Assessing Quality of University Examination System using SERVQUAL Model: Viewpoints of Technical Undergraduate Students in Rajasthan

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Abstract— This study was conducted at a Technical University in Rajasthan, India to assess Technical students' satisfaction of the University Examination using SERVQUAL model. The SERVQUAL instrument was adapted and modified to capture the relevant data. A total of 135 students were employed in the study. Data were analyzed using SPSS (version 23.0) for descriptive statistics. Student satisfaction regarding quality of University Examination was determined by the service quality gap model studying, Tangibles, Reliability, Responsiveness, Assurance, and Empathy dimensions. The result indicated that the there was a negative gap between the Technical students' expectations and perception of the University Examination Service Quality. Overall services quality mean was (-2.012±.1135). The highest and lowest differences of mean scores between students' expectations and perceptions were in the reliability (-2.324) and tangibility (-1.698) dimensions respectively. Paired t-test showed the significant statistical differences between students' expectations and perceptions ($\rho < <0.001$) in all dimensions of the examination. Negative quality gaps in all three phases of examination, i.e. Pre-examination, Examination and Post-examination, indicated that a methodical approach for quality improvement needs to be developed by the Technical University and calls for management action to improve service delivery in those areas.

Key words: Examination system, SERVQUAL model, Pre-examination, Examination and Post-examination phases

I. INTRODUCTION

Examination plays an important role in imparting education and knowledge by evaluating the students' knowledge, understanding and learning. Examination is an effective instrument to evaluate the quality and quantity of knowledge or learning of the students in a specific field (Mishra, 1988).

The term examination originated from old French 'examinacion', and from Latin 'examinationem' which has a sense of 'test of knowledge'. At the University level, examinations are conducted to test students' overall content knowledge for proficiency in a particular field against set criteria. In the last couple of decades, the examination system of Universities in the State of Rajasthan, India has witnessed tremendous changes. Many fields of knowledge have been added in curriculum, which has increased the number of examinations. The number of students enrolled, number of examinations conducted, and number of examination centers etc. has also increased exponentially. As a result, the University examination system has become fairly intricate and complicated. Till date no detailed study has been conducted to assess the students' expectations and perceptions regarding the examination services provided by a Technical University in the State of Rajasthan, India.

It is pertinent to mention that examination provides feedback to evolve teaching, for the University teachers, whereas it provides feedback and a framework, for students, for the improvement in learning, which accelerate learning process, motivating them towards the desired outcomes. Examination not only guides students to do systematic learning but also encourages them to learn effectively. It is almost impossible for the students to imagine education without checking results which are ultimate outcome of examination process. As such, the examination result is synonym of education. Examination guides the students in organizing their knowledge and minimizing their mistakes. It helps them in developing their effectiveness in learning, in directing them towards needed actions for further development, in determining their level of achievement and in acquiring satisfaction by achieving the desired outcome.

To fulfil all these objectives, examination process should be fair, clear and holistic. It should provide appropriate feedback; serve as a reward, as a motivation, and as an encouragement for enhancing their knowledge and skills. However, the students' perception of the process and their expectations from the University Examination are wide and varied. The Primary aim of this study is to collect empirical data on different phases of examination process in a Technical University in Rajasthan, for studying gaps if any between the students' expectations and perceptions with regards to the characteristics of examinations process of the chosen Technical University, overall quality of evaluation process of the same university considering its tangible, reliability, responsiveness, assurance and empathy dimensions.

A. Type of Examinations conducted by Universities

Universities in the State of Rajasthan, India have different weightages and patterns of Internal and External Evaluations. Some even have decentralized the examination process, and the semester examinations are conducted by the colleges on their own. Therefore, every University contains a distinctive examination method that is formed on the basis of University Rules, limitations, characteristics, resources accessible etc. However, Universities typically conduct the following types of examinations:

1) Semester Examinations:

Universities follow a semester system wherein an academic year is divided into two terms. The final assessment is on the basis of:

1) Internal Assessments, which is conducted by the respective colleges and Universities Departments through periodic tests, quizzes etc.
2) External/ University End Semester Examination, which is conducted by the Universities.

2) Annual Examinations:

Annual Examinations are usually conducted by the University at the completion of an academic term/ semester. The objective of these examinations is to make a final review of the topics covered and assessment of each student's knowledge of the subject at end of the academic term/ semester.

3) Supplementary Examinations:

Supplementary Examinations are conducted to provide second chance to students who have failed to qualify in the main exams due to various reasons, such as failure to get minimum passing marks in Theory/ Practical examination of a paper, failure to appear in any Theory or Practical examination on medical grounds etc. The Students, who were debarred from appearing in examination due to shortage of attendance in Theory/ Practical, may appear for Supplementary examination if they attend the classes in that particular paper.

The research is primarily focused on the typical process of Examinations in an affiliating University which is prevalent in majority of the Universities, in the State of Rajasthan.

