Service Performance and Service Quality:
Exploring the Post-graduate Research Students' Perceptions of the Service Encounter

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ABSTRACT By developing and testing a conceptual model which was stated as: the PG research students' perception of the PG research service quality is associated with their perception of the PG research supervisors' service performance, the model was fitted to the data obtained from a sample of post graduates at a large research university in South Africa, using AMOS. The chi-square test statistic was reported as 8.951 with a p-value = 0.111, and the RMSEA was 0.004, both statistics indicating a good fit of the model to the data. It was thus concluded that the PG research students' perception of the PG research supervisors' service performance is associated with the perception of the PG research service quality.

INTRODUCTION

The customer's perception of the service encounter is a crucial component in the evaluation of the total quality of the service, and this is particularly true of repetitive services such as between PG research students and their research supervisors, where long term relations (Bitner 1995) depend on a number of 'interactions', since PG research students, especially doctoral students, interact closely with their supervisors for several years. It is also safe to say that the 'quality' of the interaction between the supervisor and the PG research student is a complex variable, highly affected by subtle factors of verbal and non-verbal communication between the various players (Cadman 2000).

Some researchers (Quinn et al. 2009: 139) assert that 'measuring customer satisfaction and quality at an educational establishment is regarded by educators as one of the greatest challenges of the quality movement'. The importance of the human element in the service encounter cannot be overemphasized, since it can embed itself in several ways. For example, most service-production processes require the service organizations' own personnel to provide significant inputs, both at the front-line of delivery and in those parts of the production process that are relatively removed from the customer (Worsford 1998; Singh 2000). Furthermore, most services require the active involvement of the consumer; thus the consumer becomes the co-producer. The aforementioned are equally true in the case of the PG research service encounter, where the PG research student is the co-producer of the knowledge in the form of a dissertation or thesis (Chung and Law 2010).

Inseparability as one of the defining characteristics of services in general, and in PG research which results in the production of a thesis or dissertation in particular, also means that the producer-consumer interaction assumes even great importance within the service offer. Since incidents occur every time service providers and consumers come together in an encounter, there are many opportunities for things to go wrong. McAteer-Early (1992), as cited by Govender (1998: 43), assert that the customer perceptions of service quality are highly influenced by the quality of interaction between customers and service personnel. Bitner (1995: 95) believes that the customer's perception of the service encounter is a crucial component in the evaluation of the total quality of the service. This is particularly true of repetitive services (such as between PG research students and their supervisors and or the institution), where long term relations depend on a number of 'interactions' since PG research students interact closely with their supervisors for several years, especially in the case of a doctoral study (Tan and Kek 2004: 17). The 'quality' of interaction between the supervisor and PG research student is a complex variable,

highly affected by subtle factors of verbal and non-verbal communication between the various players (Dann 2008).

The practice of relationship marketing is most applicable to a service organization in which, inter-alia, the service customer controls the selection of the service supplier and there is ongoing or periodic desire for the service on the part of the service customer. Thus service encounters, such as that between the PG research student and his/her supervisor (and the institution) can be described as a 'relationship' based series of encounters, since each cannot be viewed as being discrete and in isolation of preceding exchanges (Bitner 1995: 247). Thus the service experience is sum total of the student's perception of all encounters (personal and non-personal) with the institution and its representatives.

Some researchers, such as Singh (2000) have examined the service encounter from the employee's perspective, and stress the importance of the service employee in service performance and service quality. Since the research supervisors are physically and psychologically 'close' to the PG research student (customer), they also serve a very important role. For many PG research students, the supervisor is the 'university' and an embodiment of the service and quality of service (Delamont et al. 1998: 158).

Although the amount of day-to-day contact (interaction) between the individual PG research students and their supervisor(s) can vary dramatically, it is largely via this route that the individual students have their direct contact and, are guided through their interactions with the administrative and academic functions of the institution (Cryer and Mertens 2003: 93). Thus many of the regulations and guidelines for PG training programmes therefore both rely and place responsibility on the research supervisor to complete both research activities, as well as a significant number of administrative tasks.

