

---

# Research Students' Satisfaction in Jamshoro Education City

JAGUL HUMA LASHARI\*, ARABELLA BHUTTO\*\*, AND QAZI MUHAMMAD MOIN-U-DIN ABRO\*\*

RECEIVED ON 12.08.2013 ACCEPTED ON 16.07.2014

## ABSTRACT

This study is performed to identify and examine research students' satisfaction in three universities; US (University of Sindh), MUET (Mehran University of Engineering & Technology) and LUMHS (Liaquat University of Medical & Health Sciences) at Jamshoro Education City. Different service factors required for research students are identified and examined by using a triangulation technique (interviews) and quantitative approach (survey questionnaire). Data is analyzed by using descriptive analysis and chi-square test to obtain the required results. In total, 27 service factors related to research students' satisfaction, identified by interviews & literature review have been organized under three clusters: "University policies"; "University Services" and "Role of Supervisor". The survey analysis revealed that all identified factors are positively related to research students' satisfaction. Result identifies difference in the research students' experiences with respect to their characteristics including (enrolled university, financial resources, employment status). The comparison of different service factors also show differences in three clusters within the universities. The satisfaction of research students associated with "role of supervisor" were identified as most satisfying experience in comparison to "university policies" and "university services" of Jamshoro Education City. In the end, research has derived a new framework of SDC (Satisfaction for Degree Completion) framework to identify and examine the research students satisfaction.

**Key Words:** Research Students, Satisfaction, Jamshoro Education City, University Policies, University Services, Role of Supervisor.

## 1. INTRODUCTION

The sustainability and success of higher education institutions are greatly dependent on the students' satisfaction and this satisfaction helps the institutions to find out their strengths and weaknesses where they need improvement [1]. The institutions once identify their strengths and weaknesses through students' satisfaction can achieve sustainability and success [2]. Higher education

institutions are more focusing on delivering service quality to their students [3] because, in the 21st century the education sector is expanding very rapidly all over the world. Due to globalization and revolution of information technology a demand for new and varied disciplines in education has been created [4]. The increasing competitive environment has led to a number of higher education institutions to monitor and

---

\* Ph.D. Scholar, and \*\* Associate Professor,  
Mehran University Institute of Science, Technology & Development, Mehran University of Engineering & Technology Jamshoro

measure factors of students' satisfaction as an indicator of consistent quality with the total quality management approach [5].

### 1.1 Education Levels in Pakistan

Education system of Pakistan comprises of different education levels. The Pakistan Qualification Framework distributes twenty-one years of education in 8 different levels as shown in Table 1. This study focuses on the seventh level (17-18) of this framework [6].

TABLE 1. PAKISTAN QUALIFICATION FRAMEWORK (SOURCE: [6])

Education Level	Pakistan Qualification Framework (PQF) [Formal & Higher Education]			
	Years	Levels	Award Type	Award Example
Higher Education Level	21	8	Doctoral	PhD
	20			
	19			
	18	7	Masters	M.Phil/MS/MBA, M.Sc. (Eng), ME, March etc.
	17			
	16	6	Bachelor	BS, BE, B. Arch, BSc (Eng), BSc (Agri), MA/MSc (16 years), LLB, B. Com (Hons), MBBS, DVM, PharmD etc.
	15			
	14			
	13	5	Associate Ordinary Bachelor	BA/BSc (Pass), ADE, Associate Degree etc.
	12			
Intermediate Level	11	4	Higher Secondary School Certificate (HSSC)	F.A, F.Sc, ICS, I. com, DBA, D. Com etc.
	10			
Matriculation	9	3	Secondary School Certificate (SSC)	Metric
	10			
	2	Middle (3 years)		
	1	Primary (1-5 years)		
		Primary (1-2 years)		

### 1.2 Annual Growth of Postgraduate Degrees Enrollment in Pakistan

Enrollment in postgraduate degrees in both M. Phil and PhD level education is increasing annually as shown in Fig. 1. Therefore, higher education institutions require supporting policies, more faculty members and infrastructure annually to fulfill the postgraduate students' requirements [6].

### 1.3 Timely Degree Completion Rate in the Universities at Jamshoro Education City

The problem of less timely degree completion of postgraduate students has been identified in the universities in the Jamshoro education city by Lashari, et. al. [2]. The results show that from 417 enrolled students only 60 students have timely completed their postgraduate degrees [2], Detailed results are shown in Fig. 2.