B. Examination Process

A typical examination process of a Technical University consists of three comprehensive phases:

1) Pre-Examinations Phase

This phase consists of activities like notification of examinations centers, fee structure, examination schedules etc. to students, Issue of Examination Application Forms, Generation of hall tickets, Setting Questions Papers, Printing Question Papers/ answer sheets etc.

2) Examination Phase

The question papers are issued to the candidates at the appointed time. Unused question papers are returned to the University. The Candidates answer the questions on the Answer sheets provided by the Examination Centers.

3) Post-Examination Phase

This phase typically involves activities such as the evaluation of Answer Sheets, Processing of Results, Redressal Mechanism (Reevaluation), and awarding Degrees etc. The research is focused on all the three phases of Examinations in an affiliating University in the State of Rajasthan.

II. Review of Literature

Service quality has different meaning for different researchers. It is judgment of customers/ clients regarding overall performance of a service of the organization and its services (Palli & Mamilla, 2012), a measure of how the delivery service level matches customer's expectations (Kang et al., 2002), and the difference between what a student/ customer expects to receive and his/her perceptions of actual delivery (Parasuraman et al., 1990; O'Neill & Palmer 2004). The applicability of service quality in educational sector and the concept of measuring service quality are relatively new areas in research but it attracted the interest of many theorists and researcher (Sherr & Lozier, 1991; Edwell, 1993; Tribus, 1994; Arambewela & Hall, 2006; Rajasekhar et al., 2009; Prasad & Jha, 2013; Gopalakrishnan, 2014).

The SERVQUAL Instrument is one of the most widely used service quality instrument based on the gap model of service quality which describes service quality depends on the gap between customers' expectations of a service and their perceptions of the actual service delivery by organization (Parasuraman et al.,1988,1991,1994). Several research studies use SERVQUAL framework to find customer satisfaction, service quality, gaps in customer perception and expectation in different fields like healthcare services (Butt & Cyril de Run, 2008; Suki et al., 2011; Ramez, 2012; Markovic et al., 2014; Chakraborty & Majumdar, 2011), in hotel and tourism sector (Babakus & Boller, 1992; Debasish, & Dey, 2015), in Banking, Insurance and Finance sector (Lewis, 1993; Nam, 2008; Ladhari, 2009) and in other service sectors, which establishes that SERVQUAL is an effective model for measuring service quality in numerous sectors.

In educational services, students evaluate the quality of organization on the basis of their ability to achieve success in the competitive market (Crawford & Shutler 1999), teachers' ability, excellence, coordination and reasonability and their influence on students' class performance (Sproule, 2000), by appropriate facilities of learning and infrastructure (Alridge & Rowley, 2001), by tangibility (teachers), reliability and responsiveness, methods of teaching and management of the institution (Navarro et al., 2005), by its trained staff members are in a way that may create a sense of facilitation and their coordination, cooperation, compassion and empathy (Hasan et al. 2008; Jacoby & Chestnut, 1978).

Students are key stakeholders in education (Kasetwar, 2008). The knowledge of how students perceive or expect quality of educational services, may contribute a great deal in improving the quality of educational and academic services in Universities and Institutions across the world (Gopalakrishnan, 2014). Hence, service quality, its measurement and its subsequent management become an issue of utmost importance. Service quality is linked directly with student satisfaction. Students are conscious of the quality and continuous improvement in the staff and examination system. Therefore, the concept of finding quality of evaluation and examination system of educational services through SERVQUAL dimensions is a very useful and significant effort in any Indian University.

There is limited literature available for assessing quality of evaluation system of educational services using the SERVQUAL model. Consequently, this study may be used as a guide for academic institutions and universities in improving the quality of services they offer after identifying the quality gaps in their evaluation system as this research paper aims to analyze the quality of existing examination phases, taking into consideration perception and expectations of students pertaining to evaluation process in education services. Using SERVQUAL tool designed for finding gaps in service quality, this paper studies students' perspective and identifies quality gaps in evaluation process at Technical University level.

III. METHODOLOGY

A. Study Design

A survey was conducted to test a modified SERVQUAL model in a Technical University. The model was used to measure students' (customers') expectations against the University examination's actual (service) performance in three phases, pre-examination, exanimation and post-examination for the five dimensions: Tangibles (physical facilities, equipment, appearance of staff, etc.), Reliability (capability to provide the promised service truthfully and reliably), Responsiveness (inclination to provide prompt service and help the students), Assurance (politeness and acquaintance of staff and ability to convey confidence and trust) and Empathy (attention provided to individual care). The data consisted of First year Technical students' responses to closed-ended questions about their expectations and perceptions of the three phases of the University Examination.

B. Sample Design

Students of B.Tech First Year, II Semester enrolled for the Session 2016-17 were the study population. They belonged to Electrical Engineering, Electronics Engineering and Electronics and Communication Engineering. From 640 students who are enrolled in the First year, twenty percent of the technical students were selected for the exploratory study, and their expectations and perceptions of examination service quality provided by the University was analyzed.

The aim was to explore whether a modified SERVQUAL tool can be used to identify the gap between expectations and perceptions of the examination services provided to the students, thereby forming the basis for crucial improvements in the various phases of the examination.

