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# A factor analysis approach to assess the students' perceptions towards most important factors leading to satisfaction towards B-Schools: A study limited to the management students of Jalandhar region of Punjab

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### ABSTRACT

Institutions of higher education are increasingly realizing that they are part of the service industry and are putting greater emphasis on student satisfaction as they face many competitive pressures. Due to intense competition in this field and specially in the B-Schools it become mandatory for the institutions to understand the students perceptions towards various factors that lead to a feeling of satisfaction among them and try to concentrate on the most important factors. The authors in this research article did a descriptive study to understand the students' perception towards the most important factors that develop a feeling of satisfaction among them. The research was done in Jalandhar district of Punjab on the students studying in various Management Colleges in the city. The convenience and snowball sampling technique was used to identify colleges and students respectively. The questionnaire method was used for collecting the data from the students. The total sample size was 100 out of which 80 questionnaires are used for analysis. The authors applied factor analysis to reach to a conclusion that Infrastructure, Faculty Knowledge and Understanding of Student Needs, Students Skills Development and Quality of Placement Activities are the major factors that lead to student satisfaction the most.

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### Introduction

Student satisfaction has been related to recruitment and retention and academic success [Athyaman, 1997; Elliott & Healy, 2001; DeShields et al., 2005; Helgesen & Nettet, 2007] which has lead university/college administrators to pay great attention to those factors that help them to more effectively attract students and create a supportive learning environment. Given the diversity of students' goals in pursuing a college degree and the variety of institutional missions, the challenge is to attract and retain those students that are best matched to the university's/college's capabilities and to develop competences at the university/college that will better serve the needs of diverse student populations. Administrators and educators also recognize that understanding the needs and wants of students and meeting their expectations are important to develop environments in which students can learn effectively [Seymour, 1993; Gerdes & Mallinckrodt, 1994].

Furthermore, psychologists have found that student satisfaction helps to build self-confidence, and that self-confidence helps students develop useful skills, acquire knowledge, and become more confident, in what may be described as a virtuous cycle. For example, Aitken (1982) found that academic performance is one of the most important factors in determining satisfaction, and Pike (1991) concludes that satisfaction exerts greater influence on grades than academic performance on satisfaction. According to Bandura [1977] and Schunk [1991], learners use self-regulatory self-efficacy influences choice, efforts, and volition. Successful students seem to have an ability to motivate themselves to complete a task, while less successful students have difficulty in developing self-

motivation skills (Dembo & Eaton, 2000). Many aspects of the total college experience contribute to a student's overall satisfaction as the university's product is the sum of the student's academic, social, physical, and spiritual experiences [Sevier, 1996]. Much of the research in this field has focused on identifying program or student characteristics that impact of satisfaction Grunewald and Peterson (2003), and Thomas and Galambos (2004) focused on faculty and department roles in shaping student satisfaction, concluding that department where faculty focus on research, students report higher levels of satisfaction.

### Literature Review:

#### *Student Satisfaction*

One of the most often quoted definitions of satisfaction is that offered by Hunt (1977, p.49): "Consumer satisfaction with a product refers to the favorableness of the individual's subjective evaluation of the various outcomes and experiences associated with buying it or using it". In the context of education, student satisfaction refers to the favorability of a student's subjective evaluations of the various outcomes and experiences associated with education (Oliver & DeSarbo, 1989). Since satisfaction is based on experience, student satisfaction is constantly being influenced by the students' overall experiences (Oliver, 1980) and, as Seymour (1993) noted, what happens to students in the classroom and with their academic choices is not independent of all other experiences on campus life and the combination of all experiences affects the overall satisfaction with the institution.