Cryer and Mertens (2003: 94) maintain that if supervisors have a responsibility, namely training of PG research students, they must also be given the appropriate tools (in terms of adequate training and support) to do their job effectively. These researchers further assert that without training in relevant supervisory and examining skills, it is inevitable for supervisors will fail to meet objectives in the manner that is expected of them.

By citing Bassnett (2003), Hair (2006: 9) postulates that supervisory relationship is very important in the PG encounter, and in order to manage service quality and build lasting relationships, it is important to understand what happens in these PG encounters and, what affects the customer's perception of them. Dann (2008: 333) asserts that PG research supervision is a complex service encounter drawing on the pedagogical structures of higher education and the interpersonal dynamics of highly customized service delivery.

Several researchers (Jackson et al. 2011) identified the tensions between the students' expectations of the research degree and their lived experience of the process (expected experience and the reality of the supervision) as a contributing factor to thesis delays or dropout. Furthermore, McCormack (2004: 320) indentified the gap between the expectations of the research process and the reality of the research experience as a primary factor in the non-completion of the student's thesis. In order to identify and measure the cause of the breakdown and 'gaps' between what is promised and what is actually delivered, Parasuraman et al. (1988) developed the SERVQUAL instrument, which became the most widely used and debated tool to measure service quality.

Some researchers such as De Beer and Mason (2009: 237) argue for a blended approach to research supervision, where much contact takes place on an electronic basis, and less on a traditional written or face-to-face basis. However, even if the personal contact is minimized, the students will develop perceptions of their electronic interactions, which in turn will contribute towards their perception of the overall PG service experience and perception of the PG service quality.

Service Quality and Service Performance

The service-quality-service performance (Cronin and Taylor 1994) debate has been ongoing for a while, with much of the discussion revolving around the use of the 'gap' measures and, there seems to be equally strong support for the use of performance-based measures (Babakus and Mangold 1992, as cited by Cronin and Taylor 1994: 126).

According to Hartline and Jones (1996: 207), performance cues can play an important role within the service encounter, since they serve

as signs of quality and value to the customer and one such cue is the performance and service orientation of the customer-contact employee as they are at the frontline of service delivery.

Although the literature discussed above, alludes to a relationship between the PG research students' perception of the PG service quality and the PG research supervisors' performance, little research exists of attempts to empirically evaluate this relationship. Given the aforementioned, this study was undertaken by postulating that: the PG research students' perception of the PG service quality (PGSQUAL) is associated with their perception of the quality of the service delivered by the PG research supervisor (SERVPERF).

METHODOLOGY

This study was conducted in a large research university in South Africa which comprised eight faculties. The cohort (816) of masters and doctorates who completed their degrees in 2010 and graduated in 2011 comprised the sample. The name and e-mail contact details of the graduates was obtained from the graduation office and two approaches were used to reach the population. The electronic version of the questionnaire, using QuestionPro (2010) was sent via an e-mail to all 816 graduates. This was supported by hardcopies accompanied by a 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.

Research Instrument: PGSQUAL

Due to its extensive and popular use in Higher Education quality measurement (Tan and Kek 2004; Sunanto et al. 2007; Rajasekhar et al. 2009; Shekarchizadeh et al. 2011) the SERVQUAL instrument was adapted to develop the PGSQUAL instrument (Table 1). The PGSQUAL was specifically developed primarily by adapting the SERVQUAL instrument which encapsulates the perceptions-expectations gap covering all five service quality dimensions (Parasuraman et al. 1988), and incorporating certain elements from the PREQ instrument, as was done in previous

studies (Fridaus 2006; Hair 2006; Stodnick and Rogers 2008; Ginns et al. 2009).

The adaptation entailed making minor changes to the SERVQUAL statements to fit the context and combining expectations and perceptions, as was done in previous studies (Govender 1998). The 26 PGSQUAL statements were developed to fit the five dimensions of the SERVQUAL instrument, namely, tangibles (SQ17;SQ21; SQ22), reliability (SQ1;SQ9; SQ10; SQ13; SQ16; SQ18; SQ19), responsiveness (SQ3-SQ6; SQ12, SQ15), assurance (SQ24-SQ26) and empathy (SQ2; SQ7; SQ8; SQ11; SQ14; SQ20; SQ15).