C. Research Questions

For the purpose of this research the following research questions were formed:

Modified SERVQUAL model can be used for measuring service quality the Examination Department of Technical University, in order to determine in which areas improvements are necessary and should be made, in order to increase the perceived quality of the service provided to students.

There is a negative gap between student expectations and perceptions of service quality in the University Exanimation.

There is a negative gap in the service quality in the three phases of the University Examination i.e. Pre-examination, Examination and Post-examination.

D. Instrument to Measure Service Quality of Examination

A modified version of SERVQUAL questionnaire developed by (Parasuraman et al.,1988) was used for measuring the quality of Examination of Technical Universities. The meaning of service quality adopted for the study was "the degree of discrepancy between customers' normative expectations for service and their perceptions of the service performance" (Parasuraman et al., 1988). Students were asked to rate statements that would measure their expectations of the services provided by an ideal University Examination. Subsequently, the students were instructed to rate another set of statements that measured their perception of the actual services delivered to them.

The survey instrument (modified questionnaire) consisted of three sections:

1) Demographic data about the respondents (name, roll number, branch, section, year of study, gender, medium etc.
2) Statements focused on student expectations of from an ideal examination system in general, and
3) Statements focused on student perceptions of service quality of examination in Technical University in Rajasthan.

Dimensions	Variables/ items
Tangibles	1-4
Reliability	5-9
Responsiveness	10-13
Assurance	14-17
Empathy	18-22

Table 1: Dimensions and structure of the Modified Questionnaire

Dimension related to tangibles included items 1 to 4 and scrutinized physically tangible and visible assets essential for providing examination service, for example, equipment, infrastructure, ICT infrastructure, examination materials e.g. admit cards etc. Dimension related to reliability was represented by items 5 to 10 and examined the ability to deliver the promised service accurately and dependably, for example, to resolve student problems, evaluation and revaluation process etc. Third dimension, responsiveness, included items 11 to 13 and examined the attention directed towards students in order to provide prompt service. Dimension related to assurance, items 14 to 19, analyzed understanding and politeness of staff and invigilators, and examiners and their skill to deliver their services with utmost reliance and confidence. The last dimension, empathy, included items 20 to 25 and was related to individual attention and care which was provided to students and their specific needs during the entire process of the University examination.

These items were drafted to find the quality pertaining to all the three phases. They were pre-tested for wording, layout and comprehension. This specifically developed instrument based on the content was used to evaluate the service quality concerning the three different phases of the Examination System.

E. Procedure

For the study, a 7-point Likert scale (as in the original model) was used, although some researchers have adapted the tool and used a 5-point Likert scale. The scale was defined so that Strongly Agree is coded as 7, and Strongly Disagree as 1. To facilitate answers, an instruction page was prepared and the students were directed to fill the questionnaire. As such, the students were given both verbal and written instructions. After data collection, the data was analyzed using descriptive statistics before it was used in accordance with the SERVQUAL methodology to identify the gap between students' expectations and perceptions. Negative SQ indicates that the University examination has not met the students' expectations.

F. Statistical Analysis

Descriptive statistics including mean, mode, median, standard deviation (SD), paired t-test was utilized to analysis the results and the study data were analyzed by SPSS 23. Mean scores of perceptions and expectations were utilized to judge about students' expectations and perceptions of educational service quality.

The gap score was calculated using SERVQUAL equation:

Service quality (Q) = perception (p)-expectation (E)

G. Demographic Data

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	24	17.8	17.8	17.8
	Male	111	82.2	82.2	100.0
Medium of education	English	94	69.6	69.6	69.6
	Hindi	41	30.4	30.4	100.0
Area	rural	54	40.0	40.0	40.0
	urban	81	60.0	60.0	100.0
Age	16	1	.7	.7	.7
	17	21	15.6	15.6	16.3
	18	36	26.7	26.7	43.0
	19	54	40.0	40.0	83.0
	20	18	13.3	13.3	96.3
	21	5	3.7	3.7	100.0

Table 2: Demographic Data of Participants

The sample consisted of 135 students from First Year, Bachelor of Technology. Among the participants, 24 (17.8%) were female and 111 (82.2%) were male. Ninety four (69.6%) were from English medium background and 41 (30.4%) were from Hindi medium. Fifty four (40%) were from rural areas of Rajasthan and 81 (60%) were from urban. The mean age of the participants in the study ranged from 16-21 years.

IV. Findings and Results

A. Findings:

The statistical package, IBM SPSS (23.0), was used to analyze the data received from the questionnaire. To enable ease of data entry, questions were pre-coded. Data were analyzed using descriptive statistics. The results of the descriptive statistical analysis of the scales of expectations and perceptions are presented in Tables 3 and 4. As seen, the arithmetic mean on the scale of expectations is between 6.474 and 6.637 for the 22 variables, which is measured very high on a 7-point scale.