Parasuraman et al., (1985, 1988) developed an important framework for understanding customer satisfaction in services. Satisfaction is based on the disconfirmation of consumer

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expectations in what is commonly known as the Gap model or the ServQual model: satisfaction occurs when perceived performance meets or exceeds the student's expectations and dissatisfaction results when there is a negative gap between performance and expectations. These authors propose that satisfaction is based on the gaps alongside five dimensions of experience that are common to all services: assurance (i.e., courtesy, knowledge, trust), empathy (i.e., individual attention and caring), reliability (dependability and accuracy), responsiveness (i.e., promptness and accommodation), and tangibles (i.e., facilities, equipment, personnel). They also suggest that the formation of expectations is based on word of mouth (e.g., recommendations), needs, past experiences, formal communications from the organization to its customers (i.e., printed promises), and price (Zeithaml, 1993, 1996). The proponents of this approach argue that the ServQual model is eminently applicable to higher education and have designed measurement instruments adapted to this sector (e.g., Browne et al., 1998).

Another concept of satisfaction is related to Herzberg's two-factor theory of motivation (Herzberg et al., 1967) which propounds that factors that influence positive satisfaction (satisfiers or motivators) are different from factors that cause dissatisfaction (dissatisfiers or hygiene factors). Dissatisfiers are generally considered as factors that are part of the environment and largely under the control of someone other than the student, while satisfiers are part of the job and under the control of the self. Kano extended (1984) the dichotomy of satisfaction/dissatisfaction to three types of satisfaction. "Dissatisfiers" or "must-be" factors are those elements of the customer experience that meet the customer basic needs or assumptions and their absence or poor performance quickly causes dissatisfaction; "satisfiers" or "more is better" factors are those components that customers readily equate with satisfaction and with meeting reasonable expectations; "delighters" or "ah-hah" factors address needs that the customer was not conscious about or was not expecting.

Petruzzelli et al. (2006) proposed the following classification of satisfaction factors for the Italian higher education environment: a) "must be": tutoring, administrative services, contacts with staff and professors, library, teaching equipment, lecture halls, and laboratories; b) "more is better": scholarships, counseling, internships, educational offerings, internet access, refectories; and c) "delighters": career placement, leisure time, accommodations, international relations, language courses, online registration. While student satisfaction is considered a short-term attitude resulting from the student's educational experience, perceived quality is a general perception often affected by objective information and reputation and not necessarily tied to personal experience.

Two concepts of quality in higher education have been proposed by Rapert et al. (2004): process quality attributes and functional or outcome quality attributes. The former deals with how well services are provided, i.e., how well teaching and advising is performed, how hospitable the institutional climate is, and the like. The latter concept relates to how the outcome of the process helps the consumer to achieve other goals, i.e., the value of the education for career advancement or for attaining intellectual achievements. In their study of expectations of MBA students, Rapert and her colleagues differentiated between in-class quality attributes (intellectual growth, professionalism, specialized training, integration, teamwork, devoted instructors, and relationships with classmates and faculty) and outside-class

quality attributes (integration with business community, career preparation, availability of financial aid, and clarity of program goals) and found that most higher education satisfaction studies focus on process quality attributes, that is, on the delivery and operational aspects of the student educational experience. They pointed out that while student satisfaction, as measured by most instruments currently in use, is helpful in assessing the quality of the service delivery (process quality) it may not capture the quality attributes of the educational product offered by an institution (functional quality). For example, as found by Kotler and Fox (1995), most students are satisfied with their academic programs but less satisfied with support services such as academic advising and career counseling.

In what regards student confidence, Athiyaman (1997) noted that negative disconfirmation of a student's expectations produces short-term dissatisfaction focused on a specific transaction or experience (e.g., a bad class, an unpleasant exchange with a staff member or a classmate), and that dissatisfaction leads to attitudes and behaviors that are different from those derived from satisfaction. According to Bernstein et al. (1979), product service failures will generally be attributed to external causes, that is, the student might blame the professor, the university or the fellow student, while positive disconfirmations have a higher likelihood to be attributed to the self (i.e., I worked harder, I made a smart choice, or I am able to take it to the next level). On the one hand, positive satisfaction is expected to be associated with self-confidence in the short-term and only with perceived quality if positive satisfaction is prolonged, pervasive, and sustained. On the other hand, as suggested by Aldridge and Rowley (1998), dissatisfaction with one incident leads to dissonance and to complaints, while dissatisfaction with repeated incidents leads to disconfirmation (change of expectations and perceived quality), to disaffection and to withdrawal.

