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Relationship between Student satisfaction and Academic Achievement in Distance Education: a Case Study of AIOU Islamabad

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This study was a descriptive-correlational study. It was designed for exploring relationship between student satisfaction and academic achievement of distance learners. The study was delimited to the learners of Master of Education (M.Ed) program at Allama Iqbal Open University Islamabad in core courses of Foundation of Education, Educational Research, Curriculum development and Instruction, and Education Psychology. Stratified random sample of 351 students was selected from the four provinces of Pakistan. Satisfaction of distance learners were measured by Student Satisfaction Survey developed by Strachota (2006). Major findings suggested that majority of the students were generally satisfied with learner-learner interaction, learner content interaction followed by learner technology interaction, and learner instructor interaction. Learner-content interaction and Learner-Instructor interaction were significant predictors of general satisfaction while Learner-learner interaction and Learner-technology interaction were not significant predictors of general satisfaction. Students' satisfaction and achievement were not significantly correlated. The study recommends improved student-teachers and student-student interaction and suggests arranging orientation- workshops regarding the distance learning programmes. Future studies may be conducted to reach a conclusive outcome. This study may be replicated using procedures that allow a higher degree of randomization with other programs and settings.

***Keywords**:* satisfaction, achievement, interaction, distance learners

Satisfaction is a function of level of expectation and performance (Kotler & Clarke, 1987). Cultural differences influence the level of students' satisfaction regarding their perception of the services (Tian & Wang, 2010). Student satisfaction and success with distance learning program can be fostered by a framework which supports learning (Gallogly, 2005).The level of student satisfaction is the margin between level of anticipation and actual results. Students' satisfaction is a result of accomplishment and enjoyment and is, thus, "an enjoyable and a successful experience" (Sinclaire, 2011, p.4).

According to McQuillan and James (2010), student satisfaction is a measure of the quality of an educational program and is considered as a significant factor to course completion. In a majority of cases, students in tertiary education programs leave their study because of the dissatisfaction with their courses. Student satisfaction builds self-confidence which helps students become more confident, develop useful skills, and acquire knowledge in a virtuous cycle. Students' experiences on campus life and the combination of all experiences affect the overall satisfaction with the institution (Letcher & Neves, 2010).Successful and innovative institutions try to improve satisfaction because they realize its value in enhancing their images and increasing student retention.

Study of student satisfaction in distance learning environment has generated interest because of its influence on the effectiveness of teaching and instructional materials. Relationship between satisfaction and academic achievement of distance learners need further exploration in Pakistani context as the instructors, the course designers, and the students need further knowledge of these areas and it can also help universities to improve their distance learning programs.

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Distance learning is expanding and it is important to study student satisfaction with distance learning programs and how these relate to their academic achievement. When a learner converts from the traditional face-to-face course to a distance learning program, changes should be made to engage the learners for improved performance. This study is significant for instructors working in distance education programs to determine what aspects of distance learning programs lead to learner satisfaction.

According to Gallogly (2005), understanding student satisfaction can enhance the ability of universities to make informed decisions about improving distance learning programs. According to Khiat (2013) understanding learning satisfaction is important as it provides a starting point to improve student learning. Ali and Ahmad (2011) have identified three important factors which affect student satisfaction including instructor performance, student-Instructor interaction, and course evaluation. Carroll (2008) found that combination of institutional, situational, and dispositional factors influence the retention and progression of distance education students.

This study is significant to determine what aspects of distance learning programs lead to learner satisfaction. Educators should understand students' satisfaction to improve teaching-learning process and achieve better students' performance and retention. It would enable the educators to channel the teaching methods and approaches and can enhance the ability of universities to make informed decisions about improving distance learning programs

Literature Review

The expansion of distance education has given rise to the need for determining and maintaining quality in designing, developing, and delivering in distance education with special regard to students' satisfaction. According to Merisotis and Olsen (2000),broad measures of effectiveness of distance education program include:

- Student outcomes, such as grades and test scores,
- Student attitudes about learning through distance education, and
- Students' overall satisfaction

Assessment of satisfaction provides information that can be utilized for the betterment of learning environment. Service quality in education is based on students overall evaluation of services they receive. Students are satisfied when the service provided fits their expectations; they are very satisfied when the service provided is beyond their expectations, or completely satisfied when they get more than they expect (Hanaysha, Abdullah, & Warokka, 2011).