Code	Items	N		Mean	Std. Error of Mean	Mode	Std. D	Min	Max
		Valid	Missing						
TAN 1	1. The physical facilities and equipment, and infrastructure related to examination will be modern looking.	135	0	6.563	.0610	7.0	.7082	4.0	7.0
TAN 2	2.Materials associated with examination like paper quality, Degree, Printing etc. will be visually appealing	135	0	6.585	.0598	7.0	.6952	4.0	7.0
TAN 3	3. Adequate ICT infrastructure required for proper conduct of examination will be available.	135	0	6.548	.0544	7.0	.6315	5.0	7.0
TAN 4	4. Physical Environment and atmosphere of the exam hall will be appropriate and appealing.	135	0	6.600	.0699	7.0	.8122	2.0	7.0
REL 1	5. Detailed information pertaining to examinations centers, fee structure, examination schedules Examination Application Forms, hall tickets, Questions Papers etc. will be given to the students,	135	0	6.563	.0670	7.0	.7785	2.0	7.0
REL 2	6. Services pertaining to evaluation will be delivered at the promised tie, without delay in assessment.	135	0	6.481	.0910	7.0	1.0570	1.0	7.0
REL 3	7. The Staff members will provide clear instructions and accurate information.	135	0	6.622	.0545	7.0	.6332	4.0	7.0
REL 4	8. Problems and grievances related to evaluation and re-evaluation will be solved with interest and dedication.	135	0	6.467	.0778	7.0	.9044	1.0	7.0
REL 5	9. The work of the department like Paper setting, editing and printing etc. will be error free	135	0	6.548	.0711	7.0	.8261	3.0	7.0
RES 1	10. The Staff members will inform the students when the services are performed, thereby eliminating the need for multiple visits	135	0	6.519	.0603	7.0	.7002	4.0	7.0
RES 2	11. The Staff will apply consistent grading criteria, making examination and evaluation result promptly available.	135	0	6.407	.0782	7.0	.9085	2.0	7.0

RES 3	12. The Staff of the department will be helpful and supportive.	135	0	6.600	.0615	7.0	.7145	3.0	7.0
RES 4	13. The Staff of the department will respond promptly to the requests.	135	0	6.496	.0647	7.0	.7519	3.0	7.0
ASS 1	14. The examination system will infill confidence that there will be no malpractices.	135	0	6.519	.0727	7.0	.8451	2.0	7.0
ASS 2	15. The Staff members will make you feel safe and confident in interactions.	135	0	6.615	.0604	7.0	.7017	3.0	7.0
ASS 3	16. The Staff members will be consistently courteous, polite and well trained to perform exam related duties.	135	0	6.541	.0554	7.0	.6437	4.0	7.0
ASS 4	17. The Staff members will be well-informed about time and process of exam, having adequate experience thereby reducing the chance of inadvertent mistakes.	135	0	6.637	.0532	7.0	.6182	3.0	7.0
EMP 1	18. The examiners and invigilators will give individual attention.	135	0	6.267	.0788	7.0	.9159	3.0	7.0
EMP 2	19. The Staff members will be readily available during working hours.	135	0	6.511	.0672	7.0	.7810	2.0	7.0
EMP 3	20. The Staff members will show sympathy and give personal service.	135	0	6.289	.0860	7.0	.9990	2.0	7.0
EMP 4	21. The Staff members will have your best interest at heart.	135	0	6.474	.0696	7.0	.8088	3.0	7.0
EMP 5	22. The Staff members will understand your specific needs.	135	0	6.341	.0730	7.0	.8479	3.0	7.0

Table 3: Descriptive Statistics of Expectations of the Technical Students

Question 17, which refers to the assurance dimension, obtained the highest score of 6.637 on the expectations scale, and question 18, which refers to the empathy dimension, obtained the lowest average of 6.267 on the same scale. Based on all the obtained averages for all the dimensions, it is obvious that students' expectations regarding these services are high. The most frequent grade (mode) is 7.

Code		N		Mean	Std. Error of Mean	Mode	Std. D	Min	Max
		Valid	Miss-ing						
TAN 1	1. The physical facilities and equipment, and infrastructure related to examination were modern looking.	135	0	4.815	.1031	5.0	1.1982	1.0	7.0
TAN 2	2. Materials associated with examination like paper quality, Degree, Printing etc were visually appealing.	135	0	5.141	.1058	6.0	1.2288	1.0	7.0
TAN 3	3. Adequate ICT infrastructure required for proper conduct of examination were available.	135	0	5.044	.1175	6.0	1.3652	1.0	7.0
TAN 4	4. Physical Environment and atmosphere of the exam hall were appropriate and appealing.	135	0	4.504	.1279	5.0	1.4856	1.0	7.0
REL 1	5. Detailed information pertaining to examinations centers, fee structure, examination schedules Examination Application Forms, hall tickets, Questions Papers etc. were given to the students,	135	0	4.941	.1247	5.0	1.4495	1.0	7.0
REL 2	6. Services pertaining to evaluation were delivered at the promised tie, without delay in assessment.	135	0	3.644	.1582	5.0	1.8385	1.0	7.0
REL 3	7. The Staff member provided clear instructions and accurate information.	135	0	4.578	.1259	5.0	1.4633	1.0	7.0
REL 4	8. Problems and grievances related to evaluation and re-evaluation were solved with interest and dedication.	135	0	3.985	.1330	4.0	1.5453	1.0	7.0
REL 5	9. The work of the department like Paper setting, editing and printing etc. was error free	135	0	3.911	.1373	3.0	1.5951	1.0	7.0
RES 1	10. The Staff members informed the students when the services are performed, thereby eliminating the need for multiple visits.	135	0	4.200	.1437	5.0	1.6697	1.0	7.0

