Introduction

In the past in higher education, the quality of the academic product, that is the student, was the major focus, and service quality came a poor second. Recently, the interest in measuring service quality through quality assurance has noticeably increased, and produced benefits for all stakeholders involved, which include students, faculty, future employers and, ultimately, the state. Quality assurance in higher education has the objectives of, in conjunction with other methods: the promotion of high quality and standards in teaching and learning, the provision to all stakeholders of reliable and consistent information about quality and standards, the identification of areas of unsatisfactory provision, and accountability. The degree of quality assurance is usually measured by means of a quality audit that ensures that quality provision in an institution is satisfactory and effective while quality assessment is concerned with the external review of, and judgement about, the quality of teaching and learning in institutions.

An institutional self-assessment is a method of determining whether services, products and management processes meet quality standards. Such services or products have to meet the expectations of the customer, or client. In higher education both students and employees are customers. In addition, the introduction of a quality philosophy ensures that by eradicating both defects and the need to repeat work that was done badly the first time, the institution can allocate resources more efficiently thus producing more with the same level of resources. 'It is only by evaluating what is being done now, and what has been done in the past that the future can be planned with confidence' states Hardie (1998).

It must be recognized that an effective quality management programme is unique for each organization, which means it is essential to take into consideration local environmental needs and conditions in order to develop and design relevant assessment methods, and it is a continuing process without an end that has to be an integral part of the college management process. Such a process, above all else, facilitates learning. West-Burnham (1994)

summarises this by stating 'the responsibility for quality rests directly with the organization itself and is expressed through its relationship with its customers' and that 'quality cannot be imposed from outside – from outside the institution, outside the team, outside the individual'. However, it is necessary to overcome resistance to a change in the culture of the institution from staff and managers, which requires patience and persistence.

This resistance may stem from staff concentrating on achieving performance targets thereby inhibiting learning as aims and targets are not questioned. If progress can be made in overcoming this resistance and in encouraging staff and managers to learn, 'a learning organization may be achieved where improvement in the quality of the students' experience was founded on the capacity of the staff to learn, that is, to open themselves to self-questioning based on a range of information' (Lumby 2001).

In the Kingdom of Saudi Arabia, the desire to meet, or exceed, international standards on quality has resulted in major changes in all sectors including higher education. 'The Saudi Arabian higher educational system, especially universities, have special structure and characteristics that call for effective performance measuring and evaluation' (Al-Turki and Duffuaa, 2003).

King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran, Saudi Arabia was established in 1963 and currently has over 7,000 students. KFUPM has faculty members from many different countries and, hence, many different educational systems and training systems are represented. 'This blend of cultures enriches the academic departments' (Al-Turki and Duffuaa, 2003). While the vast majority of the students are Saudi from all over the Kingdom, there are students from many different countries for some of whom Arabic is not their first language. The Preparatory Year faculty are all native speakers of English, but still come from a variety of countries. Students primarily study English, which is the sole medium of instruction in the University, and mathematics for two semesters in the Preparatory Year Program before becoming Freshmen.

At present, there is no mechanism for institutional self-assessment in the Preparatory Year and students are asked to evaluate only their teachers by means of an end of semester questionnaire. The writer feels that it would be better to administer a questionnaire that encompasses the whole student experience. As there is presently no mechanism for the reliable measurement of satisfaction of Preparatory Year faculty, it is essential to have mechanisms that collect genuine views of faculty as well as students with regard to their opinion of the University, the department, their activities and management processes so that assumptions, which may well be false, are not made and these perceptions can be used beneficially by the department to implement any necessary or desired change. In the case of KFUPM, separation of non-academic and academic aspects is probably undesirable since all faculty, and a large proportion of students, live on campus, and all facilities and services are provided by the university. Therefore, the writer believes, that dissatisfaction with non-academic aspects of the whole University experience is likely to have an influence on academic aspects, and ultimately the standard of teaching. Furthermore, the surveying of student and faculty opinion should create a feeling that their views are important and are listened to.

Therefore, the writer has set out to determine through the literature survey whether it is possible to measure service quality by designing an instrument using the importance/performance paradigm. The instrument comprises of two questionnaires; one for faculty and the other for students, that can measure the level of service quality. In addition, similarities in the degree of satisfaction between both groups on similar items will be searched for. This instrument could then form, with probable refinements after this study, an important part of a regular, institutional self-assessment for which the gathering of reliable data is imperative.

The proposed instrument is essential since "quality is so complex a concept that it cannot be measured by a series of *ad hoc* studies," (Palmer 1998). Therefore, the measurement of

customer perceived service quality requires the development and application of a series of more detailed attribution techniques. In seeking to design such instruments, it is important to appreciate the complexities associated with measuring and enhancing quality in higher education. A suitable instrument would be a straightforward measure of how well a service meets customers' needs and one that is both psychometrically sound and practical. Many existing instruments concentrate too much on psychometric performance and not enough on practical value which should be their purpose, i.e. their practical value in informing, continuous quality improvement efforts.

The instrument employed should collect information about factors relevant to the students' and faculty's perceptual processing and satisfaction level, and communicate the results in a format, either pictorially and graphically, that can then be used to target specific service requirements. In addition, this in itself has the potential to help an institution improve its image to the point where students' and faculty's perception may change. from negative or neutral to positive. Furthermore, it may be possible over time for an institution to identify troubling perceptions before they become critical.

Since valid, reliable and replicable measures of service quality are needed, it is necessary to identify and implement the most appropriate measurement tool in order to gain a better understanding of the quality issues that impact on students' learning, faculty's teaching and the total student and teacher experience. In short, a simple measuring methodology for evaluating service is needed and one that measures how service is perceived from the customers' point of view but also what is important to the customer. Information obtained from such an instrument will prove invaluable in terms of the developments of strategies.

Literature Review

This review of the relevant literature begins with a description of the important measurement instruments of service quality in common use in the business sector and then describes their application in higher education. The four main instruments which are Grönroos' Service Quality Model, the Gap Model (SERVQUAL), SERVPERF and importance-performance analysis are outlined and the use in higher education of the latter three is described. Based on the conclusions made on the use of each instruments in higher education, the reasons for selecting the importance-performance analysis are stated. This is followed by a detailed critique of the dimensions formulated by the writers whose studies are discussed. Finally, longitudinal factors are described and discussed.

Measuring Service Quality

Service quality is an abstract and elusive construct because of three features unique to the service delivery: intangibility, heterogeneity and inseparability of production and consumption. Unfortunately, none of these features can be measured using traditional performance measures since such measures are based on manufacturing products that are tangible, homogeneous and separable from their production and consumption.

'The will-o'-the-wisp' (Hill 1995) nature of service quality is well expressed by Tan (1986), who describes it as being 'like beauty in the eye of the beholder'; in other words, it has different meaning for different people. Similarly, Coate (1990) wrote that 'quality is what our customers tell us it is, not what we say it is'. Progress can only be determined and improved by measurement'. Likewise, Berry *et al.* (1990) see consumers as being the sole judges of service quality. In terms of how consumers actually assess service quality, Berry *et al.* (1985) conclude that consumer perceptions of service quality result from comparing expectations prior to receiving the service and their actual experience of the service. Therefore, if the consumer's expectations are met, service quality is perceived to be satisfactory. If they are not met, service quality is perceived to be less than satisfactory. If

they are exceeded, service quality is perceived to be more than satisfactory and the customer is delighted. A similar approach is taken by Grönroos (1984).

For those wishing to manage service quality, it is most important to have some understanding of consumer expectations, how such expectations develop, and their significance in relation to service quality. 'Knowing what customers expect is the first, and possibly most critical, step in delivering service quality' (Zeithaml *et al.* 1990). Once formed, these expectations will be the basis of evaluation for subsequent service transactions

Many conceptual models of service quality have been proposed. Most of these models have concentrated on measuring the gap between customer expectations and experiences as a determinant of satisfaction. However, exactly how consumer evaluations of a service are formed, is still mainly a matter of hypothesis. This has developed into the perceptions minus expectations (P–E) conceptualization of service quality referred to as 'gap theory'. This 'suggests that the difference between consumers' expectations about the performance of a general class of service providers and their assessment of the actual performance of a specific firm within that class drives the perception of service quality' (Cronin and Taylor, 1992).

The disconfirmation paradigm which attempts to make a comparison between expectations and experiences over a number of attributes is the basis for most studies on the measurement of service quality in education. There are two popular models employing the perceptions minus expectations conceptualization of service quality in use today: Grönroos' service quality model and the Service Quality Gap Model (SERVQUAL) of Parasuraman *et al* (1985).

While SERVQUAL has attracted a lot of attention for its conceptualization of quality measurements, it has also attracted a lot of criticism**.** As a result, performance-only-based measures of service quality might be an improvement in the measurement of service quality. One such technique is SERVPERF which makes use of the original SERVQUAL scale items and performance is rated by customers on a Likert scale ranging from strongly disagree to

strongly agree. Expectations are not measured since accurate expectations measures can only be obtained prior to the service encounter quality according to Cronin and Taylor (1992). Studies using SERVPERF found better explanations of the variance in an overall measure of service quality. In addition, the use of SERVPERF overcame some of the problems associated with SERVQUAL such as raising expectations, administration of a two-part questionnaire and the statistical properties of difference scores.

To overcome the limitations of a performance-only-based instrument, importance-performance analysis (IPA) has increasingly been employed for its 'simplicity, ease of application and diagnostic value' (Joseph and Joseph, 1997). IPA is best described 'as an absolute measure of performance, which also seeks to identify the underlying importance ascribed by consumers to the various quality criteria under assessment' (Martilla and James, 1977).

Measuring Service Quality in Higher Education

Performance measurement is crucial since it is by measurement that the effectiveness of quality improvement processes can be analyzed and institutional accountability can be demonstrated. It is equally crucial that the measurement instruments employed be controlled, and preferable developed, by the practitioners or the institution can lose ownership of its means of improvement. It is up to the practitioners themselves to devise measurement instruments that allow them to monitor the targets that they themselves have set. Therefore, the instruments need to be situation specific (Sallis, 2002). In addition, the instrument must produce valid, reliable and replicable measures of service quality (Joseph and Joseph, 1997; Rowley, 1997; Oldfield and Baron, 2000). Many of the available instruments are too costly, too complicated or inappropriate for what is being measured.

Both qualitative and quantitative methods may be employed. Qualitative methods, which include interviews, focus groups, customer role-play and observation research, while highly subjective, do provide valuable information on the mindset of a student. However, such

methods require the user to have specialist training and they are usually expensive and time consuming to administer. On the other hand, quantitative methods, which can be used on a regular basis, are usually more objective and measurable. In addition, they can be administered easily by way of exit surveys, telephone surveys and/or questionnaires.

The confirmation-disconfirmation paradigm has been widely used in higher education and attempts to explore the relationship between a student's pre-consumption expectations and their perceptions of actual service quality. Such models assert that service quality can be conceptualized as the difference between what a student expects to receive and their perceptions of actual delivery. Satisfaction, therefore, is seen as service performance exceeding some form of standard. Both inferred models and direct disconfirmation models have been employed in higher education. Inferred models such as SERVQUAL, measures expectations and perceptions separately and attempts to gauge the size of the gap between the student's expectations and the actual performance received which produces a measure of how well the service performed relative to what the consumer expected. Direct disconfirmation models, such as SERVPERF and IPA, attempt to evaluate student perceptions only, thereby providing an absolute measure of performance which is a measure of how the service performed on the basis of the student's absolute level of satisfaction or dissatisfaction with the service received.

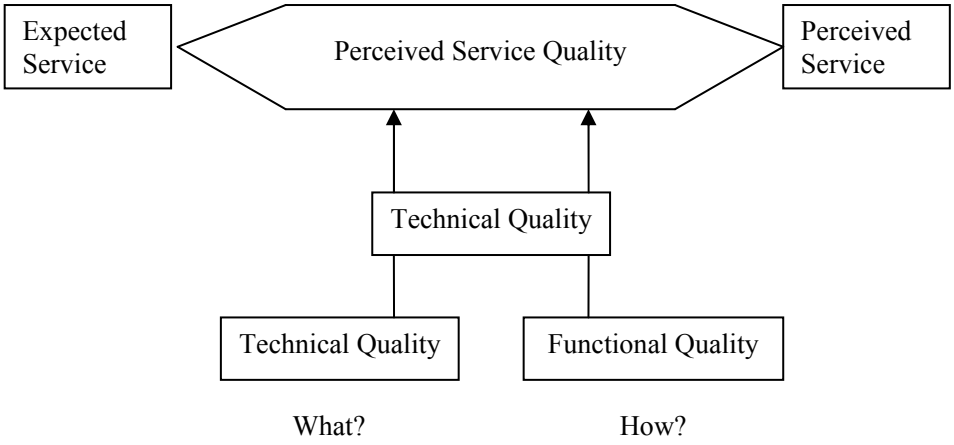
These three principle models are each examined in detail with special regard to their use in higher education in the following sections while Grönroos' service quality model is described, its use in higher education is exceedingly limited and therefore is not described in detail.

Grönroos' Service Quality Model

Grönroos (1984) produced a model that attempts to illustrate how the quality of a given service is perceived by customers (see Figure 1). These perceptions are divided into two dimensions. First, technical quality is what the consumer receives or the outcome of the service encounter, for example 'have the dry cleaners got rid of the stain?' (Hill 1995). This

dimension is called outcome quality by Parasuraman, Zeithaml and Berry (1985). Second, functional quality is how the consumer receives the technical outcome or the process of service delivery, for example 'were the dry cleaners' counter staff courteous?' (Hill 1995).

Figure 1 Grönroos Quality Model (1984)



This dimension is called process quality by Parasuraman *et al*. (1985). Grönroos (1984) suggested that, in the context of services, functional quality is more important than technical quality, assuming the service is provided at a technically satisfactory level. In 1990, Grönroos added a third dimension: 'reputational quality' which is a reflection of the corporate image of the service organization. or the corporate image that relates to the overall picture of an organization perceived by the customers (Hill 1995).

In 2000, Grönroos produced a compilation of seven criteria of service quality based on an integration of available studies and conceptual work (Grönroos, 2000).

1. *Professionalism and skills*. The service provider has the knowledge and skills required to solve the customer's problem.

2. *Attitudes and behaviour*. The service employees are concerned about the customers and their problems.

3. *Accessibility and flexibility*. It is easy to get access to the service and the provider is prepared to adjust to the demands and wishes of the customer.

4. *Reliability and trustworthiness*. Customers can rely on the service provider to keep promises and perform with the best interest of the customer at heart.

5. *Service recovery*. Whenever something goes wrong, the service provider will take action to find a new, acceptable solution.

6. *Serviscape*. The physical surrounding and other aspects of the environment.

7. *Reputation and credibility*. The service provider can be trusted, gives adequate value for money and stands for values, which can be shared by the customer.

While these general quality dimensions and criteria are important in conceptual understanding of services, they might not be sufficient as it is important to study quality in each specific situation (Lagrosen, 2001). As a result, it may well be necessary to complement these general quality dimensions with specific quality dimensions developed for each particular situation.

Grönroos' service quality model has not been extensively employed in quality assessment in higher education and, as a result, is not further discussed.

The gap model (SERVQUAL)

Parasuraman, Zeithaml and Berry (1985, 1988, 1991) began a series of systematic and multi-phased research programmes in the field of retail marketing in the mid-1980s that focused on the concept and measurement of service quality. After the initial conception of their service quality 'gap model' in 1985, they began the process of developing an instrument for quantifying customers' assessment of service quality performance. SERVQUAL, a multiple item instrument designed to measure service quality along five dimensions of service, was the result.

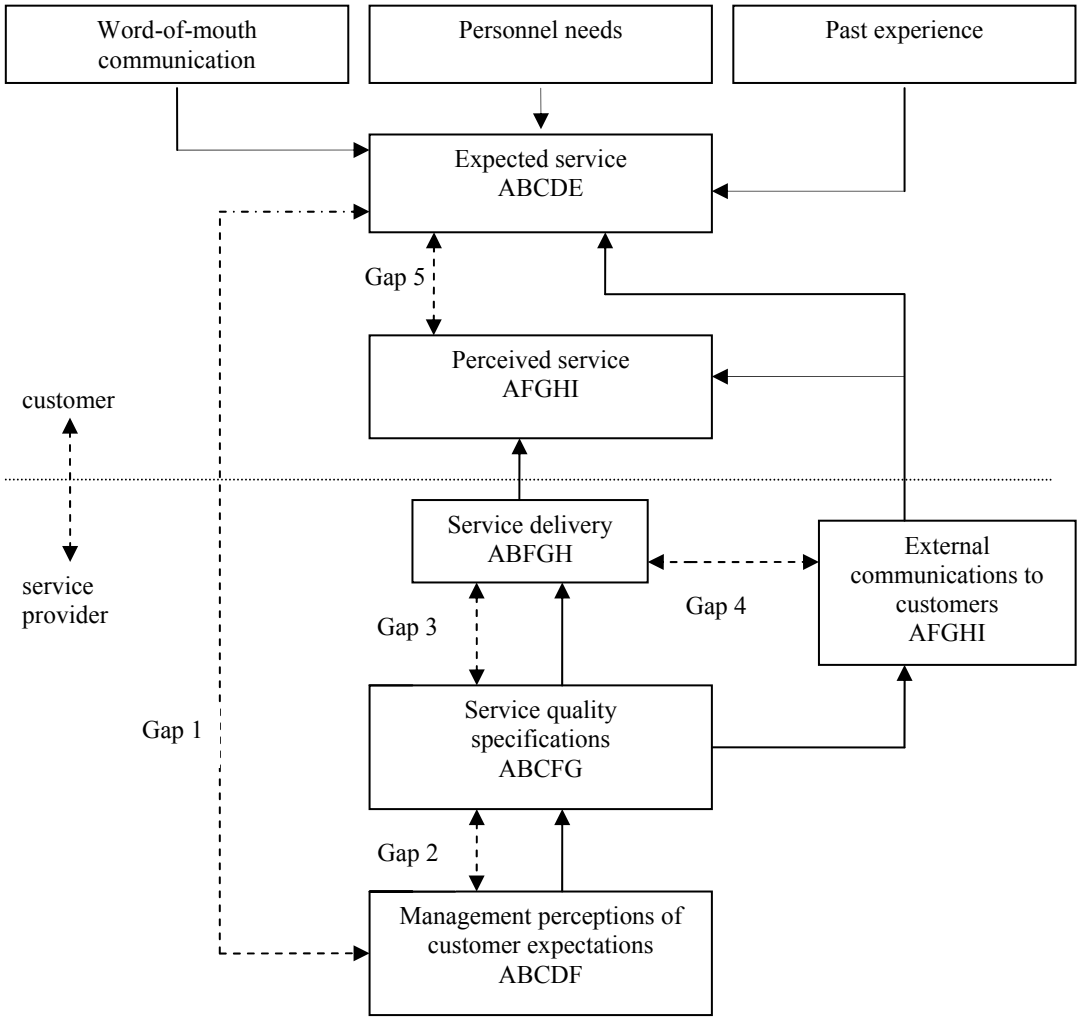
The SERVQUAL scale compares consumers' perceptions of twenty-two aspects of service quality to their rating of each factor's importance. The questionnaire of 22 items, which is administered twice: first to gain customers' expectations and second to gain their perception of performance, is answered by customers on a 7 point Likert scale from 'strongly disagree'

to 'strongly agree'. One half of these items are intended to measure customers' expectations about organisations in general within the service categories being investigated, and the other 22 matching items are intended to measure their perceptions about the particular organisation whose service quality is being assessed. Where service delivery does not meet or exceed expectations, there is a discrepancy or 'quality gap' that highlight target areas where quality may be improved.

- Gap 1: Not knowing what customers expect: the difference between consumer expectations and management's perceptions of these expectations.
- Gap 2: Not selecting the right service design: the difference between management perceptions of customer expectations and the service quality specifications.
- Gap 3: Not delivering to service standards: the difference between service specifications and actual service delivery.
- Gap 4: Not matching performance to promises: the difference between the service delivery and what is communicated about the service to the customer.
- Gap 5: Results from the sum of degree and direction of Gaps 1 to 4 and is defined as perceived service quality which is the difference between consumer expectations and consumer perceptions.

From the conceptual model of service quality (see Figure 2), it can be seen that although the customer's expected service was, for example ABCDE at the end of the five-gap chain, perceived service could be turned into AFGHI instead (Ho and Wearn 1996). In a higher education context (Ho and Wearn 1996):

Figure 2: Conceptual Model of Service Quality (Parasuraman, *et al.* 1988)



- Gap 1: customers' expectations and management's perceptions of customers' expectations, e.g. courses requiring hands-on experience, such as computing and design, where students may, erroneously, expect a greater emphasis on practical and technical study at the expense of academic rigour.
- Gap 2: management's perceptions of customers' expectations and service quality specifications – students' ignorance and an employer's particular focus may bias or limit their expectations. Academic staff should have a major role in designing and determining the format of the modules and courses which they deliver.

- Gap 3: service quality specifications and service delivery – in a modular system, it is not uncommon for a module designed by one academic to be taught by another who applies personal interpretation or focus of expertise to delivery of specifications.
- Gap 4: service delivery and external communications to customers – standardized comprehensive, two-way informal and formal feedback systems are necessary to recognize and reduce any such gap.
- Gap 5: Customers' expectations and perceived service – for instance, students who utilize laboratory, studio and workshop facilities in periods of peak demand may perceive that the facilities are inadequately resourced whereas, in reality, facilities might be operating at, say, 50% capacity over the working week.

