frost & Kumar 2000: 372; Varey 1995: 60). There are also many difficulties inherent in evaluating internal service quality. Firstly, perceptions of quality tend to rely on a repeated comparison of the customer’s expectation about a particular service, compared with the actual performance of the service (Johns 1999: 960). If a service, no matter how good, repeatedly fails to meet a customer’s expectation, then the customer will perceive that service to be of poor quality. Secondly, unlike goods markets in which customers evaluate the finished product alone, in services, the customer evaluates the process of the service as well as its outcome (Grönroos 1984: 37). An internal customer requesting a service from an administrator, for example, will evaluate the service not only on the basis of whether the task was performed right the first time, but also on whether the administrator has been friendly, competent and cooperative. Thirdly, while final customers (external customers) typically have a choice about where to do business, internal customers usually have little choice (Finn et al. 1996: 38). However,
they do have the choice of bypassing an internal department and going to an external source, which may increase costs in comparison with making use of shared internal services (Forst 1999: 58).

Researchers have suggested that it is the presence of customers and the unique characteristics of services (namely, intangibility, heterogeneity, inseparability and perishability in the service production process) that distinguish service management from product management (Smith 1990: 25; Lentell 2000: 15). These widely cited attributes penetrate any kind of service, including administrative services. Understanding the complexity of service therefore requires a clearer understanding of its attributes. Firstly, unlike mainstream products, administrative services are intangible and highly subjective (Lentell 2000: 6; Zeithaml, Bitner & Gremler 2006: 22). Intangibility has been conceptualised as ‘impalpable’ and ‘not corporeal’ (Shostack 1977: 74) and as “that which cannot be easily defined, formulated or grasped mentally” (Berry 1980: 34) because of the lack of physical evidence (McDougall 1987: 426). To reduce uncertainty, buyers will look for signs or evidence of the service quality (Kotler 2000: 429) as they draw inferences about the quality from the place, people, equipment, communication material and symbols that they see. Secondly, whereas goods are first produced, then sold and consumed, services are first sold, then produced and consumed simultaneously. Many of the personnel involved in the production are also simultaneously consumers (Wolak, Kalafatis & Harris 1998: 26). Thirdly, the quality of service performance is inconsistent and unpredictable, and thus also varies from person to person, or from one service organisation to another (Zeithaml et al. 2006: 22), which results in non-standardisation of services. Services are delivered by individuals, and each service encounter will therefore be different by virtue of individuality, the time of performance or the circumstances (Gabbott & Hogg 1998: 28). An administrator may be less willing to do something extraordinary for a customer on a Friday afternoon just before closing time than he or she would have been on a Tuesday morning. Fourthly, services cannot be stored and cease to exist the moment they are created. Service marketers are therefore unable to keep an inventory of their services for later use during peak demand (Du Plessis, Rousseau & Blem 1995: 261). Furthermore, administrative services cannot be counted but only experienced or perceived while being produced, which further complicates attempts at measurement.

INTERNAL MARKETING AND SERVICE QUALITY

Internal marketing has been variously defined in the marketing and organisational behaviour literature (Bansal et al. 2001: 63). Grönroos (1981: 236) defines internal marketing as “selling the firm to its employees”. Berry (1981: 33) appropriately encapsulates the internal marketing concept by “viewing employees as internal customers, viewing jobs as internal products that satisfy the needs and wants of these
internal customers while addressing the objectives of the organisation”. In essence, thinking like a marketer cannot be restricted only to external marketing, because by satisfying the needs of its internal customers, a company enhances its ability to satisfy the needs of its external customers.

For effective service delivery, it is not sufficient only to have customer-conscious employees: it is also necessary to have effective coordination between contact staff and background support staff. Hence, the internal marketing concept is also regarded as a means of integrating the various functions that are vital to the customer relations of service companies (Grönroos 1981: 237). In fact, early attempts were made to incorporate an internal marketing focus to complement the external focus of the services marketing literature (Berry 1981: 33; Grönroos 1981: 236). For example, Booms & Bitner (1981: 49) present an expanded marketing mix operationalisation of services marketing, which incorporates three additional elements (namely, people, process and physical evidence), complementing the traditional four elements of the marketing mix on which services marketers should focus. By including people as additional services marketing mix elements, the authors make explicit the need for services marketers to focus internally on employees, as well as externally on customers and competitors (Lings 2002: 406). The process element of the services marketing mix also offers an internal focus concentrating on the service delivery process of the firm, while the physical evidence refers to the physical environment where the service is produced and where the service provider and the customer interact (Jordaan & Prinsloo 2004: 111).

