The Postgraduate Service Experience, Service Satisfaction and Service Quality: A South African Case Study

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Abstract

This paper presents the results of an exploratory study examining the relationship between the postgraduate (PG) students' perception of PG service quality, their service experience and satisfaction with the PG service, by surveying the 2011 cohort (816) of graduating master's and doctorate postgraduates of one of the top five research universities in South Africa using specially developed and validated PG service quality (PGSQUAL), PG service experience (SERVEXP), and a single item PG service satisfaction (SERVSAT) measuring instruments. By drawing heavily on the services marketing/quality literature, relationships were proposed among the aforementioned variables, which relationships were assessed using both correlation analysis and structural equation modeling. It became evident that there is a significant association between the students' perception of the overall SERVEXP and overall PGSQUAL, as well as between their perception of their overall SERVEXP and overall SERVSAT.

Keywords: postgraduate service encounter, postgraduate service quality, service experience, service satisfaction.

Introduction

Quality assurance of PG education is becoming increasingly important and worldwide there is a push to encourage universities to be more accountable for PG learning. Governments are also asking higher education institutions

(HEIs) to strengthen research, knowledge creation and uptake for our knowledge society, and to achieve this, universities need to ensure that they are providing high quality PG service. In addition to academic (external) audits, internal PG service experience and satisfaction surveys can serve as appropriate quality assurance processes.

Student experience and satisfaction are closely linked, and student satisfaction, which is associated with their perceptions of service quality, has become an extremely important issue for universities and their management. Whilst service quality of undergraduates has been extensively measured, postgraduate–based (PG) research, especially in South Africa has been negligible. Furthermore, the instruments used to assess service quality in education are in a state of development.

There has been considerable debate and discussion within the literature on the relationship between service quality and satisfaction. For instance, some researchers (Bolton & Drew 1991) argued that customer satisfaction is an antecedent of service quality, whilst others (Carillat, Jaramillo & Mulki 2009) assert that service quality leads to customer satisfaction and behavioural intentions. The service quality-service satisfaction-service performance relationship has also been the topic for many a research (Cronin & Taylor 1992). However, in addition to not recognizing the service experience, very little research has been conducted to examine the relationship among the aforementioned in the context of the PG research environment.

Considering that education is essentially a service industry, and that the concept of 'student as customer' is not new (Craford 1991; Yorke 1999 as cited by Douglas, McClelland & Davies 2008), its management practices are typically concerned with issues such as quality, which fall within the aegis or services marketing. Thus what is applicable to consumers (customers) generally should also, from this perspective, be applicable to PG students.

According to Angell, Heffernan and Megicks (2008), given that education is a service and the PG education environment becoming increasingly competitive, and whilst service quality of undergraduates has been extensively measured, postgraduate–based research, has been negligible.

By drawing heavily on the service quality literature, this paper presents an attempt to address the shortcomings alluded to above by presenting the findings of a survey conducted among a cohort of masters and doctorate graduates at a large research university in South Africa to:

- Determine the PG students' perception of the overall postgraduate service quality (PGSQUAL) and their overall service experience (SERVEXP).
- Ascertain the association between the PG students' perception of the postgraduate service quality (PGSQUAL), their overall service experience (SERVEXP) and their overall satisfaction with their PG service experiences (SERVSAT).

This paper is structured as follows: a discussion of the PG service encounter is followed by discussion of PG service and service quality as well as the measurement of higher education service quality. The research methodology, findings and discussion thereof is followed by the conclusions and limitations of the study and future research possibilities.

The Postgraduate Service Encounter, the Service Experience and Service Quality

Service delivery and customer satisfaction in an education environment are dependent on the personal interaction between students and staff. The personal interaction and labour intensive nature of this service translates into a potentially highly heterogeneous quality service experience (de Jager & Gbadamosi 2010: 253). These interactions which are known as service encounters, are recognized within the service quality research field as a key concept (Zeithaml & Bitner 2000; Dale 2003), since what happens during the encounter is important in understanding what affects the customers' perception of service quality. It has also been well articulated in the service quality literature that each encounter impacts on the service consumer's overall impression and evaluation of the service and ultimately on their perception of service quality.