Parasuraman *et al* (1988) identified five determinants of service quality: a) Assurance, b) Empathy, c) Reliability, d) Responsiveness, and e) Tangibles (see Table 1).

Table 1: SERVQUAL dimensions (Parasuraman *et al.*, 1988)

Dimensions	Definition	Items
Reliability	The ability to perform the promised service dependably and accurately	4
Assurance	The knowledge and courtesy of employees and their ability to convey trust and confidence	5
Tangibles	The appearance of physical facilities, equipment personnel and communication materials	4
Empathy	The provision of caring, individualized attention to customers	5
Responsiveness	The willingness to help customers and to provide prompt service	4

There has however been some criticism of the use of the SERVQUAL instrument with a number of researchers debating whether the dimensions of SERVQUAL are consistent across industries with some studies not finding the standard five dimensions reported by Parasuraman, *et al* (Cronin & Taylor 1992). Validity problems in relation to the measurement of expectations and the practicalities of administering the instrument have also been raised in relation to the SERVQUAL instrument. It has been questioned whether it is practical to ask consumers about their expectations of a service immediately before consumption and their

perceptions of performance immediately after the service as the expectations with which the consumer will compare their experience may be altered as a result of the service experience (Grönroos 2000). It has also been suggested that expectations may not be clear enough in a consumer's mind to act as a suitable benchmark against which perceptions can be compared, and that expectations are something that can be biased by previous service encounters (Grönroos 2000). However, theoretically, a comparison of expectations and experiences still makes sense, because expectations influence the consumer's perceptions of the quality of a service (Grönroos 2000).

Some critics have questioned the failure of SERVQUAL to assess customer evaluations based on absolute standards of service quality. The instrument asks respondents to report their expectations of excellent service providers within a class, that is, the measures are relative rather than absolute. It has been argued that SERVQUAL predicts that customers will evaluate a service favourably as long as their expectations are met or exceeded, regardless of whether their prior expectations were high or low, and regardless of whether the absolute goodness of the service performance is high or low. Buttle (1996) states that this is 'illogical' and argues that 'absolute' levels (e.g. the prior standards) certainly must enter into a customer's evaluation. Buttle (1996) gives the following hypothetical example to illustrate this. SERVQUAL assumes that an E-score of six for Joe's Greasy Spoon Diner is equivalent to an E-score of six for Michel Roux's Le Lapin French restaurant. In absolute terms, clearly they are not. Grönroos (1993) refers to a similar oddity, which he calls the bad-service paradox. A customer may have low expectations based on previous experience with the service provider; if those expectations are met there is no gap and SQ is deemed satisfactory.

The Use of SERVQUAL in Higher Education

Applications of SERVQUAL in higher education have, to date, met with limited success. Buttle (1996) argues that the criticisms of SERVQUAL can be categorised into those associated with theoretical issues and those associated with operational issues. A common

theoretical complaint is that the service dimensions hypothesised do not regularly emerge from the factor analysis and that different researchers have generated different sets of dimensions. On the operational side, the need to ask the same question twice is a common cause of criticism. Many studies of perceptions of service quality in higher education using the SERVQUAL model have been performed with the majority attempting to make a comparison between expectations and experiences over a number of quality attributes. Parasuraman *et al*. (1988) claimed that SERVQUAL provides a basic skeleton through its expectations/perceptions format encompassing statements for each of the five service quality dimensions. This skeleton, when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization.

However, as with the discussion on dimensions, there is little general agreement on the benefit of measuring service quality discrepancies by means of 'gaps'.

Babakus and Inhofe (1991) raise the issue that expectations may attract a social desirability response bias. Respondents may feel motivated to adhere to an 'I-have-high-expectations' social norm. Parasuraman et al. (1988) report that the majority of expectations scores were above six on the seven-point scale. Parasuraman *et al.,* (1991). also raise the issue of 'socially acceptable' answers and the problem that respondents may record high expectations because they believe that is what the researcher wants to hear. However, within higher education this may be less of a problem since there is probably a better information flow between customers than there is, for example, between bank customers (Cuthbert, 1996a, 1996b)). Cuthbert describes students in the author's department as mixing with students across the departments and sharing their experiences, and that different practices in other subject areas are often discussed by students. Cuthbert (1996a, 1996b) writes 'these students are conceptualizing their experience in terms of 'gaps'. Therefore, it seems that 'student expectation responses are not likely to be socially acceptable responses'.

Babakus and Boller (1992) found the use of a "gap" approach to service quality measurement 'intuitively appealing' but suspected that the 'difference scores do not provide any additional information beyond that already contained in the perceptions component of the SERVQUAL scale'. They found that the dominant contributor to the gap score was the perceptions score because of a generalized response tendency to rate expectations high.

An analysis of the perception-expectation gap by Galloway (1998) also confirmed that 'the inclusion of expectations degrades the predictive capability of the data, giving rise to poorer correlations with both quality and satisfaction'.

Conclusions on the Use of SERVQUAL in Higher Education

In conclusion, Cuthbert (1996a, 1996b) and Oldfield and Baron (2000) state that the higher education service experience is complex, and students have a complex set of expectations. However, if quality measurement instruments are designed around the factors they list, then it may be possible to move away from measuring teaching quality only (Oldfield and Baron 2000, Soutar and McNeil 1996). Cuthbert (1996a, 1996b) believes that the Q=E-P paradigm still appeared to be the most practical model for the measurement of service quality despite much criticism in the literature.

The pilot study by Soutar and McNeil (1996) showed that the dimensions of service quality described by Parasuraman *et al*. (1988) are applicable in a university context but that modification of the research instrument is necessary. Soutar and McNeil (1996) state that 'the concept of customer-driven service quality is a meaningful one for educators who wish to develop measures of the quality of higher education, and it is possible to 'move from traditional and narrow criteria relating to quality of teaching and integrate a total university perspective which transcends academic boundaries and which acknowledges that perceptions of administrative service quality may be vitally important in students' overall satisfaction with a particular university.'

Furthermore, they claim that performance indicators which are client driven, such as SERVQUAL, are 'useful adjuncts to the more commonly used, and often sterile, measures of tertiary education activity'.

Slade *et al.* (2000) highlight two problems which they claim can be overcome by the use of an instrument such as SERVQUAL. The first is that consumers may not know what they want from the institution, and ask 'Just what is a good education?', and the second is that the output from such institutions is difficult to identify precisely and 'how does one know when one is in receipt of it'. They quote Ford, Joseph and Joseph (1993) who believe that 'SERVQUAL might assess students perceptions of the quality of their educational institutions, but not the education itself'. They observe that the use of SERQUAL in an educational institution underscores both the strengths and limitations of the data collection instrument. They conclude that 'asking students to assess the quality of a service they do not comprehend is a challenging task for researchers' Slade *et al.* (2000).

Waugh (2002) questions several general aspects of the SERVQUAL instrument. He claims Tangibles are not applicable to universities and SERVQUAL is not designed to differentiate between the administrative service to students on one occasion and, at the same time, measure the service provided on numerous occasions. Furthermore, he claims there is an interpretation problem in using the seven point Likert scale as students who are undecided, unclear or neutral will answer the middle or neutral, category. In addition, he questions the use of mixing both positively and negatively worded items on the questionnaire and states it is better to word all items in a positive sense. Finally, he claims modern measurement methods should be employed, for example the computer program Rasch Unidimensional Measurement Models (RUMM).

In conclusion to this section on the use of SERVQUAL, the practicalities of administering the instrument, especially whether it is practical to ask respondents about their expectations of

a service before experiencing it, strongly suggest that a more direct method of measuring service quality is needed.

SERVPERF

SERVPERF is a technique that makes use of the original SERVQUAL scale items and asks respondents to rate a provider's service in the same way as SERVQUAL. However, it differs from SERVQUAL in that it is a one-off set of questions and does not attempt to estimate difference scores as it only asks respondents to rate the performance of a service. Cronin and Taylor (1992) disputed the appropriateness of measuring the gap between expectations and perceptions and, as a result, developed and tested an alternative instrument which measured performance only (SERVPERF) based on the construct that `service quality should be measured as an attitude' (Cronin and Taylor, 1992). Studies performed using SERVPERF found it explained more of the variance in the overall measure of service quality than SERVQUAL. Cronin and Taylor (1994) state that it is possible to infer consumers' disconfirmation through arithmetic means (the P-E gap) but that 'consumer perceptions, not calculations, govern behavior'. SERVPERF has the advantages of not raising consumer expectations in the way SERVQUAL possibly does, of being administered in one part and avoiding statistical analysis of two parts. However, 'from an operational point of view much useful information is lost when performance only measures are taken' (O'Neill and Palmer, 2004).

The Use of SERVPERF in Higher Education

To increase their understanding of the undergraduate student experience, Oldfield and Baron (2000) used SERVPERF after, firstly, tailoring the wording of the questions to the specific service application by consulting undergraduate students, via focus groups, to refine the wording and understanding of potential survey questions. Secondly, they chose not to measure expectations since, at the time of their survey, the student respondents had been at the university for at least six months, and, therefore, unlikely to have been able to

'retrospectively rate their expectations in a way that was uncoloured by their experiences'. In their study, the factors recovered did not correspond with those recovered in early SERVQUAL studies, which were responsiveness, reliability, empathy, assurance and tangibles, and were regarded as the generic dimensions of service quality (Parasuraman *et al*., 1991). Oldfield and Baron (2000) found, after factor analysis, three factors of student perceptions of service quality in higher education:

Factor 1 – *Requisite* – those items or encounters which are essential to enable students to fulfil their study obligations (13 items).

Factor 2 – *Acceptable* – those items or encounters which students acknowledge as being desirable but not essential during their course of study (5 items).

Factor 3 – *Functional* – those items or encounters of a practical or utilitarian nature (3 items).

In conclusion, Oldfield and Baron (2000) state that management can consider more seriously 'the often neglected elements of functional service quality' through the three criteria the study revealed. They also state that 'if quality measurement instruments are designed around factors associated with variables students consider to be essential, then it may be possible to move away from measuring teaching quality only, towards, an understanding of the elusive holistic evaluation that is the student experience'.

Conclusions on the Use of SERVPERF in Higher Education

SERVPERF is attractive in that it is shorter in length than either SERVQUAL or the importance-performance analysis and that it is unlikely that students, or some members of faculty, after one semester would be able to retrospectively rate their expectations in a way unaffected by their experiences. However, by rating performance only, it is impossible to ascertain the importance of the items and, hence, while respondents might be exceedingly unhappy about the performance of an item, they are well aware that that item is of little importance in the overall service quality provided. Importance is viewed as a reflection of the

relative value of the service quality items by respondents. Therefore lower ratings are likely to play a lesser role in affecting overall perceptions whereas higher importance ratings are likely to play a more critical role in determining customer satisfaction.

Importance-Performance Analysis (IPA)

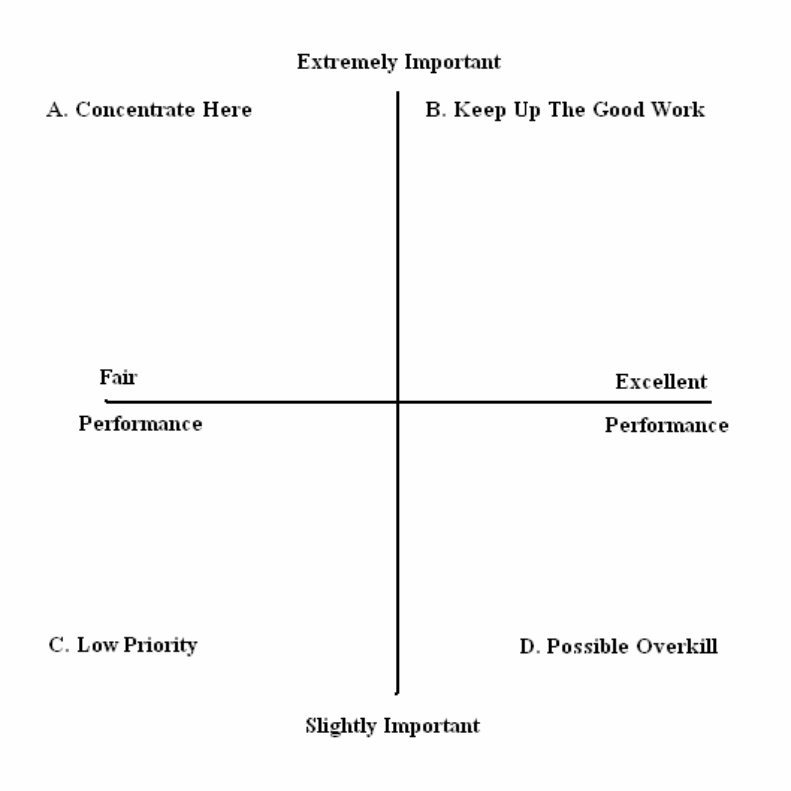
The importance-performance analysis is an easy-to-use method to identify improvement priorities based on multi-attribute choice models. Product or service attributes/ items are divided into four groups depending on their performance (high/low) and importance to the customer (high/low). Service attributes of high importance should have higher importance standards than service attributes of low importance. IPA was first developed by Martilla and James (1977) as a method of overcoming frequent problems encountered when trying to translate results into action. They isolated two particular factors that they believed contributed to this problem. Firstly the difficulty with which management might have in understanding the practical significance of research findings when expressed in terms of 'coefficients of determination' and 'levels of stress'. Secondly the fact that the research may have examined only one side of the consumer acceptance question; either attribute importance or attribute performance.

Fourteen attributes were identified by Martilla and James (1977) from a literature search and conversations with service and sales department personnel and factory representatives that they felt would affect the service department of the car dealer that they were studying. The attribute ratings were plotted on a importance-performance grid, that is a two-dimensional matrix, which was divided into quadrants and labelled according to marketing effort. Performance is depicted along the *x*-axis and importance along the *y*-axis (see Figure 3).

The relationship between performance, i.e. satisfaction, and importance is not fully proven, but it can be assumed that if an item or attribute is seen as performing well, then the customer must be satisfied to some degree and may well rate the item of low importance. However,

basic factors do not lead to satisfaction if performance is high and, in that case, their impact on satisfaction, i.e. their relative importance, is low. However, if performance on basic factors is lower than expected, they cause high dissatisfaction, i.e. the relative importance is high.

Figure 3: importance-performance grid (Martilla and James, 1977)



Martilla and James (1977) state that 'Importance-performance analysis offers a number of advantages for evaluating consumer acceptance of a marketing program. It is a low-cost, easily-understood technique that can yield important insights into which aspect of the marketing mix a firm should devote more attention as well as identify areas that may be consuming too many resources'.

The importance-performance paradigm attempts to identify the underlying importance given by consumers to the various quality criteria being assessed. That is, importance is seen as a reflection of the relative value of the various quality attributes to consumers (O'Neill, Wright and Fitz, 2001). Therefore, criteria with higher ratings are likely to be more critical in determining customer satisfaction, and lower rated criteria of lesser importance. Lovelock *et al.* (1998) state that important-performance analysis (IPA) is a very useful management tool

helping to 'direct scarce resources to areas where performance improvement is likely to have the most effect on overall customer satisfaction'. In addition, service attributes that should be kept at present levels are pinpointed and 'those on which significant improvement will have little impact'.

Importance-performance analysis can be described as 'an absolute measure of performance, which also seeks to identify the underlying importance ascribed by consumers to the various quality criteria under assessment' (O'Neill and Palmer, 2004). The relative value of the quality attributes is determined by the degree of importance attached by the respondents and this additional information assists enormously in directing improvement in those areas deemed important by the respondents.

The Use of Importance-Performance Analysis in Higher Education

Joseph & Joseph (1997) used a novel importance/performance-based approach to evaluate service quality instead of SERVQUAL which they considered as inappropriate. First, they questioned the applicability of the five dimensions as being determinants of service quality, as did Cuthbert (1996a, 1996b), although they concede that Parasuraman *et al.* (1998) stated that SERVQUAL would have to be customised for each application. They suggest the need for an alternative method of measuring service quality, and propose an importance/performance paradigm. They suggest that when students evaluate the educational service, they use different criteria which are likely to differ in importance.

The data was collected in two stages. First, data was collected from a series of focus group interviews to provide the background information needed to design the survey instrument. Second, a sample of 1,000 final-year business students was randomly selected and each student received a questionnaire. The questionnaire was divided into four sections:

- section 1 - students' perceptions of an excellent university,
- section 2 - the ranking of the most important attributes,
- section 3 – students' perceptions of their own university,

- section 4 – background information on the participants.

The study by Joseph & Joseph (1997) shows that an importance-performance instrument can be used to measure service quality in education. The factors, when ranked in order of importance, can be used to decide whether institutions are allocating their efforts in those areas deemed important by students. In addition, as a diagnostic tool, the importance-performance instrument may well be effective at identifying possible areas of concern before they lead to dissatisfaction.

O'Neill, Wright and Fitz (2001) measured student perceptions of service quality of an on-line library service in a university in Australia using importance-performance methodology. Two specific research instruments were used: two focus group interviews and a quantitative survey instrument. The focus group interviews were performed to gather data on the students' awareness of the importance of service quality issues and the attributes they considered important. A multi-item questionnaire was designed to be used for identifying student attitudes about the importance of specific dimensions of the on-line service experience and their evaluation of the performance of each of the dimensions. For each item in the 18-item self-completion questionnaire, students were asked to rate their expectations and perceptions of the dimensions on a five-point Likert scale.

After factor analysis, O'Neill, Wright and Fitz (2001) found that the SERVQUAL five-component structure was not confirmed, but, overall, they found the instrument was both reliable and valid. Moreover their study demonstrated the relative ease with which the importance-performance technique is able to identify both service performance and attributes deemed relevant by the consumer in a specific context. They found other advantages including the clear representation of results, pictorially and graphically, showed the strengths and weaknesses of the service dimensions studied that helped direct strategies into the right areas.

O'Neill and Palmer (2004) conducted a study that focused on students' attitudes towards the quality of service provided by the administrative support unit at an Australian university since administrative problems such as lost registration forms, missing marks and incorrectly entered personal details, have been given as a cause of dissatisfaction (Rowley, 1997; Oldfield and Baron, 2000; Waugh, 2001). The study employed the importance-performance instrument with scale items based on SERVQUAL. Since they believed that not all scale items were relevant to measuring service quality in a specific situation, a series of focus groups were first asked to comment on the relevance of the scale items and then develop alternative forms of the scale. A 22-item self-completion questionnaire was produced as a result. Respondents were asked to rate both their perceptions of the listed attributes and the level of importance attributed to each attribute on a 5-point Likert scale ranging from strongly disagree to strongly agree.

The results of the survey by O'Neill and Palmer (2004) revealed that the five-component structure proposed by Parasuraman et al. (1988) was not supported, and three principle components were extracted: *Process, Empathy and Tangibles*. They believe that: component one (*Process*) relates to the more procedural or functional aspects of the experience, that is, actual service-orientated procedures, component two (*Empathy*) relates to the people providing the service and component three (*Tangibles*) relates to the physical service environment.

Conclusions on the Use of Importance-Performance Analysis in Higher Education

Importance-performance analysis has been demonstrated by Joseph & Joseph (1997), O'Neill, Wright and Fitz (2001) and O'Neill and Palmer (2004) have all demonstrated the usefulness, relative ease of administration and problem identification abilities of the IPA model. The main advantages of IPA over other measurement techniques appear to be its practicality in evaluating perceptions of service quality and communicating the results in a graphic format that can easily be used to target specific service improvements. Furthermore,

according to Ford *et al.* (1999) that by improving actual perceptual problem areas, this has the potential to assist an institution improve its image to the point where students' perceptions may actually change from a neutral or negative perception to a positive perception of the overall service experience. Similarly, it may be possible over time for an institution to identify negative perceptions before they become critical.

The literature demonstrates both the user-friendliness and the relative ease with which importance-performance analysis may be conducted and its value in assessing and directing continuous quality improvement. Since this type of assessment instrument has proved a useful tool for administrators as it is able to identify how numerous services are performing and which items surveyed are considered the most important or relevant by the respondents, the importance-performance analysis was employed for this study of Preparatory Year students and faculty's perceptions of service quality. However, it should be noted that the quantitative analysis of such studies does not explain why the observed responses occurred. To explain these responses, supplementary qualitative research would probably be of use.

Dimensions

The dimensions to be used in an instrument to assess service quality are probably the most contentious issue with little general agreement except that the original dimensions (see Figure 1) proposed by Parasuraman *et al* (1988) are unsuitable for higher education.

The dimensions used in many existing instruments to measure student experience are summarised by Cuthbert (1996a, 1996b) and provides a good starting point to draw up a list of dimensions that may used in the construction of an in-house questionnaire for students:

- Personal and social development
- Science and technology
- General education
- Literature and arts
- Intellectual skills
- Vocational preparation
- Tutor enthusiasm
- Organization and clarity of lessons
- Individual rapport with students
- Appropriate workload

- Social climate
- Freedom to learn
- Good teaching

However, these dimensions mainly focus on the academic experience and do not cover all aspects of the learning experience, some of which may be particularly important in the case of KFUPM.