Thus, over the last two decades, internal marketing has been proposed as a management approach that enables and motivates all members of the organisation to examine their own role and adopt customer-consciousness and service orientation (Varey 1995: 40) in which service performers or service support workers are required to meet the needs of external customers (Kang et al. 2002: 279). Lings & Brooks (1998: 453) are of the view that internal marketing aims to ensure that the internal customer is satisfied and that quality is progressively built into the service as it passes through the company, ensuring external customer satisfaction.

Service quality, however, forms an integral part of service marketing. Service quality entails performing the service dependably and accurately. When a company performs a service carelessly, when it makes avoidable mistakes and when it fails to deliver on alluring promises made to attract customers, it shakes the customer’s confidence and undermines its chances of earning a reputation for service excellence. From the customer’s perspective, the proof of a service is its flawless performance (Berry & Parasuraman 1991: 15). The most often used approach for measuring service quality has been to compare customers’ expectations before a service encounter and their perceptions of the actual service delivered (Lewis & Booms 1983: 100). The SERVQUAL instrument (Parasuraman et al. 1988: 12–35) has been the predominant method used to measure customers’ perceptions of service quality. It
measures service quality along five dimensions (namely, reliability, responsiveness, tangibles, assurance and empathy), which Parasuraman et al. claim determine customers’ perception of any service. While the original SERVQUAL instrument has been revised, refined and reformulated (Parasuraman, Zeithaml & Berry 1991: 425; 1994: 112), its primary content remains unaltered. Zeithaml, Parasuraman & Berry (1990: 48) claim that SERVQUAL, with appropriate adaptation, can be used by all departments and divisions of a company to ascertain the quality of service that they provide to employees in other departments and divisions.

Although both academics and practitioners have utilised the SERVQUAL model extensively since its inception in the mid-1980s, it is not without its critics (Carman 1990: 35; Buttle 1996: 9). Analysis of the SERVQUAL literature indicates that the application of the model varies between countries and cultures (Carman 1990: 35; Cronin & Taylor 1992: 55–68; Babakus & Boller 1992: 252–255; Teas 1993: 29). Buttle (1996: 9) reiterates that critics have raised several questions about the dimensionality of the SERVQUAL scale. This leads to the question of whether SERVQUAL is a generic model capable of being applied to all the service industries or whether each type of service requires a modified instrument.

Unfortunately, of the many articles that are important in identifying internal service quality dimensions, only a few could be considered as being methodologically useful from a reliability and validity perspective (Kang et al. 2002: 281). Chaston (1994: 48), for example, measures potential gaps in internal service quality by using a modified version of the SERVQUAL instrument. Young & Varble (1997: 36) assess internal service quality within a purchasing context by applying the original SERVQUAL measures. Edvardsson, Larsson & Setterlind (1997: 255) use the SERVQUAL instrument to explore the relationship between the psychosocial work environment and internal service quality. In fact, Edvardsson et al. (1997: 256) note that our way of measuring internal service quality is inspired by the SERVQUAL instrument, implying that the SERVQUAL instrument guided the development of the measures used. Lings & Brooks (1998: 347) and Frost & Kumar (2000: 374) also propose that the SERVQUAL instrument may be an appropriate tool for measuring the quality of service delivered by internal suppliers to their customers. However, the findings of Frost & Kumar (2000: 376) do not concur with the findings of Parasuraman, Zeithaml & Berry (1985: 45), whose research found the dimension of reliability to have the most significant influence of all the SERVQUAL dimensions on the overall perception of service quality. Studies undertaken by Kang et al. (2002: 278) made use of the modified SERVQUAL items to measure the employee’s perception of internal service quality, and the authors were of the view that substantial changes would have to be made to the wording of the items to capture internal service quality.
RESEARCH STRATEGY

Population and sample frame

The population comprised Technology R&D employees from different departments of a petrochemical company who made regular use of administrative services. The Technology R&D section comprises four departments, namely: Human Resources, Chemistry Research, Process Research and Applied Research. A list of Technology R&D employees was obtained from the Human Resources department database in order to generate a sample of prospective respondents. The database comprised a total of 519 employees in the Technology R&D section.