Dann (2008: 335) cites several researchers (Zeithaml, Bitner & Gremler 2006; Stodnick & Rogers 2008) who frequently cite higher

education as a key example of a service with limited tangible outputs. However, while it may be true that higher education is classified as a service product with the primary outputs being the mental development, knowledge, skills and graduate outcomes rather than the ownership of an object such as a degree certificate that represents tangible evidence of the education service encounter, this only encompasses the 'technical' aspects. The other side of the story is the 'psychological' or subjective personal reactions and feelings experienced by consumers when they consume the service. This phenomenon has been called the service experience and has recently been found to be an important part of consumer evaluation of and satisfaction with services (Otto & Ritchie 1995: 167).

Perhaps the most straightforward manner by which to apply the services marketing perspective is to borrow general marketing measurement instruments directly from the field and apply them to PG education. Indeed most research of this nature has focused on the evaluation of service quality and more on the technical and functional aspects of service delivery (Ritchie & Otto 1995: 167).

According to Alridge and Rowley (1998: 198), work on approaches to the evaluation of the student experience can be divided into two loosely bound categories, namely, methods that focus on assessing teaching and learning and, methods that assess the total student experience. More recently there has been a wider acknowledgement that the totality of the student experience of an institution is a useful perspective to adopt in student satisfaction in marketing terms, since service quality is also connected to satisfaction with the overall performance of a service.

In view of the above, the purpose of this paper is to enhance our understanding of the PG service experience and service quality so that policies and strategies could be developed to facilitate the quality and quantity of postgraduates.

Service Experience, Service Satisfaction and Service Quality

As became evident from the brief literature review, there has also been considerable debate and discussion within the literature on the relationship between service quality and satisfaction. Some researchers (Bolton & Drew 1991) argued that customer satisfaction is an antecedent of service quality,

whilst others (Carillat, Jaramillo & Mulki 2009) assert that service quality leads to customer satisfaction and behavioural intentions.

On the basis of the literature reviewed above, and in order to further explore the relationships among service quality, service experience and service satisfaction in the context of PG research education, it is proposed that:

- P1: The SERVEXP as perceived by PG students is associated with their perception of PG service quality (PGSQUAL).
- P2: The PGSQUAL as perceived by PG students is associated with their overall satisfaction (SERVSAT) with the PG service.
- P3: The SERVEXP as perceived by PG students is associated with their SERVSAT.

Assessing Service Quality in Higher Education

While there has been sufficient consensus on the importance of service quality issues in HE, the identification and implementation of the right measurement instrument, however, remains a challenge that practitioners who aim to gain a better understanding of the quality issues with an impact on students' experiences face (Oliveira-Brochado & Marques 2007, as cited by de Jager & Gbadamosi 2010: 251). Oldfield and Baron (2000: 85) suggest that there are three underlying factors of HE service quality namely, requisite elements (encounters which are essential to enable students to fulfill their study obligations), acceptable elements and functional elements.

The conceptualization and measurement of service quality as a subject and service quality perceptions has been widespread (Brady 2001); however measuring service quality in HE has received limited attention (Firdaus 2006), and a review of the literature reveals that the most popular scale is SERVQUAL (Parasuraman Zeithaml & Berry 1988). Also known as the GAPS model since service quality is conceptualized as the gap between customer expectations and perceptions, the SERVQUAL instrument, presents the respondent with 22 service attributes grouped into five dimensions, namely tangibles, reliability, responsiveness, assurance and empathy, which they rate using a Likert-type scale response format (Ford Jospeh & Joseph 1999: 172). According to Parasuraman *et al*. (1988),

quality evaluations as perceived by customers stem from a comparison of what customers feel that the organization should offer (that is their expectations) and their perceptions of the organization providing the service.