The current study identifies and examines a level of research students' satisfaction leading towards timely

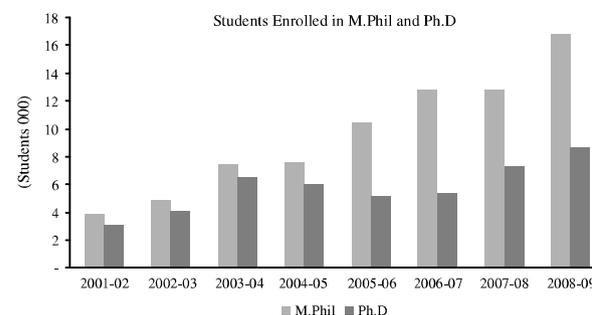


FIG. 1. POSTGRADUATE STUDENTS' ENROLMENT IN PAKISTAN (SOURCE: [6])

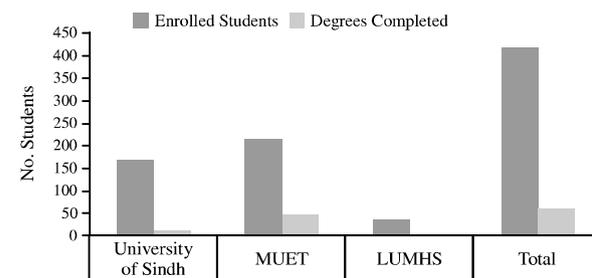


FIG. 2. COMPARISON BETWEEN RESEARCH STUDENTS' ENROLMENT AND TIMELY DEGREE COPLETION [2]

degree completion with respect to their characteristics including (enrolled university, financial resources, employment status) in the universities of Jamshoro education city. At the start, this study discusses the previous research done relevant to higher education and students' satisfaction. Methods of data collection, units of analysis followed by results and conclusions are also discussed. At the end, the study offers policy suggestions to universities and for future research and for stakeholders relevant to the higher education sector.

## 2. LITERATURE REVIEW

In the changing world, which is increasingly adding uncertainty, all higher education institutions should provide favorable responses to social needs and it has proven by the experiences that universities can provide better performance to the community if they have concerns of continuous improvement in the quality of their service [8]. It is very necessary because universities will be the core elements as we transit to the "new knowledge economy [8,9]. The quality of higher education institutions is directly related to research. Academic research conducted by students plays very important role in the scientific progress of any country. According to Oliveira [10], the quality of higher education is fundamental to a country's development because universities are the ones that prepare the professionals.

Universities provide the basis for dynamic competition of a country in the region and in the world, because universities are considered as the main measure of progress in the 21<sup>st</sup> century [11]. Service quality in a tertiary education can be measured by the five service quality dimensions; tangibles, reliability, responsiveness, assurance and empathy [9,12]. In addition, several other variables have also been identified in literature related to the student's satisfaction. The problem of less timely degree completion of postgraduate students has been identified in the universities of Jamshoro education city as shown in Fig. 2 [2].

This study will explore research students' experiences related to services provided by universities in the Jamshoro education city. The following section will focus in detail on factors of students' satisfaction in higher education institutions.

## 2.1 Students' Satisfaction

Students' satisfaction could be defined as abstract, affective in nature and variable intensity response centered on specific aspects of acquisition or consumption, which takes place at the precise moment when the object is evaluated by an individual [9]. Inputs of the educational institutional system are students, services of institution, financial resources and instructional resources [13]. Students' satisfaction is a short-term attitude that results from the evaluation of their experience with the education service received. The perceived higher education service quality could be the product of the number of service including encounter evaluations done by students while encountering with administrators, teaching staff, managers and other higher education employees [14].

Clearly service quality and customer satisfaction are key issues for universities competing at undergraduate and postgraduate level for home-based and international students [15]. Teaching staff are key actors in universities, therefore their behaviors and attitudes should be the primary determinant of students' perceptions of service quality in higher education [16]. In educational institutions, the trend of competition is also on the rise. In this environment, higher education institutions are focusing on their student's needs and expectations. The identified factors of students' satisfaction in higher education includes academic achievement, faculty performance, classroom environment, facilities provided by institution, and reputation of institutes [4-9]. Teacher expertise is the most important variable of students' satisfaction, followed by offered courses and learning environment and then the classroom facilities, proved by Butt and Rehman [4] as given in Fig. 3.

According to Hameed and Amjad [1], major constructs like education, social, technologies, economic, accommodation, safety, prestige, and image are the

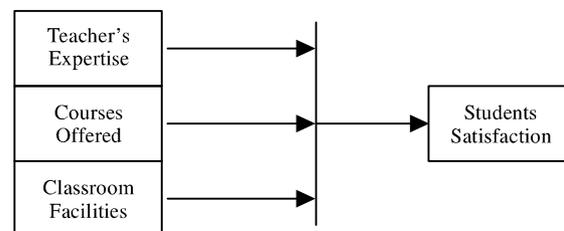


FIG. 3. CONCEPTUAL FRAMEWORK (SOURCE: [4])

significant predictors of postgraduate student's satisfaction [17]. The quality of lecture belongs to the most important variable in the provision of high quality education and the behavior. The attitude of a lecturer is the primary determinant of students' perception of service quality in higher education, because teaching staff are key actors in universities. If lecturers know what are their students' underlying expectations, then it should have a positive impact on their perceived service quality and their factors of satisfaction [16]. The satisfaction of university students based on the link of faculty, advising staff and the classes, the following conceptual framework is proved by Hameed & Amjad and is given in Fig. 4.