Satisfaction includes issues of perception and experiences of students. Main factors that affect students' satisfaction are students' perception on learning and teaching, support facilities like libraries, computer and laboratories, and the overall learning environment. (Ilias, Hasan, Rahman, & Yasoa, 2008).Teaching learning related aspects are more important in student satisfaction than aspects related with physical facilities.

Douglas, Douglas, and Barnes (2006) found that the most important aspects relating to student satisfaction at a university were those associated with teaching and learning, while the least important were those associated with the physical facilities. Letcher and Neves (2010) stated that student satisfaction covers self-confidence; satisfaction with the curricular and co-curricular activities, satisfaction with instruction; satisfaction with student advising and feedback; and satisfaction with student quality and interaction.

Interaction and learner satisfaction

Interaction is a basic need for learning and is a driving force for persuading motivation and achievement of distance learners (Ali & Ahmad, 2011). Interaction is an important ingredient in education and focuses on the communication between instructor and student. Kuo (2010) has described the following types of interactions as important part of educational process.

1. **Learner-Instructor Interaction:** The amount and quality of interaction with instructor is a predictor of learner satisfaction. Learner-instructor interaction is a two-way communication between the instructor and learners and is a valuable part of the learning process. It can take many direct and indirect forms

such as instructors designing a course to increase motivation, guidance, support, and encouragement. Feedback is also important part of learner-instructor interaction and it ensures comprehension of content and also gives information to instructors about their performance in delivering course content.

2. **Learner-Learner Interaction:** Learner-learner interaction involves communication between learners. It is valuable and essential ingredient of learning. It enables the students to exchange ideas and get feedback from others. It gives students deeper understanding and motivation, and increases intellectual accomplishment. Proper learner-learner interaction enables students to develop concepts, share ideas and experiences with each other, exposes them to other cultures and enriches their experiences.

3. **Learner-Content Interaction:** learner-content interaction refers to the process of learners elaborating and reflecting on the course content. Learner-content interaction enables learners to organize, elaborate, and reflect on the knowledge they gain by integrating previous knowledge.

   According to Noyes (2008), learners need to interact with the content and peers for learning. Assignments should involve interactive and collaborative activities like case study, discussion questions, role playing, group assignments, and peer review. Student learning can be improved with continuous learner-content interaction.

4. **Learner-Technology Interaction:** Students need to be made comfortable with the technology which is being used in the course and it can affect learners' success and satisfaction with the course. Learners need to have the motivation to learn about the required technology and should be made aware of the technological requirements at the beginning of the course. Such technology may include PowerPoint presentations, audio or video conferencing, audio or video clips, and online lectures etc. When deciding about the use of technologies it is important to determine how it will affect the course and the learners as all the learners may not have adequate access to the technology.

Noyes (2008) revealed that all four constructs of interaction were significant predictors of learner satisfaction and can be used to measure learner satisfaction. Instructors should understand the diverse nature of students learning style, involve them in the learning process and encourage student-student interactions. Various research studies have been conducted on students' satisfaction and achievement.

Researches about Student Satisfaction and Achievement

Studies about student satisfaction with distance-learning courses have given inconsistent results. Some studies have shown comparable satisfaction in distance-learning courses while others argued that the distance learning might not be satisfying to students. Students with higher levels of satisfaction show considerably higher levels of learning than students with low level of satisfaction (Allen, Bourhis, Burrell, & Mabry, 2002).