There has been a growing body of literature on the search for a general scale and instrument for the measurement of education service quality, and although there is substantial research evidence in the literature to support the use of the SERVQUAL, this instrument has not been without criticism (Cronin & Taylor 1992; Alridge & Rowley 1998: 200). Some of the criticisms (Alridge & Rowley 1998: 200) include the need to ask the same questions twice, and the fact that the instrument captures a snapshot of perceptions at one point in time. To overcome some of the criticisms, Alridge and Rowley (1998) opted to survey perceptions only and exclude expectations in their survey of student satisfaction. According to Hair (2006: 11), the work carried out so far using SERVQUAL in a higher education context would seem to suggest that the instrument can be used successfully, as long as the modifications are kept to a minimum. However, the author goes on to state that there is little or no research specifically using SERVQUAL on PhD students or on supervisors.

In their quest to develop better research instruments, which are also more appropriate to the nature of the service, some researchers (Drennan 2008) report on the PREQ (Postgraduate Research Questionnaire), which was introduced in Australia in 2002 against a background of increased attention on quality and accountability in the Australian higher education sector. PREQ is a multidimensional measure of graduate students' experience of research and research supervision and is based on the principle that student's perception of research supervision, infrastructural and other support, intellectual climate, goals and expectations will influence their evaluations of the outcomes achieved as a consequence of their research experience (ACER 2000 as cited by Drennan 2008: 490).

Other researchers such as Ginns, Marsh, Behnia, Cheng and Scalas (2009) further adapted PREQ to develop the SREQ (Student Research Experience Questionnaire) to investigate the PhD students' evaluations in which the focus was on the overall postgraduate experience at the broad level of university and disciplines (faculties and departments) within a university rather than at the effectiveness of the individual supervisor. Ginns, *et al.* (2009: 582) further emphasize that the SREQ's design applies

theory derived from studies of teaching and learning in higher education to the experiences of postgraduate research students. The purpose of the 28-item PREQ is to gather data concerning the experience of research degree (masters and doctorate) graduates with respect to broad aspects of their studies. The PREQ scale focuses on six areas of research higher degree experience, namely, supervision, climate, infrastructure, thesis/dissertation examination, goal clarity, and generic skill development. Ginns, *et al.* (2009: 580) cite Marsh, *et al*. (2002) who indicated that PREQ had a clear factor structure, and the scales had acceptable internal consistency estimates of reliability.

For the purpose of this study, the PGSQUAL (postgraduate service quality) instrument (Table 1) was developed primarily by adapting the SERVQUAL instrument (Table 1) which encapsulates the perceptions-expectations gap covering all five service quality dimensions (Parasuraman, *et al*. 1988), and incorporating certain elements from the PREQ and SREQ instruments, as was done in previous studies (Stodnick & Rogers 2008; Danny 2008; Drennan 2008). The final PGSQUAL instrument comprised 26 items resulting from the adaptations, which entailed making minor changes to the SERVQUAL statements to fit the context, combining expectations and perceptions into a single score (Govender 1998), and incorporating certain elements of the PREQ and SREQ.

With respect to the items reflected in Table 1, PG students were required, with respect to the overall service they received at the university, to indicate their rating to each item on the following continuum: 1= Worse than expected; 5= better than expected.

Table 1: Postgraduate Service Quality (PGSQUAL) Instrument

Items	Label	Criteria
Accuracy of PG student records	SQ1	Reliability
Ability of staff to understand PG students' needs	SQ2	Empathy
Willingness of staff to assist PG students	SQ3	Responsiveness
The courteousness of staff towards PG students	SQ4	Responsiveness