Aldridge & Rowley (1998), taking into account the problems with the use of SERVQUAL in higher education, designed a questionnaire to be used in a student satisfaction survey that asked only for perceptions, and did not seek to collect any data with respect to expectations. Aldridge & Rowley (1998) set out to identify a sophisticated and comprehensive method for measuring general student satisfaction at the end of each year. In particular, they wanted to concentrate on methods that assess the total student experience rather than on methods that focus on assessing teaching and learning as it is widely accepted that the totality of the student experience is a useful perspective to adopt in student satisfaction and marketing terms, and that the total student experience is increasingly more central to the students' attitudes towards the institution. Owlia and Aspinwall (1996) used the set of attributes found in quality dimensions of products, software and general services to form a basis for investigation of quality factors in education (see Table 2).

Table 2: service quality dimensions and higher education (Owlia and Aspinwall, 1996)

Dimensions	**Definition in Higher Education**
Reliability	The degree to which education is correct, accurate and up to date How well an institution keeps its promises The degree of consistency in teaching
Responsiveness	Willingness and readiness of (academic) staff to help students
Understanding Customers	Understanding students and their needs
Access	The extent to which staff are available for guidance and advice
Competence	The theoretical and practical knowledge of staff as well as other presentation skills
Courtesy	Emotive and positive attitude towards students
Communication	How well lecturers and students communicate in the classroom
Credibility	The degree of trustworthiness of the institution
Security	Confidentially of information
Tangibles	State, sufficiency and availability of equipment and facilities
Performance	Primary knowledge/skills required for students
Completeness	Supplementary knowledge and skills, use of computer
Flexibility	The degree to which knowledge/skills learned are applicable to other fields
Redress	How well an institution handles customers' complaints and solves problems

From their studies, Owlia & Aspinwall (1996) developed new attributes they termed 'quality characteristics' as shown in Table 3.

Table 3: quality dimensions, characteristics and customer groups (Owlia and Aspinwall, 1996)

Dimensions	Characteristics	Customers
Tangibles	Sufficient equipment/facilities Modern equipment/facilities Ease of access Visually appealing environment Support services (accommodation, sports, etc.)	Students, staff
Competence	Sufficient (academic) staff Theoretical knowledge, qualifications Practical knowledge Up to date Teaching expertise, communication	Students, staff
Attitude	Understanding students' needs Willingness to help Availability for guidance and advice Giving personal attention Emotion, courtesy	Students
Content	Relevance of curriculum to future studies and jobs of students Effectiveness Containing primary knowledge/skills Completeness, use of computer Communication skills and team working Flexibility of knowledge, being cross-disciplinary	Students, staff, employers
Delivery	Effective presentation Sequencing, timeliness Consistency Fairness of examinations Feedback from students Encouraging students	Students
Reliability	Trustworthiness Giving valid award Keeping promises, match to the goals Handling complaints, solving problems	Students, staff, employers

Owlia and Aspinwall (1996) state that the definition of customer is different from that used in service or manufacturing industries because students, staff, government and families are all customers of the educational system and all have diverse needs. The attributes in Table 3 show that the different groups of customers do not all have the same degree of interest and feeling. While all the dimensions relate to students, they may not all relate to academic staff. In addition, employers are more likely to be concerned with the 'product' of the system, i.e. graduates, and their capabilities. This diversity is claimed to possibly cause problems when

making decisions based on quality attributes, and necessitates the question which group should be prioritized for satisfaction.

Both Slade, Harker and Harker (2000), who used an adapted SERQUAL instrument to measure differences in perceptions of students who do complete their university course and those who do not, and Ruby (1998), who demonstrated how a market-driven assessment model could be used to measure student satisfaction with support services, used an adapted SERVQUAL instrument that measured the five dimensions of service quality (Table 4).

Table 4: SERVQUAL dimensions (adapted from Slade, Harker and Harker, 2000)

Dimensions	Definition
Reliability	Promised service completed on time Sincere interest in problem solving Performance correct the first time Services provided at promised time Error free records
Assurance	Employees who instil confidence Safe and secure services Courteous employees Knowledgeable employees
Tangibles	Modern equipment Visually appealing facilities Neat-appearing employees Attractive printed materials
Empathy	Students given individual attention Operating hours are convenient Students interests at heart Specific needs of students understood
Responsiveness	Told when services will be provided Prompt service provided Staff seem willing to help Staff not too busy to help

A study performed by Soutar and McNeil (1996) showed that the SERVQUAL dimensions, together with the additional dimensions of Communication, Knowledge and Availability, were helpful in accounting for differences in student satisfaction. However, they found that not all dimensions were significant. Reliability, Assurance and, to some extent, Availability influenced student satisfaction. They also determined that individualized attention, Empathy, Tangibles, Communication and Knowledge were not determinants of

overall student satisfaction. However, it was noted that since the study was conducted on third year undergraduates and postgraduate students, many of whom would have developed close relationships with staff. This fact could explain why Empathy was not found to be a significant determinant of satisfaction.

Oldfield and Baron (2000) found that the factors recovered from their study did not correspond to the original five SERVQUAL factors. Their study produced three factors which they called: requisite, acceptable and functional. Items within the requisite group are those considered essential for students to complete their studies, and include items related to duties performed by non-academic staff. The items within the functional group were mostly of a practical or utilitarian nature, and are mainly items that rely on faculty or university rules or decisions which cannot be changed unilaterally by management. Even though students know that 'front-line staff' cannot change or alter rules, they will still express their disappointment, or even anger, if, for example they regard computer equipment as outdated, or are denied access to it at weekends. The factor labelled acceptable includes items which are desirable, but not necessarily essential for students in their studies, and relate primarily to the way students are treated by academic staff, for example if a student perceives that academic staff are too busy to respond to requests for help.

Pariseau and McDaniel (1997) suggest that part of the tangibles dimension is the physical working environment for faculty and that their expectations might be higher than those of the students. Furthermore, faculty are more aware of the shortcomings of the system and so their expectations will be higher than those of the students. Pariseau and McDaniel (1997) found that student and faculty rankings are fairly consistent: both groups think all dimensions of service quality are important and both groups rank assurance as the most important factor.

However, Waugh (2002) questions whether Tangibles, that is, appearance of physical facilities, equipment, personnel, is applicable to universities and, therefore, deleted it. Waugh (2002) made appropriate changes to SERVQUAL, and produced a new scale that he believed

was more suitable for measuring quality in universities. The new stem-items for the scale were based on a model of two first order aspects defined by a number of second order aspects. A total of 21 stem-items based on the four aspects of academic quality in SERVQUAL were devised to apply to academics at university. These stem-items were combined into two first order aspects in order to provide a more logical and consistent structure, applicable to universities. Each stem-item was answered in two response sets (see Table 5).

The problems with SERVQUAL dimensions are summarised by Cuthbert (1996a, 1996b) who criticizes the five dimensions of the SERVQUAL instrument and questions whether they are appropriate dimensions for measuring service quality in higher education. He also points out that the original five dimensions have not been consistently identified in other studies. However, this is in contrast to the results of a pilot study by Soutar and McNeil (1996) that

Table 5: model of academic perceptions of academic quality (Waugh, 2002)

First order aspects	Second order aspects (operational definition of first orders)
Reliability and Responsiveness	Administration contact (3 stem-items) Provision of administrative material (3 stem-items) Confidence and dependable administration (3 stem-items) Advanced notice of administrative changes (3 stem-items)
Assurance and Empathy	Courteous and confidence in contact (3 stem-items) Individual and understanding contact (3 stem-items) Feeling secure and caring contact (3 stem-items)

showed the dimensions of service quality described by Parasuraman *et al*. (1988) are applicable in a university context and that modification of the research instrument to include industry-specific quality features, as suggested by the original researchers, is appropriate. Furthermore, Ruby (1998) was able to show how a market-driven assessment model could be used to evaluate student satisfaction in order to target specific areas for improved service. Slade, Harker and Harker (2000) found that the variables mapped the original SERVQUAL dimensions fairly well and believe that SERVQUAL dimensions are applicable to higher

education. Waugh (2002) successfully used a model based on two main aspects, Reliability and Responsiveness, and Assurance and Empathy.

According to Galloway (1998) a principal components analysis of the perception data suggested that there was no strong underlying set of latent variables and that a single factor model would be most appropriate. However, evidence of a weak four factor structure was found, but the structure showed no coherence or resemblance to SERVQUAL indicating that the SERVQUAL dimensions were not appropriate to this particular service quality study of two distinct customer groups, academic and technical staff and students, within the context of a university faculty office.

Babakus and Boller (1992) commented that 'the domain of service quality may be factorially complex in some industries and very simple and unidimensional in others'. In effect, they claim that the number of service quality dimensions is dependent on the particular service being offered.

A different approach was taken by O'Neill and Palmer (2004) who believe that too much effort has been expended on attempting to determine the technical dimensions of quality which has resulted in a multitude of statistics. Instead, more effort should be directed at determining the functional aspects of quality that directly effect both students and teachers and that 'much of this debate has been misdirected and seems to have lost sight of the original purpose for which such measures were designed to pin-point quality failures and direct continuous quality improvement efforts'. Similarly, Ford, Joseph and Joseph (1999) believe that it would be a mistake to attempt to develop one single model that could be applied at any institution anywhere in the world. Although the items might be the same, there would be no designation of grouped factors and each individual attribute would have to be ranked .

In conclusion, this section on dimensions demonstrates that there is no one definitive list of dimensions that can be used in any higher education institution and that the dimensions of service quality vary depending on the service in question. In addition, respondents are

unlikely to be able to classify accurately the questionnaire items into the dimensions they are supposed to represent and, as a result, the number of service quality dimensions will vary from respondent to respondent. In this study, many attempts were made to group the attributes into the dimensions proposed by the various researchers described in this section, but, partly due to limitations on the field of study within the university, the resulting dimensions were seen to be artificial groupings with no real use in the resulting analysis. Furthermore, it is believed that important information could be 'lost' when similar items are grouped, e.g. if all the items pertaining to 'tangibles' were grouped and, in the subsequent analysis, the overall means were found to indicate low importance and high performance it is possible that one item of high importance and low performance would be overlooked. The potential 'loss' of a potentially critical item should be avoided at all costs. Therefore no dimensions are stated and each item was analysed independently. That said, and perhaps with further study and after at least one more survey, it may be possible to determine useful and valid dimensions.

Longitudinal Factors

The main approach to service quality evaluation within the education sector has been largely cross-sectional in nature, with relatively little attention having been given to the idea of tracking student perceptions over time and relating this to any strategic quality improvement initiative. O'Neill, M (2003) argues that this approach is fraught with error, as the educational experience is, by its very nature, an experience that takes place over time. It is an open question whether students' perceptions and importance ratings change over time. 'What might be considered a very important issue (such as a minor administrative problem when arriving at halls of residence for the first time) may seem quite trivial and less important to a more experienced final year student,' and 'after a leaving a university and becoming a potential referrer of students, a student's ordering of attribute importance may change again' (O'Neill and Palmer, 2004).

Longitudinal factors are of particular importance in the proposed study since all the student respondents are first year students who have no similar previous experiences or comparative base on which to base their expectations regarding the quality of university services. Therefore, their expectations of higher education may be based on their previous educational experiences which, in most cases, will be from their high school. These expectations may well be unrealistic, and have a negative influence on perceived service performance (Hill, 1995).

Traditional undergraduates undergo a transition from schoolchildren to adults while at college/university, and both traditional and mature students may become increasingly discerning over time. For these reasons, their perceptions of services provided are likely to change during the course of their studies, and such change may not necessarily relate to actual changes in service quality (Galloway, 1998 and Hill, 1995).

Therefore, one of the common criticisms of SERVQUAL is that it is static measurement, and that such an approach 'capture a snapshot of satisfaction or perceptions of quality at one point in time' (Aldridge and Rowley, 1998). The pilot results of their study indicate that it is possible that students may become more discriminating and critical of service delivery as their relationship with a higher education institute develops. Their proposed methodology seeks to collect data in a similar form for several years so that, in the longer term, it will be possible to conduct a longitudinal analysis.

However, Anderson (1995) found that the longer students had been at an institution the lower their expectations and perceptions regarding the service quality. In his study, Cuthbert (1996a, 1996b) used experienced students to overcome the problem of whether new students should take part since student rating questionnaires are often influenced by recent experiences that may well be in their former institution. Cuthbert (1996a) states that experiences of students are varied and continuous over months and years, and so he used experienced students because they would base their expectations on experience. Therefore, results would provide a guide as to whether students saw the quality of their experience declining or

improving. Joseph & Joseph (1997) claim that potential or first-year students have little or no previous experience of higher education and therefore their expectations lack validity. In addition, they feel that as education is a long-term service for a disconfirmation-based instrument to work properly expectations must remain constant because they are standards against which performance is measured, and these standards are formed on the basis of knowledge and experience with the service.

In surveying the K.F.U.P.M. Preparatory Year, the suggestion implicit in this that student perceptions will change over time may well be important. Quality at the beginning of a relationship will most probably be judged on superficial indicators, but as the relationship develops these will diminish in importance as an awareness of the deeper and more substantive aspects of the service develops. For the service provider seeking to acquire long-term customers, every aspect of the service matters, since customers always start as potentially short-term.

Oldfield and Baron (2000) used a modified SERVQUAL instrument that was designed to explore what students consider to be the elements of service quality, and difference in importance of these elements as seen by first and final year students. As the target students had been at the university for at least six months, it was unlikely that they would rate their expectations in a way that was unaffected by their experiences. As a result, expectations were not measured. They found that both first and final year students ranked two of the elements comprising the 'functional' factor relatively low in comparison with other factors. They found this worrying as the design of a service setting may have a powerful effect on customer feelings and perceptions, and the physical environment in which a service encounter takes place is one of the few opportunities for service providers to give tangible evidence of the service offered. The highest ranking levels of agreement were on elements in the 'acceptable' factor. They found some of the lowest rankings, especially from final year students, related to contacts with administrative staff. The largest difference between the two sample groups

related to the statement 'academic staff are too busy to respond to requests for assistance'. Final year students were more in agreement with the statement than first year students. Furthermore, final year students were found to be less likely to agree that academic staff treat them in a caring fashion or that all staff were consistently courteous to them.

Grönroos (2000) questioned whether it is practical to question consumers about their expectations of a service immediately before consumption and their perceptions of performance immediately after the service because the expectations with which the consumer will compare their experience may be altered as a result of the service experience. This study also suggested that since consumers may not be clear enough about expectations, perceptions cannot be compared against such expectations, and, furthermore, expectations may be biased by previous service encounters. In spite of this, Grönroos (2000) believes that a comparison of expectations and experiences still makes sense, at least theoretically, as the consumer's perceptions of the quality of a service is influenced by their expectations.

Palmer and O'Neill (2003) examined, through a study of visitors to an adventure theme park, the effects of survey timing on respondents' perceptions of service quality. They point out that customer perceptions of the quality of a service are traditionally measured immediately after the person has consumed the service. In fact, however, the consumer's perception of service quality at the time he or she decides whether or not to buy the service, may better explain repeat buying behaviour. For example, a customer may come away with an immediately bad impression of a hairdresser who has used imagination in creating a bold and courageous hairstyle, but over time, the customer may gradually come to identify with the hairstyle, and feel positive towards the salon by the time he or she is ready for another haircut

In addition, Palmer and O'Neill (2003) found that perceptions of service quality decline with the passage of time. This would appear to confirm previous theories that people's rising expectations have the effect of downgrading their perceptions of services they have received in the past. It would also appear to be consistent with theories of `cognitive dissonance' in

decision making. Cognitive dissonance is the psychologically uncomfortable state people are in after choosing between a set of alternatives, each of which has some desirable attributes. In order to reduce this dissonance, people may seek out information that supports their choice, and dismiss unpleasant facts.

Similarly, O'Neill (2003) states when evaluating new information about a service; for example, a new service encounter, prior expectations get 'double counted' as customers update perceptions of quality. In other words, as expectations rise, consumer perceptions of the quality of previous service delivery actually decline.

Palmer and O'Neill (2003), in their study of adventure theme park, also found that perceptions of tangible elements decline less than intangibles. How a consumer perceives individual elements of a service is influenced by the broader context in which the service is consumed. For example, the customer's perception of the quality of a restaurant meal is influenced by the ambience of the restaurant and the quality of the waiters. The research provides some support for the view that tangible elements of the service stand out in people's perceptions, and therefore decline less, with the passage of time. Furthermore, the researchers found that perceptions of important items decline less than those of insignificant items, for example 'a hungry person will attach greater importance to the stimulus of a meal than someone who has recently eaten' (Palmer and O'Neill, 2003).

In summary, existing measurement methodologies may be flawed because they overlook the time effect on students' perceptions. Results of the study by O'Neill (2003) indicate that students rate their perceptions of a phenomenon differently at the time of consumption than after consumption and suggests that student perceptions may not be stable over time, believing that student perceptions should be tracked throughout the learning experience as perceptions change over time and selective memory of incidents may have the effect of raising perceptions over the longer term.

Methodology

This section on methodology describes the criteria required for an instrument to assess service quality and the various research strategies available for data collection. Since a survey was the chosen instrument for data collection and the population to be surveyed large, it is necessary to sample that population for the purposes of data reduction. Sampling techniques are therefore described and means of selecting the most appropriate technique and how to check if the sample is representative. The issues of reliability and ethics are briefly discussed and the time scale of the project described. The sample selection process and procedure is then described. Next, the reasons for choosing a questionnaire are given and its design described. Finally, the number of returned questionnaires and the response rates are stated.

Research strategies

With the objective of assessing academic staff and students' perceptions of service quality in the KFUPM Preparatory Year, the research strategy employed has to be:

- accurate, in that the information is the most valid representation of the staff and students' perceptions of service quality;
- current, that is, as up to date as possible;
- sufficient, that is, the completeness of the picture that reflects the staff and students' perceptions of service quality;
- available, that is, access to the relevant information can be made on demand; and
- relevant, the information obtained and reported makes sense to the decision-makers, in this case, the Preparatory Year management.

To achieve this objective, the following research strategies were considered:

- experiment;
- case study;
- grounded theory;
- ethnography;
- action research;
- cross-sectional and longitudinal studies;
- exploratory, descriptive and explanatory studies.
- survey.

The *experiment research* strategy was considered inappropriate since no theoretical hypothesis is being defined which would have to be tested under experimental conditions with at least one change being made to one or more of the variables being measured.

A *case study* is defined by Robson (2002) as 'a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence'. A case study is a detailed study based on the observation of the intrinsic details of individuals or organizations that is not suitable as much of the required sources of evidence do not exist, for example documentary analysis and suitable events for observation. While it may be argued that case studies are an excellent way of challenging existing theories and providing new hypotheses, this is not the aim of my research.

For similar reasons a *grounded theory* strategy which is the development of a new theory derived through a qualitative approach in which data that is systematically gathered and analysed is not suitable as I have no intention of producing a theory or to confirm an existing theory.

While *ethnography* would be an excellent method of interpreting the social environment of the university inhabited by the research subjects and the way they interpret it, such a study would be very time consuming and would have to take place over an extended period of time.

Action research firstly focuses on and emphasizes the purpose of the research, that is, the management of change. Secondly, action research relates to the involvement of the practioners in the research and in particular to a close collaboration between practioners and researchers. This strategy is unsuitable as the research is intended to produce a model questionnaire and generate data to initiate procedures that are currently absent. I would hope that an action research strategy will be adopted on completion of my research.

Since the data is to be gathered at one particular time and not over a period of time, the study will use *cross-sectional approach* rather than a *longitudinal strategy*. However,

hopefully, a longitudinal strategy will be pursued after the questionnaire has been developed since the main strength of a longitudinal strategy is the capacity that it has to study change and development. In longitudinal studies the basic question is 'Has there been any change over a period of time?' (Bouma and Atkinson 1995).

Exploratory studies are a valuable means of determining what is happening, to ask questions and to assess phenomena in a new light with particular regards to understanding problems. *Explanatory studies* establish casual relationships between variables with the emphasis on studying a situation or problem in order to explain the relationships between variables. Adams and Schvaneveldt (1991) liken explanatory research to the activities of the traveller or explorer in that you must be willing to change your direction as a result of new insights and data. The object of *descriptive research* is 'to portray an accurate profile of persons, events or situations' (Robson 2002) and may be an extension of, or a precursor to, exploratory research. Since exploratory studies can reveal problems; both observational and qualitative research are useful tools before designing any survey instrument. Observational research involves gathering primary data by observing the relevant people and settings. For example, students' satisfaction with the catering service can be measured not only by how many students visit the facilities, but also by observing their reactions, what items they select and what food remains uneaten.

Qualitative research involves conducting interviews during the explanatory stage of a research project with the aim of uncovering factors that play a role in the marketing problem. The interviews should aim to uncover new qualitative information rather than gather quantifiable results. As a result, exploratory interviews are open-ended so as to stimulate respondents to share their thoughts and feelings. Qualitative research can be used to probe deeply into consumers' underlying needs, perceptions, preferences, and level of satisfaction. In addition, such research can be used to gain greater familiarity with and understanding of

marketing problems whose causes are unknown. Furthermore, ideas can be developed that can be further investigated through quantitative research.

Either or both individual interviewing and group interviewing can be used in qualitative research when seeking information. The interviewer, who should ideally be trained, needs objectivity, some knowledge of the subject matter under investigation, an understanding of group dynamics and consumer behaviour. Group interviews, which should ideally be conducted in pleasant surroundings, are started by the interviewer asking broad questions relating to the research theme and then moving on to the specific. By encouraging free and easy discussion among the participants, the interviewer hope the group dynamic will produce real thoughts and feelings. At the same time, the interviewer 'focuses' the discussion and records comments by note-taking or tape recording. The results of these focus groups can be used to guide the development of survey instruments.

