

Service Quality Evaluation: A Systems Thinking Approach

Paul Green¹ and Stan Hardman²

¹*Durban University of Technology, South Africa*

²*University of Kwazulu-Natal, South Africa*

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ABSTRACT Institutions of higher learning have introduced innovative strategies to attract and retain fee paying students. One of the strategies has been the rendering of a quality service to a student-centred environment. The goal of this paper is to report on the use of Soft Systems Methodology (SSM) and Critical Systems Heuristics (CSH) techniques in gaining a greater understanding of the issues associated with evaluation of service quality at a university in South Africa. The study adopts a qualitative paradigm whereby an action research approach was implemented. A purposive convenience sampling technique was chosen and the findings of the study revealed that the participants had gained a greater understanding of the issues associated with evaluation of service quality via the use of the techniques employed in the study. The contribution of this paper is in the demonstration of SSM and CSH techniques applied and the lessons learned from the application thereof.

INTRODUCTION

In South Africa, although education is the recipient of the major portion of national expenditure (Statistics South Africa 2007), government funding to tertiary institutions has been on the decline, prompting institutions of higher learning to develop innovative methods to maintain financial stability. Relevancy and currency of this research is reinforced by a study undertaken by Min and Khoon (2014) who echo that universities and colleges are adopting the marketing concept whereby students are considered as customers. One of the strategies has been to attract and retain both national and international students by the rendering of a quality service (Sultan and Wong 2012). According to Dorweiler and Yakhou (1994), educational institutions across the world have to evaluate actively the quality of the services they offer and to commit to continuous improvements in order to survive the increasingly fierce competition for highly desirable students and the revenue such students generate. Khodayari and Khodayari (2011) believe this has resulted in students becoming more circumspect in the universities they select. According to Smith, Smith and Clarke (2007) ac-

ademic departments are not immune from being under increasing pressure to provide quality services. The pressure is two-fold, firstly, there is pressure from students through an increase in consumerism and secondly, there is pressure to ensure the provision of quality services to reduce the costs of dealing with the consequences of poor services (Petruzzellis and Romanazzi 2010). It is against this background that this paper utilizes SSM and CSH techniques in an attempt to gain a greater understanding of the issues involved in evaluation of service quality of an academic department at a tertiary institution.

Literature Review

Service Quality in Higher Education

Zeithaml et al. (2009) define services, including educational services as “deeds, processes and performances”. Service quality is the extent to which a service meets or exceeds the expectations of customers (Jain et al. 2010; Zeithaml et al. 2006; Parasuraman 2004). In the South African higher education milieu, quality assurance activities involving the development of explicit quality assurance policies, the establishment of quality assurance structures and the regular evaluation of institutional performance have become common features (Ferreira 2003; Mhlanga 2008). Development of quality assurance policies are being undertaken at national and institutional level. A key development at national level has been the establishment of na-

Address for correspondence:

Dr. Paul Green
Durban University of Technology
PO Box 101112, Scottsville
Pietermaritzburg, South Africa 3209
Telephone: +2733 845 8804
Fax: +2786 531 1069
E-mail: Paulg@dut.ac.za

tional quality assurance agencies that monitor, evaluate and promote quality in tertiary institutions through national regulating policy and regular site visits to tertiary institutions. There is an emerging tendency for institutions to be accountable to external stakeholders for their performance.

According to O'Neill and Palmer (2004), the higher education sector is a fast growing service industry which is constantly exposed to globalisation trends. McRoy and Gibbs (2009) state that globalization and the associated transformation in all spheres of contemporary life call for "improving the quality of student learning and the learning experience – the pressures for change in higher education are evident on all sides, and the pace of change is ever increasing". There is a growing necessity to link the needs of the customer, who in this study are the students, with service functions in the framework of creating a student-centric environment.