The promptness of the service offered to PG students	SQ5	Responsiveness
The convenience of operating hours for PG students	SQ6	Responsiveness
The personal attention given by staff to PG students	SQ7	Empathy
The confidentiality with which staff deal with PG issues	SQ8	Empathy
The ability of staff to answer PG students' queries	SQ9	Reliability
Delivering on promises to PG students do something by a certain time	SQ10	Reliability
Always having PG students' best interest at heart	SQ11	Empathy
Sincerity of staff in solving PG students' problems	SQ12	Responsiveness
Performing the PG service right the first time	SQ13	Reliability
The personal attention PG students receive	SQ14	Empathy
Never being too busy to respond to PG students' requests	SQ15	Responsiveness
Telling PG students exactly when the services will be performed	SQ16	Reliability
Financial support for PG research activities	SQ17	Tangibility
Honouring promises made to PG students	SQ18	Reliability
Research support services provided for PG students	SQ19	Reliability
Opportunities provided for social contact with other PG students	SQ20	Empathy
Research ambience in the department/ school	SQ21	Tangibility
Modernness of library resources and services	SQ22	Tangibility
Efforts made to ensure that PG students develop an understanding of the standard of work expected	SQ23	Empathy

Seminar programmes provided for PG students	SQ24	Assurance
Freedom allowed to PG students to discuss their research needs	SQ25	Assurance
Opportunities provided to PG students to become integrated into the broader department/school/ university research culture	SQ26	Assurance

Postgraduate Students' Overall Research Experience - SERVEXP

Since the overall PG student experience is also a useful perspective to adopt in student satisfaction in marketing terms, based on principles underlying the SREQ instrument, the 6-item SERVEXP questionnaire was developed. PG students were requested to refer to their overall PG experience at the particular university and, indicate their level of agreement with each statement reflected in Table 2, where 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly Agree.

Table 2: SERVEXP Items

OE1	I further developed my problem solving skills	1	2	3	4	5
OE2	I shaped my analytical skills	1	2	3	4	5
OE3	I feel confident to tackle unfamiliar problems	1	2	3	4	5
OE4	I have learned how to write and confidently present a paper at a conference	1	2	3	4	5
OE5	I have learned to develop my ideas and present them in a logical and scientific way	1	2	3	4	5
OE6	I have learnt how to publish a paper in scientific journal	1	2	3	4	5

Postgraduate Students' Overall Satisfaction

Considering that the intention was to get an overall (summary) measure of the level of overall service satisfaction, a single item 5-point Likert type

question was included, which required respondents to indicate their agreement with the following statement 'Overall, I was satisfied with the quality of my PG experience,' on a 5-point scale with the following points: Strongly Disagree, Disagree, Agree and Strongly Agree.

Methodology

816 masters and doctorates who graduated in 2011 comprised the population and the researchers targeted the entire population, rather than selecting a specific sample. The name list and e-mail contact details of the graduates was obtained from the graduation office. Two approaches were used to reach the sample. The electronic version of the questionnaire, using QuestionPro (www.QuestionPro.com 2010) was sent via e-mail to all graduates. This was supported by hardcopies of the questionnaire accompanied by an explanatory letter explaining the objectives of the survey and instructions on how to complete and return the questionnaire, which were distributed at the graduation venues in special envelopes together with the degree certificates. Graduates were asked to return the completed questionnaire or complete the survey within a month from the date of the graduation.

Empirical Findings

Response Rate

The survey was conducted over a month (April-May 2011), during which period, weekly e-mail reminders were sent encouraging the graduates to participate by completing the on-line questionnaire. Although 221 graduates viewed the questionnaire, 117 completed the questionnaire representing a response rate of 53%. Thus the results, which will be inferred from this study will be based on a sample of 221, since only those who viewed the questionnaire had been 'reached' or unintentionally targeted out of a population of 816.

Reliability and Validity of the Research Instruments

Since the PGSQUAL and SERVEXP instruments were newly constructed multi-item instruments, their validity and reliability was ascertained to

control for measurement errors (Hair, Bush and Ortinau, 2000). SERVSAT was measured using a single item question, thus not necessitating validation.

Postgraduate Service Quality: PGSQUAL

Factor analysis was carried out using the Principal Components Analysis method with varimax rotation. The outcome of this process reveals that the cumulative variance, which two factors explained was 72.180%. Furthermore these factors have Eigen values over 1. The table of the initial eigenvalues and cumulative variations of the factors is available upon request.