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

Research Instrument: PGSERVPERF

For the purposes of this research, the PG research students' perception of the service performance (PGSERVPERF) of the PG research supervisors was measured using a specifically developed scale adapted from Govender's (2000) EQUAL scale and, the SERVPERF questionnaire of Landrum et al. (2009).

With regard to the service delivered by the PG research supervisor, PG research students had to indicate their agreement or disagreement with each of the 22 statements (Table 2) on a 5-point Likert scale, where 1= Strongly Disagree; 2=Disagree; 3= Neither Disagree nor Agree; 4=Agree; 5=Strongly Agree.

RESULTS

Response Rate

Of the 816 graduates sampled, 220 (26.96%) respondents viewed the questionnaire, 120 (54.55%) attempted it and only 117 (53%) completed the survey. The response is an adequate representation of the population considering that the major drawback with completion of questionnaires using the internet is non-response and large attrition rates.

Reliability of the Research Instruments

According to Coakes and Steed (2003: 140), there are a number of different reliability coeffi-

cients, but one which is most commonly used is the Cronbach's alpha, and any value above 0.7 is regarded as being reliable. The calculated Cronbach's alpha values of 0.978 for the PGSQUAL, and 0.969 for the PGSERVPERF instruments validate the use of the questions and the scales, since they reveal good internal consistency.

Validity of the PGSQUAL Instrument

Factor analysis was carried out to identify unique factors present in the data, and as such assess the discriminant validity of the measuring instruments. The Principal Components method was adopted with varimax rotation using the SPSS (Version 18) software. The rotated loadings table was further examined to find out which questions were not loading at all on the factors and could hence be eliminated, and the factor analysis re-run. Although the literature

(Kline 1994), suggests that a factor loading of 0.3 or greater can be considered to be significant, given the large number of items in the PG-SQUAL and PGSERVPERF instruments, 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 for conducting a factor analysis, which is to reduce the number of items to a possible set of items, will have been defeated.

It is evident from Table 1 that all the PG-SQUAL items loaded on two factors with all loadings above 0.4, implying that the instrument was valid (Kline 1994) and, the Cronbach's alpha values which exceeded 0.7 indicated that the instrument was also reliable (Coaks and Steed 2003).

FACTOR 1 of the PGSQUAL instrument which was labeled as 'RESEARCH SUPERVI-

Table 1: Rotated component matrixa

Items		Component	
		1	2
Willingness of staff to assist PG research students	SQ3	0.868	0.200
The courteousness of staff towards PG research students	SQ4	0.861	0.178
Delivering on promises to PG research students do something by a certain time	SQ10	0.833	0.280
The promptness of the service offered to PG research students	SQ5	0.817	0.338
Performing the PG research service right the first time	SQ13	0.813	0.398
Ability of staff to understand PG research students' needs	SQ2	0.797	0.351
The personal attention PG research students received	SQ14	0.794	0.442
The ability of staff to answer PG research students' queries	SQ9	0.780	0.327
The personal attention given by staff to PG research students	SQ7	0.768	0.427
Sincerity of staff in solving PG research students' problems	SQ12	0.763	0.466
Telling PG research students exactly when the services will be performed	SQ16	0.747	0.521
Never being too busy to respond to PG research students' requests	SQ15	0.735	0.477
Always having PG research students' best interest at heart	SQ11	0.689	0.539
The confidentiality with which staff deal with PG research issues	SQ8	0.679	0.462
Efforts made to ensure that PG research students develop an understanding of the standard of work expected	SQ23	0.663	0.500
Accuracy of PG research student records	SQ1	0.656	0.352
Honouring promises made to PG research students	SQ18	0.648	0.574
The convenience of operating hours for PG research students	SQ6	0.634	0.391
Financial support for PG research activities	SQ17	0.263	0.798
Research support services provided for PG research students	SQ19	0.407	0.796
Opportunities provided to PG research students to become integrated into the broader department/school/ university research culture	SQ26	0.293	0.795
Opportunities provided for social contact with other postgraduate research students	SQ20	0.299	0.736
Modernness of library resources and services	SQ22	0.199	0.706
Freedom allowed to PG research students to discuss their research needs	SQ25	0.520	0.699
PG research ambience in the department/school/faculty	SQ21	0.430	0.688
Seminar programmes provided for PG research students	SQ24	0.309	0.685
Percentage of Variation Accounted For		65.221	
Cronbach's Alpha		0.978	0.910