Yeo (2008) believes that the higher education industry relies heavily on quality management to remain competitive. However, as there are many stakeholders in higher education each have their personal view of quality which is largely dependent upon their particular needs (Voss et al. 2007). O'Neill and Palmer (2004) define service quality in higher education as the discrepancy between students expectation versus perception of the delivery. The importance of service quality in higher education has attracted many researchers to empirically examine service quality with a wide array of studies undertaken at various tertiary institutions from countries across the world. Stukaline (2012) asserts that universities employ student satisfaction data to better understand and improve their educational environment with the aim to increase retention rates.

Research indicates that service quality promotes customer satisfaction, stimulates intention to return, and encourages recommendations (Nadiri and Hussain 2005). It is also evident that customer satisfaction increases profitability, market share and return on investment (Hackl and Westlund 2000). It is vital that tertiary institutions should recognise the importance of service improvements in establishing and maintaining a competitive advantage.

Systems Thinking Approach

Systems thinking is defined by Kay and Foster (1999) as the study of objects as wholes and

synthesizing all the relevant information regarding an object, in order to have a sense of it as a whole. Similarly, McNamara (1999) says systems thinking is used to help view the world from a broad perspective that includes structures, patterns, and events instead of just focusing on the events themselves. Senge (1996) asserts that linear and mechanistic thinking is becoming less effective in addressing the problems that face us today.

Jackson (2003) concludes that the systems discipline has a rich history of how to use methodologies in combination that has culminated in an approach known as critical systems practice. Gregory (2009) advocates two potential contributions of the systems approach, firstly, a significant contribution to the effectiveness and efficiency of the strategic development process and secondly, how systems methodologies can be put into the service of strategic development. According to O'Neill and Palmer (2004), universities employ a combination of qualitative and quantitative methods to gauge quality of service. Qualitative methods include interviews, focus groups and observation research. Although they are highly subjective, they nonetheless provide an interesting insight into the mind-set of the individual.

The notion of SSM, which is a strand of systems thinking that has been selected for this study, emerged as a result of dissatisfaction with the limitations of hard systems thinking (Jackson 2003; Khisty 1995). The purpose of SSM was to produce a systems methodology capable of dealing with soft problems. SSM focuses not only on the objectives and solution to a particular problem, but provides a methodology to explore, query and learn about ill-structured problem situations. Instead of being based upon the paradigm of "optimization", SSM is rather founded on the paradigm of "learning". The purpose of stages 1 and 2 of the original seven stage process is to find out what the problem is. This is summarized in a "rich picture" which expresses the features of the situation. Petkov et al. (2007) cite that rich pictures are cartoon-like images that capture the structure of a problem, the processes involved and the relationships between structure and processes. In stage 3, the root definitions are formulated by identifying six CATWOE analysis elements – for an explanation of CATWOE see below.

- Customers: the victims or beneficiaries of the purposeful activity.

- Actors: those who would perform the activities.
- Transformation process: the core of the purposeful activity transforming an input into an output.
- Weltanschauung: the view of the world that makes the root definition meaningful in context.
- Owners: who can abolish or stop the activity.
- Environmental constraints that affect the situation.

In stage 4, the root definitions are used to construct conceptual models. These conceptual models are constructed by drawing out the minimum number of verbs that are necessary to describe the activities that would have to be present to carry out the tasks named in the root definition. In the fifth stage, the models are compared with reality. The final stage involves the implementation of changes that are both desirable and feasible.

In addition to the CATWOE analysis, Critical Systems Heuristics (CSH) developed by Ulrich (1983) was also used to reinforce the need for multiple perspectives. The purpose of CSH was to ensure that the views of all stakeholders, including those who might not have been visible but were negatively affected by the proposed design of the framework, are considered.

Complex social systems exhibit counterintuitive behaviour. This concept epitomizes the adoption of systems thinking, whereby intuitive methods are implemented to unravel complex social system problems. Systems thinking was selected as it provides the researcher the ability to see things or systems as wholes rather than the different individual components.