Data collection method and sampling

The survey method was used to collect data. This method was chosen because it could be easily administered within the Technology R&D section. A sample of 250 was deemed to be adequate for developing and refining the instrument (Finn et al. 1996: 42; Frost & Kumar 2000: 368; Kang et al. 2002: 283).

Measuring instrument

To identify the service requirements of the administrative department’s internal customers, one of the authors conducted unstructured one-on-one interviews with 15 R&D employees. The main part of the interview involved a discussion of the aspects each employee perceived as being important in evaluating internal service quality. The employees were asked to think of administrative encounters, both positive and negative, during their interaction with administrative employees. By providing examples of satisfying and dissatisfying service encounters that employees had experienced, valuable information about what they desire in service encounters could be obtained (Zeithaml & Bitner 2000: 134). R&D employees were also asked to describe their ‘wish list’ with respect to administrative services. Using feedback from these interviews and insights obtained from a review of literature on internal service quality, a questionnaire was developed to suit the internal service setting. Such conceptualisation and operationalisation in scale development is supported by the literature (Johnson, Tsiros & Lancioni 1995: 9; Dabholkar, Thorpe & Rentz 1996: 6; Vazquez, Ignacio, Del-Bostique, Diaz & Ruiz 2001: 9). A total of 251 questionnaires were returned from a possible 519 employees. A total of 22 questionnaires were rejected on the grounds of errors or incomplete responses; 229 questionnaires were used for analysis. This represented a 44% response rate. To maintain the anonymity of respondents, the completed questionnaires were returned to the administrative services office and placed in a box outside the administrative department. The data were collected over a three-week period in June–July 2005. Pre-testing for the study was done with ten employees, including the heads of the R&D and administrative
departments, so as to ensure that the wording and the questions were appropriate and related to the study. Debriefing occurred after the questionnaires had been completed. Changes were made to a draft questionnaire with regard to rephrasing, sequence and appropriateness of the internal service quality attributes. The variables on the questionnaire were transformed to into a 6-point Likert scale in which 1 = Completely fails to meet my expectation and 6 = Exceeds my expectation.

ANALYSIS AND DISCUSSION OF RESULTS

The first step in analysing the internal structures of the service quality construct was to perform exploratory factor analysis in order to examine the dimensionality of the scale. Principal components analysis (unrotated) was first applied. The unrotated factor matrix was difficult to interpret owing to the majority of variables loading on to one factor. Varimax rotation (using Kaiser normalisation) was then applied in order to obtain clearer factor structure. Varimax rotation was also used in order to minimise the number of variables with high loading on a factor, thereby enhancing the interpretability of factors (Malhotra & Birks 2003: 582). Varimax rotation was also used in similar studies (Bahia & Nantel 2000: 87). Variable loadings of 0.40 and above were retained (Churchill & Iacobucci 2002: 809). Item reduction and scale purification were then undertaken, whereby items with low factor loadings, communalities and low-item-to-total correlations were investigated (Chandon, Leo & Philippe 1997: 80; Aldlaigan & Buttle 2002: 369). The iterative process was rerun several times until a clear factor structure emerged. The determination of the number of factors to be extracted was homogeneously and conceptually accomplished by applying a combination of statistical techniques, namely, percentage of variance explained, the eigenvalue criterion and the scree plot, as well as taking into account the interpretability of factors (Malhotra 2004: 567). Five factors with 20 variables were extracted, which coincided with the SERVQUAL model. The final factors structure, eigenvalues and coefficient alpha values are reported in Table 1. The eigenvalues in respect of the five dimensions ranged from 7.73 to 1.00. Together, these factors accounted for 63% of the variance, which is satisfactory according to Malhotra (2004: 567).