RES 2	11. Information related to examination and evaluation was assess-able promptly.	135	0	3.696	.1431	3.0	1.6629	1.0	7.0
RES 3	12. The Staff of the department were helpful and supportive.	135	0	4.770	.1147	5.0	1.3324	1.0	7.0
RES 4	13. The Staff of the department responded promptly to the requests.	135	0	4.511	.1266	5.0	1.4704	1.0	7.0
ASS 1	14. The examination system instilled confidence that there will be no malpractices.	135	0	4.726	.1277	5.0	1.4834	1.0	7.0
ASS 2	15. The Staff members made you feel safe and confident in interactions.	135	0	4.756	.1277	5.0	1.4836	1.0	7.0
ASS 3	16. The Staff members were consistently courteous, polite and well trained to perform exam related duties.	135	0	4.637	.1256	4.0	1.4589	1.0	7.0
ASS 4	17. The Staff members were well-informed about time and process of exam, having adequate experience thereby reducing the chance of inadvertent mistakes.	135	0	4.681	.1316	5.0	1.5291	1.0	7.0
EMP 1	18. The examiners and invigilators gave individual attention.	135	0	4.400	.1488	6.0	1.7286	1.0	7.0
EMP 2	19. The Staff members were readily available during working hours.	135	0	4.519	.1378	4.0	1.6015	1.0	7.0
EMP 3	20. The Staff members showed sympathy and give personal service.	135	0	4.437	.1421	5.0	1.6509	1.0	7.0
EMP 4	21. The Staff members had your best interest at heart.	135	0	4.333	.1253	4.0	1.4558	1.0	7.0
EMP 5	22. The Staff members understood your specific needs.	135	0	4.444	.1378	5.0	1.6007	1.0	7.0

Table-4: Descriptive Statistics of Perceptions of the Technical Student

From the descriptive table of students' perceptions (Table 4), the scale of perceptions ranges from 3.644 to 5.141 (as measured on the 7-point scale). The most frequent grade is 5 according to the mode, while standard deviation is in the interval between 1.1982 and 1.8385. Question 6, which refers to the reliability dimension, obtained the lowest average on the perceptions scale. Compared to the results in Table 3, it is evident that the students' expectations regarding reliability have not been met. The highest average was obtained on Question 2, which refers to the tangibility dimension and the appearance of materials associates with the examination for example paper quality etc.

Next, by using the modified SERVQUAL model, the service gap in five dimensions between expectations and perceptions of the services provided, from the students' point of view, was measured. The Table No. 5 presents a comparison of students' expectations and perceptions.

Dimension	Code No.	Expectation			Perception		
		Mean	Mode	Std. Dev.	Mean	Mode	Std. Dev.
Tangibles	TAN 1	6.563	7.0	.7082	4.815	5.0	1.1982
	TAN 2	6.585	7.0	.6952	5.141	6.0	1.2288
	TAN 3	6.548	7.0	.6315	5.044	6.0	1.3652
	TAN 4	6.600	7.0	.8122	4.504	5.0	1.4856
Average		6.574		.7117	4.876		1.3194
Reliability	REL 1	6.563	7.0	.7785	4.941	5.0	1.4495
	REL 2	6.481	7.0	1.0570	3.644	5.0	1.8385
	REL 3	6.622	7.0	.6332	4.578	5.0	1.4633
	REL 4	6.467	7.0	.9044	3.985	4.0	1.5453
	REL 5	6.548	7.0	.8261	3.911	3.0	1.5951
Average		6.536		.8398	4.212		1.5783
Responsiveness	RES 1	6.519	7.0	.7002	4.200	5.0	1.6697
	RES 2	6.407	7.0	.9085	3.696	3.0	1.6629
	RES 3	6.600	7.0	.7145	4.770	5.0	1.3324
	RES 4	6.496	7.0	.7519	4.511	5.0	1.4704
Average		6.505		.7687	4.294		1.5338
Assurance	ASS 1	6.519	7.0	.8451	4.726	5.0	1.4834
	ASS 2	6.615	7.0	.7017	4.756	5.0	1.4836
	ASS 3	6.541	7.0	.6437	4.637	4.0	1.4589
	ASS 4	6.637	7.0	.6182	4.681	5.0	1.5291
Average		6.578		.7021	4.700		1.4887
Empathy	EMP 1	6.267	7.0	.9159	4.400	6.0	1.7286