#### **Models of Student Satisfaction**

There are a number of models in the literature that attempt to relate student satisfaction with its antecedents as well as explain impact of satisfaction on other variables. Models vary greatly in terms of the number of variables considered and in terms of the methodologies used to quantify the strength and significance of the relationships. More importantly, the different approaches to modeling satisfaction reveal different underlying conceptions of the nature of customer satisfaction. Browne et al. (1998) tested the ServQual model using regression analysis in a study that included ServQual dimensions as well as curricular dimensions. Overall satisfaction was measured by three measures: global satisfaction, willingness to recommend, and perceived value of the program. The findings of this study suggest that there are different drivers of overall satisfaction depending on how this concept is presented and operationalized to the respondent.

Elliott and Healy (2001) used regression analysis to find that only five of the 11 factors proposed in the Noel-Levitz's Student Satisfaction Inventory (SSI) were significant in predicting overall satisfaction: centeredness, campus climate, instructional effectiveness, service excellence, and support services.

Mai [2005] compared student satisfaction between US and UK students with mixed results. He concluded that US students are in general more satisfied than college students in the UK but only four of the 19 variables used were significant in predicting overall student satisfaction. Elliott and Shin (2002) used the SSI and analyzed the top 20 educational attributes ranked by

students as being the most important to them. Of these, only the following were related to overall satisfaction: 1) excellence of instruction, 2) able to get the desired classes, 3) knowledgeable advisor, 4) knowledgeable faculty, 5) overall quality of instruction, 6) tuition is a worthwhile investment, 5) approachable advisor, 6) safe and secure campus, 7) clear and reasonable requirement for major, 8) availability of advisor, 9) adequate computer labs, 10) fair and unbiased faculty, and 11) access to information. These authors concluded that what students claim are important factors does not necessarily correspond to the drivers of overall satisfaction. For example, factors such as registration process, placement rate, and reasonable graduation time were highly rated in the importance scale but were not significant in predicting overall satisfaction. Conversely, three of the significant factors were actually rated at the bottom of the top twenty factors: ability to get desired classes, availability of advisor, and access to information.

Eom and Wen [2006] used path analysis and found significant correlations between satisfaction and six composite factors: student self-motivation, student learning style, instructor knowledge, instructor feedback, student interactions, and course structure.

Alves and Raposo (2007) used structural equation modeling to student satisfaction in Portugal and found significant relationships between seven constructs: institutional image, student expectations, perceived value, perceived quality, student satisfaction, word of mouth, and student loyalty. Student satisfaction is positively correlated with image, student expectations, perceived value and perceived quality and is a mediating factor influencing student loyalty and word of mouth.

Helgesen and Nasset (2007) used a similar approach to study student satisfaction at a university in Norway and found empirical evidence relating service quality, institutional information and guidelines, students' social interactions, satisfaction with facilities, and student commitment to student satisfaction. Student satisfaction has a strong positive influence on student loyalty and on institution reputation, which also impacts positively on loyalty.

DeShields et al. (2005) modeled student satisfaction according to Herzberg's two-factor theory, and split the sample of students in two groups—high satisfaction group and low satisfaction group—to test their model. They found that satisfaction with faculty and with advising act as "satisfiers" while the satisfaction with classrooms seems to be a "dissatisfier".

Emery (2006), Petruzzellis et al. (2006), Chen and Lee (2006), apply the Kano model of satisfaction in three different the university settings. The current study uses the UBEA student satisfaction instrument which embodies a simple approach to measuring satisfaction. All questions are framed in positive terms and importance ratings are not elicited.