The rotated factor loadings table was examined to find out which questions were not loading at all on the factors and, could hence be eliminated from the data set and, then re-ran the factor analysis procedure. Although the literature suggests that a factor loading of 0.3 or greater can be considered to be significant (Kline 1994), given the large number of items in the PGSQUAL scale, it was advisable to adopt the principle that factor loadings of 0.4 or higher are considered to be significant, otherwise the number of items in the data set will not be reduced and the key reason/purpose of factor analysis, which is to reduce the number of items to a comprehensible set of items, will have been defeated.

From Table 3 it is further evident that all the items loaded onto the two factors with loadings exceeding 0.4. Factor 1 which comprised items (18 items) SQ1 – SQ16; SQ18; SQ23 was named SERVICE OFFERED TO STUDENTS and Factor 2 which comprised the remaining 8 items (SQ17; SQ19; SQ20-SQ22; SQ24-SQ26) was labelled as RESOURCES OFFERED TO STUDENTS.

Coakes and Steed (2003:140) state that there are a number of different reliability coefficients and one of the most commonly used is the Cronbach's alpha, which is based on the average correlation of items within a test if the items are standardised. The alpha values of the two factor PGSQUAL instrument, namely, SERVICE OFFERED TO STUDENTS (0.978) and RESOURCES OFFERED TO STUDENTS (0.910), showed that the PGSQUAL instrument had good internal consistency amongst the factors, since alpha values of 0.7 and above are generally regarded as acceptable (Coakes & Steed 2003).

Table 3: Rotated Component Matrix

		COMPONENT	
		1	2
Willingness of staff to assist PG students	SQ3	0.868	0.2
The courteousness of staff towards PG students	SQ4	0.861	0.178
Delivering on promises to PG students do something by a certain time	SQ10	0.833	0.28
The promptness of the service offered to PG students	SQ5	0.817	0.338
Performing the PG service right the first time	SQ13	0.813	0.398
Ability of staff to understand PG students' needs	SQ2	0.797	0.351
The personal attention PG students received	SQ14	0.794	0.442
The ability of staff to answer PG students' queries	SQ9	0.78	0.327
The personal attention given by staff to PG students	SQ7	0.768	0.427
Sincerity of staff in solving PG students' problems	SQ12	0.763	0.466
Telling PG students exactly when the services will be performed	SQ16	0.747	0.521
Never being too busy to respond to PG students' requests	SQ15	0.735	0.477
Always having PG students' best interest at heart	SQ11	0.689	0.539
The confidentiality with which staff deal with PG issues	SQ8	0.679	0.462
Efforts made to ensure that PG students develop an understanding of the standard of work expected	SQ23	0.663	0.5
Accuracy of PG student records	SQ1	0.656	0.352
Honouring promises made to PG students	SQ18	0.648	0.574
The convenience of operating hours for PG students	SQ6	0.634	0.39
Financial support for PG research activities	SQ17	0.263	0.798
Research support services provided for PG students	SQ19	0.407	0.796
Opportunities provided to PG students to become integrated into the broader department/school/university research culture	SQ26	0.29	0.795
Opportunities provided for social contact with other postgraduate students	SQ20	0.299	0.736
Modernness of library resources and services	SQ22	0.199	0.706
Freedom allowed to PG students to discuss their research needs	SQ25	0.52	0.699
Research ambience in the department/school/faculty	SQ21	0.43	0.688
Seminar programmes provided for PG students	SQ24	0.309	0.685

The Overall PG Service Experience: SERVEXP

The 6-item SERVEXP instrument produced a Cronbach's alpha of 0.867, which asserts that the SERVEXP instrument is valid. This was further interrogated since a common practice in asserting the validity of an instrument is to check the individual contribution of each of the item's reliability that make up an instrument (Cortina 1993). The procedure was conducted as follows; firstly the overall reliability of all the items was

calculated, and then if a question, which contributed towards the overall reliability is removed, then the overall reliability of the remaining items should decrease when compared to the overall reliability of all the items. However should the question not contribute to the overall reliability of the instrument and it is removed then the overall reliability of the remaining items will increase. From the results summarized in Table 5, which were developed on the basis of the aforementioned procedure, it can be inferred that the alpha values of all items decrease when compared to the overall reliability (0. 867), except for question OE 4 where there is a negligible increase in the alpha value (0.002). Hence we conclude that all the items are reliable, have good internal consistency and contribute towards the overall validity of the SERVEXP research instrument.