	EMP 2	6.511	7.0	.7810	4.519	4.0	1.6015
	EMP 3	6.289	7.0	.9990	4.437	5.0	1.6509
	EMP 4	6.474	7.0	.8088	4.333	4.0	1.4558
	EMP 5	6.341	7.0	.8479	4.444	5.0	1.6007
Average		6.376		.8705	4.427		1.6075
Total Average		6.514		.7786	4.502		1.5055

Table-5: Comparison- Expectation versus Perception

B. Dimensions

According to scores presented in Table No. 5, it is obvious that students have higher expectations than perception, which applies to all dimensions and determinants. The highest students' expectations are related to the dimensions Assurance, and the lowest to empathy. On the other hand, the Scores for students' perceptions are the highest for dimensions tangibility and lowest to reliability. Subsequently, the gap between expectation and perception was measured (Table No. 6).

Dimension	Expectation	Perception	
	Mean	Mean	Gap
Tangibility Average	6.574	4.876	1.698
Reliability Average	6.536	4.212	2.324
Responsiveness Average	6.505	4.294	2.211
Assurance Average	6.578	4.700	1.878
Empathy Average	6.376	4.427	1.949
Total Average	6.514	4.502	2.012

Table 6: Gap between Expectation and Perception

The overall averages for all dimensions of Technical students' expectations were higher than averages on the scale of perceptions. Thus, there was a negative quality gap for all of five SERVQUAL dimensions. The negative quality gaps meant students' expectations exceed their perceptions, and it pointed to the presence of disappointment among them, indicating improvements are desirable across all dimensions, and all phases of the University Examination. These quality gaps point to the need for some measures need to be taken in order to improve the quality of examination.

1) Reliability:

The greatest negative quality gap was observed in the reliability, a dimension that indicates the ability to provide the promised services truthfully and reliably. The greatest negative quality gap in this dimension and its items indicated that problems and grievances related to evaluation and re-evaluation were not being solved with the interest and dedication, expected by the Technical students. Little attention was being paid to introducing suitable measures for providing detailed information pertaining to Examinations Centers, Fee Structure, Examination Schedules, Examination Application Forms, Hall Tickets, and Question Papers etc. to the students. Moreover, the errors in the department work were aggravating the students' dissatisfaction. There was clearly discernible a gap in providing clear instructions and accurate information to the Technical students with regards to the examination process.

2) Responsiveness:

Next dimension with the second largest negative gap was responsiveness, which was interconnected with staffs' thoughtfulness and understanding towards students, in providing prompt services and responding to their students' needs, thereby eliminating the need for multiple visits by the students. Given the viewpoints of most students, there was a lack of promptness in making the results available and delay in responding to the students' requests.

3) Empathy and Assurance:

The presence of gaps with regards to the next two dimensions empathy, concerned with the conduct of the examination staff towards the Technical students and assurance, related to the quality of the staff, their knowledge and competencies, both indicate the need for more individual attention to the students' need, display of more sympathy and support and availability during working hours. The research results indicated that the staff did not provide a satisfactory service to the Technical students; as such the University may invest more in the training of the staff.

4) Tangibility:

The lowest gap observed by the students was in the dimension, Tangibility, which implies the need for modernization of the physical facilities, equipment, infrastructure and ICT infrastructure related to the examination, and the use of modern information and communication technologies, as well as enhancing the appeal of the examination halls and atmosphere and improving the quality of materials used in examination.

This leads us to the conclusion that students perceive the quality of material resources and visual appearances were at their best. It is generally considered that the smaller the gap, the better is the service quality. But, based on empirical evidence and the t-test, it is confirmed that the mean gap can be considered statistically significant for each determinant and dimension and examination phase. For students'' satisfaction, the University should take appropriate actions in all dimensions of examination services provided by it.

C. Examination Phases

Paired samples statistics Table No. 7 was used to compare the quality of service to see if there were any statistically significant differences in different phases of the examination process. The paired samples statistics was used to test the significant mean difference (gap) between students' expectations and perceptions of service quality of different phases of the University examination. Paired t-test confirmed that there is a statistically significant difference between average ratings of expectations and perceptions by the students, suggesting that respondents are aware of the deficiencies in all the phases of the examination and the need for improvement in each and every phase of the University Examination process.

Item No.	CODE No.	Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. D.	Std. Error	95% Confidence Interval of Diff.			