The first factor, labelled credibility, comprised six variables and accounted for 39.66% of the variance. This factor relates, inter alia, to the credible aspects of efficiency, honesty, feedback and courtesy afforded by the administrative staff to the personnel from the Technology R&D section. The factor incorporates the reliability and assurance aspects of the SERVQUAL scale. Given the intangible nature of services and the inseparability of production and consumption of services, it is difficult for customers to undertake prior evaluation of a service. The trustworthiness and authenticity of the internal supplier of service thus becomes a crucial determinant in internal service quality evaluation (Malhotra, Ulagado, Agarwal &
Table 1: Rotated factor loading matrix

<table>
<thead>
<tr>
<th>Item</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs services effectively</td>
<td>0.603567</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides feedback to my requests</td>
<td>0.722603</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consults with me in decision-making</td>
<td>0.560962</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displays honesty</td>
<td>0.658718</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepts fellow colleagues’ decisions</td>
<td>0.667964</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courtesy displayed</td>
<td>0.588405</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to cooperate</td>
<td></td>
<td>0.538225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides services consistently</td>
<td></td>
<td>0.770799</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility of the unit</td>
<td></td>
<td>0.723117</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance of materials and products</td>
<td></td>
<td>0.619542</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides advice and guidance</td>
<td></td>
<td></td>
<td>0.677319</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates flexibility</td>
<td></td>
<td></td>
<td></td>
<td>0.727781</td>
<td></td>
</tr>
<tr>
<td>Knowledge and skills to perform services</td>
<td></td>
<td></td>
<td>0.647802</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understands my specific needs</td>
<td></td>
<td></td>
<td></td>
<td>0.491850</td>
<td></td>
</tr>
<tr>
<td>Performs services right the first time</td>
<td></td>
<td></td>
<td></td>
<td>0.783393</td>
<td></td>
</tr>
<tr>
<td>Provides services at required time</td>
<td></td>
<td></td>
<td></td>
<td>0.773750</td>
<td></td>
</tr>
<tr>
<td>Provides accurate information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.627442</td>
</tr>
<tr>
<td>Provides information as promised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.495402</td>
</tr>
<tr>
<td>Handling of confidential information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.638318</td>
</tr>
<tr>
<td>Understands our problems and constraints</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.788807</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>7.93</td>
<td>1.31</td>
<td>1.21</td>
<td>1.11</td>
<td>1.00</td>
</tr>
<tr>
<td>% of variance explained</td>
<td>39.66</td>
<td>6.59</td>
<td>6.07</td>
<td>5.57</td>
<td>5.03</td>
</tr>
<tr>
<td>Cumulative %</td>
<td>39.66</td>
<td>46.25</td>
<td>52.33</td>
<td>57.91</td>
<td>62.94</td>
</tr>
<tr>
<td>Reliability (Cronbach alpha)</td>
<td>0.83</td>
<td>0.76</td>
<td>0.78</td>
<td>0.79</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Baalbaki 1994: 9). The second factor, labelled accessibility and tangibility, comprised four variables and accounted for 6.59% of the variance. This factor incorporates issues relating to cooperation, consistency of services, accessibility and the physical appearance of the materials and products provided by the administrative personnel. One responsiveness and one tangible variable of the SERVQUAL scale are captured in this dimension. Since production and consumption of a service are inseparable, a customer’s ease of contact with and timely access to the service supplier are crucial. The third factor, preparedness, comprised four variables and accounted
for 6.07% of the variance. This factor emphasised that aspects such as guidance, flexibility, demonstrative skills and understanding internal customers’ specific needs are high on the agenda in service quality evaluation. Only one variable from the empathy dimension of the SERVQUAL scale is, however, incorporated into this dimension. The premise of knowing and understanding customer needs serves as the basis for relationship marketing (Malhotra et al. 1994: 7). The fourth factor, labelled reliability, comprised three variables and accounted for 5.50% of the variance. The emphasis of this factor is on performing services right the first time, with timely and accurate provision of services and information. This was the only factor that incorporated most of the variables of the reliability dimension in the SERVQUAL scale. The fifth factor, labelled competence, comprised three variables and accounted for 5.03% of the variance. The emphasis of this dimension is on the provision and handling of information and understanding internal customer problems and complaints. This dimension varies significantly from the SERVQUAL scale but is similar to the internal service quality competence dimension of Lings & Brooks (1998: 340).