Satisfaction is related to experience of students in institutions and student experience can affect and depend upon the faculty, advising staff and the environment of classes. If the student experience is positive then they are satisfied with the institution [18]. Teaching and learning is not something that occurs solely in classroom or under the tutor's direct supervision, so it can be said that the overall student experience is becoming ever more central to the students' attitude to the institution [19]. After discussion of literature, next section will explore the theoretical and conceptual gaps followed by the research objectives.

### 3. GAPS IDENTIFIED IN LITERATURE

The available literature in context of satisfaction of university students on quality education, service provision, and students' satisfaction in higher education has identified lack of published research work with regard to identification, assessment &

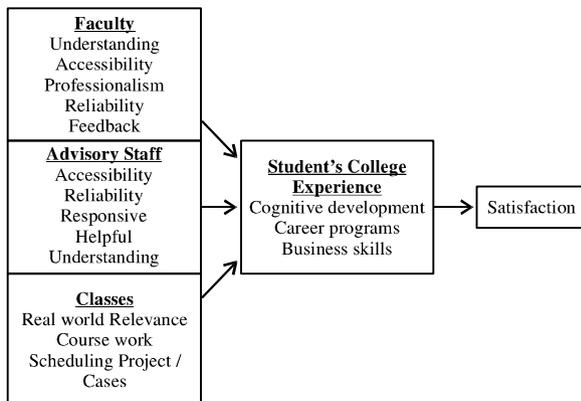


FIG. 4. CONCEPTUAL FRAMEWORK (SOURCE: [1])

comparison of factors related to research students' satisfaction for degree completion. Though universities conduct students' experience survey but only during the course work, no any research has been conducted pertaining to research experiences of research students in the universities at Jamshoro education city at postgraduate research level. Different researchers have worked related to students satisfaction in Australia, United Kingdom and in other developed countries of the world although these provide the knowledge but these findings might not pertain precisely to universities in Pakistan, as a postgraduate education service provider, because there are many cross-cultural different perceptions about service quality.

### 4. RESEARCH OBJECTIVES

Objectives of this research are to identify factors related to research students' satisfaction & leading towards their degree completion in the three public sector universities offering degrees in different disciplines located at same geographical location. To examine most research students' satisfying & dissatisfying factors. To make comparison of performance of three public sector universities and exploration of difference in the experiences of research students with respect to their characteristics (type of research, funding body, employment status, etc.) in the universities of Jamshoro Education City. Achievement of these objectives may offer fruitful results to research students studying in postgraduate degree programs in higher education institutions offering postgraduate research degrees and to policy making organizations.

### 5. SCOPE OF STUDY

The universe of this study is higher education sector of Pakistan and particularly Jamshoro Education City comprising the three public sector universities; US, MUET, and LUMHS, Jamshoro. This area of study has been selected because all three universities offer degrees in different disciplines as engineering, medical sciences, and multi-discipline with research work. The targeted population is all MS-MPhil-ME students. Population comprises of 417 research students in the universities at Jamshoro education city. The study focuses on identifying and examining research students' satisfaction for their degree completion. Therefore, students of same academic session in the three universities have been chosen to understand their experiences related to performance of universities.

## 6. RESEARCH METHODOLOGY

The triangulation approach by using both qualitative and quantitative research methods through interviews and research survey has been chosen for this research study. Two types of research methods can be used in the same research project effectively to explore all the required facts, as a researcher can use some form of quantitative results to validate one's qualitative analysis [18]. To explore the required service factors, 12 interviews were conducted with the selected research students from all the three universities at Jamshoro education city. Four research students were selected for interviews from each university, selection of participants was on the basis of two different criteria. First the gender of students as two males and two females from each university were selected. Second the degree completion criteria as two have completed their degree and two who were still in progress.

The questionnaire was comprised of 41 items, starting with demographic questions in section 'A', then questions related to service factors. Different service factors identified from literature review and interviews have been placed in three broad categories (university policies, university services, and role of supervisor) asked by making different statements. At the start in section 'B' questions were asked from respondent to answer according to their experiences to all statements "My University offers....," "My University provides.....," followed by the list of 27 statements. Respondents were asked to specify their experiences on 5-point Likert scale ranging from "strongly agree" (1) to "strongly disagree" (5), for all the questions of second part of the questionnaire. At the end, survey questionnaire comprised of two different open ended questions for exploring most satisfying and most dissatisfying experiences of the research students.