Rotation method: Varimax with Kaiser normalization

SOR', comprised items SQ1-SQ16; SQ18 and SQ 23 and, FACTOR 2 which was labeled 'INSTITUTIONAL SUPPORT' comprised items SQ17; SQ19-25 and SQ26. From the aforementioned findings, more especially the factor loadings of the majority (18 out of 26) of PGSQUAL items to the factor labeled as " RESEARCH SUPERVISOR", it can be assumed that with respect to the overall PG research service quality, the role of the PG research supervisor is paramount, thus confirming the contention of several researchers (Hartline and Jones 1996; Worsford 1999; Singh 2000; Brady et al. 2001) that the service employee's (in this case the PG research supervisor's) performance serves as an important cue of service quality.

Validity of the PGSERVPERF Instrument

It is evident from Table 2 that the research instrument used to measure the PG research students' perceptions of the quality of PG research supervisor's performance was both valid and reliable. The 22 items of the PGSERVPERF loaded on three factors, and factor 1 which comprised 10 of the 22 items was labeled as 'BASIC SERVICE' and 'AUGMENTED SERVICE' comprised 8 of the 22 items, and finally two items loaded to a factor which was labeled as "ADMINISTRATIVE SERVICE".

Structural Equation Modeling

In order to explore the association between the PGSQUAL and PGSERVPERF, a structural equation model was fitted to the data using the results of the Factor Analysis for the PGSERVPERF and PGSQUAL. The factors that loaded onto the PGSERVPERF and the PGSQUAL were fitted as a structural equation model, where the PGSERVPERF and the PGSQUAL were treated as latent variables and the factors that loaded were taken as the average of the variables that made up that specific factor. The hypothesized model is given in Figure 1.