TABLE 4: SERVEXP Cronbach's Alpha– Post Sequential Item Deletion

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
OE1	20.3878	14.941	.729	.834
OE2	20.3367	14.968	.752	.831
OE3	20.5000	15.242	.675	.843
OE4	20.7347	15.310	.533	.869
OE5	20.4388	15.465	.717	.838
OE6	21.1224	13.263	.661	.852

Factor analysis was not conducted to ascertain the validity of the SERVEXP instrument, since it comprised only 6 items, and any attempts to conduct this analysis would have been in violation of Coakes and Steed's (2003) recommendation which states that for factor analysis a minimum of 10 items is required.

Descriptive Statistics
The sample comprised 58% black graduates, 23.2% white graduates followed by 16.1% of Indian graduates. The majority of the graduates

completed the course-work masters (35.1%) and a full research masters (37.7%) degree. The modal breakdown of the faculty from which the graduates were represented was HDSS (27.4%), Management Studies (17.1%) followed by Science and Agriculture (21.4%). The faculties that were least represented were Education (6%), Law (0.9%) and the Medical School (6.8%).

Perceptions of Postgraduate Service Quality

Postgraduate students were requested to indicate their assessment of the postgraduate service quality on a 5-point scale, where 1 = Worse than expected and 5= Better than expected. It is evident from Table 2 that with the exception to SQ17 and SQ20, for all other items, the respondents perceived the service quality as being neither worse nor better than expected.

Table 2: Mean, Median, Mode and Standard Deviation

PGSQUAL	Mean	Median	Mode	Std. Dev.
SQ1	3.837	4	4	1.080
SQ2	3.426	4	4	1.178
SQ3	3.667	4	4	1.107
SQ4	3.670	4	4	1.055
SQ5	3.471	4	4	1.183
SQ6	3.670	4	3	1.061
SQ7	3.529	4	4	1.158
SQ8	3.612	4	4	1.022
SQ9	3.466	4	4	1.178
SQ10	3.441	3.5	3	1.134
SQ11	3.272	3	3	1.222
SQ12	3.490	3.5	3	1.124
SQ13	3.456	3	3	1.083
SQ14	3.382	3	3	1.053
SQ15	3.353	3	3	1.191

SQ16	3.208	3	3	1.227
SQ17	2.789	3	3	1.327
SQ18	3.220	3	3	1.203
SQ19	3.029	3	3	1.246
SQ20	2.961	3	3	1.266
SQ21	3.294	3	3	1.182
SQ22	3.626	4	4	1.174
SQ23	3.641	4	4	1.083
SQ24	3.350	3	3	1.186
SQ25	3.392	3.5	4	1.212
SQ26	3.019	3	3	1.283

Considering the nature of the scale, the mean values for the PGSQUAL (above 3 and tending towards 4) show that for the majority of the questions, the respondents perceived the PG service quality to be 'better than expected'. The one sample t-test was applied to further verify whether the mean PGSQUAL score was less than or equal to 3, and it was ascertained that at the 5% significance level, this is not true since the p-value is 0.000. Hence we conclude that the perceptions of the students with respect to the overall PG service quality are tending towards 'expected' or 'better than expected'.

Perceptions of the Postgraduate Service Experience

Postgraduate students were requested to indicate their assessment of the postgraduate service experience on a 5-point scale, 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly Agree. Table 3 shows that the respondents agreed that they had further developed their problem solving skills, shaped their analytical skills, feel confident to tackle unfamiliar problems, write and confidently present a paper at a conference, present their ideas in a logical and scientific way and have learned how to publish a paper in a journal.