The contact details of all required research students were collected from universities' administration offices. For the survey of this research study, 159 students have been contacted and survey questionnaires have been sent to all. The number of contacted students, occupies 38% out of total population. Quantitative data analysis have been done by using SPSS (Statistical Packages for Social Sciences) version 19 by performing descriptive analysis, reliability test, and chi-square test analysis and by making charts to obtain the required results.

## 7. FRAMEWORK FOR IDENTIFYING & EXAMINING FACTORS RELATED TO RESEARCH STUDENTS' SATISFACTION

Literature have identified several service factors required for research students. The following SDC framework for identifying factors related to research students' satisfaction for their degree completion, shown in Fig. 5 is based on literature review and interviews conducted in this research. Identified factors of satisfaction are then categorized according to their relevancy with each other to obtain universities' service quality as, student's experience in institute is based on student's encounter with faculty, advising staff, environment and interaction in the classrooms [16]. The SDC framework helps to identify & examine satisfaction of research students of different demographic characteristics as, Enrolled University (SU, MUET, LUMHS,), Research Setting (Lab based, Library based, Field based), Financial Resources (Self, Family, Scholarship); Employment Status (Employed, Unemployed); Working Organization (University, Industry, Others), all identified factor placed in three clusters(C), University Policies (C1), University Services (C2), Role of Supervisor (C3), containing 27 service factors (F) are discussed below.

The C1 (First Cluster) comprises of group of 10 factors related to university policies for research students including: "offering standard, reputable and high scope degree program" (C1-F1), "offering courses and contents suitable to needs and aspiration (C1-F2)", "offering degree programs at affordable charges (C1-F3)", "offering modern and facilitated classrooms (C1-F4)", "offering best teaching and learning environment (C1-F5)", "quick & scheduled time frame for course and research work (C1- F6)", "offering quick and scheduled time for assessment of course and research work (C1-F7)", "offering enough time to complete

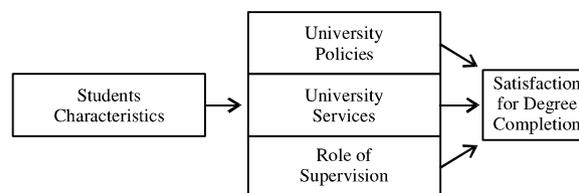


FIG. 5. SDC FRAMEWORK FOR IDENTIFYING AND EXAMINING RESEARCH STUDENTS' SATISFACTION FOR DEGREE COMPLETION

masters degree (C1-F8)", "offering high qualified, experience, supportive & engaging teaching staff on regular access (C1-F9)", and "offering supportive and consulting administrative staff (C1-F10)".

The C2 (Second Cluster) comprises of 12 factors related to university services. Factors of this cluster include: "provision of key equipment (C2-F1)", "provision of required research material (C2-F2)", "provision of required articles-books collection (C2-F3)", "access of library (C2-F4)", "good operating hours of library (C2-F5)", "provision of modern and adequate computers (C2-F6)", "internet access at good operating hours (C2-F7)", "provision of proper transport facility (C2-F8)", "arrangement of language courses- seminars and workshops for advancement of knowledge (C2-F9)", "provision of book shops (C2-F10)", "printing facility with easy access at reasonable cost (C2-F11)", and "provision of standard accommodation at reasonable cost (C2-F12)".

The C3 (Third Cluster) comprises of 5 factors related to role of supervisor, cluster include: "provision of experienced supervisor (C3-F1)", "regular and effective meetings with supervisor (C3-F2)", "supervisor guidance for literature and research methods (C3-F3)", "supervisor help to make co-ordination between industry-organization required for the research (C3-F4)", and "monitoring of research by supervisor (C3-F5)". The SDC framework helps to investigate all factors of satisfaction based on research students' experiences to identify most satisfying and dissatisfying service factor, and compares research students' experiences with respect to different characteristics to suggest future policies for satisfaction and degree completion of research students in universities at Jamshoro Education City.

## **8. DATA ANALYSIS AND RESULTS**

### **8.1 Reliability Analysis**

The internal validity of survey questionnaire has been confirmed by applying reliability test. Internal validity of items has been examined for different service factors grouped in three broad service clusters. Results are obtained with the analysis of Cronbach's alpha. Reliability test results are given in Table 2. The Table 2 shows that all factors of satisfaction, included in three clusters designed in the questionnaire have interrelation with high alpha-coefficient. For C1 the value is 0.883, While C2 shows 0.861 reliability score and the C3

shows 0.933 score of alpha coefficient. All values are larger then 0.8 Cronbach's alpha coefficient standard value, which shows internal validity of the instrument used in the research study.