A comparison of the SERVQUAL scale dimensions with the current study is reflected in Table 2. The reliability and competence dimensions acknowledged by internal customers as an important factor in service quality requires not only knowledge and skills to be sufficient for the task, but also that the services should be performed effectively. Perhaps part of the variation from the SERVQUAL scale reported in this study was due to the changing of the wordings and variables included in the questionnaire – a decision directed by organisational setting, literature review and the one-on-one interviews conducted prior to the main study. In addition, cognisance must be taken of the cultural environment within which the study was undertaken. Researchers raise the issue that the relative importance of service quality dimensions may vary between countries due to cultural variations (Malhotra et al. 1994: 10).

Furthermore, other studies on internal service quality have reported on dimensions that varied from and were not altogether congruent with the SERVQUAL scale (Brooks, Lings, Martina & Botschen 1999: 58). While the naming of the dimensions varied to some extent from those of the SERVQUAL scale, an examination of the content of the dimensions proposed in this study shows that they bear some similarities to the original SERVQUAL measures. Whereas the Parasuraman et al. (1988: 12–35) SERVQUAL model is in part encapsulated in this scale, the number and types of dimensions lend support to the findings of Carman (1990: 35), Buttle (1996: 9) and Babakus & Boller (1992: 252) that the service quality construct depends to a large extent on the service industry under investigation, its service settings and its related service attributes.
Table 2: Comparison of dimensions with the SERVQUAL scale

<table>
<thead>
<tr>
<th>Variables</th>
<th>SERVQUAL</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs services effectively</td>
<td>Responsiveness</td>
<td>Credibility</td>
</tr>
<tr>
<td>Provides feedback to my requests</td>
<td>Responsiveness</td>
<td>Credibility</td>
</tr>
<tr>
<td>Consults with me in decision-making</td>
<td>Responsiveness</td>
<td>Credibility</td>
</tr>
<tr>
<td>Displays honesty</td>
<td></td>
<td>Credibility</td>
</tr>
<tr>
<td>Accepts fellow colleagues’ decisions</td>
<td>Assurance</td>
<td>Credibility</td>
</tr>
<tr>
<td>Courtesy displayed</td>
<td>Assurance</td>
<td>Credibility</td>
</tr>
<tr>
<td>Willingness to cooperate</td>
<td>Responsiveness</td>
<td>Accessibility/tangibility</td>
</tr>
<tr>
<td>Provides services consistently</td>
<td></td>
<td>Accessibility/tangibility</td>
</tr>
<tr>
<td>Accessibility of the unit</td>
<td></td>
<td>Accessibility/tangibility</td>
</tr>
<tr>
<td>Appearance of materials and products</td>
<td>Tangibles</td>
<td>Accessibility/tangibility</td>
</tr>
<tr>
<td>Provides advice and guidance</td>
<td></td>
<td>Preparedness</td>
</tr>
<tr>
<td>Demonstrates flexibility</td>
<td></td>
<td>Preparedness</td>
</tr>
<tr>
<td>Knowledge and skills to perform services</td>
<td>Assurance</td>
<td>Preparedness</td>
</tr>
<tr>
<td>Understands my specific needs</td>
<td>Empathy</td>
<td>Preparedness</td>
</tr>
<tr>
<td>Performs services right the first time</td>
<td>Reliability</td>
<td>Reliability</td>
</tr>
<tr>
<td>Provides services at required time</td>
<td>Reliability</td>
<td>Reliability</td>
</tr>
<tr>
<td>Provides accurate information</td>
<td>Reliability</td>
<td>Reliability</td>
</tr>
<tr>
<td>Provides information as promised</td>
<td>Reliability</td>
<td>Competence</td>
</tr>
<tr>
<td>Handling of confidential information</td>
<td></td>
<td>Competence</td>
</tr>
<tr>
<td>Understands our problems and constraints</td>
<td>Reliability</td>
<td>Competence</td>
</tr>
<tr>
<td>Safe in transactions</td>
<td>Assurance</td>
<td></td>
</tr>
<tr>
<td>Modern equipment</td>
<td>Tangibles</td>
<td></td>
</tr>
<tr>
<td>Employees’ appearance</td>
<td>Tangibles</td>
<td></td>
</tr>
<tr>
<td>Visually appealing facilities</td>
<td>Tangibles</td>
<td></td>
</tr>
<tr>
<td>Deals with customers in a caring fashion</td>
<td>Empathy</td>
<td></td>
</tr>
<tr>
<td>Convenient business hours</td>
<td>Empathy</td>
<td></td>
</tr>
<tr>
<td>Gives customers individual attention</td>
<td>Empathy</td>
<td></td>
</tr>
<tr>
<td>Has the customer’s interest at heart</td>
<td>Empathy</td>
<td></td>
</tr>
</tbody>
</table>