Table 3: Descriptive Results of SERVEXP

SERVEXP	Mean	Median	Mode	Std. Deviation
OE1	4.2804	4.0000	5.00	.92954
OE2	4.3119	5.0000	5.00	.87873
OE3	4.1961	4.0000	5.00	.90148
OE4	3.9541	4.0000	4.00[a]	1.03087
OE5	4.2500	4.0000	5.00	.82173
OE6	3.6389	4.0000	5.00	1.23393

The one sample t-test was also conducted to ascertain whether the mean SERVEXP score was in fact less than or equal to '3=neutral'. It was ascertained that at the 5% significance level, this is not true, implying that the mean SERVEXP score is greater than or equal to 3 since the p-value is 0.000. Hence it was concluded that the perceptions of the students with respect to their postgraduate service experience is positive since the responses are range from 'agree' to 'strongly agree'.

Perceptions of Overall Satisfaction

Postgraduate students were requested to indicate their overall level of satisfaction with the PG service on a 5-point scale, 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly Agree. The results indicated that the respondents were neutral (mean score 3.0841), although the modal score of 4 revealed that the students were satisfied with the overall level of PG service quality.

The one sample t-test was also conducted to ascertain whether the mean SERVSAT score was in fact less than or equal to '3=neutral'. It was ascertained that at the 5% significance level, the mean SERVSAT score is less than or equal to 3 since the p-value is 0.496 which is greater than 0.05. The mean SERVSAT score of 3.0841 confirms this result.

Hence we find a positive perception of students towards the PGSQUAL and SERVEXP whilst a neutral perception is prevalent towards the overall service satisfaction level, SEVRSAT.

The Relationship between SERVSAT, PGSQUAL and SERVEXP

The relationship among the PGSQUAL, SERVEXP and SERVSAT was explored using Pearson's correlation. The results are summarized in table 5 show a significant relationship between PGSQUAL and SERVEXP at the 5% level. The strength of the relationship is just below medium and this is a direct proportional relationship implying that, as the PG students' SERVEXP improves, so will the perceptions of the PGSQUAL.

Table 5: Pearsons' Correlation

|		SERV-SAT	SERV-EXP	PGS-QUAL
SERVSAT	Pearson Correlation	1	-.028	.151
	Sig. (2-tailed)		.779	.120
SERVEXP	Pearson Correlation	-.028	1	.428[**]
	Sig. (2-tailed)	.779		.000
PGSQUAL	Pearson Correlation	.151	.428[**]	1
	Sig. (2-tailed)	.120	.000	

The relationship between the SERVEXP, PGSQUAL and SERVS-AT was further explored using structural equation modelling to test the propositions (P1-P3). The proposed model was fitted to the data using AMOS Version 19 (2010) and the results are reflected in Table 6 and Figure 1.

Table 6: Results of SEM

	Esti-mate	S.E.	C.R.	P	Label
PGSQUAL<-- SERVEXP	.507	.101	4.991	.000	
SERVSAT<-- PGSQUAL	1.000				
SERVSAT<-- SERVEXP	-.545	.179	-3.041	.002	

Although it became apparent that the chi-square test statistic was 19.143 with a p-value of 0.000, which implied that the data does not fit the model well (Schumacker Lomax 2004; Byrne 2010), the parameter estimates reflected in Table 6 were considered. It was evident that there is a significant association between SERVEXP and PGSQUAL as well as SERVEXP and SERVSAT. This result highlights the importance of the service experience of postgraduate students with respect to it influencing their overall satisfaction with the service quality. Thus P1 and P3 are supported and at the 5% significance level.