### **8.2 Assessment of Research Students' Satisfaction**

All identified factors included in the three clusters related to research students' satisfaction were examined on the basis of research students' experiences. Result shows that all identified service factors are related to satisfaction for degree completion of the research students in the universities of Jamshoro education city. Results related to factors included in C1 "university policies" shows that research students experiences related to factor "offering degree programs at affordable charges (C1-F3)" is at the highly satisfying level with mean value of 1.79. While, factor "offering modern and facilitated classrooms (C1-F4)" shows less satisfaction with mean value of 2.63 than the other factors included in cluster (C1).

University services also play very important role in the students' satisfaction. The different identified factors of satisfaction related to university services are grouped together in cluster (C2). Amongst all "good operating hours of library (C2-F5)" factor shows satisfaction of research students with mean value of 2.02. While "printing facility with easy access at reasonable cost (C2-F11)" factor shows mean value of 3.07 and factor "provision of standard accommodation at reasonable cost (C2-F12)" shows mean value of 3.24. Overall, shows experiences of research students near to dissatisfaction.

Best supervision is also necessary for research students, experiences of students related to "role of supervisor" has been examined in cluster (C3). The results show high level of satisfaction of research students with factor "supervisor guidance for literature

**TABLE 2. RELIABILITY TEST VALUE OF SURVEY INSTRUMENT**

Clusters Designed in Research Survey Questionnaire	Cronbach's Alpha Value
Cluster 1 (C1) University policies and facilities (10 Factors)	0.883
Cluster 2 (C2) University services (12 Factors)	0.861
Cluster 3 (C3) Role of supervisor (5 Factors)	0.933

and research methods (C3-F3)” at mean value of 1.01, and experiences related to factor “supervisor help to make co-ordination between industry-organization required for the research (C3-F4)” at mean value of 1.27 shows less satisfaction then other factors included in cluster (C3) related to role of supervisor. Results in detail with mean values, standard deviation of all factors included in three clusters are shown in Table 3.

### 8.3 Comparison of Research Students' Satisfaction

All identified service factors of three clusters have been grouped together by computing the mean values of all variables to make comparison between the three service clusters and to identify the difference in the service provisions of the three selected universities. The factors included in cluster 3 related to “Role of Supervisor” shows high satisfaction then the other two clusters. Fig. 6 shows variation within services of all three universities of Jamshoro Education City.

Particularly research students of University of Sindh

are less satisfied with university policies then infrastructure facilities and supervision. The research students of MUET are more satisfied with supervision and universities policies but are facing problems related to infrastructure. Supervision and infrastructure facilities shows more satisfaction at LUMHS then the university policies related to research students.

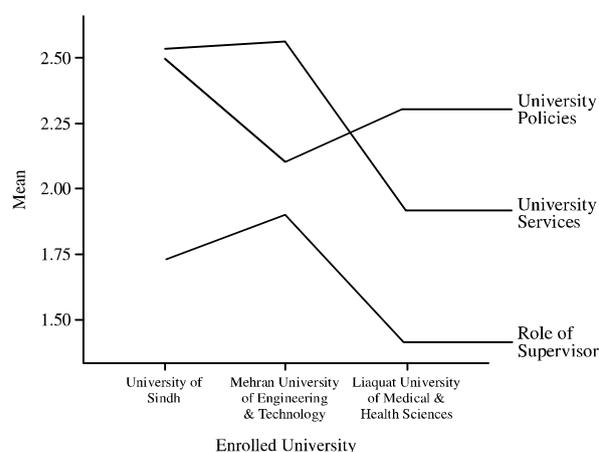


FIG. 6. COMPARISON BETWEEN CLUSTERS AND UNIVERSITIES

TABLE 3. RESEARCH STUDENTS' SATISFACTION

Cluster-1 University Policies												
No. Factors	C-1 F-2	C-1 F-2	C-1 F-3	C-1 F-4	C-1 F-5	C-1 F-6	C-1 F-7	C-1 F-8	C-1 F-9	C-1 F-10	C-1 F-10	
Minimum	1	1	1	1	1	1	1	1	1	1	1	
Maximum	5	5	5	5	5	5	5	5	5	5	5	
Mean	2.22	2.11	1.79	2.63	2.22	2.31	2.54	2.17	2.17	2.53		
Standard Deviation	1.16	1.09	1.03	1.12	1.15	1.20	1.24	1.26	1.24	1.28		
Cluster-2 University Services												
No. Factors	C-2 F-1	C-2 F-2	C-2 F-3	C-2 F-4	C-2 F-5	C-2 F-6	C-2 F-7	C-2 F-8	C-2 F-9	C-2 F-10	C-2 F-11	C-2 F-12
Minimum	1	1	1	1	1	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5	5	5	5	5
Mean	2.59	2.46	2.52	2.46	2.02	2.43	2.21	2.27	2.11	2.66	3.07	3.24
Standard Deviation	1.40	1.33	1.20	1.27	1.12	1.29	1.20	1.26	1.21	1.35	1.55	1.70
Cluster-3 Role of Supervisor												
No. Factors	C-3 F-1			C-3 F-2			C-3 F-3			C-3 F-4		C-3 F-5
Minimum	1			1			1			1		1
Maximum	5			5			5			5		5
Mean	1.70			1.88			1.68			1.94		1.78
Standard Deviation	1.18			1.18			1.10			1.27		1.15