Hence, it was not surprising that differences emerged, as only a few of the dimensions of the SERVQUAL scale were found to be efficacious within the context of internal service quality. The results also indicate that the SERVQUAL authors were optimistic in their claim that “the instrument has been designed to be applicable
across a broad spectrum of services” (Parasuraman et al. 1988: 31). The SERVQUAL model does, however, provide valuable conceptual and operational insights to the measurement of service quality. The differences between the external and internal service quality dimensions identified as important may also be explained by the standardised nature of the work involved in value-adding activities undertaken by administrative personnel. Interactions involving value-adding functions, either as internal supplier or internal customer, will require attention to detail to ensure that the standardised operational nature of the work is not compromised. The main driver for internal service quality appears to be the external customer, who makes demands on the internal customer. Internal customers in turn make demands on the administrative department within the value chain. This implies that an internal service quality wave-front, driven by the external customer, moves backwards through the organisation along the value chain and out towards the support functions, in this case the administrative staff (Brooks et al. 1999: 58). The ramifications of this mean that attempting to improve service quality by concentrating only on customers facing staff is inappropriate.

The study proceeded to establish the internal consistency reliability of the five factor solution by computing the coefficient alpha value (Cronbach α). The standardised coefficient alpha for the entire scale was 0.92. The results are reported in Table 2. The coefficient alpha values obtained from factors one to five were 0.83, 0.77, 0.78, 0.79 and 0.66 respectively. The internal consistency reliability values for factors one to four were considered adequate, that is, above 0.70 (Nunnally 1978: 245), whereas factor five indicates marginal acceptance. The reliability value for factor five is deemed acceptable, as this was an exploratory study (Hair, Anderson, Tatham and Black 1998: 118). In addition, the high coefficient alpha value reported for the total internal service quality scale (Cronbach α = 0.92) supported the inclusion of the fifth dimension.

To ensure that the internal service quality scale satisfies content validity, a mixed methodology research process was followed. Initially, a qualitative data collection process (namely, one-on-one interviews) was undertaken to ascertain internal customer perceptions of services. Content validity was also established by pre-testing the questionnaire.

Discriminant validity, in this context, refers to the ability of the research instrument to assess the unidimensionality of underlying dimensions. Evidence of reliability and validity confirm the construct validity of the measuring instrument (Bosch, Boshoff & Louw 2003: 43). In assessing the discriminant and construct validity of the research instrument, exploratory factor analysis was conducted. In each step of this procedure, scale purification was undertaken, in which individual items were removed from the research instrument to improve the discriminant and construct validity until all items demonstrated acceptable levels of discriminant validity (that is, all the items load on a common factor only with no cross-loadings) and construct validity (that is, all the
items relating to each dimension have factor loadings of at least 0.4). Furthermore, the reliability of a scale as measured by the coefficient alpha reflects the degree of cohesiveness among scale items and is also an indirect indicator of convergent validity (Parasuraman et al. 1988: 30).

The study proceeded to establish practical significant differences between the established factors and gender as well as for the different departments. For the purpose of analysis and to facilitate comparisons, the four departments in the Technology R&D section were considered as two homogeneous departments, namely, the Human Resources and the Science department (with the latter comprising the three research departments – Chemistry Research, Process Research and Applied Research). Figure 3 reflects the composition of the sample in terms of gender. It seems that the research and development environment is still more dominated by males (52%) than by females (48%). However, given that there are differences, albeit small, the study proceeded to establish whether such differences between the empirically established dimensions (factors) and gender are likely to be of practical significance by using effect sizes.