Two of the most widely adopted instruments in higher education are the Student Opinion Survey (SOS) marketed by American College Testing (ACT), and the Student Satisfaction Inventory (SSI) developed by the Noel-Levitz consulting firm. Both instruments are comprehensive in nature in the sense that they are designed to assess enrolled students' satisfaction with core programs, support services, and many other aspects of their 'total' college experience. For example, the SOS measures the students' satisfaction with college services and programs, academic instruction, admissions, college rules and policies, facilities, registration, and the general student environment. Similarly, the SSI was developed to assess the following 12

dimensions: academic advising effectiveness, campus climate, campus support services, concern for the individual, instructional effectiveness, admissions and financial aid effectiveness, registration effectiveness, responsiveness to diverse populations, safety and security, service excellence, student centeredness, and campus life.

A recent newcomer into the field of student satisfaction assessment is Educational Benchmarking, Inc. (EBI), a company that is sponsored by the Association for the Advancement of Collegiate Schools of Business (AACSB). The instrument that EBI developed, the Undergraduate Business Exit Assessment (UBEA), was designed exclusively for business undergraduate programs and it has much narrower focus than those of SOS and SSI. The scope of UBEA is the academic business program only. The instrument includes 66 items that are exclusively concerned with different aspects of the academic experience in business, such as satisfaction with teaching in business courses, knowledge and skills that are important for a business career, and assistance in securing placement in an organization or graduate program. The benchmarking reports specify that the 66 items which comprise the instrument can be organized in 16 multi-item factors plus another 16 individual items that could not be aggregated into factors. The sixteen proposed factors are: 1) quality of faculty and instruction in required courses, 2) faculty responsiveness, grades, and student effort in required courses, 3) quality of faculty in major courses, 4) faculty responsiveness, grades, and student effort in major courses, 5) breadth of curriculum, 6) size of enrollments for required and major courses, 7) student organizations and extracurricular activities, 8) facilities and computing resources, 9) characteristics of fellow students, 10) placement and career services, 11) advisor, 12) effective communication and team work, 13) use and manage of technology, 14) effective management and leadership skills, 15) critical thinking and problem solving, and 16) overall program effectiveness. (Letcher).

*On the basis of the above literature and a series of discussions with the peer group the authors construct their own set of 17 variables to assess the student perception towards the most important factors of student satisfaction in B-Schools.*

### **Research Design**

The Research is descriptive in nature as the authors tried to find the most important factors that lead to satisfaction among the students studying in various B-Schools in Jalandhar at present thus hereby describing the behavior of their population under study. The study was limited to the PG (MBA) students of the Management Institutes of Jalandhar district of Punjab. The colleges and students were selected on the basis of Convenience & Snowball Sampling as all the colleges and students were selected from Urban Jalandhar areas which can be easily approached by the researcher either directly or through some reference. Total Sample size was 100, out of which 80 questionnaires are found to complete to be used for the analysis. The questionnaire method was used for collecting the data from the respondents and the questionnaires are filled by the students of the colleges under the study. The researchers also helped by their students in identifying & getting the questionnaires filled from their friends studying in various colleges under study. The Factor Analysis was applied for doing the data interpretation and analysis.

### **Interpretation & Data Analysis**

The researchers prepared a 17-item customized scale to measure the students' perceptions on the basis of extensive

literature review. And this scale consists of 5- point Likert scale (with 1=not important at all, 2=very less important, 3=average, 4=somewhat important, 5=very important). The questionnaire was administered to 100 students across the various management students studying in various management colleges of Jalandhar district of Punjab.

Out of the 80 respondents 65.0 per cent of them were female and 35.0 percent were male.

#### Factor analysis:

A principal components factor analysis with varimax rotation was performed on the 17 items that assessed the perceived most important factors deciding the satisfaction towards a B-School. The statistical test result (KMO =0.792, Bartlett's Test of Sphericity 1.053E3, Significance 0.000) indicated that the factor analysis method was appropriate. The 17 items were reduced to four factors with Eigen values greater than 1.0, which were retained for subsequent analysis. The resultant factor structure explained 74.776 of the item variance. The four factors and the loadings are listed in Table 1. The overall reliability of this construct was acceptable (Cronbach's coefficient alpha = 0.589), while the reliability coefficients for five factors ranged from 0.837 to 0.900 indicating good internal consistency among the items of each dimensions. (Table 1)