### 8.4 Difference between Research Students' Satisfaction with Respect to their Characteristics

Research students' satisfaction with respect to their characteristics (Enrolled University; Research Setting; Financial Resources; Employment Status; Working Organization) has been analyzed by using chi-square test. The chi-square test is used for categorical data analysis if the probability-value is larger than 0.05 it shows similarity between categories and if the probability-value is less than 0.05, it shows the difference between the categories [20].

The result shows that there is a significant difference in research students' experiences within the three universities of Jamshoro Education City showing p-value <0.05 in all service factors included in cluster 1(university policies) except (C1-F6) service factor. Satisfaction of research students related to cluster 2 (university services) shows differences in (C2-F3), (C2-F4), (C2-F9), (C2-F10), (C2-F11) and (C2-F12) at

significant p-value of <0.05. While differences were not observed at a significant level between students' satisfaction within (C2-F1), (C2-F2), (C2-F5), (C2-F6), (C2-F7) and (C2-F8) service factors. Differences between research students' experiences related to service factors included in cluster 3 (role of supervisor) have been observed at significant p-value of <0.05 related to (C3-F2) and (C3-F4), while experiences related to (C3-F1), (C3-F3) and (C3-F5) service factors are not showing differences within the services of universities in Jamshoro Education City, results are shown in Table 4.

Research students work on their research with different research settings, as (lab based, library based, field based) with respect to this characteristic students' experiences are showing significant differences with p-value <0.05 in universities performance related to service factors of C1 and C2 excluding, (C1-F3), (C1-F4), (C1-F5), (C2-F6), (C2-F8), (C2-F9) and (C2-F11). All factors included in C3 related to role of supervisor shows difference between students' experiences.

TABLE 4. RESEARCH STUDENTS' EXPERIENCES WITH RESPECT TO THEIR CHARACTERISTICS

Cluster-Factor	Enrolled University		Research Setting		Financial Resources		Employment Status		Working Organization	
	Chi-Square Value	Probability Value	Chi-Square Value	Probability Value	Chi-Square Value	Probability Value	Chi-Square Value	Probability Value	Chi-Square Value	Probability Value
C1-F1	20.997	0.007	40.104	0.000	14.744	0.256	22.051	0.005	7.629	0.470
C1-F2	42.217	0.000	36.837	0.001	56.588	0.000	16.505	0.036	14.40	0.155
C1-F3	23.309	0.003	11.693	0.471	20.302	0.062	12.464	0.132	13.29	0.102
C1-F4	29.086	0.000	7.362	0.833	15.948	0.194	8.516	0.385	16.23	0.039
C1-F5	15.626	0.048	13.333	0.345	8.405	0.753	17.126	0.029	5.869	0.662
C1-F6	9.235	0.323	35.977	0.000	7.247	0.841	11.153	0.193	9.423	0.308
C1-F7	26.417	0.001	17.337	0.137	14.90	0.247	19.014	0.040	25.20	0.005
C1-F8	21.429	0.018	35.973	0.002	24.41	0.058	15.985	0.043	15.07	0.129
C1-F9	21.738	0.016	43.187	0.000	47.88	0.000	14.209	0.076	21.40	0.018
C1-F10	33.518	0.000	24.774	0.053	63.91	0.000	22.135	0.014	17.50	0.064
C2-F1	16.005	0.099	37.378	0.001	42.12	0.000	21.682	0.017	10.80	0.373
C2-F2	15.123	0.128	40.104	0.000	25.09	0.049	37.041	0.000	34.87	0.000
C2-F3	19.051	0.040	33.149	0.004	49.52	0.000	41.275	0.000	30.40	0.001
C2-F4	40.126	0.000	28.960	0.016	50.32	0.000	16.956	0.075	17.69	0.060
C2-F5	16.969	0.075	20.539	0.152	30.15	0.011	30.604	0.000	14.07	0.170
C2-F6	14.950	0.134	28.300	0.020	28.84	0.017	13.494	0.197	14.97	0.133
C2-F7	16.710	0.081	21.293	0.128	22.18	0.103	16.018	0.099	10.79	0.374
C2-F8	18.208	0.052	16.749	0.334	32.46	0.006	21.018	0.007	18.19	0.020
C2-F9	36.385	0.000	36.294	0.000	18.79	0.093	8.461	0.584	15.15	0.126
C2-F10	23.979	0.008	14.595	0.481	32.77	0.005	16.381	0.089	17.17	0.071
C2-F11	34.820	0.000	24.607	0.055	26.19	0.036	16.813	0.079	9.393	0.495
C2-F12	24.807	0.016	24.363	0.059	32.65	0.005	12.339	0.137	5.658	0.685
C3-F1	6.578	0.583	27.728	0.006	7.407	0.830	20.156	0.028	22.37	0.013
C3-F2	23.110	0.010	56.535	0.000	26.68	0.031	17.537	0.063	10.97	0.360
C3-F3	9.869	0.452	30.43 <sup>a</sup>	0.010	26.40	0.034	23.785	0.008	20.55	0.024
C3-F4	25.063	0.005	48.52 <sup>a</sup>	0.000	18.17	0.254	11.759	0.302	10.70	0.381
C3-F5	13.198	0.213	80.287	0.000	21.02	0.000	9.700	0.008	22.57	0.000