Linking Evaluation to Systems Thinking

Reynolds (2012) asserts that systems thinking is gaining prevalence in the field of evaluation largely to assess complex interventions. Gregory (2009) alleges that an evaluation can only represent some aspect of reality if it has sufficient variety to capture the complexity of that reality. The situations in the world are not linear, mechanistic and predictable but rather chaotic, complex and unpredictable. It is also uncommon to operate in a simple, stable situation but rather what is now becoming increasingly common, is to operate in complex environ-

ments characterized by many interacting elements, conflict, and diversity. Gregory (2009) warns against designing a system of enquiry such as evaluations where one is far from the ideal and inevitably adopts a partial view.

RESEARCH METHODOLOGY

The empirical work undertaken in the study involved a total of ($n = 27$) participants who participated in two separate workshops over a five month duration. The methodology applied was that of action research and participants were drawn from the student body, as well as academic and administrative staff of the university. The first workshop consisted of 12 participants from the satellite campus, and the second workshop consisted of 15 participants from the main campus of the university. A non-probability sampling technique known as purposive convenience sampling was employed. The aims of the workshops were to identify the relevant stakeholders in the evaluation of service quality of an academic department at a university. The second aim of the workshops was to generate ideas using multiple perspectives for the improvement of service quality of an academic department at a university; brainstorming exercises using rich pictures and CATWOE analysis were conducted. The third aim was to develop an appreciation of the bigger picture and unravel the multiple perspectives through the use of Ulrich's twelve boundary judgement questions. Ulrich (1983) proposes four groups of questions – sources of motivation, sources of power, sources of knowledge and sources of legitimization.

Research Design

The researcher acted as facilitator for the workshops and began the workshops by explaining SSM and CSH tools and their purposes which were to be used during the workshop, *viz.* rich pictures, CATWOE and boundary judgement questions. One of the concepts of SSM is that SSM evolved from action research whereby the researcher immerses himself in the analysed organisation. Initially, in each workshop, there was rigorous debate as to who the actual clients were of the service offered by an academic department. However, the student was a common stakeholder that was identified by every participant. The students can be referred to

as “standard stakeholders”, since Banville et al. (1998) classify standard stakeholders as stakeholders that affect the problem and are affected by the problem. In addition, the role of the student in the evaluation and improvement of service quality at a university is essential.

Multiple perspectives were investigated through CATWOE analysis of SSM (Checkland and Scholes 1990). The meaning of the CATWOE mnemonic is listed in the Table 1 together with its meaning in the context of the improvement of service quality of an academic department at a university.

Data Collection

Each participant at the workshop was issued a questionnaire. The CATWOE mnemonic was explained to the participants at the workshop. The participants were reminded that their responses had to be related to the evaluation and improvement of service quality at an academic department of a university.

RESULTS AND DISCUSSION

Rich Picture of the Problem

An elementary rich picture was used at the beginning of the workshop to initiate a brainstorming exercise. The rich picture showed a student at a university attending lectures in a lecture venue with the ultimate goal of receiving a qualification. The rich picture depicted a linear relationship whereby there is an input (student); a process (teaching and learning) and an output (qualification). Participants were issued with post-it stickers which were used in the brainstorming exercise. The rich picture technique assisted the participants in clarifying the stakeholders involved in this complex problem. Participants used their post-it stickers to include a

variety of elements affecting service delivery. This variety represented the different weltanschauungs (world-views) of the participants. The author analysed the post-it stickers and attempted to include the different weltanschauungs by updating the rich picture and developed a new rich picture (Fig. 1).

The new rich picture shows a more detailed analysis of the issues associated with the evaluation of service quality of an academic department. A student enrolls at a university and interacts with staff representing the university. This interaction could be a pleasant or an unpleasant experience. The student evaluates the service received from the university by judging the physical evidence like library facilities, sport facilities, cafeteria and lecture venues. The student also evaluates the lecturer by his responsiveness, appearance and his knowledge of the subject. The opposing world-view is that the lecturer also evaluates the student according to the student’s dedication toward the subject, the preparation before the lecture, the performance in assessments and his general behaviour during the lecture. This process of evaluation/judgement is illustrated by the hand holding a magnifying glass above the lecture venue. The other factors which contribute to the complexity of this problem are the influences of government, donors, accreditation bodies and student representative councils. The university is an open system and there will always be external influences that impinge upon the university. Political affiliations at universities are a common practice and South Africa having a young democracy, promotes freedom of expression. As universities are state owned institutions, these universities are also subject to government evaluations which, in turn, are filtered to departments. External accreditation bodies frequently assess the quality and purpose of the programmes offered at universities.