The Survey Method allows the collection of a large amount of data from a large population. A survey allows for standardization of data which allows easy comparisons. In addition, since this method is easily understood by the respondents, it is perceived as authoritative. Furthermore, the survey method gives more control over the research process. The principle instrument is a questionnaire, on which each person (respondent) is asked to respond to the same set of questions in a predetermined order. Since each respondent is asked to respond to the same set of questions, it provides an efficient way of collecting responses from a large sample prior to analysis. However, the survey strategy does have disadvantages such as the time needed to design and pilot the questionnaire, and to analyse the data. In addition, the data collected may not be as wide-ranging as that collected by other methods as there is a limit to the number of questions that can be asked.

Sampling

Sampling techniques offer a range of methods to reduce the quantity of data that needs to be collected by considering only data from a subgroup rather than all possible cases.

If data is collected and analysed from every possible case or group, it is a census. However, it is not necessarily true that a census survey would produce more useful results than a well-planned sample survey. Sampling offers a valid alternative to a census when: it would be impractical to survey the full set of cases (the population), the cost would be too high, not enough time is available and/or results are needed quickly from already gathered data. With small populations, for example fifty or less, data should be collected on the entire population since the influence of a single extreme case on subsequent statistical analyses is more pronounced than for larger samples.

Sampling Techniques

There are two types of sampling techniques: probability or representative sampling and non-probability or judgemental sampling. The chance or probability of each case being selected from the population is known with the former which makes it possible to estimate statistically the characteristics of the population from the sample. As a result, probability sampling, which is often associated with surveys, was used in this research. With non-probability or judgemental samples, the probability of each case being selected is unknown and thus it is impossible to answer research questions or to address objectives that need statistical inferences made about the characteristics of the population.

There are four stages in the process of probability sampling. First, a suitable sampling frame is identified based on the research questions or objectives. Second, a suitable sample size is selected. Third, the most appropriate sampling technique is selected. Finally, the sample is checked to see if it is representative of the population. Each of these stages will be discussed in turn.

The sampling frame is a complete list of all the cases in the population from which the sample is drawn.

The sample size is determined by three factors: the level of certainty that the characteristics of the data collected represent the population, the margin of error that can be tolerated, and

the type of analyses to be performed. The final sample size is often a matter of judgement as of calculation due to the constraints above.

Selecting the most Appropriate Sampling Technique

There are five main techniques that can be used to select a probability sample:

- simple random
- systematic
- stratified random
- cluster
- multi-stage

The choice of sampling techniques mainly depends on the research questions, objectives and if statistical inferences need to be made from the sample.

Simple random sampling involves selecting the sample at random using either random number tables or a computer. This technique is accurate and easily accessible but is better performed with a sample size of over several hundred. Simple random sampling is best if there is an accurate and easily accessible sampling frame that lists the entire population.

Systematic sampling is selecting the sample at regular intervals from the sampling frame. This method is accurate, easily accessible and does not contain periodic patterns that may emerge in simple random sampling. In addition, a complete list of the population is not always needed and it works with a small or large number of cases.

Stratified random sampling is similar to random sampling except the population is divided into two or more relevant and significant strata based on one or more attributes. Dividing the population into a series of relevant strata means that the sample is more likely to be representative. However, the strata must be distinguishable and significant to achieve this. In some cases, such as with this research, the relative sizes of different strata entail selecting larger samples from the strata with smaller populations in order to have sufficient data for analysis.

Cluster sampling is similar to stratified sampling as the population is divided into discrete groups. These groups are termed clusters and can be based on any naturally occurring group.

Cluster sampling generally results in a sample that represents the total population less accurately than stratified random sampling.

Multi-stage sampling is a development of cluster sampling and is normally used to overcome problems associated with a geographically-dispersed population. This technique involves taking a series of cluster samples, each involving some form of random sampling. Since this technique relies on a series of different sampling frames it is necessary to ensure they are all appropriate and available.

Checking the Sample is Representative

Sometimes it is possible to compare data from the sample with data from another source for the population, for example data on the age and socioeconomic characteristics of respondents in a marketing survey could be compared with the characteristics recorded in a national census of population.

Reliability

Reliability is the first aspect of research design that must be considered. Robson (2002) states that there are four threats to reliability. The first is subject or participant error which may result in different results being obtained at different times of the week from the same questionnaire, for example Friday afternoons may present a different view from Monday morning. By administering the questionnaire on a 'neutral' day this problem is avoided. There may be subject or participant bias where respondents are saying what they think their bosses want them to say. By ensuring the anonymity of respondents this problem can be avoided. Third, there may be observer error, but this mainly applies to interviews. Finally, there is observer bias that may occur when interpreting results, but again this applies mainly to interviews.

The second aspect of research design that attention must be paid to is validity which is concerned with whether the findings are really about what they appear to be about. Robson (2002) lists six threats to validity:

1. History: responses may be affected by a major change in the organisation being studied.
2. Testing: this may occur when respondents believe that the results of the research may disadvantage them in some way.
3. Instrumentation: where there has a been a change in instructions between testing different groups.
4. Mortality: this refers to participants dropping out of studies.
5. Maturation: That during the course of the study, events happened that have an effect on the research topic.
6. Ambiguity about casual direction: when it is difficult to determine whether X caused Y or Y caused X.

Ethics

The general ethical issue is that the research population should not be embarrassed or suffer any material disadvantage due to research design. A proposal for this research was submitted to the relevant university department, and was accepted with one condition that stated that the university is not obliged to act upon the findings of the study. The respondents and non-respondents will be anonymous and thus confidentiality will be maintained.

Time Scale

Preliminary planning for this dissertation began in December 2003 and discussions with the Preparatory Year management about administering a study on service quality started in March 2004. These discussions resulted in certain changes to the proposed instrument and mainly resulted in the deletion of items relating to other university departments as it was felt that all stakeholders should be involved, which would have considerable delayed the study and would possibly have entailed major alterations. The finalised questionnaires were completed in May and the student version subsequently translated into Arabic by the official university translation office. Since the semester finished in early June there was not enough time to gain full official approval for the questionnaires to be used. The final approval was granted in November and the survey instrument was administered in December in the second semester of the academic year 2004.

Methodology Employed

I chose to use a questionnaire as the main method of data collection after examining other methods such as observation, and semi-structured or in-depth interviews. The main reasons are that my research is descriptive and most responses to questionnaires are not open-ended. In addition, the standardised questions will be interpreted in the same way by all respondents. I ruled out interviews, either semi-structured or in-depth, on the basis of the population size. An analysis of secondary data was not possible as such data does not exist. However, exploratory research was carried out in the form of observational research and qualitative research.

The qualitative research comprised of informal interviews and focus groups, with both members of faculty and students, to help formulate questions and determine if the range and depth of scale items on the survey instrument were appropriate. These interviews were conducted in a variety of settings, but, where possible, were done in 'pleasant' surroundings. The interviewees were informed of the purpose of the discussion and that all comments would be treated with the utmost confidentiality. The interviews produced a wealth of data that ranged from general opinions to the very specific.

For this investigation, only aspects directly controlled by the Preparatory Year management were approved for investigation hence issues relating to such aspects as, for example food services, medical services and accommodation are not included. However, it is hoped that future investigations will include such aspects as they are deemed important by many interviewees.

The results of this explanatory research both confirmed the relevance to the Preparatory Year of items extracted from the literature review and uncovered items unique to the Preparatory Year.

Sample Selection

The questionnaires were distributed to all the students in the selected sections, which comprise of between 18 and 22 students, the average being 20.27. At the time of the investigation, there were fifty 001 sections with a population of 1,028 students and sixteen 002 sections with a population of 310 thereby making a total student population of 1,338.

A high response rate was assumed since a similar survey conducted by the writer (Deacon, 2003) resulted in a 90% total response rate. The sample size with a level of confidence of 95% and a margin of error of less than 5% out of a total population of 1,294 is calculated at between 278 and 322. Since the questionnaire was to be given to every student in the selected sections, it was determined that 16 sections (322÷20.27) would form the sample. Since the whole number ratio of 001 to 002 is approximately 3:1, twelve 001 sections and four 002 sections were needed.

It should be noted that as the population of English teachers is relatively small at 63, therefore all Preparatory Year teachers were surveyed.

Sampling Procedure

The sampling procedure involved two stages: stratified and cluster sampling. The population was divided into two strata (001 and 002) thereby increasing the chance of the sample being representative as each strata is represented proportionally within the sample. The sections that comprise 001 and 002 formed the discrete groups, or clusters. Normally each cluster is given a unique number, but in this particular case and to simplify matters, the existing section numbers were used: 01 - 26 and 51 - 78 for 001 sections and 30 – 40 and 80 – 84 for 002 sections. SPSS simple random sampling was employed to select the clusters to be surveyed.

Questionnaire design

The design of a questionnaire affects the response rate and the reliability and validity of the data. Therefore, care was taken to maximize response rates, reliability and validity by:

- careful design of the individual questions,
- the use of focus groups to formulate questions,
- clear layout of the questionnaire form,
- lucid explanation of the purpose of the questionnaire,
- pilot testing,
- carefully planned and executed administration.

The piloting of the questionnaire by a sample group of students and members of faculty revealed:

- how long the questionnaire took to complete,
- the clarity of instructions and questions,
- whether there were any major topic omissions,
- whether the layout was clear and attractive.

Since developing a good questionnaire requires considerable skill, a good starting point is to examine existing questionnaires that address the same issues. It may be possible to use or to adapt a previously used questionnaire in the new study, thereby reducing expense and complications, and to increase validity. Many common items were found in the questionnaires examined which corresponded to the items retrieved from the explanatory research stage and these items were subsequently incorporated into this questionnaire. However, since the explanatory research had revealed items unique to the Preparatory Year these were also incorporated.

The study made use of the importance-performance methodology for measuring perceptions of service quality. SERVQUAL was deemed unsuitable due to the inappropriateness of the five dimensions and the students' lack of prior knowledge and experience with university education.

As a result of the literature survey and explanatory research, a suitable list of items was produced and incorporated into two questionnaires, one for students and one for faculty. Each consisted of three sections (see Appendix 1 and 2):

- The first section asks respondents for their performance rating of the items on a four-point Likert scale, with anchors of A = strongly agree and D = strongly disagree, and E = no opinion. This scale was necessitated by the use of standard university Test Answer Forms, which only have five possible responses (A, B, C, D and E).
- Section two asks respondents to rate the level of importance of each of the items on a four-point Likert scale, with anchors of A = exceedingly important and D = not important, and E = no opinion.
- Section three gathers demographic information.

Since it proved impossible to design one questionnaire for both students and faculty because many of the items are not pertinent to both groups, two questionnaires with as similar as possible items were constructed. The first two sections of the faculty questionnaire contained 38 items each while the student version had 30. Of the 38 attributes in the faculty questionnaire; 15 have the same wording as in the student version, 12 have the wording 'teachers', or similar, interchanged with 'students' in the student version while 11 items are unique. The student questionnaire contained 3 unique items. The third, demographic, part of the questionnaires reflect the difference between the two populations, students and faculty, being surveyed. The section on demographics was included as it is hoped that the data collected can be used in a further analysis. However, such an analysis is outside the scope of the present investigation.

The University printed the questionnaires, which are in Arabic (see Appendix 3) for the students so as to avoid any language difficulties and in English for members of faculty (see Appendix 2). The original student questionnaire was written in English and then translated into Arabic by an official university translator. The resulting translation was then back-

translated into English by the Preparatory Year Arabic secretary (see Appendix 1 for the student questionnaire in English).

Questionnaire Response

A total of 311 questionnaires, Test Answer Forms (TAF) and cover letters were distributed to students in the 16 class sections selected in December 2004. The cover letter describing the purpose of the questionnaire, instructions on how to complete and thanking the respondents for their help was attached to all questionnaires. A total of 217 usable TAFs were returned, which represented a response rate of 69.8%.

A total of 48 usable TAFs were received from the 63 English teachers asked to complete the faculty questionnaire. This represented a response rate of 76.2%.

Analyses

This section is divided into three main parts: part 1: student questionnaire, part 2: faculty questionnaire and part 3: comparison of student and faculty questionnaires. For part 1 and part 2, the population, reliability and frequencies are discussed. For part 3, using the combined similar items from both questionnaires, a discriminant analysis is described. For all three sections, the results are plotted on scatterplots, which is in line with the original research performed by Martilla and James (1977).

Analysis Part 1: Student Questionnaire

Population

The third part of the student questionnaire asked respondents demographic questions (see Appendix 1) , which it is hoped can be used in a later more detailed study that will search for correlations between, for example, student level and responses. This would determine if the length of time that a student has studied in the Preparatory Year has any influence of their responses. It should be noted that some students are repeating either 001 or 002 and that some students enter the programme in 002. Preparatory Year students are must successfully complete the Preparatory Year in three semesters, which may include a summer semester for

002). Ideally, however, the questionnaire would have to be administered at least twice to ensure that any longitudinal factors observed were valid.

The most pertinent demographic data is presented in the three pie charts below.

Diagram 4: the level in the Preparatory Year of the student respondents

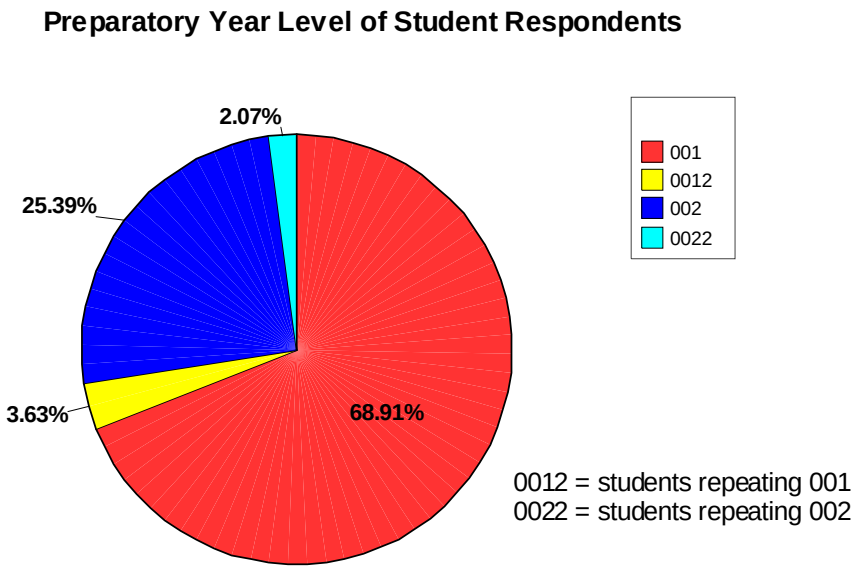


Figure 5: the ages of the Preparatory Year student respondents

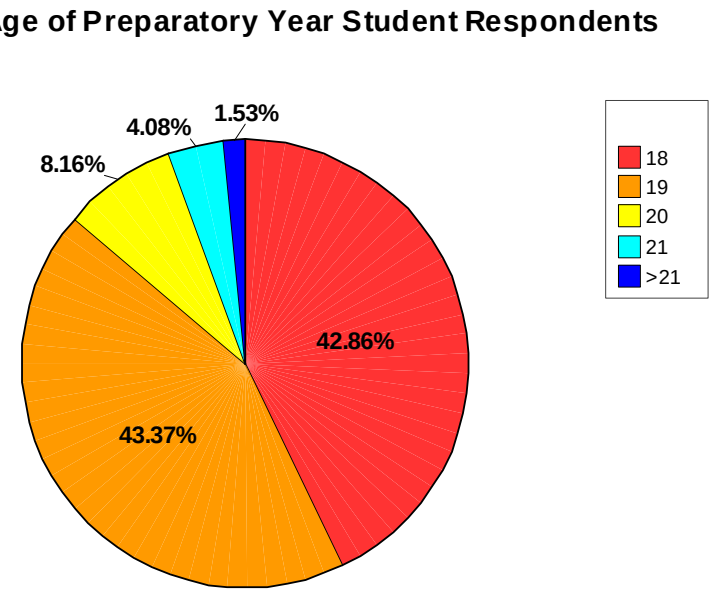
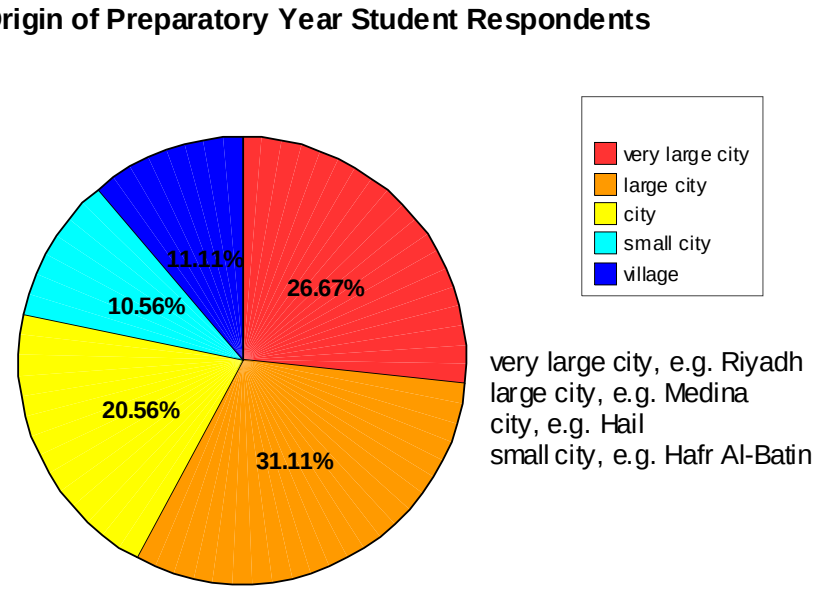


Figure 6: the origin of the Preparatory Year student respondents



Reliability

Reliability analysis allows you to study the properties of measurement scales and the items that make them up. The reliability analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale.

To ensure that the same results will be consistently reproduced in any future investigations using this instrument, it is necessary to estimate how much of the variation in scores of the different variables is the result of chance or random error. The degree of reliability was estimated by coefficient alpha, where the closer α is to 1.0, the stronger the linear relationship of the items. Overall reliabilities for the student questionnaire were 0.847 for the performance scale and 0.856 for the importance scale. This clearly showed a high degree of reliability as these scores exceeded the usual recommendation of alpha = 0.70 for establishing internal consistency of the scale (DeVellis, 1991).

Coefficient alpha is a measure of the internal consistency of a scale. A high alpha is desirable since it reflects that the items are homogeneous and thereby are measuring the same underlying property. As a correlation, alpha ranges in value from 0 to 1 (negative values can occur when items are not positively correlated with each other). Like other coefficients, alpha can also be squared to identify the proportion of variance it shares with other items: an alpha below .60 is unacceptable; .60-.65 is undesirable; .65-.70 is minimally acceptable; .70-.80 is respectable; .80-.90 is very good; and if much above .90 excellent and you should consider shortening the scale. Alpha as an estimate of reliability increases with the number of items in the scale, therefore a longer scale will have a narrower confidence interval than a shorter scale. A longer scale will give similar alpha values across administrations, but may be somewhat lower when administered to a sample different than the one on which it was developed.

Frequencies

The Test Answer Forms were optically scanned by the Information Technology Center of the university and the resulting raw data was received by e-mail in two data files; one for faculty and one for students. The data was prepared for analysis by the SPSS software by firstly recoding the alphanumeric values (A,B,C,D and E) into integers to enable the desired statistical analysis to be performed.

Table 6 shows Likert scale items, the recoded values used for the analysis and the original code of the standard university Test Answer Form (TAF).

Table 6: recoded values

Performance	TAF code	Integer	Importance	TAF code	Integer
Strongly Agree	A	4	Exceedingly Important	A	4
Agree	B	3	Very Important	B	3
Disagree	C	2	Important	C	2
Strongly Disagree	D	1	Of Low Importance	D	1
No Opinion	E	0	Not Important	E	0

A few missing values were observed in the student data and, as a result, a missing value procedure was performed that described the pattern of missing data and computed new values.

A data files were created, variable names were assigned to each item and the columns were formatted.

Table 7 shows the performance item responses expressed in percentages for each of the recoded values corresponding to the TAF codes and Likert scale items shown in Table 6 above while Table 8 shows the performance frequencies.