The selected sample of research students comprised of different demographic groups, as the enrollment in three different universities, lab based; library based; field based research setting, research degree financed by self; family; and through scholarship programs, Both employed and unemployed status of research students, some research students were employee of universities and others were belonging to industries and government and non-government organizations. Difference between students' satisfaction with respect to their characteristics has been also identified, which shows that policies of universities are not facilitating equally to all group of research students.

## **10. RECOMMENDATIONS**

- Universities may monitor and evaluate their performance regularly and achieve satisfaction for degree completion of research students by using the SDC framework to increase the rate of degree completion by satisfying their customers.
- Universities improve their services to come up at most satisfaction level of research students. Financial problems faced by research students can be solved by getting funds from different sources, because, non-availability of public funds has been creating bottlenecks in achievement of education programs.
- Industries are directly related to the higher education, industries can increase their capabilities and produce innovative products and can generate new innovative ideas by making direct linkages with universities because, Industries and other organizations are dependent on higher education institutions for human resources.
- Transfer of knowledge can be enhanced by providing financial support required for new research projects within the universities.
- Industries and organizations must offer direct support by making linkages for transfer of knowledge and can hire research students at internship offering benefits for work experience and availability of research services.

Variations have been identified in the experiences of research students who have different financial resources (self-financing, family, scholarship) for their degrees particularly (C1-F2), (C1-F9) and (C1-F10) service factors. In context of university service factors related to cluster 2, all factors, show variation at significant level within students' experiences except

(C2-F7) and (C2-F9). From the service factors related to role of supervisor (C3-F2), (C3-F3) and (C3-F5) shows differences within students' experiences in the universities at Jamshoro Education City.

The employment status of research students also shows variation at significant level within universities' performance. The research results identify variations except in (C1-F3), (C1-F4), (C1-F6) and (C1-F9) service factors in cluster 1 (C1). From cluster 2 (C2) group of service factors such as (C2-F1), (C2-F2), (C2-F3), (C2-F5) and (C2-F8), in context of cluster 3 all factors are showing differences at  $<0.05$  p-value except (C3-F4).

Experiences of research students working in different organizations (universities, industries, others) are also showing difference at p-value  $<0.05$  in the three service clusters, (C1-F7), (C1-F9), (C2-F2), (C2-F3), (C2-F8), (C2-F10), (C3-F1), (C3-F3) and (C3-F5) in universities of Jamshoro Education City.

## **9. CONCLUSIONS**

This research has presented different service factors required to satisfy the research students. The service factors identified from literature review and interviews have been examined through survey questionnaire. Another aim of research was to examine service quality of universities at Jamshoro Education City by proposing SDC framework.

The service factors related to research students' satisfaction for degree completion have been identified from review of literature and interviews, which were grouped together in three clusters (University Policies, University Services, Role of Supervisor). Universities consider these, and improve their performance to improve the service quality for satisfaction of research students. Research shows that from the all 27 service factors fees structure and other financial cost of research degrees are at the rate of students' affordability. While the quality of classrooms is inadequate upto the students' expectations.

Comparison of three service clusters also identifies variations in the services of three selected universities; according to opinions of research students, the provision and support of a supervisor is the most satisfying experience than the factors included in university infrastructure and university policies, in the universities of Jamshoro education city.

## 11. FUTURE WORK

This research covers the basic information related to research students' satisfaction for degree completion areas in universities of Jamshoro education city, however further work is required to be done on the different related issues:

- (i) In future researcher can apply the proposed SDC framework in different postgraduate academic sessions in the universities to find the required needs of students.
- (ii) Comparative analysis can be done between public and private universities/degree awarding institutes by examining their service quality both at graduate and postgraduate level of education.
- (iii) Future research can examine the impact of industrialization, organizational policies of recruitment and job upgradation policies, on the growth of higher education at postgraduate degree level.