Table 1: CATWOE and its meaning in the context of the improvement of service quality at an academic department.

Customers: The customers, beneficiaries or victims of the provision of the service at a university.

Actors: The people that are involved in the system at the university.

Transformation: The process that transforms inputs into outputs.

World-view: The viewpoint from which the transformation should take place.

Owners: Those in the university that have decision-making authority – those who can stamp out unsatisfactory service delivery.

Environmental Constraints: The environment includes those factors that will impinge on the situation, and over which the actors and owners have no control.

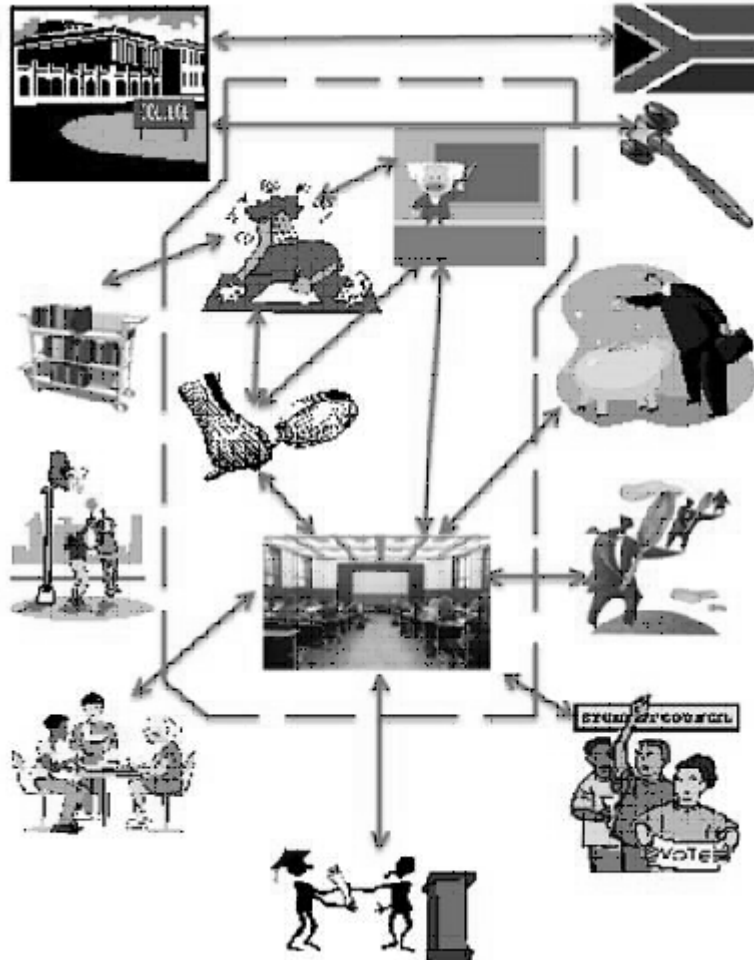


Fig. 1. A rich picture developed by the participants of the workshops

CATWOE Analysis

Summary of the responses of the participants for the **CUSTOMER** element of CATWOE:

The customers, beneficiaries or victims of the provision of service at an academic department of a university of technology would be students, parents, the community, other departments, government and staff members.

On analysis of the customer element of CATWOE of the questionnaire, it was evident that most of the participants felt that the students fell into this category. In addition, there was also a moderate response for parents and the community also forming part of the customers. Also worth noting was the indication that other

departments at the university together with other staff members and government were also regarded as beneficiaries of service from the academic department.