Kamemera, Rueben and Sillah (2003) reported that student satisfaction with learning environment and student services was correlated with their performance. Walls (2009) found a positive relationship between satisfaction and achievement. Similarly Bordelon (2013) established that student-instructor interaction, student-content interaction, or student-student interaction were positively related with perceived achievement and student satisfaction. Student-instructor interaction and student-content interaction had influence on student achievement and satisfaction. Furthermore *Khiat (2013) found* a significant relationship between academic achievement and learner satisfaction.

Kirmizi (2014) studied correlation among six psycho-social scales namely instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy. He found a moderate level of correlation among the variables of the study. The predictors of student satisfaction were instructor support, authentic learning, and personal relevance, whereas the only strong predictor of academic success was authentic learning. Similarly Yu (2015) concluded that satisfaction was positively correlated with interaction, self-efficacy and self-regulation without significant gender differences.

Choy and Quek (2016) examined the relationships among students' perceived teaching element, social element, cognitive element, satisfaction, continuous academic-related online performance, and academic achievement using a revised form of the CoI survey instrument. They found a relationship among the three elements of the CoI framework (i.e., social, teaching, and cognitive) and students' satisfaction and academic achievement). The cognitive element had a direct relationship with continuous academic-related online performance and satisfaction.

Dryden, Webster, and Fraser (2010) maintained that achievement was not related to satisfaction with learning except for students with the highest satisfaction ratings. Learning was most effective with high satisfaction, high cohesion, and low friction. The review of literature showed mixed relationship of satisfaction and achievement in a distance-learning environment.

Method

This was a correlational research designed for exploring relationship between the variables.

Objectives of the Study

. The main objectives of the study were;

- To explore the predictors of satisfaction of distance learners.
- To assess the relationship between satisfaction and achievement of distance learners.

Hypotheses of the Study

The following were the hypotheses of the study.

Ho. There is no significant relationship between satisfaction and achievement of distance learners.

H1. There is a significant relationship between satisfaction and achievement of distance leaners.

Population and sample

The population for this study was students of M.Ed programme of Allama Iqbal Open University Islamabad. The population at the time of study was 3529 in the four core courses of the program namely Foundation of Education, Educational Research, Curriculum Development and Instruction, and Educational Psychology.

Stratified random sampling procedure was adopted for the study. According to Gay (2000, p.125) for a population of 4000 appropriate sample size is 351,therefore, the same number of 351 students was selected as sample for the purpose of study keeping in view at least 10% selection of sample. The detail of population and sample is presented as follows

Table 1

Population and sample

	Province	District	Population	Sample
1	Punjab	Rawalpindi	1175	117
		Dera Ghazi Khan	1093	109
2	Sindh	Karachi	112	11
		Thatta	60	06
3	Khyber Pakhtubkhwa	Abbotabad	497	49
		Swat	414	41
4	Baluchistan	Quetta	106	11
		Kallat	72	07
		Total	3529	351

Instrumentation

Satisfaction of distance learners was measured by using Student Satisfaction Survey developed by Strachota (2006) on a 5 point Likert scale and is based on sound theoretical basis and benchmarks to assess learners' satisfaction. The survey consisted of the following broad areas

1. Learner-Content Interaction,

2. Learner-Instructor Interaction,
3. Learner-Learner Interaction,
4. Learner-Technology Interaction, and
5. General Satisfaction

Strachota (2003) had reported that Factor loading for learner-content interaction ranged from 0.604 to 0.780; Factor loading for learner-instructor interaction ranged from 0.594 to 0.841; and Factor loading for learner-learner interaction ranged from 0.588 to 0.786, which represent good internal validity.

A pilot test of the adapted instrument was conducted with 40 randomly selected students as a small-scale trial to assess the adequacy of the instruments. Item Analysis was used to pilot test data for establishing reliability and construct validity. The researcher also calculated Cronbach's alpha to determine the internal consistency of the instrument and it gave the following results.