## ACKNOWLEDGMENT

The authors acknowledge the support of all administrative staff of Universities in Jamshoro education city for providing the required data. The authors would also like to thank all respondent research students for their kind cooperation.

## REFERENCES

- [1] Hameed, A., and Amjad, S., "Students' Satisfaction in Higher Learning Institutions: A Case Study of COMSATS Abbotabad, Pakistan", *Iranian Journal of Management Studies*, Volume 4, No.1, pp. 63-77, 2011.
- [2] Lashari, J.H., Bhutto, A., and Abro, Q.M.M., "Timely Postgraduate Degree Completion, A Case Study of Jamshoro Education City", *Mehran University Research Journal of Engineering & Technology*, Volume, 32, No. 1, Jamshoro, Pakistan, January, 2013.
- [3] Athiyaman, A., "Linking Student Satisfaction and Service Quality Perception: The Case of University Education", *European Journal of Marketing*, Volume 31, No. 7, pp. 528-540, 1997.
- [4] Butt, B.Z., and Rehman, K., "A Study Examining the Students Satisfaction in Higher Education", *Procedia Social and Behavioral Sciences*, Volume 2, pp. 5446-5450, 2010.
- [5] Brooks, M., "Evaluating the 'Student Experience: An Approach to Managing and Enhancing Quality in Higher Education", *Journal of Hospitality, Sport and Tourism Education*, Volume 2, No. 1, pp. 17-26, 2003.
- [6] Higher Education Commission of Pakistan, [www.hec.gov.pk](http://www.hec.gov.pk), Accessed on 2013.
- [7] Yarmohammadian, M. H., Mozaffary, M., and Esfahani, S.S., "Evaluation of Quality of Education in Higher Education Based on Academic Quality Improvement Program (AQIP) Model", *Procedia Social and Behavioral Sciences*, Volume 15, pp. 2917-2922, 2011.
- [8] Hamerstedt, R. H., and Blachb, E.L., "Commercialization of Basic Research from within the University and Return of Value to the Public", *Animal Reproduction Science*, Volume,105, pp. 158-178, 2008.
- [9] Lashari, J.H., "A Framework for Identifying Satisfaction and Degree Completion of Postgraduate Students, A Case Study of Jamshoro Education City", M.Sc., Thesis, Mehran University of Engineering & Technology Jamshoro, Pakistan, 2012.
- [10] Oliveira, O.J.D., and Ferreir, E.C., "Adaptation and Application of the SERVQUAL Scale in Higher Education", *POMS 20th Annual Conference*, pp. 1-20, Orlando, Florida, USA, 2009.
- [11] Ardakani, F.B., Yarmohammadian, M.H., Abari, A.A.F., and Fath, K., "Internationalization of Higher Education Systems", *Procedia Social and Behavioral Sciences*, Volume 15, pp. 169-1695, 2011.
- [12] Soutar, G., and McNeil, M., "Measuring Service Quality in a Tertiary Institution", *Journal of Educational Administration*, Volume 34, No. 1, pp. 72-82, 1996.
- [13] Mukhopadhyay, M., "Assessment of Institution: The Total Quality Management in Education", *SAGE Publication*, 2<sup>nd</sup> Edition, pp. 75-92, New Delhi, India, 2005.
- [14] Navarro, M.M., Iglesias, M.P., and Torres, P.R., "A New Management Element for Universities: Satisfaction with the Offered Courses", *International Journal of Educational Management*, Volume 19, No. 6, pp. 505-526, 2005.
- [15] Douglas, J., McClelland, R., and Devies, "The Development of a Conceptual Model of Student Satisfaction with Their Experience in Higher Education", *Quality Assurance in Education*, Volume 16 No. 1, pp. 19-25, 2007.
- [16] Voss, R., Gruber, T., and Szmigin, I., "Service Quality in Higher Education: The Role of Student Expectations", *Journal of Business Research*, No. 60, pp. 949-959, 2007.
- [17] Arambewela, R., "A Model of Student Satisfaction: International Post-Graduate Students from Asia", *European Advances in Consumer Research*, Volume 8, pp. 129-135, 2008.
- [18] Aldridge, S., and Rowley, J., "Measuring Customer Satisfaction in Higher Education", *Quality Assurance in Education*, Volume 6, No. 4, pp. 197-204, 1998.
- [19] Strauss, A., and Corbin, J., "Basics of Qualitative Research", *International Education and Professional Publisher*, Newbury, London, 1990.
- [20] Hinton, P.R., "Statistics Explained", 2<sup>nd</sup> Edition, *Routledge*, East Sussex, 2004.