				Mean	Lower	Upper			
Pair 1	TAN 1	1.7481	1.3085	.1126	1.5254	1.9709	15.523	134	.000
Pair 2	TAN 2	1.4444	1.3364	.1150	1.2170	1.6719	12.558	134	.000
Pair 3	TAN 3	1.5037	1.3976	.1203	1.2658	1.7416	12.501	134	.000
Pair 4	TAN 4	2.0963	1.7908	.1541	1.7915	2.4011	13.601	134	.000
Pair 5	REL 1	1.6222	1.5969	.1374	1.3504	1.8941	11.803	134	.000
Pair 6	REL 2	2.8370	2.2099	.1902	2.4609	3.2132	14.916	134	.000
Pair 7	REL 3	2.0444	1.6201	.1394	1.7687	2.3202	14.662	134	.000
Pair 8	REL 4	2.4815	1.7571	.1512	2.1824	2.7806	16.409	134	.000
Pair 9	REL 5	2.6370	1.8146	.1562	2.3282	2.9459	16.885	134	.000
Pair 10	RES 1	2.3185	1.8594	.1600	2.0020	2.6350	14.488	134	.000
Pair 11	RES 2	2.7111	1.9732	.1698	2.3752	3.0470	15.964	134	.000
Pair 12	RES 3	1.8296	1.4789	.1273	1.5779	2.0814	14.374	134	.000
Pair 13	RES 4	1.9852	1.6526	.1422	1.7039	2.2665	13.957	134	.000
Pair 14	ASS 1	1.7926	1.6212	.1395	1.5166	2.0686	12.847	134	.000
Pair 15	ASS 2	1.8593	1.6307	.1403	1.5817	2.1368	13.248	134	.000
Pair 16	ASS 3	1.9037	1.6248	.1398	1.6271	2.1803	13.614	134	.000
Pair 17	ASS 4	1.9556	1.6201	.1394	1.6798	2.2313	14.024	134	.000
Pair 18	EMP 1	1.8667	1.7653	.1519	1.5662	2.1672	12.286	134	.000
Pair 19	EMP 2	1.9926	1.6773	.1444	1.7071	2.2781	13.803	134	.000
Pair 20	EMP 3	1.8519	1.7768	.1529	1.5494	2.1543	12.110	134	.000
Pair 21	EMP 4	2.1407	1.6979	.1461	1.8517	2.4298	14.649	134	.000
Pair 22	EMP 5	1.8963	1.7758	.1528	1.5940	2.1986	12.408	134	.000

Table 7: Paired t-test

The Paired t-test showed a statistical significant difference between students' expectations and perceptions (ρ <0.000) in all items of the survey. In fact, students' expectations have not been met in any of University Examination Phases:

1) Gaps in the Pre-examination Phase:

As the above table reveals Pair No. 2, which corresponds to the Pre-examination phase showed the lowest gap with Mean difference of 1.4444, and S.D=1.3364. It may be safely stated that the students found the quality of the materials to be comparatively more satisfying than other items pertaining to different phases of the University examination under study. However, Pair No. 9, which measures service quality of the same examination phase, was the highest establishing the students' discontent with the pre-examination work of the department like Paper setting, editing and printing etc., which may not have been error free. Mean difference=2.6370, S.D=1.8146. Equally significant was the gap for the Pair 10, Mean=2.3185, S.D=1.8594, which reveals adequate information wasn't given to the Technical students' by the Staff members when the services would be performed. Due to this the students have to visit the University/ college multiple times for information for processing of application forms/ examination date/ syllabus etc. thus wasting their valuable time and efforts. They also need to wait in long queues to take examination forms/ deposit examination fee/ get hall tickets etc.

2) Gaps in the Examination phase:

The Pair No. 4, which is associated with services provided in the Examination phase, Mean=2.0963, S.D=1.7908, indicates the students' dissatisfaction with the Physical environment and atmosphere of the examination hall, in general. Pair No. 18 shows the invigilators didn't fulfil their responsibilities by giving individual attention to the students during the examination, while Pair No. 16 stresses the need for Staff being consistently courteous, polite and well trained to perform exam related duties. Equally noteworthy is the need for elimination of all forms of malpractices.

3) Gaps in the Post-examination Phase:

The highest difference in the means was seen for Pair 6, which refers to the Post-examination phase i.e. Mean=2.8370 and S.D=2.2099. According to the students' perception the services pertaining to evaluation weren't being delivered at the promised time; there was delay in assessment, evaluation and revaluation as well as a delay in information being made assessable promptly as seen by the gap in Pair No. 11, i.e. services related to the Post-examination phase. Similarly the Pair No. 8, corresponding with the Post-examination phase indicates service gaps with regards to solving the students' problems and grievances related to evaluation and re-evaluation with interest and dedication. As such it is clearly evident that Result Declaration is an area that affects students' perceptions. While University rules exist, the results may be delayed, due to numerous reasons such as the delays in the consolidation of marks owing to inconsistencies in internal marks, delays in subsequent rounds of evaluation, differences in marks/ lists etc.

The survey establishes that there were service gap in all phases of the examination as such suitable measure need to be taken and appropriate changes made to instill confidence in the students and dissipate their dissatisfaction.

D. Result: Overall Examination Service Quality Gap

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Diff.				
				Lower	Upper			

	Expectation - Perception	2.01200	.25371	.11346	1.69698	2.32702	17.733	4	.000

Table 8: Paired Samples Test

The research revealed the extent to which the University Examination delivered service conforms to the Technical students' expectations. From the Table, it is clear there was a statistically significant negative gap. Mean=2.01200, S.D=.25371 at p=.000, indicating the students' expectations in all three phases of the University examination exceeded their perception and the overall service quality of the University did not meet their expectations in any dimension.