Summary of the responses of the participants for the **ACTOR** element of CATWOE:

The people involved in the activities in the system and those who are responsible for rendering a service were the head of department, the departmental secretaries, the lecturers and the administrative staff.

In response to who are the actors and who the actors should be, it was extremely clear that the participants were of the opinion that any staff member representing the department would be an actor. However, there were also 40% of

the participants who felt strongly that even though an academic department is rendering a service to the student, the student is also deemed an actor and is also equally responsible for reciprocating a satisfactory service.

Summary of the responses of the participants for the TRANSFORMATION element of CATWOE:

The process that transforms inputs into outputs. The aspect of the problem that you want to change and improve with respect to service quality of the department.

The responses to this question were diverse and as a result there were multiple perspectives to the transformation element. The results indicated that some of the participants felt that transformation could be achieved firstly, by attempting to change the attitude that staff members have towards students. Secondly, by training and developing staff and students towards rendering efficient and effective customer service. Thirdly, there should be a campus-wide approach in developing a philosophy of service culture starting with executive management and cascaded to departmental levels.

Summary of the responses of the participants for the WELTANSCHUANG (WORLD-VIEW) element of CATWOE:

Your view of the problem – what assumptions are made, and what do you regard desirable for an academic department rendering a quality service?

A comparison of the Weltanschauangs of the participants showed there was a wide range of different perspectives among the participants, which was expected. Even though the questionnaire and technique were explained at the beginning of the workshop, some of the participants found it difficult to answer this question. The responses also indicated that this question was also answered from a very narrow perspective. Most of the participants answered mainly from the perspective of a problem situation and later discussed possible or desirable improvements to be made by the academic department. Some of the comments indicated that students are trouble-makers, staff are unapproachable, there is a need for quicker response times, and students wanted improvement of the university's physical infrastructure.

Summary of the responses of the participants for the OWNER element of CATWOE:

Those at the university that have decision-making authority.

A considerable number of the responses indicated that executive management of the university have the authority to address unsatisfactory service delivery. However, during a feedback session a rigorous debate concluded that all stakeholders (executive management, staff, students, parents, HoD's, Deans, CPQA, government) can rid the system of unsatisfactory service delivery.

Summary of the responses of the participants for the ENVIRONMENTAL CONSTRAINT element of CATWOE:

The social and political environment in which the department operates within the context of the university.

It was interesting to see from a staff perspective, that it was felt that numerous university campuses across South Africa have become political showground's. Students, however, felt that the student body cannot divorce education and politics.

Following is the third technique applied.

The Use of Boundary Judgement Questions to Develop Multiple Perspectives for the Evaluation of an Academic Department as Service Provider

The questions were divided into four groups comprising three questions each. Each group of questions attempted to identify the sources of motivation, power, knowledge, and legitimization (Ulrich 1983). The questions were adapted for the evaluation and/or improvement of service quality of an academic department. The first set of questions aimed to determine the sources of motivation for the evaluation and improvement of service quality. In answer to the question: *Who ought to be the actual clients or recipients of a service offered by an academic department? Whose interest should be served?* All of the participants indicated that students are the primary recipients of the service offered by an academic department. In addition to students, some of the participants also mentioned parents, employers, society, industry and South Africa as clients of the department. The second question, *What ought to be the purpose of the evaluation process? What ought to be the possible gains from the evaluation of service quality?* There were a variety of

answers to this question. A summary of the responses documented by the participants on the purposes of the evaluation process included: identifying good practices and highlighting areas for improvement; monitoring performance and ensuring accountability; enhancing the quality of service offered to students; and identifying departmental weaknesses and opportunities. There was general consensus on the possible spin-offs of the evaluation process: Improving service; greater buy-in from staff and students to their role in quality of service; students receiving efficient service; identifying needs; enhanced service culture; and feedback to the department and the university.