Figure 3: Gender composition of the sample

Steyn (2000: 1) advocates the use of practical significance in non-probability samples. Since convenience samples were used, statistical inference is not relevant. Effect sizes using Cohen's $d$ (also called delta) statistic were therefore used to establish practical significance (Thomas & Nelson 2001: 106). This eliminates the use of t-tests and p-values as techniques for analysing statistically significant differences between means (Ellis & Steyn 2003: 51).
The effect sizes (d values) were calculated by using the following formula (Steyn, Ellis & Musika 2004: 38):

\[ d = \frac{|x_1 - x_2|}{s_{\text{max}}} \]

where:
- \( d \) = effect size
- \( x_1 - x_2 \) is the difference between the means of the two groups (male and female; Human Resources and Science departments)
- \( s_{\text{max}} \) is the maximum standard deviation of the two compared groups.

The maximum standard deviation was used instead of a mean standard deviation, as it allows for a more conservative approach to analysing the practical significance (Steyn 2000: 1). The author further denotes effect sizes as follows:

- \( d \approx 0.2 \), small effect, practically non-significant
- \( d \approx 0.5 \), medium effect and points towards practical significance
- \( d \approx 0.8 \), large effect and the results are practically significant.

To establish whether there are practically significant differences between male and female evaluation with regard to internal service quality, effect sizes were computed on the respective dimensions. Cohens’s d statistic on effect sizes is reported in Table 3.

### Table 3: Effect sizes for internal service quality dimensions and gender

<table>
<thead>
<tr>
<th>Construct description</th>
<th>Male</th>
<th>Female</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard deviation</td>
<td>Mean</td>
</tr>
<tr>
<td>Credibility</td>
<td>4.287222</td>
<td>0.733425</td>
<td>4.130275</td>
</tr>
<tr>
<td>Accessibility/tangibility</td>
<td>4.484028</td>
<td>0.733144</td>
<td>4.259174</td>
</tr>
<tr>
<td>Preparedness</td>
<td>4.264583</td>
<td>0.762360</td>
<td>4.172018</td>
</tr>
<tr>
<td>Reliability</td>
<td>4.191667</td>
<td>0.795250</td>
<td>4.006116</td>
</tr>
<tr>
<td>Competence</td>
<td>4.336111</td>
<td>0.766351</td>
<td>4.180428</td>
</tr>
</tbody>
</table>

Constructs 1 and 4 revealed a small effect. Internal customers are in agreement that efficiency, feedback, adequate consultation, honesty, acceptance and courtesy are hallmarks of enhanced internal service delivery (\( x_1 \) and \( x_2 \) both \( > 3.0 \), indicating agreement on the Likert-type scale).

Both male and female employees are of the view that the administrative personnel perform services right the first time, at the required time and provide accurate information (both \( x_1 \) and \( x_2 > 3.0 \)).
However, male employees agree that internal service quality is realised through cooperation, consistency in services, accessibility and appearance of the materials and products delivered by administrative personnel, all of which are manifestations of accessibility and tangibility, while their female counterparts differ in their perspective \((x_1 - x_2 > 0)\).

From the effect sizes reported in Table 4, it is evident that personnel from the Human Resources and Science departments differ significantly (as regards practically significant effect sizes) on the following issues:

- **Competence of the administrative personnel (internal suppliers of service).** Employees from the Human Resources department feel that the administrative personnel are more competent, while the experiences of employees from the Science department differed moderately \((x_1 - x_2 > 0)\).

- **Reliability of the administrative personnel.** Once again, employees from the Human Resources department feel that the administrative personnel are reliable, while employees from the Science department do not share the same sentiments \((x_1 - x_2 > 0)\).

Construct 2, however, revealed a small effect. Both the employees from the Human Resources and Science departments agree that the internal suppliers of service (administrative personnel) are easily accessible and that the materials and products delivered are of an acceptable standard.