Table 2: Validity of PGSERVPERF measurement instrument

| Items		Component		
		1	*2*	*3*
Gave good guidance on my literature search	EQ8	0.850	0.283	0.059
Provided helpful (oral and written) comments on my drafts	EQ5	0.846	0.209	0
Was always courteous and willing to help	EQ9	0.831	0.323	0.192
Gave good guidance in topic selection and refinement (development of my research proposal)	EQ4	0.818	0.336	0.059
Was available whenever I needed him/her	EQ1	0.764	0.242	0.374
Provided regular feedback on my progress	EQ6	0.760	0.388	0.171
Provided timeous/prompt comments on my drafts	EQ7	0.754	0.406	0.157
Was never too busy to respond to my requests/enquiries	EQ11	0.751	0.271	0.408
Was sincere in solving my problems/responding to my queries	EQ10	0.740	0.324	0.355
Provided additional information relevant to my research topic	EQ3	0.662	0.389	0.231
Made every effort to understand the difficulties I faced as a PG student	EQ2	0.636	0.516	0.319
Helped me organize myself to undertake the PG studies	EQ17	0.609	0.602	0.259
Made me aware of funding sources available for research	EQ13	0.220	0.853	0.184
Encouraged and supported me to present papers at conferences	EQ18	0.299	0.841	-0.040
Encouraged me to publish my research	EQ16	0.232	0.822	0.111
Made me aware of conferences related to my research	EQ15	0.377	0.79	0.154
Was able to integrate me into the research culture of the school/ department/university	EQ14	0.544	0.623	0.157
Clearly explained /outlined what is expected of me as a PG student	EQ19	0.505	0.599	0.385
Encouraged me to undertake further PG studies	EQ22	0.350	0.589	0.413
Was able to provide guidance on matters related to my registration and compliance with university rules	EQ12	0.403	0.582	0.327
Made me sign a supervision contract	EQ20	0.064	0.065	0.872
Explained what support/service I could expect from him/her	EQ21	0.453	0.398	0.761
Cumulative Variation Explained		*62.810*		
Cronbach's Alpha		*0.969*	*0.932*	*0.763*
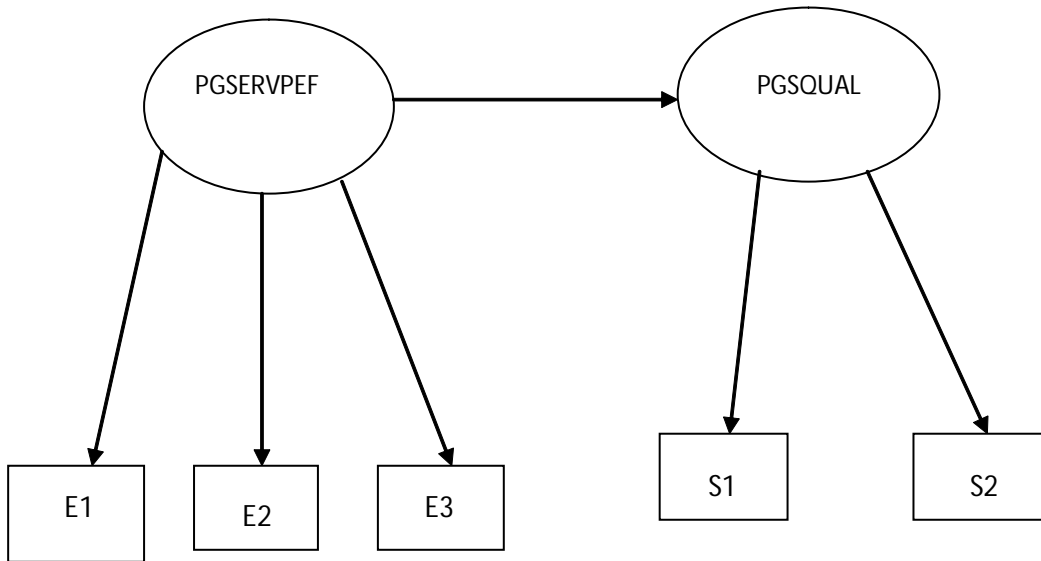
Fig. 1. Empirical evaluation of the conceptual model

With respect to Figure 1, the following must be noted:

E1=average (EQ8, EQ5, EQ9, EQ4, EQ1, EQ6, EQ7, EQ11, EQ10, EQ3, EQ2, EQ19)

E2=average (EQ13, EQ18, EQ16, EQ15, EQ14, EQ19, EQ22, EQ12)

E1=average (EQ20, EQ21)

S1=average (SQ1-SQ16, SQ18, SQ23)

S2=average (SQ17, SQ19, SQ20-SQ22, SQ24-SQ26)

The model (Fig. 1) which was fitted to the research data using AMOS (1999, Version 19) was found to be under-identified, meaning that the number of paths to be estimated was less than the number of parameters in the model. However, since some researchers, inter-alia, Blunch (2008) argue that a model may be made identified by increasing the number of manifest variables or by reducing the number of parameters to be estimated, in order to solve the problem of identification in the model, some of the factor variances were constrained to 1 and, the model was fitted to the data.

The chi-square test statistic was reported as 8.951 (p-value=0.111) indicating a good fit of the model to the data (Byrne 2010). According to Byrne (2010), Raykov and Marcoulides (2006), and Schumacker and Lomax (2004), the RMSEA should be less than 0.05 if the model fits the data well, although values ranging from 0.05 to 0.08 are also deemed to indicate a good fit of the model to the data. The RMSEA for the current model was reported as 0.004, hence implying that the model fitted the data well. The regression estimates are summarized in Table 3 and in Figure 2 reflect that the PG research students' perception of the PG research supervisor's service performance (PGSERVPERF) is positively associated with their perception of the overall PG research service quality (PGSQUAL) since the p-value is less than 0.05. This finding confirms the views of other researchers, inter-alia, Hartline, and Jones (1996); Ford et al. (1999), Brady et al. (2001), and Rajasekhar et al. (2009), albeit, all of the aforementioned researchers had not conducted their studies in a similar (higher education) service environment.