The participants were fairly confident in determining whether the provision of improved services constitutes an improvement or not of service quality at the department. Participants documented improved results; student satisfaction; comparison of results from previous evaluation processes; benchmarking with other departments and other institutions of higher education; reduction in complaints by the students and on-going monitoring and evaluation to ensure outcome and impact are tracked.

The second set of questions aimed to determine the sources of power for the evaluation and improvement of service quality. The responses indicated that 40% of the participants believed that the Vice Chancellor, Deans and Heads of Departments have the power to change circumstances regarding the rendering of service quality in the department. It was also interesting to see that 35 % of the participants felt that students also had the power to change circumstances regarding service quality at the department. Other responses indicated that all stakeholders concerned have the power to change circumstances regarding service quality. The responses to what the decision-makers should not have control over were noteworthy. Many of the participants felt that management, including the heads of department, should not have control or influence during the evaluation process as this would taint the process.

The third set of questions aimed to determine the sources of knowledge for the evaluation and improvement of service quality. The responses indicated strongly that expertise in service quality evaluation should be called upon. There was also a strong indication that external stakeholders such as quality promotion

officers; individuals from the private sector; peer reviews and experts external to the university, should be included in the evaluation process. The students who participated in the workshops also felt strongly that student representatives should form part of the evaluation panel. The feedback session also highlighted a need to consider consulting firms who have the expertise in service quality evaluation and government departments like the Council of Higher Education.

The question, *who should be assumed to provide some guarantee of the proposed improvement of service quality in the department?* elicited varied responses from the HoD, SRC, executive management, students and government. This implies that there is likely to be more than one guarantor of the proposed improvement of service quality in the department.

The fourth set of questions aimed to determine the sources of legitimization for the evaluation and improvement of service quality. The first of the three questions in this set was, *who should represent the interests of those negatively affected by the service offered by the department?* The responses to this question were split between staff and students. Students felt strongly that the SRC should represent the interests of the students. Staff, however, felt that peers external to the department; faculty and university structures; the Dean and quality experts should represent the interests of those negatively affected. The second question in this set was, *how should those who have been disadvantaged/dissatisfied by the service be given a chance to express themselves?*

The third question in this set was, *what space is available for reconciling differing worldviews regarding service quality among the involved (university staff) and the affected (the students)?* It was interesting to witness a discrepancy in the responses. The academic and administration staff of the university felt there was no space provided for reconciling different worldviews regarding service quality. However, the management of the institution who attended the workshop believed there are systems and structures currently in place to address these differences.

CONCLUSION

This paper has highlighted the use of (SSM) and (CSH) techniques in gaining a greater un-

understanding of the issues associated with evaluation of an academic department as a service provider at a university in South Africa. The SSM technique of rich pictures assisted with the diagnostic stage of the problem solving process. The feedback of the participants to CATWOE and the boundary questions provided a greater understanding of the issues associated with the evaluation of an academic department as a service provider. It was also evident that a number of the problems were centred on the softer or abstract issues rather than principles, procedures and hard technical issues. This accentuated the complexity of the problem whereby it was, and always is, imperative to deliberate the hard and soft issues centred on service quality. The results of this study agree with other studies using similar techniques within different contexts.

RECOMMENDATIONS

It was noted that a university operates in a multicultural environment and as such, cognisance should be given to the various multicultural elements.

A summary of the recommendations of the study were as follows:

- ♦ There should be a complaints and complaints box for individuals to express themselves.
- ♦ There should be open forum meetings to discuss issues of service quality between department and external stakeholders.
- ♦ A student ombudsman channel should be created whereby aggrieved students can be represented through the office of the Dean.
- ♦ Electronic service evaluations should be completed at the end of each service.
- ♦ Management should meet with students more regularly to determine if they are satisfied with the service they are receiving.
- ♦ Students who are regarded as important stakeholders in the system expressed a sense of inclusiveness and displayed ownership in the evaluation process and this should constantly be remembered and adhered to when designing a service quality evaluation framework.
- ♦ Representatives from faculty realised the importance of adopting an inclusive ap-

proach and involving other stakeholders in the decision making process.

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