Table 7: student performance frequencies expressed in percentages

#	**Abbreviated Items** (See Appendix 1) (Note: PY stands for Preparatory Year)	**4**	**3**	**2**	**1**	**0**
1	The PY administration provides satisfactory service.	10.2	2.4	22.4	5.9	2.4
2	PY staff are good at handling complaints & solving problems.	12.1	36.9	26.7	12.1	12.1
3	PY staff are willing to help me.	15.5	39.3	19.4	11.2	14.6
4	PY buildings have sufficient, up-to-date equipment.	8.7	27.2	3.9	34.0	3.9
5	Physical facilities are visually appealing & well maintained	3.4	20.9	32.0	40.8	2.9
6	Guidance and advice are available from teachers.	23.8	44.7	18.0	8.7	4.9
7	The Preparatory Year has the students' best interests at heart.	13.6	29.6	31.6	16.0	9.2
8	The PY class times are convenient.	10.7	21.4	23.8	42.2	1.9
9	The level of tutorial support that I receive is sufficient.	19.9	45.1	17.0	13.6	4.4
10	The PY programme is relevant to my future studies & career	43.2	36.9	6.3	6.8	6.8
11	IT is adequately used for instructional purposes	5.3	29.6	31.1	32.5	1.5
12	PY provides sufficient opportunities for students to acquire computer skills.	2.9	13.1	29.6	53.4	1.0
13	I am well acquainted with the aims of the programme.	21.8	38.8	19.4	11.7	8.3
14	The programme is sufficiently intellectually demanding.	12.6	35.0	32.0	11.7	8.7
15	Teaching methods used are matched to programme aims.	11.2	39.8	22.8	12.6	13.6
16	Methods to measure my performance and determine my grades are satisfactory.	11.2	23.9	23.9	39.0	2.0
17	I am well aware of the academic standards expected of me.	22.8	43.7	12.6	9.2	11.7
18	The examinations reflect what has been taught.	12.1	31.6	30.6	23.8	1.9
19	I receive sufficient feedback about progress from teachers.	7.8	32.0	34.0	22.3	3.9
20	I am encouraged to study.	14.1	29.6	33.5	18.9	3.9
21	I receive sufficient tuition in study skills.	9.7	28.2	23.8	24.3	14.1
22	I get support when I need it from my fellow students.	31.1	42.2	16.0	7.8	2.9
23	I have adequate opportunities to represent my views to the PY administration.	6.3	18.5	23.4	38.5	13.2
24	Because of my PY experience, I would recommend KFUPM.	28.2	31.1	16.0	17.0	7.8
25	The level of support I get from my teachers is sufficient.	9.2	40.3	30.1	17.0	3.4
26	I think there are too many students in the classes I attend.	16.5	19.9	36.4	22.3	4.9
27	The facilities for study are adequate and appropriate.	7.3	33.5	26.2	27.7	5.3
28	There is good communication between the PY administration and students.	5.3	12.6	7.3	36.4	7.3
29	I find the programme sufficiently flexible for my needs.	8.3	27.2	35.4	21.8	7.3
30	Overall, I would rate my Preparatory Year experience as excellent.	17.0	35.4	27.2	14.1	6.3

Table 8: student importance frequencies expressed in percentages

#	Abbreviated Items	4	3	2	1	0
1	The PY administration provides satisfactory service.	37.4	16.5	35.0	5.8	5.3
2	PY staff are good at handling complaints & solving problems.	52.9	23.3	9.2	9.2	5.3
3	PY staff are willing to help me.	40.3	31.6	13.6	7.3	7.3
4	PY buildings have sufficient, up-to-date equipment.	39.8	26.7	22.3	7.8	3.4
5	Physical facilities are visually appealing & well maintained	34.6	23.9	26.8	10.2	4.4
6	Guidance and advice are available from teachers.	35.9	34.0	17.5	7.3	5.3
7	The Preparatory Year has the students' best interests at heart.	37.4	25.7	25.2	6.3	5.3
8	The PY class times are convenient.	53.9	22.8	11.2	6.8	5.3
9	The level of tutorial support that I receive is sufficient.	38.0	34.6	16.1	7.3	3.9
10	The PY programme is relevant to my future studies & career	43.7	31.6	12.1	7.8	4.9
11	IT is adequately used for instructional purposes	32.0	21.4	26.7	13.6	6.3
12	PY provides sufficient opportunities for students to acquire computer skills.	25.7	31.6	26.2	12.1	4.4
13	I am well acquainted with the aims of the programme.	31.6	26.7	23.8	9.7	8.3
14	The programme is sufficiently intellectually demanding.	27.2	29.6	28.2	10.2	4.9
15	Teaching methods used are matched to programme aims.	35.0	27.7	20.9	12.1	4.4
16	Methods to measure my performance and determine my grades are satisfactory.	42.0	29.8	14.1	8.3	5.9
17	I am well aware of the academic standards expected of me.	23.3	38.3	21.4	12.6	4.4
18	The examinations reflect what has been taught.	37.4	28.2	20.4	5.8	8.3
19	I receive sufficient feedback about progress from teachers.	31.1	30.1	23.8	10.7	4.4
20	I am encouraged to study.	48.1	21.8	18.4	5.3	6.3
21	I receive sufficient tuition in study skills.	37.4	28.2	18.9	8.7	6.8
22	I get support when I need it from my fellow students.	26.7	30.1	28.2	9.7	5.3
23	I have adequate opportunities to represent my views to the PY administration.	34.5	26.7	19.4	9.7	9.7
24	Because of my PY experience, I would recommend KFUPM.	26.7	21.8	22.8	14.1	14.6
25	The level of support I get from my teachers is sufficient.	30.6	32.5	25.7	6.3	4.9
26	I think there are too many students in the classes I attend.	24.3	26.2	20.9	15.0	13.6
27	The facilities for study are adequate and appropriate.	38.8	28.2	17.5	6.3	9.2
28	There is good communication between the PY administration and students.	36.4	24.3	22.3	10.7	6.3
29	I find the programme sufficiently flexible for my needs.	33.5	26.2	26.2	7.8	6.3
30	Overall, I would rate my Preparatory Year experience as excellent.	42.9	20.0	21.5	8.3	7.3

The means for both the performance and importance of each item was found as the mean represents the central tendency and the standard deviation which is a measure of dispersion that it takes account of all the values in the dataset was found. The size of the standard deviation relative to the mean tells us how dispersed the items in the population are from the average for the sample.

Table 9 shows the performance means in ascending order and their corresponding standard deviation while Table 10 shows the importance means and standard deviations.

Table 9: student performance means in ascending order

#	Abbreviated Item	Mean	Std. Deviation
12	PY provides sufficient opportunities for students to acquire computer skills.	1.64	.83
23	I have adequate opportunities to represent my views to the PY administration.	1.66	1.12
28	There is good communication between the PY administration and students.	1.72	.96
5	Physical facilities are visually appealing & well maintained	1.81	.92
21	I receive sufficient tuition in study skills.	1.95	1.22
8	The PY class times are convenient.	1.97	1.07
4	PY buildings have sufficient, up-to-date equipment.	2.03	1.06
16	Methods to measure my performance and determine my grades are satisfactory.	2.03	1.08
11	IT is adequately used for instructional purposes	2.05	.95
29	I find the programme sufficiently flexible for my needs.	2.07	1.05
27	The facilities for study are adequate and appropriate.	2.10	1.06
19	I receive sufficient feedback about progress from teachers.	2.17	.99
26	I think there are too many students in the classes I attend.	2.21	1.11
7	The Preparatory Year has the students' best interests at heart.	2.22	1.15
15	Teaching methods used are matched to programme aims.	2.22	1.21
2	PY staff are good at handling complaints & solving problems.	2.25	1.19
18	The examinations reflect what has been taught.	2.28	1.02
3	PY staff are willing to help me.	2.30	1.27
14	The programme is sufficiently intellectually demanding.	2.31	1.11
20	I am encouraged to study.	2.31	1.06
25	The level of support I get from my teachers is sufficient.	2.35	.98
30	Overall, I would rate my Preparatory Year experience as excellent.	2.43	1.12
13	I am well acquainted with the aims of the programme.	2.54	1.19
24	Because of my PY experience, I would recommend KFUPM.	2.55	1.27
17	I am well aware of the academic standards expected of me.	2.57	1.26
9	The level of tutorial support that I receive is sufficient.	2.63	1.08
1	The PY administration provides satisfactory service.	2.69	.28
6	Guidance and advice are available from teachers.	2.74	1.07
22	I get support when I need it from my fellow students.	2.91	1.02
10	The PY programme is relevant to my future studies & career	3.03	1.18

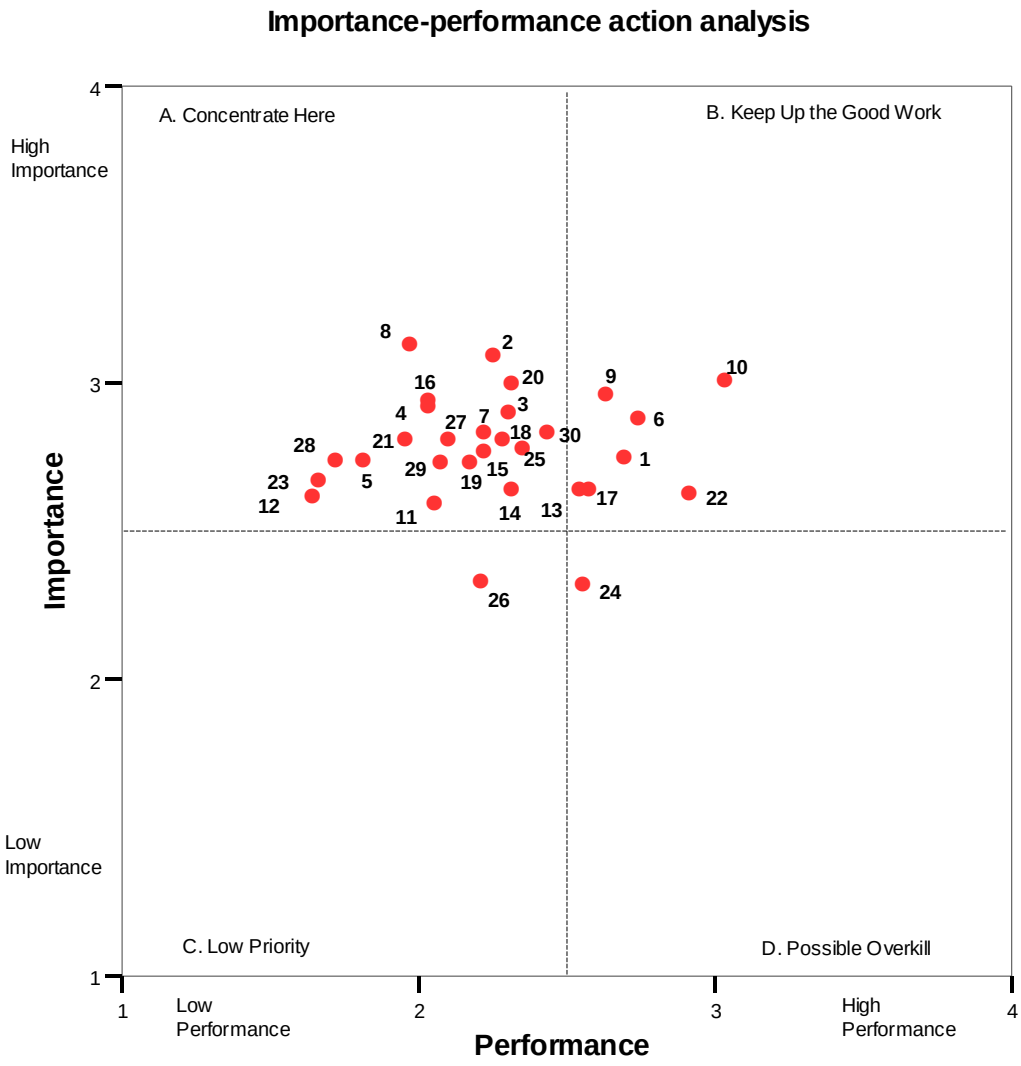
Table 10: student importance means in ascending order

#	Abbreviated Item	Mean	Std. Deviation
24	Because of my PY experience, I would recommend KFUPM.	2.32	1.38
26	I think there are too many students in the classes I attend.	2.33	1.35
11	IT is adequately used for instructional purposes	2.59	1.24
12	PY provides sufficient opportunities for students to acquire computer skills.	2.62	1.12
22	I get support when I need it from my fellow students.	2.63	1.14
14	The programme is sufficiently intellectually demanding.	2.64	1.13
13	I am well acquainted with the aims of the programme.	2.64	1.25
17	I am well aware of the academic standards expected of me.	2.64	1.10
23	I have adequate opportunities to represent my views to the PY administration.	2.67	1.30
29	I find the programme sufficiently flexible for my needs.	2.73	1.19
19	I receive sufficient feedback about progress from teachers.	2.73	1.14
28	There is good communication between the PY administration and students.	2.74	1.23
5	Physical facilities are visually appealing & well maintained	2.74	1.17
1	The PY administration provides satisfactory service.	2.75	1.18
15	Teaching methods used are matched to programme aims.	2.77	1.18
25	The level of support I get from my teachers is sufficient.	2.78	1.10
21	I receive sufficient tuition in study skills.	2.81	1.22
27	The facilities for study are adequate and appropriate.	2.81	1.27
18	The examinations reflect what has been taught.	2.81	1.23
7	The Preparatory Year has the students' best interests at heart.	2.83	1.16
30	Overall, I would rate my Preparatory Year experience as excellent.	2.83	1.27
6	Guidance and advice are available from teachers.	2.88	1.14
3	PY staff are willing to help me.	2.90	1.22
4	PY buildings have sufficient, up-to-date equipment.	2.92	1.11
16	Methods to measure my performance and determine my grades are satisfactory.	2.94	1.19
9	The level of tutorial support that I receive is sufficient.	2.96	1.09
20	I am encouraged to study.	3.00	1.21
10	The PY programme is relevant to my future studies & career	3.01	1.15
2	PY staff are good at handling complaints & solving problems.	3.09	1.21
8	The PY class times are convenient.	3.13	1.18

An advantage of the importance-performance instrument is that the results can be pictorially represented enabling a fast and easy interpretation of the results. Figure 7 shows the importance-performance matrix for the students. The importance means are on the x-axis while the performance means are on the y-axis. The numbers next to each dot on the matrix is the item being plotted. The matrix demonstrates that the ratings for both performance and importance tend to be skewed and that, when plotted with the axes in the middle of the scale, most of the items are positioned in the upper left quadrant, which represents high perceived importance and poor perceived performance. The scatterplot shows the importance and performance means and has the quadrants labelled as demonstrated by Martilla and James (1977). The grid can provide useful guidance with regard to improvement efforts. However, as noted by Martilla and James (1977) that the positioning of the horizontal and vertical grid

lines does serve as a guide in relative terms, note should be taken of the items that are very close to the boundaries of the dividing lines on the grid.

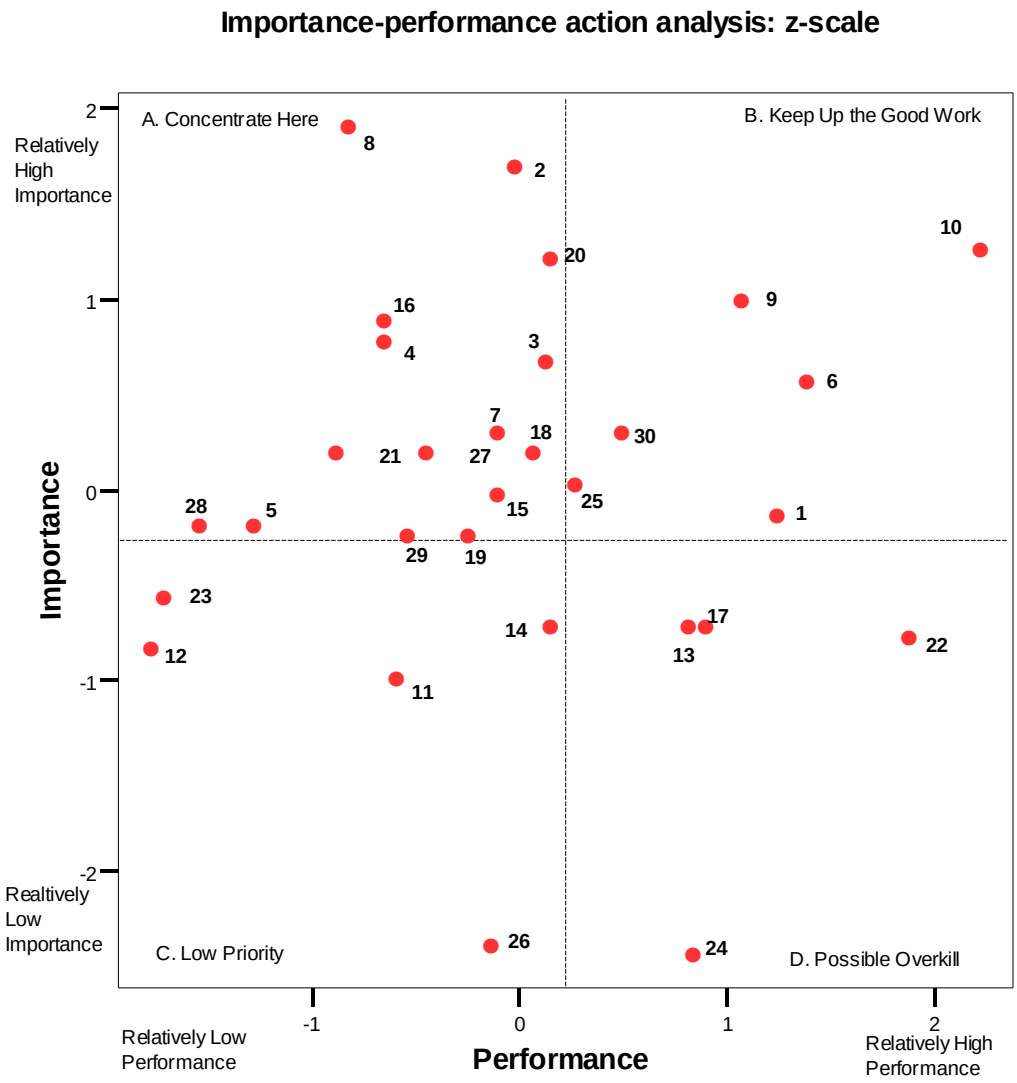
Figure 7: importance-performance action analysis: means



However, a more useful analysis was obtained by standardizing the performance and importance ratings by converting the data to a z-score, which is essentially a standard deviation. For example, a z of +1.00 means that the score is 1 standard deviation unit above the mean, whereas a z of -1 means it is 1 standard deviation unit below the mean. A common statistical way of standardizing data on one scale so a comparison can take place is using a z-score. The z-score is like a common yard stick for all types of data. Each z-score corresponds to a point in a normal distribution and as such is sometimes called a normal deviate since a z-

score will describe how much a point deviates from a mean or specification point. The z-score is calculated by subtracting the average mean from the mean importance and performance ratings and then dividing by the standard deviation. As a result, these measures represent relative importance and performance for all of the items (see Figure 8).

Figure 8: importance-performance action analysis: z-score



The upper left quadrant (quadrant A) of the matrix shows that the Preparatory Year is performing poorly with regard to four items:

- Item 2 'The Preparatory Year staff are good at handling complaints & solving problems.'
- Item 4 'The Preparatory Year buildings have sufficient, up-to-date equipment.'

- Item 8 'The Preparatory Year class times are convenient.'
- Item 16 'The methods to measure my performance and determine my grades are satisfactory.'

The upper-right quadrant (quadrant B) shows that four items are seen as performing relatively well and of relatively high importance. They are: item1 'The PY administration provides satisfactory service', item 6 'Guidance and advice are available from teachers', item 9 'The level of tutorial support that I receive is sufficient' and item 10 'The Preparatory Year programme is relevant to my future studies & career'.

The lower-left quadrant (quadrant C) shows no items that are deemed of relatively low performance and relatively low importance since the items in this quadrant are fairly close to either quadrant A or D.

The lower-right quadrant (quadrant D) indicates that four items are considered as performing relatively well while only one (item 24 'Because of my PY experience, I would recommend KFUPM') is deemed of relatively low importance. The other three items are : item 13 'I am well acquainted with the aims of the programme', item 17 'I am well aware of the academic standards expected of me' and item 22 'I get support when I need it from my fellow students'.

The next part of the analysis was to examine the relationship between the two sets of variables. To test whether the two groups are different, the paired t-test which is a test for differences in the mean of paired samples from the same respondents was performed The paired t-test assesses the likelihood of any difference between the two variables (each half of the pair) occurring by chance. If the probability of obtaining the test statistic or one more extreme by chance is higher than 0.05, then it may be concluded that the relationship is not statistically significant. If the significance testing shows that $p = 0.05$ or lower, there is a statistically significant relationship. Mean importance and performance scores, and t-values are shown for each of the items in Table 11.

Table 11: student importance-performance means

	Items (abbreviated)	Perform Mean	Import Mean	t-value	Sig. 2-tailed
1	The PY administration provides satisfactory service.	2.69	2.75	-.64	.525
2	PY staff are good at handling complaints & solving problems.	2.25	3.09	-7.80	.000
3	PY staff are willing to help me.	2.30	2.90	-5.98	.000
4	PY buildings have sufficient, up-to-date equipment.	2.03	2.92	-8.31	.000
5	Physical facilities are visually appealing & well maintained	1.81	2.74	-9.39	.000
6	Guidance and advice are available from teachers.	2.74	2.88	-1.48	.141
7	The Preparatory Year has the students' best interests at heart.	2.22	2.83	-5.82	.000
8	The PY class times are convenient.	1.97	3.13	-10.90	.000
9	The level of tutorial support that I receive is sufficient.	2.63	2.96	-3.45	.001
10	The PY programme is relevant to my future studies & career	3.03	3.01	.15	.880
11	IT is adequately used for instructional purposes	2.05	2.59	-4.92	.000
12	PY provides sufficient opportunities for students to acquire computer skills.	1.64	2.62	-9.87	.000
13	I am well acquainted with the aims of the programme.	2.54	2.64	-.85	.394
14	The programme is sufficiently intellectually demanding.	2.31	2.64	-3.39	.001
15	Teaching methods used are matched to programme aims.	2.22	2.77	-5.06	.000
16	Methods to measure my performance and determine my grades are satisfactory.	2.03	2.94	-8.19	.000
17	I am well aware of the academic standards expected of me.	2.57	2.64	-.72	.470
18	The examinations reflect what has been taught.	2.28	2.81	-4.71	.000
19	I receive sufficient feedback about progress from teachers.	2.17	2.73	-5.56	.000
20	I am encouraged to study.	2.31	3.00	-6.36	.000
21	I receive sufficient tuition in study skills.	1.95	2.81	-7.38	.000
22	I get support when I need it from my fellow students.	2.91	2.63	2.94	.004
23	I have adequate opportunities to represent my views to the PY administration.	1.66	2.67	-8.68	.000
24	Because of my PY experience, I would recommend KFUPM.	2.55	2.32	2.08	.038
25	The level of support I get from my teachers is sufficient.	2.35	2.78	-4.59	.000
26	I think there are too many students in the classes I attend.	2.21	2.33	-1.10	.274
27	The facilities for study are adequate and appropriate.	2.10	2.81	-5.92	.000
28	There is good communication between the PY administration and students.	1.72	2.74	-8.96	.000
29	I find the programme sufficiently flexible for my needs.	2.07	2.73	-5.95	.000
30	Overall, I would rate my Preparatory Year experience as excellent.	2.43	2.83	-3.95	.000

Analysis: Part 2 Faculty Questionnaire[1]

Population

Demographic data was collected from the faculty respondents as it is hoped that the data can be used in a later study similar to that proposed for the students. The demographic items are shown in Appendix 2 while the most pertinent items are represented in the following pie charts.