Figure 1: Results of Structural Equation Modelling
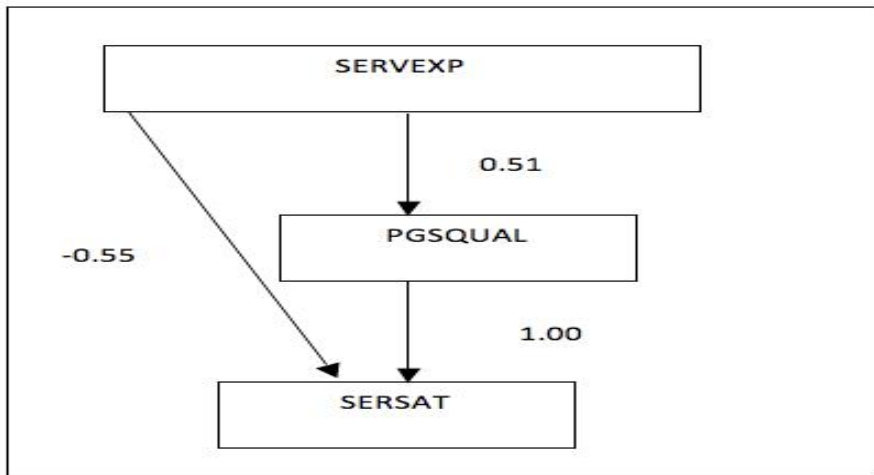
Discussion of Significant Findings

In addition to the development of two new reliable and valid research instruments, this study has confirmed the association between the PG service experience, PG service quality, and PG service satisfaction.

These findings thus confirm what other researchers (Alridge & Rowley 1998; Carillat, Jaramillo & Mulki 2009) assert, but is in contrast with the view of Bolton and Drew (1991), who argued that customer satisfaction is an antecedent of service quality. On the basis of the present

study it may be possible to assert that with respect to PG students, the totality of the student experience is a useful perspective to adopt in student satisfaction in marketing terms.

However, no relationship was ascertained between the PG service experience and PG service satisfaction, although service quality is connected with the service satisfaction.

Conclusion

In summing up the PG experience, we must guard against falling into what Schneider and Bowen (1993:39-56) refer to as the 'human resources trap', emphasizing only the personal contact relative to exclusion of the non-personal. We therefore need to embrace a broader definition of the service encounter to refer to anytime students come into contact with any aspect, and use that contact as one basis for judging quality. The institution has to therefore manage 'all the evidence' so as to ensure a seamless service experience for the PG student. It must be emphasized that one reason for conducting this and similar research is 'improvement', which is sometimes referred to as 'closing the quality loop' since although many tertiary institutions around the world collect student feedback, the interconnection between the student feedback and actual institutional change is not always evident or addressed. The mere collection of student feedback using questionnaires does not in itself lead to improvement in teaching and learning; there should be evidence that such feedback is factored into inter-alia, institutional postgraduate policies.

Value of this Research

This exploratory study represents but one attempt to address the concern about the extant research on postgraduate students, and represents a step towards closing the 'gap' mentioned in the introduction, in that it resulted in the development and validation of two research instruments, namely PGSQUAL and SERVEXP, both of which could be used by researchers interested in higher education quality matters.

Furthermore, since student satisfaction and retention are closely linked, students' perception of the service quality has become an extremely

important issue for universities and their management. This importance of the association between PG student satisfaction and service quality was confirmed by this research. Managing this association is important since the aim is to try to maximize students' satisfaction with their education experience whilst they are at university and minimize dissatisfaction not only to retain students, but also to improve the institution's performance ratings and so aid recruitment of postgraduates.

Limitations and Opportunities for Future Research

Considering that the sample was 27% of the population and the response rate only 14% of the population, the results may need to be interpreted with some caution before generalizations can be made. Perhaps the findings could be treated as preliminary insights into the defined target population and future research should target a larger sample.

A common problem in using surveys of graduates' experience at the time of graduation as performance indicators is the lag between experience and report. This may be true for the current study as well. Research into the service experience should be as real and recent as possible: that is interviews should be done as close to consumption of an actual service as possible, so that evaluations remain fresh in the consumers' minds and so that experiential benefits are not forgotten or replaced with more cognitively accessible functional benefits.

While this research has enhanced our understanding of the PG service experience, it is somewhat static in nature and does not fully lend insights into the dynamics of the service encounter. For example it does not indicate how PG students might trade off their evaluations of different aspects of the service experience in arriving at overall satisfaction.

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