Table 2

Cronbach alpha forStudent Satisfaction Survey

		M	*SD*	Alpha
1	Learner- Content Interaction	25.28	3.27	0.736
2	Learner-instructor interaction	19.40	3.42	0.766
3	Learner-learner interaction	25.10	3.27	0.735
4	Learner- technology interaction	20.85	3.17	0.704
5	General satisfaction	30.00	5.98	0.828
	Satisfaction inventory	120.62	13.04	0.874

The score of the students of M.Ed. Program in the first semester were treated as achievement of the students.

A total of 351 questionnaires were sent under postal certificate out of which 283 questioners were received back.Data were analyzed using descriptive statistics such as Mean, Standard deviation, while Pearson Product Movement Coefficient of Correlation and Regression analysis were used to determine association and prediction.

Major Findings, Analysis And Interpretation of Data

Descriptive statistics Mean, Standard Deviation, Rank, and Pearson Product Movement Coefficient of Correlation were used for analysis and interpretation of data. Regression analysis was used to predict the strength of the relationship between dependent variable and independent variables. IBM SPSS statistics 21 for Windows and Microsoft's Excel 2007 professional were used for statistical analyses.

Table 3

Descriptive statistics of Student Satisfaction Survey

S.No	Nature of interaction	*M*	*SD*	Rank
1	Learner Content interaction	25.01	2.894	3
2	Learner Instructor interaction	18.98	3.377	5
3	Learner-learner interaction	25.27	2.874	2
4	Learner technology interaction	19.79	3.273	4
5	General Satisfaction	30.47	5.526	1

Table 3 shows that a majority of the students had general satisfaction with the course (*M*=30.47, *SD*=5.53, *R*=1) followed by satisfaction with learner-learner interaction (*M*=25.27, *SD*=2.87, *R*=2). Satisfaction with Learner-Content interaction was ranked 3 with*M*=25.01, *SD*=2.89. It is followed by satisfaction with Learner-

Technology interaction (*M*=19.79, *SD*=3.27, *R*=4), while satisfaction with Learner-Instructor Interaction is ranked 5 with *M*=18.98 and *SD*=3.38.

Table 4
Relationship between learner satisfaction and achievement

		Test Score	1	2	3	4	5
	Test Score		-.054	-.083	.015	-.034	-.043
1	Learner content interaction			.390*	.322*	.140*	.467*
2	Learner Instructor interaction				.529*	.176*	.539*
3	Learner-learner interaction					.096	.303*
4	Learner Technology Interaction						.126*
5	General Satisfaction						

p<0.05

The bivariate results, presented in Table 4 indicated that learner content interaction was positively and significantly correlated with Learner-instructor interaction (*r*=0.390*, p*<0.05), Learner-learner interaction (*r*=0.322, *p*<0.05), Learner-technology interaction (*r*=0.140,*p*<0.05), and general satisfaction (*r*=0.467, *p*<0.05). Similarly Learner Instructor interaction was positively correlated with Learner-learner interaction (*r*=0.529, *p*<0.05), Learner-technology interaction (*r*=0.176,*p*<0.05), and General Satisfaction (*r*=0.539, *p*<0.05). Furthermore, Learner-learner interaction was not correlated with Learner-technology interaction but was positively correlated with general satisfaction (*r*=0.303, *p*<0.05). Learner-technology interaction was significantly correlated with general satisfaction (*r*=0.126, *p*<0.05).

Analysis of data in the table 4showed that students' satisfaction and achievement were not correlated. Therefore, research hypothesis that there is a significant relationship among satisfaction, learning styles and achievement of distance learners was rejected and null hypothesis was accepted.