Table 3: Results of the structural equation modeling

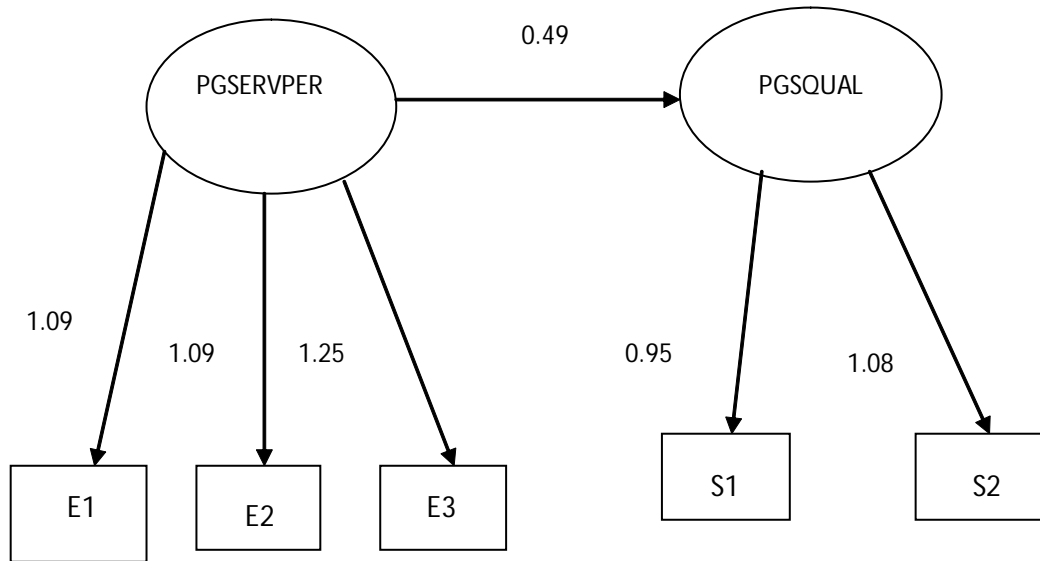|			*Estimate*	*P-Value*
PGSQUAL	<—-	PGSERVPERF	.485	.004
E1	<—-	PGSERVPERF	1.094	.000
E2	<—-	PGSERVPERF	1.085	.000
E3	<—-	PGSERVPERF	1.247	.000
S1	<—-	PGSQUAL	.952	.006
S2	<—-	PGSQUAL	1.084	.000

Fig. 2. Path diagram with regression values

CONCLUSION

In view of the supervisors' pivotal role, better support for supervisors would be an effective mechanism to provide better support for postgraduate students. However, despite the importance of the PG research supervisor being highlighted in this study, in summing up the PG experience, we must guard against falling into what is refered to as the 'human resources trap', by emphasizing only the personal contact relative to exclusion of the non-personal. Higher education institutions need to therefore manage 'all the evidence' so as to ensure a seamless service experience for the PG research student.

It must be highlighted that the emphasis for conducting this and similar research is 'improvement' , which is sometime 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, staff development plans, curriculum development, assessment development, institutional postgraduate policies, etc.

RECOMMENDATIONS

Strategies need to be developed on the premise that giving and receiving regular and on-going feedback between students and supervisors plays a crucial role in addressing previously identified student and supervisor concerns. This strategy may support the development and maintenance of quality student-supervisor relationships with the potential to increase degree completion rates.

LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

As is pointed out in the literature, the use of the SERVQUAL and any adaptations of this instrument to assess service quality in education had been somewhat problematic. Thus, to measure performance against a 'student charter' could be an alternate method of assessing PG students' perception of the service quality.

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 PG 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 consum-

ers' minds and so that experiential benefits are not forgotten or replaced with more cognitively accessible functional benefits.

The service quality literature, more especially the literature on the service encounter emphasizes the important role of the service customer. This is particularly true of PG research where the PG student is expected to perform much of the functions required in producing the dissertation or thesis. Thus within the PG supervision structure there is a 'duality' of responsibility for the successful completion of the research projects between the supervisor and the PG student that parallels that of complex service products where the customer and provider co-create the final product. This study had not however considered the role of the service customer and future research should introduce this element into the service encounter model and its impact on the PG service experience and service quality could be determined.

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