[1] The statistics methodology explained in Analysis Part 1 is not repeated in Part 2

Figure 9: the number of years that the faculty respondents have taught in the Preparatory Year

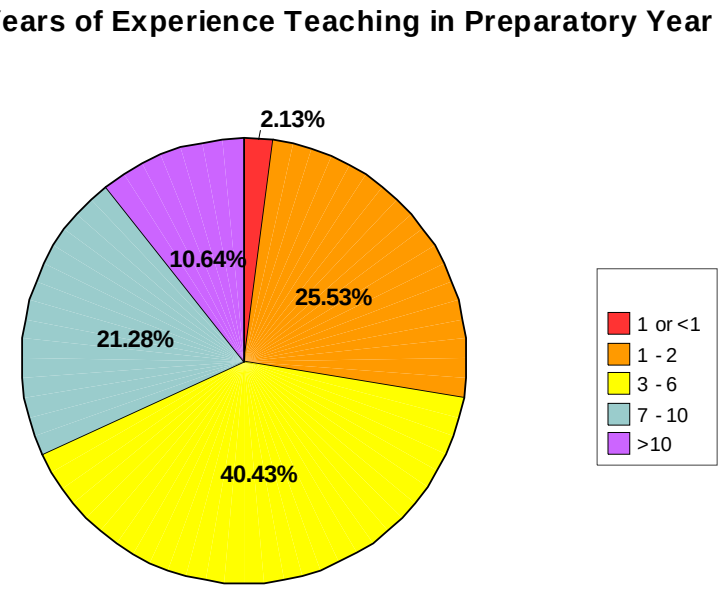


Figure 10: the ages of the Preparatory Year lecturers

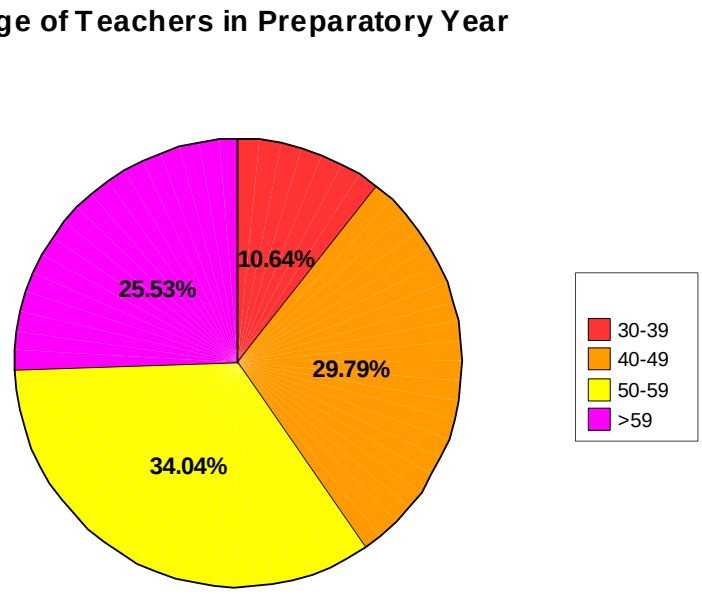


Figure 11: the total number of years of teaching experience of lecturers

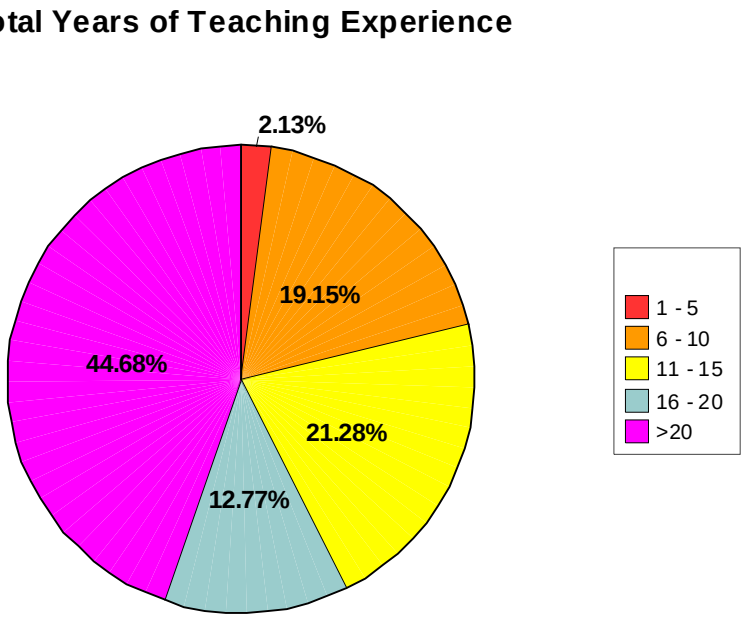
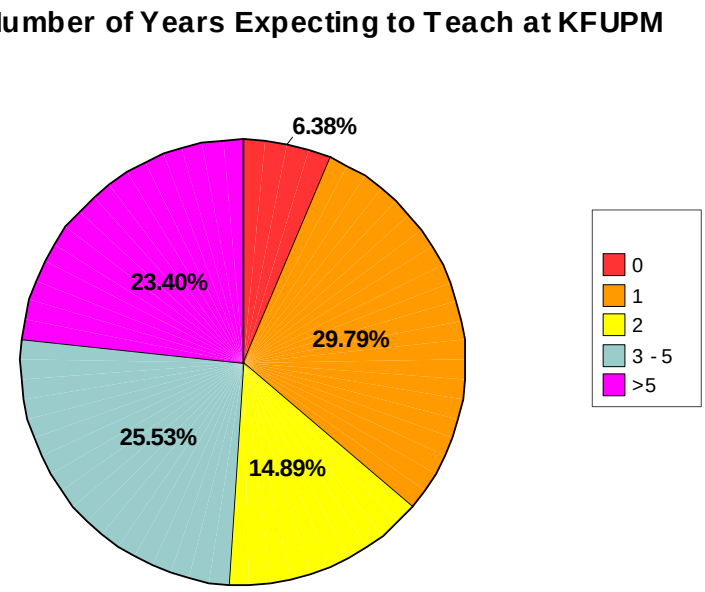


Figure 12: the number of years that the faculty respondents have taught in the Preparatory Year



Reliability

Overall reliabilities for the teacher questionnaire were 0.891 for the performance scale and 0.933 for the importance scale. This clearly showed a high degree of reliability as these scores exceeded the usual recommendation of alpha = 0.70. This shows a high degree of reliability as these scores exceeded the usual recommendation of alpha = 0.70 for establishing internal consistency of the scale (DeVellis, 1991).

Frequencies

Table 11: faculty performance frequencies expressed in percentages

#	**Abbreviated Items** (See Appendix 1)	**4**	**3**	**2**	**1**	**0**
1	PY administration provides satisfactory service.	4.3	38.3	19.1	38.3	0
2	PY staff are good at handling complaints and solving problems.	2.1	53.2	29.8	10.6	4.3
3	PY staff are always willing to help me.	8.5	55.3	17.0	8.5	0
4	PY buildings have sufficient, up-to-date equipment.	0	2.1	42.6	53.2	2.1
5	PY buildings are visually appealing and well-maintained.	0	8.5	27.7	57.4	6.4
6	Guidance and advice are generally available within your department.	4.3	48.9	23.4	21.3	2.1
7	The PY has the teachers' best interests at heart.	0	10.6	29.8	34.0	25.5
8	PY class times are convenient.	14.9	66.0	8.5	6.4	4.3
9	The level of tutorial support that students receive is sufficient.	14.9	63.8	12.8	2.1	6.4
10	PY programme is relevant to the students' future studies and careers.	2.1	46.2	36.2	14.9	4.3
11	IT is adequately used for instructional purposes.	0	12.8	31.9	29.8	25.5
12	PY provides opportunities for teachers to acquire computer skills.	0	25.5	27.7	29.8	17.0
13	PY provides opportunities for students to acquire computer skills.	8.5	21.3	36.2	23.4	10.6
14	I am well acquainted with the aims of the programme.	25.5	53.2	14.9	6.4	0
15	The programme is sufficiently intellectually demanding.	6.4	31.9	34.0	27.7	0
16	The teaching methods are well matched to the programme goals.	8.5	34.0	29.8	12.8	14.9
17	The methods used to measure student performance and determine grades are satisfactory.	4.3	23.4	31.9	34.0	6.4
18	The students are well aware of the standards expected of them.	21.3	46.8	23.4	8.5	0
19	Exams reflect what has been taught.	4.3	59.6	17.0	17.0	2.1
20	Students receive feedback of their progress from their teachers.	12.8	51.1	14.9	14.9	6.4
21	Students are encouraged to study.	14.9	63.8	6.4	4.3	10.6
22	Students receive sufficient tuition in study skills.	8.5	27.7	27.7	21.3	14.9
23	I get support when I need it from my colleagues.	19.1	63.8	8.5	4.3	4.3
24	I have opportunities to represent my views to my department.	8.5	38.3	29.8	19.1	4.3
25	I would recommend as KFUPM as a good place to work.	14.9	42.6	10.6	19.1	12.8
26	The level of support from my department is satisfactory.	4.3	31.9	27.7	27.7	8.5
27	I think there are too many students in the classes I teach.	21.3	34.0	40.4	2.1	2.1
28	There are adequate opportunities for professional development	2.1	10.6	31.9	42.6	12.8
29	There is good communication between the PY admin & teachers	0	19.1	34.0	42.6	4.3
30	There is scope for flexibility and creativity in the classroom.	2.1	23.4	38.3	25.5	10.6
31	Teaching at KFUPM has been a professionally rewarding experience.	2.1	31.9	38.3	17.0	10.6
32	The programme is sufficiently interesting for the students.	2.1	14.9	46.8	31.9	4.3
33	I am sufficiently active in the development of teaching materials	14.9	31.9	31.9	12.8	8.5
34	Student evaluations of teachers are fair and informative.	0	14.9	36.2	36.2	12.8
35	Department evaluations of teachers are fair and transparent.	0	14.9	27.7	38.3	19.1
36	My involvement in the decision making process is satisfactory.	2.1	25.5	23.4	40.4	8.5
37	My department encourages the discussion of professional issues.	0	14.9	27.7	51.1	6.4
38	My department works hard to keep morale high.	2.1	6.4	27.7	53.2	10.6

Table 11 shows the performance item responses expressed in percentages for each of the recoded values corresponding to the TAF codes and Likert scale items shown in Table 6 while Table 12 shows the performance frequencies.

Table 12: faculty importance frequencies expressed in percentages

#	**Abbreviated Items** (See Appendix 1)	**4**	**3**	**2**	**1**	**0**
1	PY administration provides satisfactory service.	34.0	42.6	17.0	6.4	0
2	PY staff are good at handling complaints and solving problems.	27.7	44.7	21.3	6.4	0
3	PY staff are always willing to help me.	23.4	44.7	31.9	0	0
4	PY buildings have sufficient, up-to-date equipment.	34.0	40.4	23.4	2.1	0
5	PY buildings are visually appealing and well-maintained.	23.4	29.8	44.7	2.1	0
6	Guidance and advice are generally available within your department.	25.5	42.6	31.9	0	0
7	The PY has the teachers' best interests at heart.	44.7	34.0	21.3	0	0
8	PY class times are convenient.	27.7	27.7	44.7	0	0
9	The level of tutorial support that students receive is sufficient.	6.4	27.7	38.3	6.4	0
10	PY programme is relevant to the students' future studies and careers.	44.7	38.3	14.9	2.1	0
11	IT is adequately used for instructional purposes.	23.4	38.3	23.4	12.8	2.1
12	PY provides opportunities for teachers to acquire computer skills.	29.8	21.3	34.0	14.9	0
13	PY provides opportunities for students to acquire computer skills.	25.5	29.8	34.0	10.6	0
14	I am well acquainted with the aims of the programme.	48.9	29.8	19.1	2.1	0
15	The programme is sufficiently intellectually demanding.	31.9	38.3	27.7	2.1	0
16	The teaching methods are well matched to the programme goals.	38.3	42.6	19.1	0	0
17	The methods used to measure student performance and determine grades are satisfactory.	44.7	38.3	17.0	0	0
18	The students are well aware of the standards expected of them.	36.2	44.7	19.1	0	0
19	Exams reflect what has been taught.	59.6	29.8	8.5	2.1	0
20	Students receive feedback of their progress from their teachers.	29.8	42.6	27.7	0	0
21	Students are encouraged to study.	34.0	38.3	23.4	4.3	0
22	Students receive sufficient tuition in study skills.	36.2	21.3	36.2	6.4	0
23	I get support when I need it from my colleagues.	23.4	38.3	31.9	6.4	0
24	I have opportunities to represent my views to my department.	29.8	31.9	34.0	2.1	2.1
25	I would recommend as KFUPM as a good place to work.	31.9	29.8	21.3	8.5	8.5
26	The level of support from my department is satisfactory.	34.0	42.6	21.3	2.1	0
27	I think there are too many students in the classes I teach.	40.4	6.4	21.3	6.4	0
28	There are adequate opportunities for professional development	38.3	36.2	21.3	2.1	2.1
29	There is good communication between the PY admin & teachers	44.7	40.4	14.9	0	0
30	There is scope for flexibility and creativity in the classroom.	21.3	55.3	23.4	0	0
31	Teaching at KFUPM has been a professionally rewarding experience.	19.1	36.2	36.2	8.5	0
32	The programme is sufficiently interesting for the students.	46.8	29.8	23.4	0	0
33	I am sufficiently active in the development of teaching materials	17.0	25.5	42.6	14.9	0
34	Student evaluations of teachers are fair and informative.	36.2	27.7	19.1	10.6	6.4
35	Department evaluations of teachers are fair and transparent.	51.1	23.4	21.3	4.3	0
36	My involvement in the decision making process is satisfactory.	21.3	38.3	34.0	6.4	0
37	My department encourages the discussion of professional issues.	27.7	27.7	29.8	12.8	2.1
38	My department works hard to keep morale high.	57.4	36.2	6.4	0	0

Table 13 shows the performance means in ascending order and their corresponding standard deviation while Table 14 shows the importance means and standard deviations.

Table 13: faculty performance means in ascending order

#	Abbreviated Items	Mean	Standard Deviation
11	IT is adequately used for instructional purposes.	1.32	1.000
38	My department works hard to keep morale high.	1.36	.845
5	PY buildings are visually appealing and well-maintained.	1.38	.739
35	Department evaluations of teachers are fair and transparent.	1.38	.968
4	PY buildings have sufficient, up-to-date equipment.	1.45	.583
28	There are adequate opportunities for professional development	1.47	.929
37	My department encourages the discussion of professional issues.	1.51	.831
34	Student evaluations of teachers are fair and informative.	1.53	.905
12	PY provides opportunities for teachers to acquire computer skills.	1.62	1.050
29	There is good communication between the PY admin & teachers	1.68	.837
36	My involvement in the decision making process is satisfactory.	1.72	1.010
32	The programme is sufficiently interesting for the students.	1.79	.832
30	There is scope for flexibility and creativity in the classroom.	1.81	.992
17	The methods used to measure student performance and determine grades a	1.85	1.000
13	PY provides opportunities for students to acquire computer skills.	1.94	1.110
22	Students receive sufficient tuition in study skills.	1.94	1.200
26	The level of support from my department is satisfactory.	1.96	1.060
31	Teaching at KFUPM has been a professionally rewarding experience.	1.98	1.010
1	PY administration provides satisfactory service.	2.09	.974
7	The PY has the teachers' best interests at heart.	2.09	.966
16	The teaching methods are well matched to the programme goals.	2.09	1.190
15	The programme is sufficiently intellectually demanding.	2.17	.916
10	PY programme is relevant to the students' future studies and careers.	2.23	.890
24	I have opportunities to represent my views to my department.	2.28	1.010
25	I would recommend as KFUPM as a good place to work.	2.28	1.300
6	Guidance and advice are generally available within your department.	2.32	.935
33	I am sufficiently active in the development of teaching materials	2.32	1.140
2	PY staff are good at handling complaints and solving problems.	2.38	.874
19	Exams reflect what has been taught.	2.47	.905
20	Students receive feedback of their progress from their teachers.	2.49	1.100
21	Students are encouraged to study.	2.68	1.120
27	I think there are too many students in the classes I teach.	2.70	.907
9	The level of tutorial support that students receive is sufficient.	2.79	.954
8	PY class times are convenient.	2.81	.924
18	The students are well aware of the standards expected of them.	2.81	.876
3	PY staff are always willing to help me.	2.85	.834
23	I get support when I need it from my colleagues.	2.89	.914
14	I am well acquainted with the aims of the programme.	2.98	.821

Table 14: faculty importance means in ascending order

#	Abbreviated Items	Mean	Standard Deviation
12	PY provides opportunities for teachers to acquire computer skills.	2.66	1.070
31	Teaching at KFUPM has been a professionally rewarding experience.	2.66	.891
11	IT is adequately used for instructional purposes.	2.68	1.040
25	I would recommend as KFUPM as a good place to work.	2.68	1.250
13	PY provides opportunities for students to acquire computer skills.	2.70	.976
5	PY buildings are visually appealing and well-maintained.	2.74	.846
35	Department evaluations of teachers are fair and transparent.	2.74	.931
9	The level of tutorial support that students receive is sufficient.	2.77	.937
23	I get support when I need it from my colleagues.	2.79	.883
38	My department works hard to keep morale high.	2.83	.621
8	PY class times are convenient.	2.83	.842
24	I have opportunities to represent my views to my department.	2.85	.955
22	Students receive sufficient tuition in study skills.	2.87	.992
33	I am sufficiently active in the development of teaching materials	2.91	.951
3	PY staff are always willing to help me.	2.91	.747
36	My involvement in the decision making process is satisfactory.	2.94	.871
32	The programme is sufficiently interesting for the students.	2.94	.813
6	Guidance and advice are generally available within your department.	2.94	.763
30	There is scope for flexibility and creativity in the classroom.	2.98	.675
15	The programme is sufficiently intellectually demanding.	3.00	.834
20	Students receive feedback of their progress from their teachers.	3.02	.766
21	Students are encouraged to study.	3.02	.872
1	PY administration provides satisfactory service.	3.04	.884
2	PY staff are good at handling complaints and solving problems.	3.04	.870
4	PY buildings have sufficient, up-to-date equipment.	3.06	.818
28	There are adequate opportunities for professional development	3.06	.942
34	Student evaluations of teachers are fair and informative.	3.06	1.240
27	I think there are too many students in the classes I teach.	3.06	.942
26	The level of support from my department is satisfactory.	3.09	.803
18	The students are well aware of the standards expected of them.	3.17	.732
16	The teaching methods are well matched to the programme goals.	3.19	.741
37	My department encourages the discussion of professional issues.	3.23	1.090
7	The PY has the teachers' best interests at heart.	3.23	.786
10	PY programme is relevant to the students' future studies and careers.	3.26	.793
14	I am well acquainted with the aims of the programme.	3.26	.846
17	The methods used to measure student performance and determine grades a	3.28	.743
29	There is good communication between the PY admin & teachers	3.30	.720
19	Exams reflect what has been taught.	3.47	.747

Figure 13 shows the importance-performance matrix for the faculty. The importance means are on the x-axis while the performance means are on the y-axis. The numbers next to each dot on the matrix is the item being plotted. The matrix demonstrates that the ratings for both performance and importance tend to be skewed and that, when plotted with the axes in the middle of the scale, most of the items are positioned in the upper left quadrant, which represents high perceived importance and poor perceived performance. The scatterplot shows the importance and performance means and has the quadrants labelled as demonstrated by Martilla and James (1977).