Factor 1, which was labeled as **'Infrastructure'**, was composed of five items (Coefficient alpha = 0.900) and accounted for 38 percent of the variance. This factor was dominated by items such as Class Rooms, Availability of Internet, Transportation, Library, and Internet. (Table 2)

Factor 2 comprised of six items that related to the **'Faculty Knowledge & Empathy towards Students'** (Coefficient alpha = 0.894) and accounted for an additional 14.8 percent of the variance. This factor was dominated by items such as Teachers Knowledge, Preparedness for Class, Quality of Examples in class, Understanding students Needs, Encouragement to students, Teachers getting Angry in Class. (Table 2)

Factor 3 was labeled as **'Student Skills Development'** that included three items (Coefficient alpha = 0.865). It accounted for the additional 12.7 percent of the total variance. The three items were Developing Students Analytical Skills, Communication skills, Students Club Activities.(Table 2)

Factor 4 was **'Quality of Placement'** that contain three items (Coefficient alpha = 0.837) namely Placement Assistance to students, Quality of companies visiting in the campus, no. of companies visiting. It accounted for the additional 9.2 percent of the variance. (Table 2)

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Factor	Label	Item	Factor Loading	% of Variance
1	<i>Infrastructure</i>	1. satisfaction with availability of Internet Facilities 2. satisfaction with availability of Transportation facilities 3. satisfaction with availability of library facilities 4. satisfaction with availability of computing facilities 5. satisfaction with the quality of class rooms	0.685 0.837 0.774 0.871 0.883	38%
2	<i>Faculty Knowledge &amp; Empathy towards Students</i>	1. Satisfaction with teachers Knowledge 2. satisfaction with teachers preparedness for their classes 3. satisfaction with the examples given by Teachers in the class 4. satisfaction with teachers frequently getting angry in the class 5. satisfaction with Teaching staff's sympathetic and supportive role of the needs of students 6. satisfaction with your teachers regarding encouragement to you to be an active learner	0.830 0.865 0.702 0.854 0.590 0.651	14.8%
3	<i>Student Skills Development</i>	1. satisfaction with the efforts made by the college for development of your communication skills 2. satisfaction with the efforts made by the college for development of your analytical ability 3. satisfaction in regards to the availability of Student organization/club activities in the college	0.921 0.762 0.898	12.7%
4	<i>Quality of Placement</i>	1. satisfaction with number of companies recruiting on campus 2. satisfaction with Quality of companies recruiting on campus 3. satisfaction in regards to the assistance in preparation for permanent job search by your college	0.848 0.813 0.932	9.2%

**Table 1 SPSS Output Rotated Component Matrix**Rotated Component Matrix<sup>a</sup>

	Component			
	1	2	3	4
clsroom	.883	-.171	.176	.125
clab	.871	-.235	.302	.084
net	.685	-.272	.287	.031
teachknow	-.189	.830	-.027	-.189
studentneed	-.623	.590	-.087	-.035
placemas	.077	-.037	.030	.932
transp	.837	-.073	.176	-.061
overallanalytical	.292	-.152	.762	.087
COMSKL	.214	-.066	.921	.030
tchrprpd	-.143	.865	-.002	-.011
no.ofcompanies	.079	-.064	.058	.848
libfacil	.774	-.113	.008	.049
qualcomp	-.017	-.097	-.016	.813
classexamp	.000	.702	-.118	.067
clubactivities	.097	.032	.898	-.029
tchrangry	-.254	.854	-.119	-.170
tchrencourage	-.456	.651	.093	-.076

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

**Table 2 SPSS Output Reliability Measure**

Case Processing Summary

		N	%
Cases	Valid	80	100.0
	Excluded <sup>a</sup>	0	.0
	Total	80	100.0

a. Listwise deletion based on all variables in the procedure.

**Table 3**

Reliability Statistics

Cronbach's Alpha	N of Items
.589	17