Table 4: Effect sizes for internal service quality dimensions and departments

<table>
<thead>
<tr>
<th>Construct description</th>
<th>Human resources department</th>
<th>Science department</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Standard deviation</td>
<td>Mean Standard deviation</td>
<td></td>
</tr>
<tr>
<td>Credibility</td>
<td>4.233333 0.758491</td>
<td>4.206019 0.749380</td>
<td>0.036010</td>
</tr>
<tr>
<td>Accessibility/tangibility</td>
<td>4.525000 0.532943</td>
<td>4.358025 0.785261</td>
<td>0.212349</td>
</tr>
<tr>
<td>Preparedness</td>
<td>4.300000 0.685160</td>
<td>4.210648 0.761854</td>
<td>0.117282</td>
</tr>
<tr>
<td>Reliability</td>
<td>4.366667 0.999383</td>
<td>4.080247 0.809977</td>
<td>0.286596</td>
</tr>
<tr>
<td>Competence</td>
<td>4.500000 0.671280</td>
<td>4.240741 0.804809</td>
<td>0.322137</td>
</tr>
</tbody>
</table>

**CONCLUSION, RECOMMENDATIONS, LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH**

If quality services are to be delivered, employees must view themselves an important link in the value chain. However, if employees endure poor quality of service from
their colleagues and the organisation as a whole, it is likely that services will suffer. A culture of internal service may be difficult to create in large bureaucratic organisations where there are few mechanisms for receiving feedback about service (McDermott & Emerson 1991: 62). By focusing on internal customer service, providing value and strategically marketing its service, an internal department can increase its value to the organisation and reduce the likelihood that it will become a candidate for outsourcing. Programmes focusing on internal customer service can build accountability, improve employees’ understanding of how to meet or exceed customer expectations and create an internal culture that serves as a foundation for Total Quality Management.

High levels of internal service quality lead to satisfied internal customers, which leads to high levels of cooperation between client and customer departments (Finn et al. 1996: 42). A valid and reliable measure of internal service quality has been developed, which administrative managers can use as a tool to improve internal service quality within organisations. While many service quality attributes may influence an employee’s perception of internal service quality, the results infer that some attributes have a greater impact on overall perception of internal service quality. The accessibility and tangibility, reliability and competence dimensions significantly influence overall internal service quality perceptions. With practical differences accounted for in the competence and reliability dimensions, especially from the perspective of employees in the Science department, the administrative personnel should examine elements of these dimensions carefully with the objective of improving service delivery. The findings do not imply that managers neglect other quality dimensions (for example, credibility and preparedness). An organisation should have a checklist of best practices with regard to the five dimensions and monitor whether such practices are implemented. With this knowledge of internal service quality dimensions, service departments can judge how well employees perform on each dimension, and managers can identify weaknesses in order to implement corrective actions. This study provides a foundation for internal service quality evaluation that managers of an administrative department can use as a feedback mechanism. Managers can also measure performance on each dimension to evaluate the service quality of internal departments. Measuring a department’s performance gives managers a benchmark for tracking the effect of modifying components of the internal service quality delivery system. Tracking results over time is critical because improving internal service quality should be an ongoing process. In addition, internal customer expectations will change as departments react to the changing needs of external customers. Measuring internal customer service quality provides a quantitative baseline for comparing results over extended time periods and enables fact-based decision-making (Forst 2002: 12).

The study was conducted on one site only. Similar studies in the future could be extended by collecting data from the administrative departments of other types of
companies to refine the measures described. Similar measurement development processes could be undertaken in other service departments within the organisation, for example, the Human Resources department. Some universality of items may be possible across other service departments, but each service department may require a set of items tailored to the unique aspects of the services it delivers. The use of a single case-based approach to this research prevents any generalisation of the results to other organisations. The study concentrated on one organisation within the service sector, and it is possible that there are differences in internal marketing application both between organisations within the same industry sector and between organisations in different industry sectors. It is also important to note that while the five dimensions measured were found to be important indicators of internal service quality, other dimensions of internal service quality may also be important. Future research work to identify other dimensions of internal service quality in different internal service settings is welcomed. Future research initiatives could also examine the relationship between internal service quality and external customer satisfaction, which could further advance our understanding and methods of measurement and improve internal service quality. It is hoped that this study will provide a catalyst for further research.

REFERENCES