Figure 13: faculty importance-performance action analysis

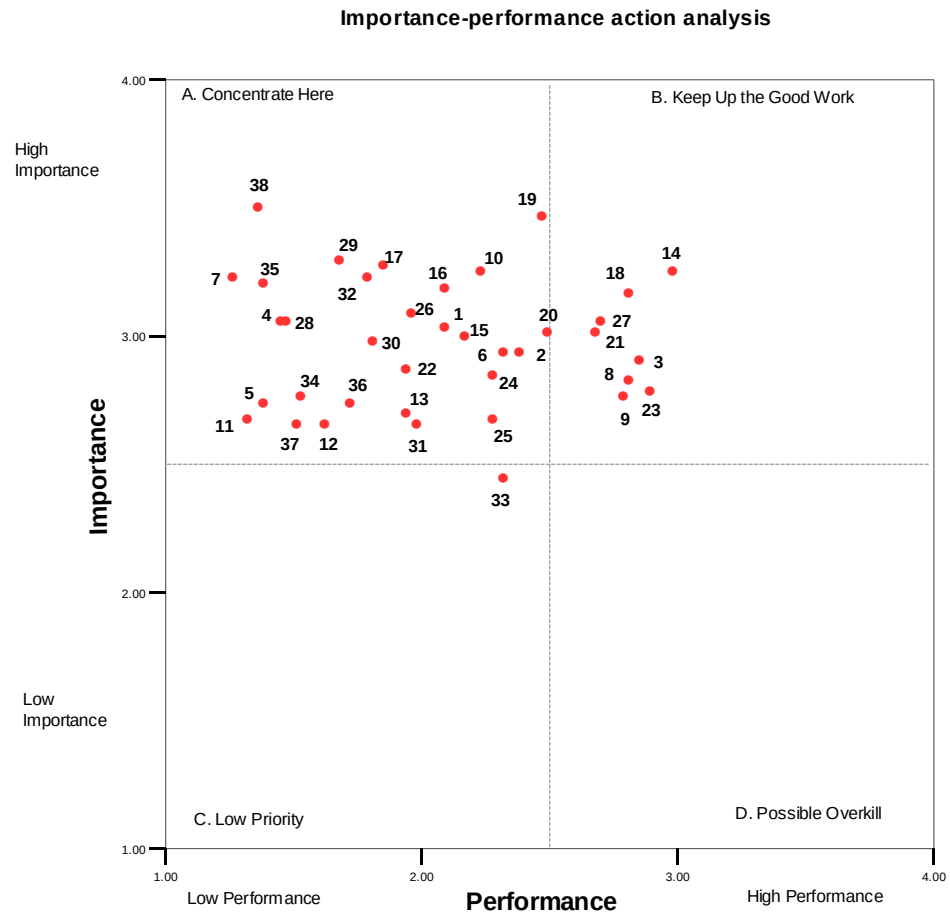
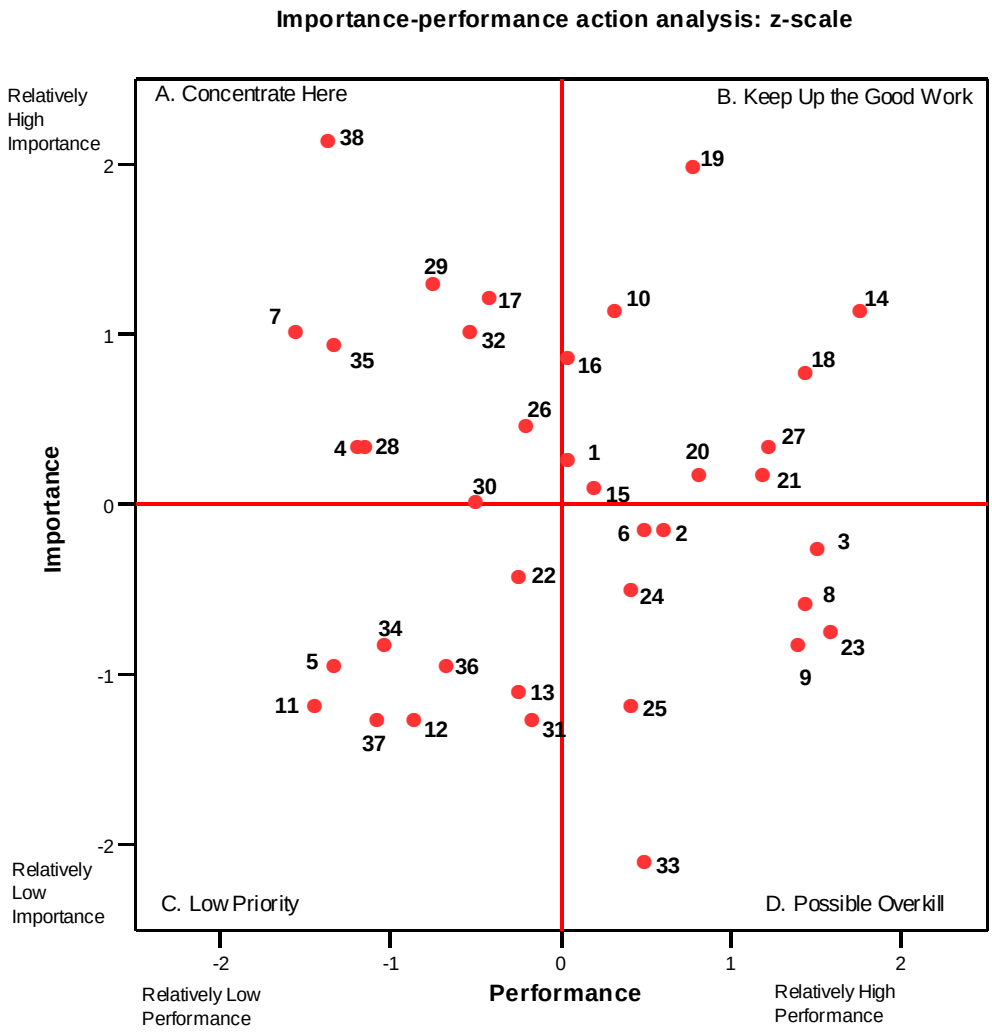


Figure 14 shows a scatterplot utilizing z-scores which standardize the importance and performance ratings.

The upper left quadrant of the matrix (quadrant A) shows that the Preparatory Year is not performing well enough on the following six items.

- Item 38: 'My department works hard to keep morale high'.
- Item 29: 'There is good communication between the administration and teachers'.
- Item 7: 'The Preparatory Year has the teachers' best interests at heart'.
- Item 35: 'Department evaluations of teachers are fair and transparent'.
- Item 17: 'The methods used to measure student performance and determine grades are satisfactory'.
- Item 32: 'The programme is sufficiently interesting for the students'.

Figure 14: importance-performance action analysis – Z-score



If viewed with regard to the level of importance attached, considerable effort may well be needed to rectify this level of dissatisfaction. Moreover, it is vital that the department examines these aspects and prioritises efforts to improve the situation.

The lower left quadrant (quadrant C) illustrates that the Preparatory Year is performing poorly with these aspects albeit they are regarded as of low importance, for instance item 11 'Information technology is adequately used for instructional purposes'. The upper right quadrant (quadrant B) indicates aspects that are performing well and regarded as important, for example item 19 'The examinations reflect what has been taught' and item 14 'I am well acquainted with the aims of the programme'. The lower right quadrant (quadrant D) indicates

items whose performance are rated relatively high, for example item 23 'I get support when I need it from my colleagues' and item 9 'The level of tutorial support that students receive is sufficient'. It is therefore unlikely that attempts at improvement in these areas would produce any improvement in the perception of quality.

Table 15: faculty importance-performance means

#	Items (abbreviated)	Perform Mean	Import Mean	t-value	Sig. (2-tailed)
1	PY administration provides satisfactory service.	2.09	3.04	-4.546	.000
2	PY staff are good at handling complaints & solving problems	2.38	3.04	-3.083	.000
3	PY staff are always willing to help me.	2.85	2.91	-1.238	.222
4	PY buildings have sufficient, up-to-date equipment.	1.45	3.06	-9.465	.000
5	PY buildings are visually appealing and well-maintained.	1.38	2.74	-7.744	.000
6	Guidance and advice are generally available.	2.32	2.94	-3.310	.002
7	The Preparatory Year has the teachers' best interests at heart.	2.09	3.23	-11.980	.000
8	PY class times are convenient.	2.81	2.83	-.151	.881
9	The level of tutorial support students receive is sufficient.	2.79	2.77	.136	.892
10	Programme is relevant to students' future studies & careers.	2.23	3.26	-5.484	.000
11	IT is adequately used for instructional purposes.	1.32	2.68	-6.368	.000
12	PY provides opportunities for teachers to acquire computer skills.	1.62	2.66	-4.464	.000
13	PY provides opportunities for students to acquire computer skills.	1.94	2.70	-3.923	.000
14	I am well acquainted with the aims of the programme.	2.98	3.26	-1.566	.124
15	The programme is sufficiently intellectually demanding.	2.17	3.00	-4.053	.000
16	Teaching methods are well matched to the programme goals.	2.09	3.19	-5.735	.000
17	The methods used to measure student performance and determine grades are satisfactory.	1.85	3.28	-7.839	.000
18	Students are well aware of the standards expected of them.	2.81	3.17	-1.970	.055
19	Exams reflect what has been taught.	2.47	3.47	-5.557	.000
20	Students receive feedback of their progress from teachers.	2.49	3.02	-2.921	.005
21	Students are encouraged to study.	2.68	3.02	-2.183	.034
22	Students receive sufficient tuition in study skills.	1.94	2.87	-4.967	.000
23	I get support when I need it from my colleagues.	2.89	2.79	.670	.506
24	I have opportunities to represent my views to my department.	2.28	2.85	-2.507	.016
25	I would recommend as KFUPM as a good place to work.	2.28	2.68	-1.640	.108
26	The level of support from my department is satisfactory.	1.96	3.09	-5.317	.000
27	I think there are too many students in the classes I teach.	2.70	3.06	-2.358	.023
28	There are adequate opportunities for professional development	1.47	3.06	-6.909	.000
29	There is good communication between the PY administration and teachers.	1.68	3.30	-9.618	.000
30	There is scope for flexibility and creativity in the classroom.	1.81	2.98	-5.986	.000
31	Teaching at KFUPM has been a professionally rewarding experience.	1.98	2.66	-3.162	.003
32	The programme is sufficiently interesting for the students.	1.79	2.94	-8.434	.000
33	I am sufficiently active in development of teaching materials.	2.32	2.91	-.579	.566
34	Student evaluations of teachers are fair and informative.	1.53	3.06	-5.063	.000
35	Department evaluations of teachers are fair and transparent.	1.38	2.74	-10.123	.000
36	My involvement in the decision making process is satisfactory.	1.72	2.94	-5.034	.000
37	My department encourages the discussion of professional issues.	1.51	3.23	-5.142	.000
38	My department works hard to keep morale high.	1.36	2.83	-12.90	.000

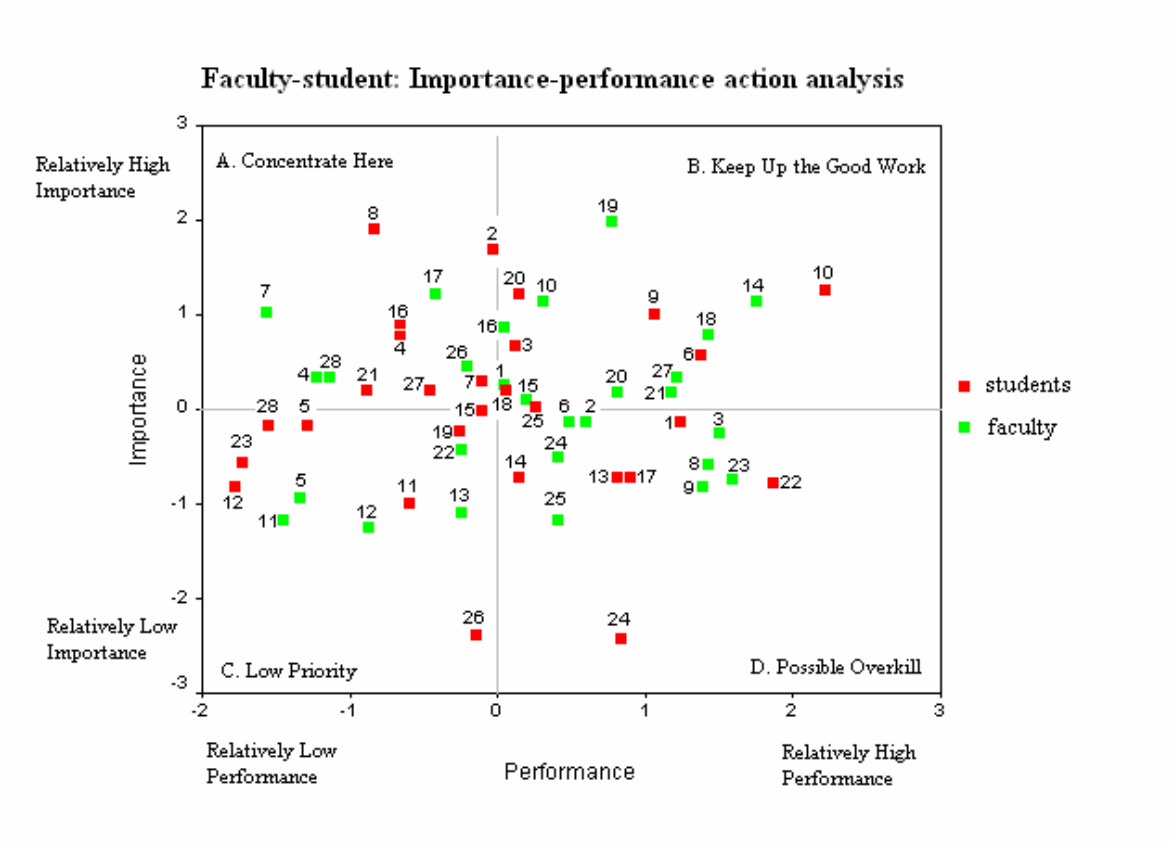
The Paired-Samples T Test procedure compares the means of two variables for a single group. It computes the differences between values of the two variables for each case and tests whether the average differs from 0. The results of this test is shown in Table 15 along with the importance and performance means.

Analysis part 3: Comparison of Faculty and Student Results

Any comparison between the results of the two questionnaires must be treated with caution since priorities and the reasons for satisfaction or dissatisfaction with any specific item may be very different. However, even if the causes are different, the comparison still indicates problematic areas which require further investigation and remedial action.

The similar items from both questionnaires were recoded and rephrased (see Table 16) so that the corresponding means can be plotted on a scatterplot and that other statistical analysis can be performed. Figure 15[2] shows the z-scale adjusted means plotted for both groups..

Figure 15: faculty and student importance – performance action analysis



[2] Figure 15 and 16 had to be edited in Micrografx Picture Publisher as SPSS cannot perform this function

Table 16: assimilated student and teacher questionnaire items

new item	Assimilated items from student and faculty questionnaires (abbreviated)	student item #	teacher item #
1	The PY administration provides satisfactory service.	1	1
2	The PY staff are good at handling complaints and solving problems.	2	2
3	The PY staff are always willing to help me.	3	3
4	The PY buildings have sufficient, up-to-date equipment.	4	4
5	The PY buildings are visually appealing and well-maintained..	5	5
6	Guidance and advice are generally available within your department.	6	6
7	The PY has the student/teachers' best interests at heart.	7	7
8	The PY's class times are convenient.	8	8
9	The level of tutorial support that students receive is sufficient.	9	9
10	The PY programme is relevant to the future studies and careers of the students.	10	10
11	Information technology is adequately used for instructional purposes.	11	11
12	The PY provides sufficient opportunities for students to acquire computer skills.	12	13
13	I am well acquainted with the aims of the programme.	13	14
14	The programme is sufficiently intellectually demanding.	14	15
15	The teaching methods are well matched to the programme goals.	15	16
16	Methods used to measure student performance and determine grades are satisfactory	16	17
17	The students are well aware of the standards expected of them.	17	18
18	The examinations reflect what has been taught.	18	19
19	Students receive sufficient feedback regarding their progress from their teachers.	19	20
20	Students are encouraged to study.	20	21
21	Students receive sufficient tuition in study skills.	21	22
22	I get support when I need it from my colleagues/fellow students.	22	23
23	I have adequate opportunities to represent my views to my department.	23	24
24	I would recommend as KFUPM as a good place to study/work.	24	25
25	The level of support from my department is satisfactory.	25	26
26	I think there are too many students in the classes I teach/attend.	26	27
27	There is good communication between the PY administration and students/teachers.	28	29
28	Teaching/studying at KFUPM has been a rewarding experience.	30	31

Due to the number and dispersion of the values, a more easily understood scatterplot is shown in Figure 16. The adjusted means, both student and faculty, that were plotted in or on the border of the upper-left quadrant of Figure 16, which indicates the improvement efforts should be directed at these items, are shown linked to the corresponding mean from the other group. In this way, the similarities and differences between students and faculty's opinions on shared items from the two questionnaires can be easily observed.

Figure 16 shows that of the 10 paired values plotted 6 indicate considerable differences:

- item 2 'The Preparatory Year staff are good at handling complaints and solving problems' is of concern to students but not to faculty,
- item 8 'The Preparatory Year's class times are convenient' is of concern to students but not to faculty,

- item 17 'The students are well aware of the standards expected of them' is of concern to faculty but not to students,
- item 21 'Students receive sufficient tuition in study skills' is of concern to students but not to faculty,
- item 26 'I think there are too many students in the classes I teach/attend' is of concern to faculty but not to students although they indicate the item performs poorly,
- item 27 'There is good communication between the Preparatory Year administration and students/teachers' is of concern to students but not to faculty.

Figure 16: faculty and student important – performance action analysis

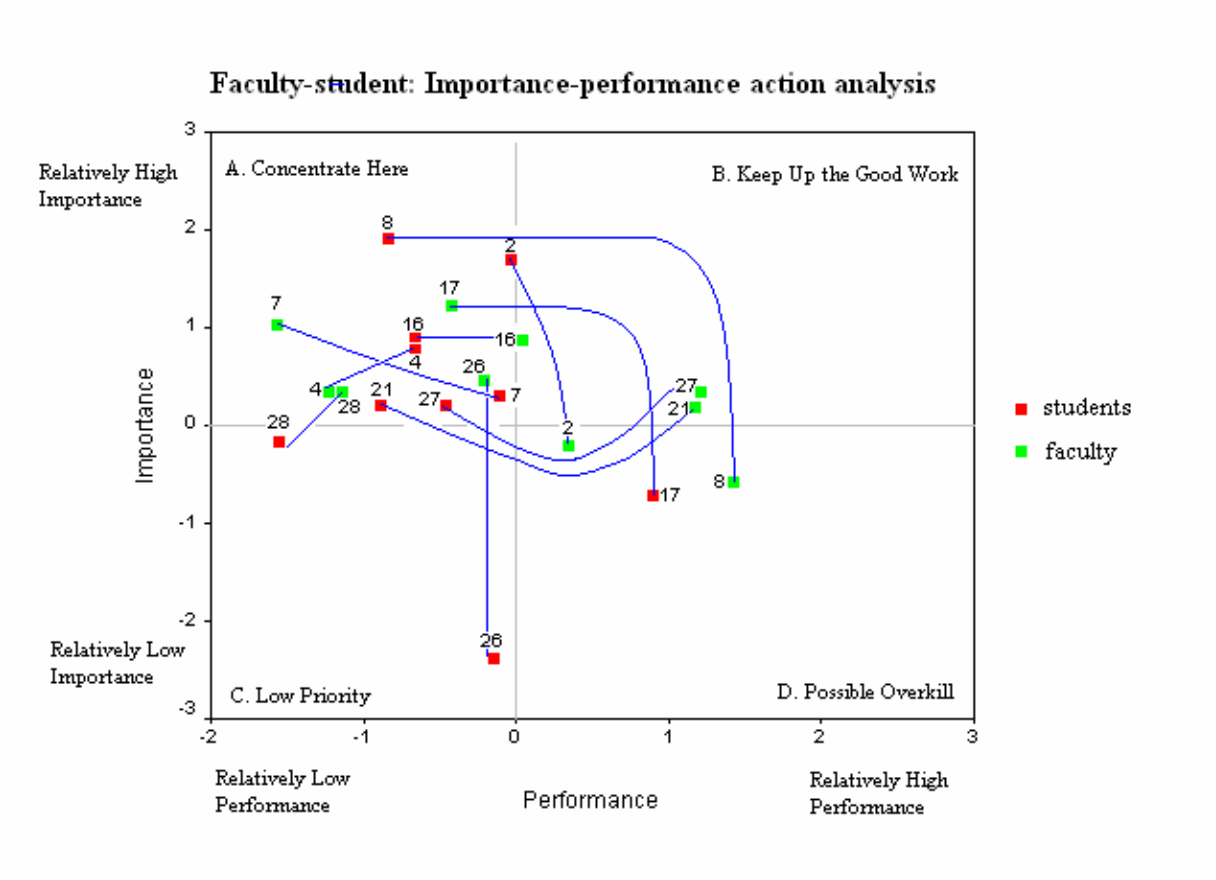


Figure 16 shows that 4 items are paired within or on the edge of the upper-left quadrant:

- item 4 'The Preparatory Year buildings have sufficient, up-to-date equipment',
- item 7 'The Preparatory Year has the student/teachers' best interests at heart',
- item 16 'Methods used to measure student performance and determine grades are satisfactory',

- item 28 'Teaching/studying at KFUPM has been a rewarding experience'.

This should be viewed with some concern as 2 of the items, 7 and 28, are 'global questions' that may indicate general dissatisfaction although neither are rated as of 'relatively high importance'.

Table 17 shows the z-scale adjusted means of the 28 similar items from the teacher and student questionnaires.