V. Limitations of the Study and Scope for Further Studies

There are some limitations that need to be acknowledged regarding the present study. Firstly, there are several Universities, both Government and Private in the State of Rajasthan, such as Kota University, Rajasthan University, Rajasthan Technical University, Career Point University etc., which are governed by different Acts and have different structure of functioning, syllabus, etc.. Every University has different rules, ordinances, characteristics, mandates, resources (financial & human), structure etc. Universities in Rajasthan have different equipment, facilities and staff, and this study may not be the representative sample of the whole country. The Examination patterns of these Universities are also different; therefore, the same factors may not be applicable to all due to diversity within different University Examination Systems as such the study has limited generalizability because it was conducted in a single time period, with a limited number of students from one Technical University.

Another limitation of the study is that the sample size is small. It is suggested for future research the number of respondents may be increased. Other Universities may also may be included and a comparative study be conducted. Thirdly, the measurement technique in the present study was through self-rating questionnaires. Since, there is a great tendency among students to give responses that are socially acceptable, the genuine responses may not have been captured by these questionnaires. Fourthly, this study is cross-sectional in nature; hence further research through longitudinal studies needs to be conducted to confirm the results. However, the findings of this study may be useful for further research although they cannot be generalized to all. It is recommended that a qualitative analysis may also be conducted based on the research results in order to get a clearer insight into students' expectations and the service provided to them.

It should also be pointed out that retroactive inquiry of students' expectations might impact the research results therefore it is recommended that the students' expectations may be assessed when they enroll in a study program or at the beginning of the academic year. What also needs to be taken into consideration is that students' expectations and perceptions might be influenced by other factors and their expectations might change with the passage of time. Therefore, it is also recommended that service quality may be measured for each generation of students in order to determine whether there is any different in the expectations and perception of the students.

Another major limitation of the research is the use of the SERVQUAL instrument to evaluate the service quality of examinations conducted by the University and the internal restrictions of the SERVQUAL instrument itself. Moreover, the value of online questionnaires may be influenced by the respondents' inclination to respond to the items willingly and candidly. There are difficulties in proving these conditions were met.

This study scrutinized the student satisfaction and the gaps between the perceived service quality and expectation. Future research may also focus on analyzing perceived service quality differences by taking into consideration various other variables like students' gender, medium of education, family income, educational level etc. for assessing the service gaps. Research could investigate how aspects of service quality vary from University to University and region to region and from college to college.

VI. Conclusion and Recommendations

The study was conducted adopting a quantitative approach using a survey instrument for evaluating and assessing the service quality of examination system in a Technical University, in Rajasthan. The modified SERVQUAL model was used to estimate the existence of negative gaps between the Technical students' expectations and perceptions of services provided by the examination system of the Technical University. It may be concluded that the SERVAQUAL model after making necessary modifications may be satisfactorily used for assessing the service quality of the University examination system. Based on the research conducted, a negative gap between the Technical students' expectations and perception of the examination service quality was identified. However, a qualitative research may be conducted for further verifying the results and acquiring a clearer comprehension into the gaps in examination services provided to Technical students. Negative quality gaps in all phases of examination indicate that a methodical approach for quality improvement needs to be developed by the Technical University.

The examination is one of the chief responsibilities performed by the University; therefore its service quality has a direct impact on the overall image of the University. The researchers believe the University can benefit from the measurement of the service quality of the examination. The modified SERVQUAL model assisted in isolating the issues students faced with regard to the services received by them. Apparently, more detailed longitudinal and cross-sectional studies are needed to comprehend these issues properly, however the understanding of these issues and the responsible factors which affect the technical students' perceptions will enable the University Administration to better assess and improve the quality of the examination system throughout all three phases of examination. To maximize Technical students' satisfaction, following measures may be adopted:

1) Forming policies for improving overall quality of the examination system

2) Providing adequate infrastructure and human resources as required for the smooth conduct of the University Examinations.
3) Making adequate ICT Infrastructure available for the University examination.
4) Training the Staff to solve the problems of the students.
5) Ensuring adequate number of trained staff in examination Cell/ Division.
6) Taking appropriate measures to declare results on time.
7) Ensuring all examination related work is error free.
8) Taking stringent measures to avoid malpractices.

The evaluation of quality gaps between students' expectations and the actual perception regarding examination system can be useful to the University, not only in the State of Rajasthan but also in other States of the country. The modified SERVQUAL model may aid the University in analyzing and improving the examination system and making proper adjustments in service delivery to meet or surpass expectations in order to maximize students' satisfaction, thereby augmenting the University's image. Getting valuable and timely feedback from students may also help in policy making.

The study has immense implications as it provides invaluable feedback, which is needed from time to time, to assess, the infrastructure, staff and the examination systems to assimilate resources and derive value out of them. The findings presented show focus needs to be shifted to forming policies for improving overall quality of the examination system as well as refining all components of service quality, so as to deliver better quality services to the Technical students.

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