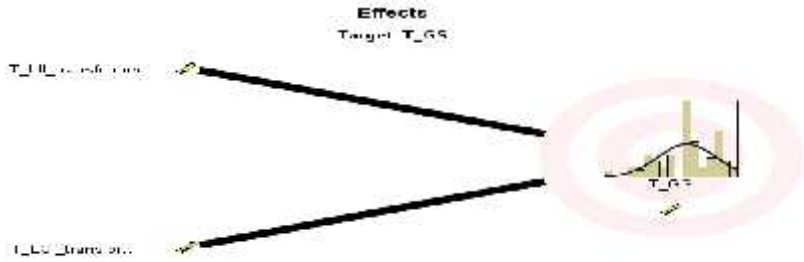
Table 5
Coefficients showing predictability of general satisfaction through components of satisfaction

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.350	3.091		1.084	.280
	Learner-content interaction	.583	.100	.306	5.822	.000
	Learner-Instructor interaction	.705	.096	.431	7.328	.000
	Learner-learner interaction	-.046	.109	-.024	-.420	.675
	Learner-technology interaction	.015	.082	.009	.187	.852

a. Dependent Variable: General Satisfaction

p<0.05

Table 5 showed that Learner-content interaction was statistically significant predictor of students' general satisfaction (*β*=0.306, *p*<0.05). Similarly Learner-instructor interaction was statistically significant predictor of general satisfaction (*β*=0.431, *p*<0.05), while Learner-learner interaction was not statistically significant predictor of general satisfaction (*β*=-0.024, *p*<0.05), similarly Learner-technology interaction was not statistically significant predictor of general satisfaction (*β*=-0.009, *p*<0.05). Automatic linear modeling generating the following model.



The model showed that significant predictor of student's general satisfaction were learner-content interaction (β=0.306, p<0.05) and Learner-instructor interaction (β = 0.431, p< 0.05).

Discussion

In order to design distance programs or courses to meet the needs and satisfaction of distance students, it is necessary to investigate the characteristics of concerned learners. The type of students in the course may also be important as some students might not have the exposure to compensate for a lack of face to face interaction with the instructor especially when they are enrolled in distance learning programs for the first time.

The finding of this study that students' satisfaction and achievement were not correlated was in line with Dryden, Webster, and Fraser (2010) who reported that achievement was not related to satisfaction. The finding is in contrast with Wells (2009) and Bordelon (2013) who reported a positive relationship between satisfaction and achievement. A reason behind it may be cultural differences in students satisfaction that determine learning approaches (Zhu, 2012), and also due to antecedent factors like service performance, university performance, relationships and university standing (Mustafa, Basri, &Abidin et.al,2012). Although satisfaction was not directly related to achievement, it is a sign of trust and confidence in the system and its importance cannot be denied.

Students' satisfaction can be determined from the level of pleasure and effectiveness of the education that they receive, and is effected by various factors like interaction with faculty, organization of courses, and impacts student retention. It includes issues related to perception and experiences of students and is shaped by repeated on campus experiences (Ilias, Hasan, Rahman, & Yasoa, 2008). Variables like motivation, interaction with staff and students, and content delivery also predict student satisfaction (Kelsey, Lindner, & Dooley, 2002). Students' satisfaction studies have enabled universities to improve policies, procedures and practices to enhance the quality of their provision.

Teachers need to continuously examine educational process through observation, feedback, and reflection, and develop proper interaction with students thus increasing educational outcomes and satisfaction.

Conclusions

Students had general satisfaction with the course followed by satisfaction with learner-learner interaction, learner content interaction, followed by satisfaction with learner technology interaction, and satisfaction with learner instructor interaction.

1. Learner-content interaction and Learner-Instructor interaction were significant predictors of general satisfaction while Learner-learner interaction and Learner-technology interaction were not significant predictors of general satisfaction.
2. It was concluded that students satisfaction and achievement were not statistically significant correlated

Recommendations

1. Interaction may be ensured to enhance achievement of intended learning outcomes. Learners may be encouraged to increase interaction with other learners.

2. Steps may be taken to increase and ensure the use of technology in distance learning. Distance learning tutors should be trained for better interaction and communication with students.

This study may be replicated using a higher degree of randomization and may be repeated for other programs/courses and in different distance-learning contexts to determine any difference between satisfaction of students with the course and instructor-related questions.

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