Table 17: student and teacher frequencies

#	Similar items from teacher and faculty questionnaires	teacher perform mean	teacher import mean	student perform mean	student import mean
1	The PY administration provides satisfactory service.	.043	.257	1.241	-.133
2	PY staff are good at handling complaints and solving problems.	.603	-.143	-.023	1.692
3	PY staff are always willing to help me.	1.510	-.263	.121	.672
4	PY buildings have sufficient, up-to-date equipment.	-1.193	.337	-.655	.780
5	PY buildings are visually appealing and well-maintained..	-1.328	-.943	-1.287	-.186
6	Guidance and advice are generally available within your department.	.487	-.143	1.385	.565
7	The PY has the student/teachers' best interests at heart.	-1.560	1.017	-.109	.297
8	The Preparatory Year's class times are convenient.	1.433	-.583	-.827	1.907
9	The level of tutorial support that students receive is sufficient.	1.394	-.823	1.069	.994
10	PY programme is relevant to the future studies and careers of the students.	.313	1.137	2.218	1.263
11	IT is adequately used for instructional purposes.	-1.444	-1.183	-.598	-.991
12	The PY provides sufficient opportunities for students to acquire computer skills.	-.247	-1.103	-1.775	-.830
13	I am well acquainted with the aims of the programme.	1.761	1.137	.810	-.723
14	The programme is sufficiently intellectually demanding.	.197	.097	.149	-.723
15	The teaching methods are well matched to the programme goals.	.043	.857	-.109	-.025
16	Methods used to measure student performance and determine grades are satisfactory	-.421	1.217	-.655	.887
17	The students are well aware of the standards expected of them.	1.433	.777	.896	-.723
18	The examinations reflect what has been taught.	.776	1.977	.063	.189
19	Students receive sufficient feedback regarding their progress from their teachers.	.815	.177	-.253	-.240
20	Students are encouraged to study.	1.182	.177	.149	1.209
21	Students receive sufficient tuition in study skills.	-.247	-.423	-.885	.189
22	I get support when I need it from my colleagues/fellow students.	1.587	-.743	1.873	-.776
23	I have adequate opportunities to represent my views to my department.	.410	-.503	-1.718	-.562
24	I would recommend as KFUPM as a good place to study/work.	.410	-1.183	.839	-2.440
25	The level of support from my department is satisfactory.	-.208	.457	.264	.028
26	I think there are too many students in the classes I teach/attend.	1.221	.337	-.138	-2.386
27	There is good communication between the PY administration and students/teachers.	-.749	1.297	-1.545	-.186
28	Teaching/studying at KFUPM has been a professionally rewarding experience.	-.170	-1.263	.494	.297

Two group discriminant analysis was used, in which the dependent variable was coded as a 1 or 2 dummy variable, to estimate the relationship between the student and faculty variables.

The centroids, which are the mean values for the discriminant scores for the two groups, were found and then the null hypothesis of equal group centroids was tested. The value of Wilk's λ was 0.375 which transforms to a chi-square of 232.055 with 28 degrees of freedom. Therefore, significant differences between the two groups of variables exist. This is what was expected since the two groups, that is students and faculty, have different priorities and opinions regarding service quality.

Discussion

As stated by O'Neill and Palmer (2004), it may be concluded that too much effort has been expended on attempting to determine the technical dimensions of quality. This has often resulted in a multitude of statistics which the average administrator has difficulty in interpreting and the said administrator may lose sight of the original purpose, that is, to identify quality failures and direct improvement efforts at them.. Therefore more effort should be directed at determining the functional aspects of quality that directly effect both students and faculty.

This study demonstrates both the user-friendliness and the relative ease with which importance-performance analysis may be conducted and its value in assessing and directing continuous quality improvement. This type of assessment instrument should prove a promising tool for administrators as it is able to identify how numerous services are performing and which attributes are considered the most important or relevant by the respondents.

This IPA shows how well the Preparatory Year is performing and which areas should be targeted for improvement. This instrument has advantages over other methods primarily because it is a very practical method to evaluate perceptions of service quality. A suitably designed and trialled questionnaire can gather a large quantity of data, which can then be

presented pictorially or graphically to show the strengths and weaknesses of the aspects studied

In addition, when used repeatedly, i.e. each semester, changes in perceptions can be tracked and attempts at improvement monitored as to their success rate. Over a period of time it might be possible to identify potential problem areas before they develop into critical issues. By using IPA, a mechanism is activated that can examine past, present and potential future service perceptions.

At least in attempting to show teachers and students alike that the institution is interested in their perceptions, the institution may improve its image by this alone (Ford *et al.* 1999). In fact, positive feedback was received from both faculty and students after administration of the questionnaires that a serious attempt to measure satisfaction levels and pinpoint problem areas was being made although a degree of scepticism was levelled that the department would take any corrective action.

The results of this study indicate that teachers and students do share some similar concerns, but that generally their priorities and opinions are different as was expected. However, by comparing the results, quality improvement efforts could be directed at those attributes shown to be important by both groups and, as a result, savings could be made in financial and time resources while, at the same time, improving satisfaction levels in both groups.

This is an explanatory investigation and further study and analysis needs to be done to ensure that any future questionnaires provide valid and reliable data that could be used in decision making processes. In addition, as IPA does not explain why respondents are dissatisfied or why they attach which level of importance to each attribute, qualitative analysis could be employed to explain more fully areas of dissatisfaction and levels of importance attached to the attributes. In addition, it would be a mistake to attempt to develop one single model that could be applied at any institution anywhere in the world.

Furthermore, administrators need to be aware that a change in item performance can be associated with a change in item importance as basic factors are unimportant as long as performance is satisfying, but become important if performance is low. The fear is therefore that administrators could redirect resources to other items away from those items in the 'overkill' quadrant. By not maintaining basic levels of performance of these basic factors, these factors could turn into items with high importance and low performance.

A further area of study would be whether students' and teachers' perceptions change over time, longitudinal factors, or whether the timing of the administration of the questionnaire is important, for example, for students, whether the level of satisfaction changes before or after an examination or, for both groups, whether levels of satisfaction are higher after a vacation.

The demographic data collected in this study will be analysed to determine whether 001 and 002 students have different perceptions as most 002 students have already completed one semester as 001 students. However, such an analysis is complicated by the fact some students are repeating a level and some were promoted directly into 002 on admission to the university. In addition, it would be useful to have the data from a second investigation to be able to make valid comparisons. Likewise, further analysis will be performed on the demographic data collected on teachers to determine if factors such as age, length of service in the university and years of teaching experience have any significant effect. These analyses are beyond the scope of the present study.

Finally, further study should be carried out on the statistical analysis with special regards to ascertaining whether it is possible to produce a single value encompassing both performance and importance values that would clearly indicate those areas requiring urgent remedial action.

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Appendix 1

Student Questionnaire: Performance

Using a pencil, please indicate on the Test Answer Form your opinion of the following statements.

[A] ***Strongly Agree*** **[B]** ***Agree*** **[C]** ***Disagree*** **[D]** ***Strongly Disagree*** **[E]** ***No opinion***

1. The Preparatory Year administration provides satisfactory service.
2. The Preparatory Year staff are good at handling complaints and solving problems.
3. The Preparatory Year staff are willing to help me.
4. The Preparatory Year buildings have sufficient, up-to-date equipment.
5. The Preparatory Year physical facilities are visually appealing and well-maintained.
6. Guidance and advice are available from the Preparatory Year teachers.
7. The Preparatory Year has the students' best interests at heart.
8. The Preparatory Year's class times are convenient.
9. The level of tutorial support that I receive is sufficient.
10. The Preparatory Year programme is relevant to my future studies and career.
11. Information technology is adequately used for instructional purposes
12. The Preparatory Year provides sufficient opportunities for students to acquire computer skills.
13. I am well acquainted with the aims of the programme.
14. The programme is sufficiently intellectually demanding.
15. The teaching methods used are well matched to the programme aims.
16. The methods used to measure my performance and determine my grades are satisfactory.
17. I am well aware of the academic standards expected of me.
18. The examinations reflect what has been taught.
19. I receive sufficient feedback regarding my progress from my teachers.
20. I am encouraged to study.
21. I receive sufficient tuition in study skills.
22. I get support when I need it from my fellow students.
23. I have adequate opportunities to represent my views to the Preparatory Year administration.
24. Because of my Preparatory Year experience, I would recommend KFUPM to friends and relatives.
25. The level of support I get from my teachers is sufficient.
26. I think there are too many students in the classes I attend.
27. The facilities for study are adequate and appropriate.
28. There is good communication between the Preparatory Year administration and students.
29. I find the programme sufficiently flexible for my needs.
30. Overall, I would rate my Preparatory Year experience as excellent.

Student Questionnaire: Importance

Please rank the same statements as above according to the level of importance you attach to them.

[A] exceedingly important [B] very important [C] important
[D] of low importance [E] no opinion

31. The Preparatory Year administration provides satisfactory service.
32. The Preparatory Year staff are good at handling complaints and solving problems.
33. The Preparatory Year staff are willing to help me.
34. The Preparatory Year buildings have sufficient, up-to-date equipment.
35. The Preparatory Year physical facilities are visually appealing and well-maintained.
36. Guidance and advice are available from the Preparatory Year teachers.
37. The Preparatory Year have the students' best interests at heart.
38. The Preparatory Year's class times are convenient.
39. The level of tutorial support that I receive is sufficient.
40. The Preparatory Year programme is relevant to my future studies and career.
41. Information technology is adequately used for instructional purposes
42. The Preparatory Year provides sufficient opportunities for students to acquire computer skills.
43. I am well acquainted with the aims of the programme.
44. The programme is sufficiently intellectually demanding.
45. The teaching methods used are well matched to the programme aims.
46. The methods used to measure my performance and determine my grades are satisfactory.
47. I am well aware of the academic standards expected of me.
48. The examinations reflect what has been taught.
49. I receive sufficient feedback regarding my progress from my teachers.
50. I am encouraged to study.
51. I receive sufficient tuition in study skills.
52. I get support when I need it from my fellow students.
53. I have adequate opportunities to represent my views to the Preparatory Year administration.
54. Because of my Preparatory Year experience, I would recommend KFUPM to friends and relatives.
55. The level of support I get from my teachers is sufficient.
56. I think there are too many students in the classes I attend.
57. The facilities for study are adequate and appropriate.
58. There is good communication between the Preparatory Year administration and students.
59. I find the programme sufficiently flexible for my needs.
60. Overall, I would rate my Preparatory Year experience as excellent.

Please indicate the appropriate box on the **Test Answer Form**

61 Which English level are you studying?
[A] 001 [B] 002 [C] 001 repeat [D] 002 repeat
62 What is your age?
[A] 18 [B] 19 [C] 20 [D] 21 [E] >21
63 Where do you live while at KFUPM?
[A] on campus [B] at home [C] in a hotel or guest house [D] rented accommodation
[E] with relatives
64 If you live off-campus, would you like to live on-campus?
[A] Yes [B] No
65 Which is your hometown?
[A] very large city, e.g. Riyadh [B] large city, e.g. Medina [C] city, e.g. Hail
[D] small city, e.g. Hafr Al-Batin [E] village

Appendix 2:

Faculty Questionnaire: Performance

Please indicate in pencil on the Test Answer Form your opinion of the following statements.

[A] ***Strongly Agree*** **[B]** ***Agree*** **[C]** ***Disagree*** **[D]** ***Strongly Disagree*** **[E]** ***No Opinion***

1. The Preparatory Year administration provides satisfactory service.
2. The Preparatory Year staff are good at handling complaints and solving problems.
3. The Preparatory Year staff are always willing to help me.
4. The Preparatory Year buildings have sufficient, up-to-date equipment.
5. The Preparatory Year buildings are visually appealing and well-maintained.
6. Guidance and advice are generally available within your department.
7. The Preparatory Year has the teachers' best interests at heart.
8. The Preparatory Year's class times are convenient.
9. The level of tutorial support that students receive is sufficient.
10. The Preparatory Year programme is relevant to the future studies and careers of the students.
11. Information technology is adequately used for instructional purposes.
12. The Preparatory Year provides sufficient opportunities for teachers to acquire computer skills.
13. The Preparatory Year provides sufficient opportunities for students to acquire computer skills.
14. I am well acquainted with the aims of the programme.
15. The programme is sufficiently intellectually demanding.
16. The teaching methods are well matched to the programme goals.
17. The methods used to measure student performance and determine grades are satisfactory.
18. The students are well aware of the standards expected of them.
19. The examinations reflect what has been taught.
20. The students receive sufficient feedback regarding their progress from their teachers.
21. Students are encouraged to study.
22. Students receive sufficient tuition in study skills.
23. I get support when I need it from my colleagues.
24. I have adequate opportunities to represent my views to my department.
25. I would recommend as KFUPM as a good place to work.
26. The level of support from my department is satisfactory.
27. I think there are too many students in the classes I teach.
28. There are adequate opportunities for professional development
29. There is good communication between the Preparatory Year administration and teachers.
30. There is adequate scope for flexibility and creativity in the classroom.
31. Overall, teaching at KFUPM has been a professionally rewarding experience.
32. The programme is sufficiently interesting for the students.
33. I am sufficiently active in the development of teaching materials.
34. Student evaluations of teachers are fair and informative.
35. Department evaluations of teachers are fair and transparent.
36. My level of involvement in the decision making process is satisfactory.
37. My department adequately encourages the discussion of professional issues.
38. My department works hard to keep morale high.

Faculty Questionnaire: Importance

Please rank the same statements according to the level of importance you attach to them.

[A] ***Exceedingly Important*** **[B]** ***Very Important*** **[C]** ***Important***
[D] ***of Low Importance*** **[E]** ***No Opinion***

Please indicate the following information on the **Test Answer Form**.

39. The Preparatory Year administration provides satisfactory service.
40. The Preparatory Year staff are good at handling complaints and solving problems.
41. The Preparatory Year staff are always willing to help me.
42. The Preparatory Year buildings have sufficient, up-to-date equipment.
43. The Preparatory Year buildings are visually appealing and well-maintained.
44. Guidance and advice are generally available within your department.
45. The Preparatory Year has the teachers' best interests at heart.
46. The Preparatory Year's class times are convenient.
47. The level of tutorial support that students receive is sufficient.
48. The Preparatory Year programme is relevant to the future studies and careers of the students.
49. Information technology is adequately used for instructional purposes.
50. The Preparatory Year provides sufficient opportunities for teachers to acquire computer skills.
51. The Preparatory Year provides sufficient opportunities for students to acquire computer skills.
52. I am well acquainted with the aims of the programme.
53. The programme is sufficiently intellectually demanding.
54. The teaching methods are well matched to the programme goals.
55. The methods used to measure student performance and determine grades are satisfactory.
56. The students are well aware of the standards expected of them.
57. The examinations reflect what has been taught.
58. The students receive sufficient feedback regarding their progress from their teachers.
59. Students are encouraged to study.
60. Students receive sufficient tuition in study skills.
61. I get support when I need it from my colleagues.
62. I have adequate opportunities to represent my views to my department.
63. I would recommend as KFUPM as a good place to work.
64. The level of support from my department is satisfactory.
65. I think there are too many students in the classes I teach.
66. There are adequate opportunities for professional development
67. There is good communication between the Preparatory Year administration and teachers.
68. There is adequate scope for flexibility and creativity in the classroom.
69. Overall, teaching at KFUPM has been a professionally rewarding experience.
70. The programme is sufficiently interesting for the students.
71. I am sufficiently active in the development of teaching materials.
72. Student evaluations of teachers are fair and informative.
73. Department evaluations of teachers are fair and transparent.
74. My level of involvement in the decision making process is satisfactory.
75. My department adequately encourages the discussion of professional issues.
76. My department works hard to keep morale high.

Please indicate the following information on the **Test Answer Form**.

77 How many years of experience do you have in the Preparatory Year?

[A] 1 [B] 2 [C] 3-6 [D] 7-10 [E] >10

78 What is your age?

[A] 20-29 [B] 30-39 [C] 40-49 [D] 50-59 [E] >59

79 What is your highest degree?

[A] PhD [B] MA/MSc [C] BA/BSc [D] other

80 What is the total number of years of your teaching experience?

[A] 1-5 [B] 6-10 [C] 11-15 [D] 16-20 [E] >20

81 How many years have you taught Arab students?

[A] 1-5 [B] 6-10 [C] 11-15 [D] 16-20 [E] >20

82 From September 2005, how many more years do you think will you teach at KFUPM?

[A] 0 [B] 1 [C] 2 [D] 3-5 [E] >5

Appendix 3

Student Questionnaire in Arabic

[3]استبيان للطلاب : الإحساس

باستخدام قلم الرصاص قم بتحديد رأيك في ورقة الإجابة على النحو التالي:
أ- موافق بشدة ب- موافق ج-غير موافق د- غير موافق بشدة هـ - لا رأي

1- تقدم إدارة السنة الإعدادية خدمات مقبولة.
2- موظفي وأعضاء هيئة التدريس في السنة الإعدادية يتعاطون بإيجابية مع الشكاوى و حل المعضلات .
3- موظفي السنة الإعدادية مستعدون لمساعدتي .
4- يوجد في مباني السنة الإعدادية معدات كافية وحديثة .
5- المرافق المادية للسنة الإعدادية جذابة ومصانة جيداً .
6- يقدم موظفي وأعضاء هيئة التدريس في السنة الإعدادية النصح والتوجيه .
7- لدى الجامعة والسنة الإعدادية كل ما ينشده الطالب.
8- أوقات دوام الجامعة مناسبة .
9- مستوى الدعم التعليمي الذي أتلقاه كاف.
10- برنامج السنة التحضيرية مرتبط بدراستي المستقبلية وبعملي .
11- تستخدم تقنية المعلومات بكثرة للأغراض التعليمية .
12- يتم تعليم مهارات الحاسب الآلي بشكل كاف.
13- أنا ملم جيداً بأهداف البرنامج .
14- البرنامج يثير العقل بشكل كاف.
15- طرق التدريس المتبعة تتطابق كلياً مع أهداف البرنامج .
16- الطرق المتبعة لقياس أدائي وتحديد درجتي مقبولة .
17- أنا مدرك كلياً للمعايير الجامعية المتوقعة مني .
18- تعكس الاختبارات ما تم تدريسه .
19- أتلقى نتائج كافية من أساتذتي بخصوص تقدمي .
20- يتم تشجيعي على الدراسة .
21- أتلقى تدريساً جيداً في مادة المهارات الدراسية
22- أحصل على الدعم عندما أحتاجه من زملائي الطلاب .
23- لدي فرص كافية للتعبير عن آرائي أمام إدارة السنة الإعدادية .
24- بسبب تجربتي في السنة الإعدادية سأقترح الجامعة على أصدقائي و أقاربي .
25- مقدار الدعم الذي أتلقاه من أساتذتي كاف .
26- أعتقد أن هناك عدد كبير من الطلاب (أكثر من اللازم) في الفصول التي أحضرها.
27- المرافق التعليمية كافية و مناسبة .
28- يوجد تواصل جيد بين الطلاب وإدارة السنة الإعدادية .
29- أجد البرنامج مرناً جداً بالنسبة لاحتياجاتي .
30- بشكل عام ، أقيم تجربتي في السنة الإعدادية بأنها ممتازة .

استبيان للطلاب : الأهمية

الرجاء تقدير الجمل السابقة بحسب أهميتها لديك
أ- مهمة للغاية ب- شديدة الأهمية ج- مهمة د- ذات أهمية قليلة هـ - ليست بذات أهمية

31- تقدم إدارة السنة الإعدادية خدمات مقبولة.
32- موظفي وأعضاء هيئة التدريس في السنة الإعدادية يتعاطون بإيجابية مع الشكاوى و حل المعضلات.
33- موظفي السنة الإعدادية مستعدون لمساعدتي .
34- يوجد في مباني السنة الإعدادية معدات كافية وحديثة .
35- المرافق المادية للسنة الإعدادية جذابة ومصانة جيداً .
36- يقدم موظفي وأعضاء هيئة التدريس في السنة الإعدادية النصح والتوجيه .
37- لدى الجامعة والسنة الإعدادية كل ما ينشده الطالب.
38- أوقات دوام الجامعة مناسبة .
39- مستوى الدعم التعليمي الذي أتلقاه كاف.
40- برنامج السنة التحضيرية مرتبط بدراستي المستقبلية وبعملي .
41- تستخدم تقنية المعلومات بكثرة للأغراض التعليمية .
42- يتم تعليم مهارات الحاسب الآلي بشكل كاف.
43- أنا ملم جيداً بأهداف البرنامج .
44- البرنامج يثير العقل بشكل كاف.
45- طرق التدريس المتبعة تتطابق كلياً مع أهداف البرنامج .
46- الطرق المتبعة لقياس أدائي وتحديد درجتي مقبولة .
47- أنا مدرك كلياً للمعايير الجامعية المتوقعة مني .
48- تعكس الاختبارات ما تم تدريسه .
49- أتلقى نتائج كافية من أساتذتي بخصوص تقدمي .
50- يتم تشجيعي على الدراسة .
51- أتلقى تدريساً جيداً في مادة المهارات الدراسية
52- أحصل على الدعم عندما أحتاجه من زملائي الطلاب .
53- لدي فرص كافية للتعبير عن آرائي أمام إدارة السنة الإعدادية .
54- بسبب تجربتي في السنة الإعدادية سأقترح الجامعة على أصدقائي و أقاربي .
55- مقدار الدعم الذي أتلقاه من أساتذتي كاف .
56- أعتقد أن هناك عدد كبير من الطلاب (أكثر من اللازم) في الفصول التي أحضرها.
57- المرافق التعليمية كافية و مناسبة .
58- يوجد تواصل جيد بين الطلاب وإدارة السنة الإعدادية .
59- أجد البرنامج مرناً جداً بالنسبة لاحتياجاتي .
60- بشكل عام ، أقيم تجربتي في السنة الإعدادية بأنها ممتازة .